



Completion Report

Project Number: 35314
Loan Number: 1950
June 2008

Pakistan: Punjab Community Water Supply and Sanitation Sector Project

CURRENCY EQUIVALENTS

Currency Unit – Pakistan rupee/s (PRe/PRs)

		At Appraisal (30 September 2002)	At Project Completion (30 June 2007)
PRe1.00	=	\$0.01667	\$0.0160
\$1.00	=	PRs60.00	PRs60.88

ABBREVIATIONS

CBO	–	community-based organization
CCB	–	citizen community board
CDU	–	community development unit
EA	–	executing agency
EIRR	–	economic internal rate of return
HUD&PHED	–	Housing, Urban Development and Public Health Engineering Department
IEE	–	initial environmental examination
M&E	–	monitoring and evaluation
MFI	–	microfinance institution
MIS	–	management information system
MOU	–	memorandum of understanding
O&M	–	operation and maintenance
PC-I	–	Planning Commission Proforma-I
PHED	–	Public Health Engineering Department
PIC	–	project implementation cell
PIU	–	project implementation unit
PMU	–	project management unit
PPMS	–	project performance management system
PSC	–	project steering committee
SIRC	–	subproject implementation review committee
SUPER	–	social uplift and poverty eradication
TMA	–	tehsil municipal administration
UC	–	union council
WAPDA	–	Water and Power Development Authority
WSS	–	water supply and sanitation

NOTES

- (i) The fiscal year (FY) of the Government of Pakistan and the provincial government ends on 30 June. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2007 ends on 30 June 2007.
- (ii) In this report, "\$" refers to US dollars.

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BASIC DATA

A. Loan Identification

1.	Country	Pakistan
2.	Loan Number	1950
3.	Project Title	Punjab Community Water Supply and Sanitation Sector Project
4.	Borrower	Islamic Republic of Pakistan
5.	Executing Agency	Housing, Urban Development and Public Health Engineering Department, Punjab
6.	Amount of Loan	SDR37,885,000
7.	Project Completion Report Number	PCR: Pak 1025

B. Loan Data

1.	Appraisal	Waived
	– Date Started	
	– Date Completed	
2.	Loan Negotiations	
	– Date Started	23 October 2002
	– Date Completed	25 October 2002
3.	Date of Board Approval	28 November 2002
4.	Date of Loan Agreement	23 January 2003
5.	Date of Loan Effectiveness	
	– In Loan Agreement	23 April 2003
	– Actual	29 April 2003
	– Number of Extensions	1
6.	Closing Date	
	– In Loan Agreement	30 June 2007
	– Actual	30 June 2007
	– Number of Extensions	0
7.	Terms of Loan	1% per annum during grace period, and 1.5% per annum thereafter
	– Interest Rate	
	– Maturity (number of years)	32 years
	– Grace Period (number of years)	8 years
8.	Terms of Relending (if any)	1% per annum during grace period, and 1.5% per annum thereafter
	– Interest Rate	
	– Maturity (number of years)	32 years
	– Grace Period (number of years)	8 years
	– Second-Step Borrower	Government of Punjab
9.	Disbursements	
a.	Dates	
	Initial Disbursement	Final Disbursement
		Time Interval
	30 June 2003	6 December 2007
		53 months, 6 days

Effective Date

29 April 2003

Original Closing Date

30 June 2007

Time Interval

50 months, 2 days

b. Amount (SDR)

Category or Subloan	Original Allocation	Last Revised Allocation	Amount Canceled	Net Amount Available	Amount Disbursed	Undisbursed Balance
Civil Works	27,444,000	26,826,000	618,000	26,826,000	26,796,800	29,200
Equipment	4,395,000	6,335,000	(1,940,000)	6,335,000	4,864,547	1,470,453
Hygiene Education	379,000	58,000	321,000	58,000	57,522	478
Institutional Support	1,515,000	489,000	1,026,000	489,000	409,019	79,981
Consulting Services	1,349,000	1,016,000	333,000	1,016,000	887,348	128,652
Incremental Admin. Costs	1,515,000	2,304,000	(789,000)	2,304,000	2,821,021	(517,021)
Social Uplift and Poverty Eradication Program	455,000	24,000	431,000	24,000	23,315	685
Interest During Construction	833,000	833,000	0	833,000	584,791	248,209
Total	37,885,000	37,885,000	0	37,885,000	32,840,000	1,440,637

10. Local Costs (Financed)
- Amount (\$)
 - Percent of Local Costs
 - Percent of Total Cost

37,135
90.5
69

C. Project Data

1. Project Cost (\$ '000)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	13,600	16,746
Local Currency Cost	57,800	61,431
Total	71,400	78,177

2. Financing Plan (\$ '000)

Cost	Appraisal Estimate	Actual
Implementation Costs		

Borrower Financed	16,800	19,529
ADB Financed	48,900	53,010
Other External Financing (beneficiaries)	4,600	4,767
Total	70,300	77,306
IDC Costs		
Borrower Financed	0	0
ADB Financed	1,100	871
Other External Financing	0	0
Total	71,400	78,177

ADB = Asian Development Bank, IDC = interest during construction.

3. Cost Breakdown by Project Component (\$ '000)

Component	Appraisal Estimate	Actual
Part A: Water Supply and Sanitation		
Civil Works	54,500	63,946
Equipment and Materials	5,800	7,186
Part B: Hygiene Education Program	500	86
Part C: Institutional Strengthening and Capacity Building		
Institutional Support	3,000	590
Consulting Services	1,780	1,306
Incremental Administrative Expenses	4,120	4,157
Part D: Social Uplift and Poverty Eradication	600	35
Subtotal	70,300	77,306
Interest During Construction	1,100	871
Total	71,400	78,177

4. Project Schedule

Item	Appraisal Estimate	Actual
Date of Contract with Consultants	-	November 2003
Commencement of Consultants' Work	-	December 2003
Completion of Consultants' Work	June 2007	June 2007
Start of Engineering Designs	April 2003	April 2003
Completion of Engineering Designs	December 2006	December 2006
Civil Works Contract		
Award of First Contract	April 2003	September 2003
Award of Last Contract	-	December 2006
Completion of First Contract	-	December 2003
Completion of Last Contract	December 2006	June 2007
Equipment and Supplies		
Dates		
First Procurement	-	September 2003
Last Procurement	-	March 2007
Completion of Equipment Installation	-	May 2007
Start of Operations		
Completion of Tests and Commissioning	-	September 2007
Beginning of Start-Up	-	December 2003

- = not available

5. Project Performance Report Ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From 28 November 2002 to 30 March 2003	S	S
From 29 April 2003 to 30 May 2003	S	HS
From 29 June 2003 to 30 June 2007	S	S

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members ^a
Inception	24 February 2003	2	12	a, b
Review 1	4 August 2003	1	5	a
Review 2	10 November 2003	1	5	a
Review 3	7 December 2003	1	6	a
Review 4	21 June 2004	1	6	a
Review 5	2 August 2004	1	5	a
Mid-term review	11 February 2005	3	24	a, b, c
Environmental safeguard review	25 July 2005	1	5	e
Review 6	26 December 2005	2	13	b, c
Review 7	20 December 2006	1	4	c
Project completion review	7 August 2007	3	45	b, c, d

^a a = urban development specialist, b = project analyst, c = project implementation officer, d = staff consultant (economist), e = environment specialist.



PAKISTAN PUNJAB COMMUNITY WATER SUPPLY AND SANITATION SECTOR PROJECT (as completed)



I. PROJECT DESCRIPTION

1. Punjab is the most populated province of Pakistan. The total population of Punjab, as measured by the 1998 census, was 73.621 million people, 68.7% of whom lived in rural areas. Given the average annual growth rate of 2.64%, Punjab's present rural population is estimated to be 63.95 million. At appraisal in 2002, overall water supply coverage was 63% in Pakistan and 53% in rural Punjab; about half of the water supply was provided through piped systems, and the rest through community hand pumps. Just under half of Punjab's population (47%) was forced to rely on distantly located sources of unsafe water, including wells, rivers, and rain-fed/canal-fed ponds.¹ Women and children are primarily responsible for fetching water from distant sources. Sanitation coverage in Pakistan was 39% in 2002, and only about 27% of the rural population in Punjab had access to sanitation facilities in the form of household latrines. By 2006, 16% of the rural population in Punjab had tap water facilities, 31% had motorized pumps, 47% depended on hand pumps, and 5% were depending on dug wells and other sources of water, whereas sanitation facilities were available to 52%.²

2. Lack of access to the clean drinking water and sanitation facilities is a primary factor in the spread of waterborne diseases, which result in (i) increased expenditures on health services; (ii) low productivity and income, particularly for women; (iii) low school enrollment and high dropout rates, particularly for girls at the primary school level; and (iv) overall negative impacts on the socioeconomic conditions of the rural population generally, and the poor in particular.

3. The level of investment in the water supply and sanitation (WSS) sector has remained low compared to other sectors. The 10-year (2001–2011) Perspective Development Plan of the Government of Pakistan (the Government) shows a gross allocation of 6.8% for the physical planning and housing sector, with only 1.1% earmarked for water and sanitation. In view of the shortage of public resources available for enhancing water and sanitation coverage in rural Punjab, the Project was a timely intervention to address the Government's concern about low levels of social services, particularly in rural areas.

4. The overall goal of the Project was to reduce poverty and improve the living conditions and quality of life of the communities in rural settlements in Punjab province, where water is scarce and groundwater brackish. The Project sought to: (i) extend water supply through a community-based, demand-driven approach and provide drainage and sanitation coverage to poor village communities that do not have access to an organized water supply; (ii) strengthen newly constituted tehsil municipal administrations (TMAs) and build their capacity to organize community-based water supply and drainage schemes and improve related management functions; (iii) implement a hygiene education program, including assistance to the selected beneficiaries in the project tehsils for constructing household latrines through a revolving fund; and (iv) implement a social uplift and poverty eradication (SUPER) program aimed at (a) using the time saved from fetching water for more productive uses through a microcredit program (aimed particularly at women), and (b) construction of additional classrooms in schools with increased enrollment due to children being relieved from the chore of fetching water.

5. The Project intended to use a community-based approach to extend WSS facilities to 54 tehsils in 26 districts of Punjab that are facing water scarcity and saline groundwater conditions. Within the identified tehsils, villages with a population of more than 1,000 people (comprising

¹ ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Islamic Republic of Pakistan for the Punjab Community Water Supply and Sanitation Sector Project*. Manila.

² Federal Bureau of Statistics, Government of Pakistan. 2007. *Pakistan Social and Living Standards Measurement Survey*. Islamabad.

about 91% of the total population living in brackish/barani areas) were prioritized. However, villages with smaller populations could also be considered if the subproject was technically viable and beneficiaries were willing to share 4–7% of the capital cost and accept operation and maintenance (O&M) responsibilities, as per the subproject selection criteria. The Project included construction of about 500 new subprojects and rehabilitation of about 250 need-based inoperative subprojects implemented by the Public Health Engineering Department (PHED) prior to the phase I project,³ and was projected to benefit 2.3 million people. The Project comprised four components: (i) construction of water supply and drainage facilities, (ii) a hygiene education program, (iii) institutional strengthening and capacity building for local government institutions, and (iv) the SUPER program.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

6. The Project was designed as a sector loan under the overall framework of the Government's poverty reduction strategy outlined in its 10-year Perspective Development Plan 2001–2011. The Project was in line with the Water Sector Strategy Study (2002), developed with ADB assistance, which recommends that rural WSS schemes should be community based, with O&M borne by the beneficiaries. The project design followed the phase I project design in terms of the implementation arrangements and extended the coverage from seven to 26 districts, strengthened the social mobilization mechanism, and included innovative initiatives like the SUPER program. The lessons from the phase I project and other similar projects were incorporated. The phase I project undertook a new initiative that utilized a community-based, bottom-up approach to implementation of public sector WSS subprojects, and incorporated hygiene education. This demand-driven approach proved to be a cost-effective, efficient and sustainable means of delivering WSS services. Some weaknesses and shortcomings were identified during implementation of the phase I project, and these were addressed in the design of the Project through further refinement of the subproject selection criteria. For instance, beneficiaries were required to contribute 4–7% of the capital cost of subprojects (in cash or in kind), to ensure their ownership of and willingness to participate in the subprojects, and the SUPER program was introduced to ensure that the time saved by women through not fetching water was used productively (i.e., to increase their incomes and improve their livelihoods). The Project was appropriately designed to achieve its development objectives (e.g., poverty reduction, gender and development, and environmental improvement). The main design feature consisted of (i) constructing cost-effective WSS subprojects, with beneficiary communities involved in the planning, design, and implementation; (ii) building the capacity of participating TMAs and community-based organizations (CBOs); and (iii) implementing a complementary social uplift and poverty eradication program.

7. The project design was highly relevant at appraisal. The formulation process was adequate, key stakeholders were consulted during the project preparatory technical assistance,⁴ stakeholders' concerns were addressed in the design, and lessons from the phase I project were incorporated.

³ ADB. 1995. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Islamic Republic of Pakistan for the Punjab Rural Water Supply and Sanitation Sector Project*. Manila.

⁴ ADB. 2002. *Technical Assistance to the Islamic Republic of Pakistan for the Punjab Community Water Supply and Sanitation*. Manila (TA 3862-PAK).

B. Project Outputs

1. Construction of Water Supply and Drainage Facilities

8. This component consisted of the construction of simple, low-cost water supply, drainage, and sanitation facilities in about 500 project communities, and rehabilitation of 250 need-based non-operational schemes meeting the subproject selection criteria. New subprojects included 450 pump-based subprojects and 50 gravity-based subprojects. Ten sites were identified for the rain-harvesting subprojects. A total of 778 water supply, drainage, and sanitation subprojects have been completed (Appendix 2) in 30 districts, including 578 new and 200 rehabilitation schemes. Based on needs, the Project provided water supply and sanitation facilities in 344 villages, water supply facilities in 395 villages, and sanitation facilities in 39 villages. Water supply facilities include 713 pump-based, 14 gravity-based, and 12 rain harvesting subprojects. Sanitation facilities included street drains, street pavement, sullage carriers, and oxidation ponds. Many villages are using drainage effluent and sewage for irrigation purposes, following oxidation.

2. Hygiene Education Program

9. This component delivered education materials, service vehicles, and consulting services for awareness raising and trainings to (i) improve hygiene and sanitation in the project villages; (ii) monitor the effects of water quality improvement on health; (iii) establish a revolving loan fund to assist selected beneficiaries in project villages install household latrines through men's and women's community-based organizations (CBOs), with beneficiaries choosing materials, and repayments to the revolving fund made in two or three installments; (iv) provide specific trainings for female councilors and health workers who play a catalytic role in hygiene education and household latrine promotion; and (v) construct latrines and provide water connections in all schools in the project area. Education materials included more than 3,900 charts, 2,110 posters, 6,000 brochures, 130 CDs, and 572 audio and 240 video cassettes. A unique education initiative involved providing 25 short books in the form of a wall hanging library to the communities. The revolving fund for latrine construction was utilized for the construction of 1,221 latrines. In addition, as a result of the awareness created by the Project, beneficiaries have constructed 53,029 latrines on their own in 531 villages. Latrines were also provided in 83 government schools in the project area that lacked such facilities. To train female councilors, health workers, and other female activists in the project villages, 727 women's CBOs were formed, which included a large number of female councilors and health workers. Project benefits, such as the effect of water quality on health, were monitored on a 6-monthly basis through a project performance management system (PPMS).

10. The community development unit (CDU) developed an effective hygiene education program, which included school sanitation and hygiene education, women's health literacy, and family hygiene education. A conceptual framework was devised for community diagnosis and interactive planning with men's and women's CBOs. The component's primary objective was to improve health and hygiene practices in communities where water and sanitation facilities were provided by the Project; the main focus was motivation, hygiene education and demonstration through very effective CBO workshops.

3. Institutional Strengthening and Capacity Building

11. This component was designed to help attain long-term sector goals by building the capacity of TMAs to manage their new responsibilities after implementation of the Government's

devolution plan. Major interventions included resource mobilization through efficient revenue collection, improved financial management that included budgeting and improved O&M of TMA assets; identification of local government needs for office and field equipment and extending appropriate procurement assistance; human resource development through a carefully designed training program; establishment of a computerized management information system (MIS); and training to better manage the human, monetary, and capital resources of the TMAs in all districts of Punjab. This component also included institutional support to the project management unit (PMU) for executing the Project by providing (i) consulting services, (ii) equipment and service vehicles, and (iii) support to project implementation offices for operational costs on a declining basis.

12. Consulting services and education materials were provided and an MIS comprising four modules (database management, financial management, asset management, and human resource development) was developed. All database modules include a needs assessment and baseline survey results; the number and location of subprojects; technical data of subprojects; data on CBOs, including office bearers, activities undertaken, number of beneficiary households and population; microcredit data; and data on health and hygiene activities. The financial management module includes cost details (outlining ADB, Punjab government and community shares), O&M requirements, tariff setting, and a collection system. The asset management module includes an inventory of the assets created by the Project. The human resource development module includes details of trainings imparted with type of training and number of participants. Training needs assessment was done on the basis of a sample of 14 TMAs. Training on various aspects of WSS subprojects and on the use of the MIS was given to 45 TMAs. The MIS was handed over to the ADB-financed decentralization support program office in Punjab, which focused primarily on building capacity of devolved government institutions, including TMAs, and was well placed to install the MIS in all TMAs of Punjab, and to train respective staff. The PMU was provided consulting services, equipment, vehicles, and operational cost support during implementation. Three PHED water testing laboratories (located in Lahore, Multan, and Rawalpindi) were upgraded by procuring additional equipment and chemicals, and their capacity substantially enhanced. A water quality monitoring plan was prepared and implemented through regular collection and testing of water samples. CBOs were formed in all project villages, and they participated in planning and implementation of subprojects and assumed responsibility for O&M. CBOs were provided training for O&M, tariff setting, revenue collection, bookkeeping, and basic accounting. A district-wide network of CBOs was formed in two districts to share experience and local knowledge, improve coordination, and establish a common platform for publicizing and addressing their development needs. CBOs were assisted to register as citizen community boards (CCBs) with the district governments. CCBs are the lowest tier of the devolved government institutions under the local government ordinance of 2001. Registration of CBOs as CCBs was recognized as an important initiative in terms of sustainability, and enabled the project CBOs to access CCB funds. Registration of CCBs was a cumbersome and time-consuming process because of the limited outreach of the district CCB registration authority (community development officer), lengthy procedures involved in the registration system, and the limited capacity of the TMA staff to facilitate registration of CBOs as CCBs. The PMU overcame these hurdles, and 752 project CBOs were registered as CCBs. The strong social mobilization effect of the Project is also reflected in the savings of CBOs, which equalled PRs33.189 million by loan closing. CBOs are using their savings for various welfare activities such as installation of water meters, street lights, street pavement, establishing vocational training schools for girls, and procurement of ambulances.

4. Social Uplift and Poverty Eradication Program

13. The SUPER program aimed to address poverty reduction and help the poorest segments of society, particularly women and children, attain a better quality of life by productively and economically using the time previously spent fetching water. It included two key interventions: (i) microcredit, and (ii) construction of additional classrooms in the village schools. The microcredit intervention was designed to introduce the use of group-based microfinance to support income generation involving handicrafts, embroidery, carpet and rug weaving, livestock and poultry raising, and other productive activities in 30 villages of the phase I project; these communities had already initiated some income-generating activities on a self-help basis, with the support of women's CBOs. Based on the success experienced in these 30 pilot villages, the SUPER program was to be expanded to the remaining communities of the phase I project, with the ultimate aim of linking these communities to local microfinance institutions (MFIs). Additional school classrooms were to be constructed to accommodate the children who no longer needed to fetch drinking water from distant sources, due to water being provided at their doorstep.

14. The Project disbursed PRs2.073 million to 213 borrowers in 38 CBOs of the phase I project for various income-generating activities, which proved instrumental in enhancing household incomes. Subsequently, linkages with MFIs such as Khushali Bank (KB), National Rural Support Program (NRSP), Punjab Rural Support Program (PRSP), and Punjab Small Industries Corporation (PSIC) were also developed. The PMU organized 13 workshops for this purpose with participation by MFI staff, TMA officials and representatives of CBOs. The Punjab Rural Support Program also imparted training to the CDU staff in microfinance procedures. The linkage with these MFIs proved very successful, with PRs129.49 million disbursed within a span of 12 months to 14,725 borrowers in 385 beneficiary communities of the Project, and 232 communities of the phase I project. By loan closing, the amount of microcredit disbursed was PRs279.25 million and the number of borrowers had reached 17,617. MFIs will continue providing microcredit after loan closing. Construction of additional classrooms by the Project was not required because the Punjab government initiated an education sector reform project in the province, under which additional classrooms were constructed to increase the capacity of primary and secondary schools in the project area.

C. Project Costs

15. The total cost of the Project at appraisal was estimated at \$71.4 million, including taxes and duties. ADB's loan was \$50.0 million, the Government's share was \$16.8 million and the beneficiaries' contribution was estimated as \$4.6 million.⁵ ADB's loan included \$13.6 million in foreign exchange and \$36.4 million in local currency financing. The actual project cost was \$78.177 million, of which \$53.881 million was utilized from the ADB loan⁶, including interest during construction of \$0.871 million. The Government financed \$19.529 million and the contribution of beneficiaries was \$4.767 million.⁷ None of the subprojects caused involuntary resettlement or had a negative impact on indigenous people.

⁵ According to the subproject selection criteria, outlined in Appendix 2 of the RRP, beneficiaries' share in the capital cost of subprojects was 4–7% (average 5.5%), in cash or in kind. The estimated cost of their share on a 5.5% average basis amounted to \$3.3 million of the estimated WSS subproject cost of \$60.3 million. Therefore, the beneficiaries' share of \$4.6 million, as calculated at appraisal, was incorrect.

⁶ Loan amount increased from \$50.0 million to \$56.1 million due to change in \$-SDR parity

⁷ This included \$1.857 million in cash contributions and \$2.91 million in the form of local materials.

D. Disbursements

16. Imprest account and statement of expenditure dispensation was used for payments to the contractors. Most of the bills were for less than \$50,000 and were paid from the imprest account, which was less time-consuming and ensured timely release of payments to the contractors. Use of the imprest account facilitated execution of civil works. Direct payments were made to the consultants, suppliers and contractors for bills exceeding the limit of \$50,000. The disbursement procedures were efficient and supported smooth project implementation.

E. Project Schedule

17. According to the project schedule prepared at appraisal, implementation was to begin from 1 January 2003 and to be completed by 31 December 2006. The loan was declared effective on 29 April 2003, 6 days later than scheduled. The PMU and CDU staff was appointed on time. Recruitment of the technical support consultants, a consortium of five firms, was delayed by 11 months. However, start-up activities were initiated by the PMU before consultant teams were mobilized and the first civil works contract was awarded in September 2003. Overall, project implementation remained on schedule and all works were completed by the loan closing date. The project schedule was realistic and was prepared with reference to the phase I project experience.

F. Implementation Arrangements

18. The Housing, Urban Development and Public Health Engineering Department (HUD&PHED) of the Punjab government was the Executing Agency (EA) for the Project. A PMU, headed by the project director and supported by professional staff and a team of consultants and CDU staff, was responsible for overall coordination, planning, implementation and management of project activities. For province-wide implementation, six project implementation units (PIUs) were established at the representative district headquarters, each headed by a deputy project director. Thirteen project implementation cells (PICs) were established at the representative tehsil headquarters, each managed by an assistant project director, to assist the PIUs in executing the Project. Subproject implementation review committees (SIRCs), comprising representatives of TMAs, union councils, and CBOs, were formed at district level to review implementation progress. A project steering committee (PSC) was formed to ensure smooth and orderly implementation of the Project. The PSC was headed by the secretary of HUD&PHED and comprised senior officers from the departments of Planning and Development, Finance, and Local Government and Rural Development, and the Water and Power Development Authority (WAPDA). Implementation arrangements were adequately designed and proved appropriate for efficient delivery.

G. Conditions and Covenants

19. Conditions for loan effectiveness included approval of the Planning Commission Proforma I (PC-I) by the Executive Committee of the National Economic Council of the borrower; and establishment and staffing of PMU, PIUs, PICs, and CDU. Both conditions were fulfilled with a delay of only 6 days.

20. The Borrower and the EA complied with 54 covenants of the loan agreement and project agreement (Appendix 3). All sector, social, environmental, economic, financial, and other covenants have been complied with except one covenant related to six monthly water quality monitoring, which was partly complied. The EA gave special attention to the social and

environmental covenants, particularly those emphasizing women's participation. Involvement of women in the social mobilization process generated great interest from women's CBOs, which became change agents and publicized and addressed gender-related problems. ADB conducted a study on women's involvement in the Project and its impact in 2005. The report—*Closing the Gender Gap*—details the Project's success in this regard. ADB also fielded an environmental safeguard review mission in 2005, which noted the Project's efforts in ensuring compliance with environmental and social safeguards. The audited project accounts were received before the due dates and were rated highly satisfactory.

H. Consultant Recruitment and Procurement

21. The selection of consultants was carried out in accordance with Schedule 4 of the Loan Agreement and ADB's *Guidelines on the Use of Consultants*, as amended from time to time). A consortium of five firms was recruited to provide technical consultant support; five individual consultants were also recruited. The project design envisaged the use of 613 person-months of national consultant services to support project implementation, and 4 person-months of international consultant services to provide overall project management advice and supervision. The Project utilized 626 person-months of national consultant services. The international consultant inputs were not considered necessary, as the Project was efficiently managed and supervised from the outset.

22. Procurement of works and goods was carried out in accordance with Schedule 3 of the Loan Agreement and ADB's guidelines, with 778 national competitive bidding contracts for civil works and 20 national competitive bidding contracts for procurement of equipment, vehicles and office furniture awarded. The mode of procurement was not changed.

I. Performance of Consultants, Contractors, and Suppliers

23. The performance of the consortium of firms recruited for management, financial, technical, and environmental services was partly satisfactory. Although they delivered most of the required outputs, the quality of these outputs was average and delivery was delayed. The consortium replaced seven of 15 experts included in the initial proposal and failed to provide replacements for two others. There were delays in mobilizing some experts. The experts were generally not very competent and lacked commitment. The team leader was unable to demonstrate leadership and management skills, and the institutional specialist and community need assessment specialist were mobilized after their key task—re-establishing the CDU—had been completed by the PMU. Similarly, the human resource development specialist left without completing his assignment and no replacement was provided. The PMU's qualified and experienced staff compensated for the consortium's performance deficiencies. The performance of two individual consultants, the design engineer and the groundwater specialist, was satisfactory. The performance of civil works contractors and suppliers was also satisfactory.

J. Performance of the Borrower and the Executing Agency

24. The borrower provided the counterpart funds, facilities, services, and other resources required for carrying out the Project in a timely manner and complied with obligations agreed upon in the Loan Agreement. The Project had a high level of ownership by the Punjab government. Counterpart funds were provided to complete more schemes than the target number, which added WSS coverage to 28 additional villages. Overall performance of the borrower was highly satisfactory.

25. The EA implemented the Project as envisaged and placed special emphasis on community mobilization, selection of subprojects on a need basis, involvement of beneficiaries in the design and implementation of subprojects, the inclusion of women, environmental and social safeguards, compliance with loan covenants, the development of a PPMS, and capacity building of communities to operate and maintain the WSS facilities. The Project has been completed as scheduled and quantitative achievements have exceeded the targets. Some innovative initiatives served to enhance the sustainability of interventions, such as motivating and supporting the CBOs to install water meters, in what was the first initiative of its kind in the country. Meters were installed in 63 villages by the communities at their own expense. Similarly, linkages with MFIs were developed in a proactive manner, which enhanced the income of more than 1,000 households. The assistance provided to CBOs to register as CCBs was an initiative that reflected the Project's commitment to the beneficiary communities. Establishing village libraries on health and hygiene education was an innovation that proved instrumental in educating beneficiaries (particularly women) regarding the importance of sanitary practices. The EA has converted the Project into a cost-effective and sustainable model for WSS. The Project staff was retained, and no key staff members transferred during more than 4 years of project implementation. The performance of the EA was highly satisfactory.

K. Performance of the Asian Development Bank

26. ADB played an active role to ensure completion of the Project on schedule and to ensure compliance with policies, procedures, and safeguards. ADB fielded regular loan review missions, took timely decisions on improving implementation, reallocated loan proceeds to ensure achievement of targets in a timely manner, promptly interacted with the government of Punjab to seek their support as and when required, and interacted with the beneficiary communities to assess their level of ownership and participation. ADB regularly visited the subproject sites and did regular checks on the quality of works. Submissions by the EA received a high level of attention, and disbursements and approvals were on time. ADB's performance is rated satisfactory.

III. EVALUATION OF PERFORMANCE

A. Relevance

27. The Project was highly relevant to the Government's development and poverty reduction strategy outlined in its Perspective Development Plan 2001–2011, and to achievement of the Millennium Development Goals for WSS. It was also relevant to ADB's strategy of supporting projects with the potential for economic growth and poverty reduction. The Project was appropriately designed to achieve its development objectives, particularly poverty reduction, gender and development, and environmental improvement, through construction of cost-effective WSS subprojects with the involvement of beneficiary communities (para. 6).

B. Effectiveness in Achieving Outcome

28. The Project was highly effective in achieving outcomes. More WSS subprojects were completed than envisaged. Achievements under the hygiene education, institutional strengthening and capacity building, and the SUPER program components are significantly greater than envisaged. The Project is benefiting a population of about 2.6 million as compared to the 2.3 million envisaged at appraisal. The strong social mobilization, coupled with capacity building of CBOs, resulted in ownership of the Project facilities by the beneficiaries, which helped implement innovative initiatives like installation of water meters. Effectiveness of the

hygiene education program is demonstrated by the number of latrines constructed by the beneficiaries using their own resources. The Project's impressive achievements include the linkages developed with microfinance institutions, registration of CBOs as CCBs, community savings by CBOs and utilization of those savings for social welfare initiatives, participation of women in decision-making and development activities, awareness of health and hygiene, and, above all, the creation and strengthening of grass-root institutions to act as agents of change.

C. Efficiency in Achieving Outcome and Outputs

29. The Project was highly efficient, and the desired economic benefits have been achieved (Appendix 4). The composite economic internal rate of return (EIRR) of 78 subprojects is estimated to be 41.6%, ranging between 7.2% and 129.5%; this is calculated using only one benefit: time saved from fetching water. In addition, the Project has yielded other significant benefits, including an increase in household incomes as a result of microcredit intervention, re-use of liquid waste for irrigation, and health improvements. The efficiency of the EA was remarkable throughout the implementation period and the Project was completed on schedule.

D. Preliminary Assessment of Sustainability

30. Sustainability of the Project was found to be "most likely", because (i) the subprojects were selected based on need and demand, and beneficiaries provided upfront cash contributions equivalent to 2% of the capital cost of subprojects and about 4% in in-kind contributions; (ii) beneficiaries have a strong feeling of ownership of the facilities provided by the Project because they were involved in the planning, design, and implementation; (iii) CBOs have taken over O&M responsibilities, set tariffs at a level that takes into account O&M requirements, and established effective collection systems; (iv) the Project has trained CBOs for effective and efficient O&M; (v) CBOs are collecting savings from their members on a regular basis, which is a key indicator of their strength to sustain the facilities provided by the Project; (vi) the CBOs have begun funding initiatives for other development and welfare activities, particularly installation of water meters, on a self-help basis using their savings;⁸ (vii) the Project's strong social mobilization and effective trainings have enabled CBOs to become financially and technically self-sufficient in the O&M of the schemes; and (viii) 34 randomly selected subprojects visited by the project completion review mission were operational and well maintained, and CBOs were found to be operating in a manner similar to water utilities.

E. Impact

31. The overall impact of the Project is positive. None of the subprojects caused involuntary resettlement or had a negative impact on indigenous people. The environmental impact of the Project is positive. Environmental assessment of the subprojects was carried out at the design stage and arrangements for implementation of mitigation measures and monitoring were effective. Provision of drinking water has reduced expenditures on health, indicating the Project has reduced the incidence of waterborne diseases and had a positive impact on the health of the beneficiary population. The school enrollment of girls has also increased. Sanitation facilities provided by the Project, including street pavements and street drains with oxidation ponds and disposal channels, have drained existing wastewater ponds in the project villages, and are serving proper disposal of wastewater. The drainage effluent and sewage is being used for irrigation after treatment by means of the oxidation ponds. Beneficiaries, particularly women,

⁸ Using their own resources in combination with technical support from the project, CBOs have installed water meters in 63 villages, where residents now enjoy a constant (24-hour) supply of water.

have welcomed the changes in their daily life brought about by the Project's sanitation facilities and hygiene education. The social mobilization process and formation of CBOs have created a sense of ownership and responsibility in the communities. Involvement of beneficiaries, particularly women, in the decision-making process has boosted their confidence, and they are now undertaking other self-help initiatives, and approaching government departments and other organizations to secure resources to meet their developmental needs. The installation of water meters is an indicator of the strong sense of ownership by beneficiaries in the facilities constructed through the Project, which has resulted in water being available 24 hours per day in those villages. The impact of water meters on the equitable distribution and conservative use of water, in addressing reduced pressure complaints, and building trust among and reducing conflicts between users is unprecedented. Microcredit provided by the Project and the MFIs has resulted in enhanced household incomes. Registration of CBOs as CCBs with the district governments has turned them into formal grassroots institutions responsible for their own development agenda.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

32. The Project is rated "highly successful". The outputs achieved were more than envisaged at appraisal, in terms of the number of subprojects completed with community participation, and regarding ownership for sustainable O&M. The Project was highly relevant, effective and efficient, and is "most likely" to be sustained. The rating follows ADB Operations Evaluation Department's suggested weights and is provided in Appendix 5.

B. Lessons

33. The Project's successful implementation stemmed primarily from its design, which accounted for on-the-ground realities, applied lessons from previous interventions, and incorporated and adopted efficient and sustainable delivery mechanisms. Involvement by beneficiaries in the project process through effective social mobilization is key to the success of rural WSS projects. Training, awareness raising, and capacity-building of beneficiaries is also instrumental in ensuring the sustainability of subprojects that are owned and operated by the communities.

34. Appointing qualified staff and retaining them for the duration of the project avoided delays in implementation.

35. The active support of the provincial government and of senior EA management helped smooth implementation.

C. Recommendations

36. The Project has evolved into a cost-effective and sustainable model for providing drinking water at the doorstep of rural households and for improving sanitary conditions in the selected villages.

37. Thousands of other villages in Punjab continue to lack a reliable piped water supply facility. This model should be replicated by the government to extend WSS facilities to more rural households and contribute to achievement of goal 7 of the Millennium Development Goals.

38. Any successor project should be implemented soon after the closing of the Project to make optimum use of the existing trained and experienced staff and the organizational setup.

39. The EA should continue the following tasks on a 6-monthly basis:

- (i) benefit monitoring and evaluation with the help of PPMS,
- (ii) water quality monitoring, and
- (iii) review of O&M of the schemes that have been handed over to villages.

40. The Government and ADB should adopt a strict policy regarding replacement of experts included in consultants' proposals. It has become a common practice for firms to include the résumés of strong experts in their proposals in order to win the contract, only to replace them with weaker experts at the time of mobilization and during implementation. The most common reason given by firms is that the original expert is unavailable due to a lengthy recruitment process. However, the consulting firms engaged on ADB-financed projects are fully aware of the time required from submission of proposals to mobilization. In the technical evaluation of proposals, the qualification and experience of the proposed experts carries maximum marks. Therefore, their replacement should be accepted only in very exceptional cases. The practice of replacing experts is one of the main reasons that consultants' outputs are deteriorating in quality.

PROJECT FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Goal Reduce poverty and improve the living conditions and quality of life of communities in rural areas of Punjab province with scarce water and brackish groundwater	Elimination of hardship of rural women, with time formerly spent hauling water devoted instead to income-generating activities Improved environmental sanitation and health of rural communities Strengthened local government institutions	Project performance management system (PPMS), third-party evaluation at midterm and at project completion Government statistics and reports Reports of multilateral and bilateral agencies	Long-term commitment and sense of ownership by a provincial-level executing agency Successful community management of water supply schemes, adequate capacity on the part of local government institutions
Purpose Construct and have the community manage water supply and drainage schemes in rural settlements Construct household latrines Promote hygiene Strengthen local government institutions Implement a poverty reduction program involving microcredit schemes	Schemes constructed on the basis of community need-assessment surveys with operation and maintenance (O&M) responsibilities assumed by the communities Community-based organizations (CBOs) in place, trained, and functioning Local government institutions have the capacity to implement similar schemes on their own in the future Micro-credit mechanisms in place, poverty reduction fund established and functional	Project management unit (PMU) monthly progress reports, and 6-monthly PPMS reports Midterm and project completion reports by independent consultants Asian Development Bank (ADB) review missions Monitoring by subproject review committees (SPRCs) and project steering committee	The Punjab government provides timely counterpart funding Advance actions regarding PMU strengthening, selection of consultants and pre-qualifying of contractors completed on time Local government institutions, particularly tehsil municipal administrations (TMAs), demonstrate project ownership Consultants are competent and discharge their responsibilities through a participatory process Union council-level social uplift and poverty eradication program (SUPER) committee formed and strengthened to handle the poverty reduction fund
Outputs Component 1: Water Supply and Sanitation Schemes Construct about 500 new and rehabilitate 250 inoperative water supply and sanitation	About 125 new and 60 rehabilitation schemes to be constructed and handed over to village CBOs every year Support to CBOs provided to ensure they	PMU progress reports ADB review missions SPRC reports	PMU, consultants and contractors are target-oriented and work in close coordination Contract packages are large enough to attract well-staffed, well-equipped, and

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
(WSS) schemes and turn them over to village CBOs for O&M, in accordance with the project implementation schedule	meet O&M responsibilities		experienced contractors
Component 2: Institutional Strengthening and Capacity Building	Revenue resources mobilized, systems and procedures streamlined, appropriately qualified personnel in place and trained. Management information system (MIS) in place and operational	PMU progress reports and PPMS ADB review missions SPRC reports	TMA's are interested and cooperative Tehsils with no WSS component may lack enthusiasm
Component 3: Hygiene Education and Latrine Construction Program	Schools are connected with the village water supply and drainage networks. Low-cost latrines constructed in each school and in households are properly maintained, and hygiene education is conducted in each village	PMU progress reports and PPMS ADB review missions	Close liaison is maintained with all stakeholders, including the village CBOs, community development unit (CDU) staff, local government and rural development (LG&RD) departments and United Nations International Children's Fund (UNICEF)
Mandate provision of safe drinking water supply and latrines in government schools in all project villages			
Promote household latrine construction and hygiene education			
Component 4: Social Uplift & Poverty Eradication (SUPER) Program	Poverty reduction funds established at union council level, disbursed in a transparent manner and operated on a revolving mode for microcredit schemes	SPRC reports PMU progress reports and PPMS ADB review missions	Citizen Community Board (CCBs) are representative and members understand inter-village differences in microcredit needs
Microcredit schemes implemented and additional classrooms constructed in government schools in project villages	Microcredit schemes initially implemented in phase I project villages and later scaled up to cover all project villages Additional classrooms constructed and put to use		Role of the village CBOs and the CCBs may become redundant following the formation of elected village councils The size, repayment schedules, and eligibility criteria respond to the needs of the village communities, particularly women
Activities Component 1 Scheme identification	Identified schemes meet selection criteria.	PMU progress reports	Political influence is mitigated through broad dissemination and transparent application of scheme selection criteria

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Community needs assessment	Majority of community households are involved in needs-assessment process	Reports by CDU	Accuracy of needs-assessment surveys. Political influence is mitigated through broad dissemination and acceptance of scheme selection criteria.
Subproject selection	Selection is needs-based with active participation by beneficiary communities Villages meet selection criteria	CDU reports	Political influence is mitigated through strict compliance with selection criteria
Community organization	All sections of village communities represented	CDU reports	CBOs are representative of and supported by all households
System design	Equity in water distribution	PPMS indicators to provide checks	Systems meets technical requirements and satisfy communities
Water source development	Sustainable source of potable water Quantitative and qualitative assurance provided	Monitoring by trained CBOs, TMAs, and project consultants	Pumping tests are accurate. Potential hazard of over-pumping of groundwater in surrounding areas, improper O&M by CBOs.
System construction	Construction activities undertaken as per approved specifications Implementation of mitigation measures is in accordance with initial environmental examination	Quality control through PMU and supervision by project consultants ADB review missions	Contract packages are appropriate for good construction. Procedures are in place to evaluate the performance of contractors, and remedial actions are taken properly and on time. Payments to the contractors are delayed. There are unforeseen delays due to capital cost sharing by communities, and signing of memoranda of understanding for land acquisition.
Handing over and O&M	Physical transfer of scheme to CBOs Communities are	CBO signing of transfer documents PMU progress report	Communities are satisfied the works have been completed per their requirements.

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
	meeting all O&M cost and operating the systems		Sustained interest by communities leads to taking over and O&M. CBOs are trained to handle routine repairs and breakdowns. TMAs assist in handling major breakdowns and provide financial resources for major repairs.
Component 2: Streamlining of systems and procedures	The identified problems pertaining to reporting, coordination, flow of information, etc. eliminated/minimized and procedures streamlined	Progress reports	Political will of TMAs and others involved in the program Continued government support for the devolved setup
Orientation and training	Identified groups provided training/ orientation courses	Progress reports	Sustained interest by TMAs Sustained government financial support
Management information system (MIS) development	MIS system developed in PMU Relevant staff of the 54 tehsils provided computer orientation/ training	Progress reports	Capacity of TMAs to allocate necessary resources (hardware) Continued support for MIS development by TMAs
Component 3 Awareness raising	Increased number of houses with latrines	Progress reports, BME reports	Program conforms and is carried out in coordination with other aid agency-supported and nongovernmental organization-assisted programs in the area.
School sanitation	Schoolchildren using latrines and following recommended hygiene practices	Progress reports, BME reports	
Ready availability of low-cost sanitary ware	Number of low-tech sanitary ware production units established and retail outlets available in the vicinity	Progress reports, BME reports	Program conforms and is carried out in coordination with other aid agency-supported and nongovernmental organization-assisted programs in the area.
Component 4	Number of people and	CDU reports	CCBs are not formed.

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Microcredit system	communities benefiting from the program		
Classroom construction	Number of motivated villages that construct additional classrooms	CDU reports	Enrollment of schoolchildren increased
Inputs Funding provided jointly through ADB Asian Development Fund loan, government of Punjab, TMAs, and participating communities Project management by strengthened PMU Technical support and supervision through a single, integrated consulting package	Smooth disbursement of funds by all agencies Community capital cost share incorporated in the project cost Scheduled completion of WSS subprojects Subproject designs are produced on schedule, on the basis of coordinated social and physical investigations and with community participation. Schemes are constructed according to design and specifications and are handed over to community for O&M. CDU is provided with necessary backup support to implement project components related to latrine construction, hygiene education, and SUPER program. Subproject designs are produced on schedule, on the basis of coordinated social and physical investigations and with community participation. Schemes are	ADB review missions PMU progress reports ADB review missions PMU progress reports, ADB review missions	PMUs to ensure timely submissions of withdrawal application and the government's adequate allocation and timely release of counterpart funds Community contributions deposited in the CBO account PMU is well-staffed and fully equipped. The project director and other key PMU staff are available for the entire duration of the Project. National consultants are competent and committed to the Project. International consultant is well-versed with the socioeconomic conditions, and the consulting services unit is fully empowered and safeguarded against

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
	<p>constructed according to design and specifications and are handed over to the community for O&M.</p> <p>CDU is provided with necessary backup support to implement project components related to latrine construction, hygiene education, and the SUPER program.</p>		interference.

SUBPROJECTS

Sr. No	District	Subprojects (No.)	Household^a Connections (No.)	Population (Persons)
1	Rawalpindi	34	11,073	113,032
2	Attock	29	6,169	80,441
3	Chakwal	46	12,335	123,220
4	Jhelum	15	5,715	48,188
5	Khushab	25	7,747	80,750
6	Mianwali	30	5,383	103,890
7	Sargodha	53	8,827	199,281
8	Gujranwala	4	781	16,086
9	Gujrat	26	7,189	91,765
10	Mandi Baha-ud-Din	6	1,185	30,370
11	Narowal	11	2,976	44,827
12	Sheikhupura	3	409	13,927
13	Sialkot	28	6,419	127,309
14	Kasur	53	12,387	258,452
15	Lahore	1	467	12,650
16	Okara	5	887	16,640
17	Faisalabad	41	9,651	165,249
18	Toba Tek Singh	42	13,524	167,636
19	Vehari	10	1,823	32,730
20	Sahiwal	11	2,051	43,062
21	Pak Pattan	7	462	31,933
22	Multan	9	1,681	32,710
23	Khanewal	9	1,455	35,187
24	Dera Ghazi Khan	82	8,790	276,979
25	Muzaffargarh	2	400	4,829
26	Rajanpur	7	CR	23,440
27	Bahawalpur	34	6,209	93,796
28	Lodhran	54	9,882	124,765
29	Bahawalnagar	66	9,850	136,612
30	Rahim Yar Khan	38	5,405	91,436
			161,132	2,621,192

CR = community reservoir with taps

^a Number of houses connected with water supply by the time of PCR mission

STATUS OF COMPLIANCE WITH LOAN COVENANTS

Loan Covenant	Reference in Loan Agreement	Status of Compliance
1. The Borrower shall assure that Punjab shall be responsible for the overall execution of the Project through HUD&PHED.	Schedule 5, para. 1	Complied. Highly satisfactory.
2. The project management unit of phase 1 and its key staff, and also all phase 1 vehicles, computers, printers and other logistics, will be the PMU for the Project. The PMU shall be located in HUD&PHED.	Schedule 5, para. 2	Complied. Highly satisfactory.
3. The PMU shall be headed by a Project Director and shall comprise professional staff, supported by a team of consultants, and shall be responsible for overall coordination, planning, implementation and management of the Project activities.	Schedule 5, para. 3	Complied. Highly satisfactory.
4. The Borrower shall cause Punjab to ensure that 6 PIUs shall be established in the Project area, each headed by a Deputy Project Director (of the rank at least comparing an Executive Engineer), at least 2 months before commencement of Project activities. The PIUs shall be located in Rawalpindi, Sargodha, Gujranwala, Faisalabad, Multan, and Bahawalpur.	Schedule 5, para. 4	Complied. Highly Satisfactory
5. The Borrower shall cause Punjab to ensure that each of the 13 PICs are managed by an Assistant Project Director (of the rank at least of a subdivisional officer). The PICs shall assist the PIUs in the execution of the Project.	Schedule 5, para. 5	Complied. Highly Satisfactory
6. The Borrower shall cause Punjab to ensure that, HUD&PHED and the participating tehsils, shall set up the following coordinating bodies to the satisfaction of the Bank: 6(a). Immediately after award of the first subproject in a tehsil, a Subprojects Implementation Review Committee (SIRC) at tehsil level, comprising representatives from TMA, UC, CCB, CBO, and the PMU, that will oversee the implementation progress of all the subprojects in the tehsil at monthly intervals. 6(b). Within 1 month of Effective Date, a Project Steering Committee (PSC) headed by the Secretary HUD&PHED. The PSC shall meet at least once in every 3 months.	Schedule 5, para. 6(a) Schedule 5, para. 6(b)	Complied. Satisfactory. Complied. Satisfactory.
7. Ensure that Punjab through the HUD & PHED shall establish the CDU comprising a team of two Assistant Directors (one male and one female), a community development officer (CDO) and two community based motivators (CBMs – one male and one female) for each PIU.	Schedule 5, para. 8(a)	Complied. Highly Satisfactory.
8. The UCs and TMAs shall undertake jointly with the CDU, extensive field visits to identify subprojects to be financed under the Project.	Schedule 5, para. 8(b)	Complied. Satisfactory.

9. The Borrower shall cause Punjab through HUD&PHED, to consult with the CBO of each Project community in the design, construction, and impact evaluation of the water supply and drainage subprojects under Part A.	Schedule 5, para. 9	Complied. Highly Satisfactory.
10. Ensure that CBO of each subproject manages the revolving fund for the latrine construction program under Part B in coordination with the CDU. The PMU shall also (a) set up the revolving fund according to the arrangements satisfactory to the Bank, which arrangements shall include the criteria for selecting individual households in the Project communities, financing of latrines in such households through CBOs, and repayment of such financing through installments by households to CBOs (b) carry out, through its field inspectors, physical inspection of the latrines constructed and installation paid by households to CBOs; and (c) facilitate the purchase of additional sets of latrines out of the revolving fund.	Schedule 5, para. 10	Complied. Satisfactory.
11. Ensure that each CDF, to be managed by the UC level SUPER Committee under Part D shall be set up and operated according to arrangements satisfactory to the Bank. Such arrangements shall include (a) criteria for selecting micro-credit enterprises for individuals to borrow funds up to a maximum of Rs10,000 for income generating schemes including handicrafts, embroidery, carpet and rug weaving, and livestock and poultry; and (b) physical inspection by the UC SUPER Committee, through field inspectors, of the use of funds borrowed under the CDF. Also to ensure that at least 60% of target beneficiaries of micro-credit enterprises under SUPER, shall be women especially the women in the poor community.	Schedule 5, para. 11	Complied. Satisfactory.
12. Without limiting the generality of Section 2.02 of the Project Agreement, the Borrower shall cause Punjab to make adequate budgetary allocations of required counterpart funds. Punjab will ensure that these funds are available on a timely basis to the HUD&PHED for the Project for each fiscal year to provide for the required amounts of funds, in addition to the Loan proceeds, for the timely and effective implementation of the Project.	Schedule 5, para. 12	Complied. Highly satisfactory.
13. Implement from the Effective Date, a PPMS that shall conform to the Bank's PPMS guidelines, to ensure that subprojects are managed efficiently and that the maximum development impacts are achieved.	Schedule 5, para. 13(a)	Complied. Satisfactory.
14. Ensure that the Benefit Monitoring Evaluation System developed under the PRWSSP and modified during the preparation of the Project, now renamed as PPMS, shall be used for the Project. Ensure that the PPMS is further refined by the Project consultants in coordination with the communities during Project implementation.	Schedule 5, para. 13(b)	Complied. Satisfactory.
15. For updating the PPMS system, and follow-up on the completed subprojects, staff of TMA and UC together with CDU staff and the sub-engineer shall visit the subprojects at specified periods, and provide feedback to PIUs and the PMU for addressing the identified problems.	Schedule 5, para. 13(c)	Complied. Satisfactory.

16. Under the PPMS the benefits of completed subprojects shall be evaluated by the PMU 6 months after the completion of a subproject and with same interval thereafter until the close of the Project. Such PPMS reports shall be submitted to the Bank at the end of each evaluation.	Schedule 5, para. 14(a)	Complied. Satisfactory.
17. HUD & PHED shall also carry out a third party validation of the PPMS report, before the mid-term review of the Project, and again after the completion of the Project, all in accordance with processes and methodology acceptable to the Bank.	Schedule 5, para. 14(b)	Complied. Satisfactory.
18. The training program established during the PRWSSP and refined during the preparation of the Project shall include training to the CBOs, HUD&PHED staff, and community, in operation and maintenance, and management of water supply and drainage of subprojects, tariff setting, and revenue collection.	Schedule 5, para. 15(a)	Complied. Satisfactory.
19. Ensure that HUD&PHED, imparts training to the community participants during the construction of the water supply and drainage subprojects or prior to handing over the subprojects so as to ensure that trained participants are available to operate and maintain these subprojects when completed.	Schedule 5, para. 15(b)	Complied. Satisfactory.
20. To ensure timely and effective implementation of the Project, the Borrower shall cause Punjab to take all steps necessary to expedite recruitment of consulting services and complete procurement activities in accordance with Schedule 3 and 4 of the Loan Agreement.	Schedule 5, para. 16	Complied. Satisfactory.
21. The Borrower shall cause Punjab to ensure that the PMU submit to the Bank a monthly progress report of the Project by the end of first week of the following months. The report shall include updated progress of implementation of each subproject, and award of new subprojects under Part A, progress of Parts B, C, and D, issues requiring attention, summary of CDU activities, work done by consultants, and Project impacts.	Schedule 5, para. 17	Complied. Highly satisfactory.
22. Undertake water quality monitoring of all PRWSSP subprojects and the Project subprojects at 6 month intervals, particularly after monsoon season, and in case of any contamination identified, shall take timely measures to address the problems. A separate report on this shall be included in the monthly progress report of the Project.	Schedule 5, para. 18	Partly Complied. Partly Satisfactory.

23. The Project shall be reviewed jointly by HUD&PHED and the Bank semiannually to assess the implementation progress. Findings of the reviews shall be discussed with Punjab for necessary action, as required.	Schedule 5, para.19(a)	Complied. Satisfactory.
24. Additionally, a comprehensive mid-term review of the project shall be carried out by Punjab, concerned district and tehsil governments, and the Bank, after about 250 subprojects have been approved for implementation, and 100 subprojects are completed. This review shall (i) critically evaluate the Project progress, Project implementation procedures, procurement methodology, PPMS activities, the Project consultants' performance and community participation activities, (ii) capacity building of TMAs and their role in the implementation of the Project, and (iii) formulate measures to remedy identified weaknesses, to ensure successful implementation and achievement of the Project objectives.	Schedule 5, para. 19(b)	Complied. Satisfactory.
25. Based on the mid-term review under clause (b) of this paragraph, in case there is a need to modify subproject selection and implementation arrangements, these shall be assessed and applied as mutually acceptable to the Bank, the Borrower and Punjab.	Schedule 5, para. 19(c)	Complied. Satisfactory.
26. Acquisition of any land required for the Project (including that required for the purposes of water source development, overhead reservoir, water transmission line and waste water disposal works) shall be in accordance with the Land Transfer MOU signed with the voluntary land owners to ensure that the donations are voluntary.	Schedule 5, para. 20(a)	Complied. Satisfactory.
27. HUD&PHED shall regularly monitor the working of the Land Transfer MOU during Project implementation (i) to ensure the voluntary nature of its arrangements; and (ii) to ensure that non-titled users of related land acquired under clause (a) of this paragraph are not displaced in the process.	Schedule 5, para. 20(b)	Complied. Satisfactory.
28. In case of any grievance by an affected person under clauses (a) and (b) of this paragraph, the same shall be taken up and resolved forthwith, by the respective UC.	Schedule 5, para. 20(c)	Complied. Satisfactory.
29. The Borrower shall cause Punjab to periodically review impact of the Project on indigenous people during the implementation of the Project by setting-up performance indicators in the PPMS, and collecting and analyzing the information during and after the Project execution, through comparing it with the baseline data.	Schedule 5, para. 21(a)	Complied. Satisfactory.
30. The Borrower and Punjab shall ensure that any negative impact on indigenous people due to Project implementation shall be properly addressed by the EA on a timely basis during the implementation of the Project in accordance with ADB's Indigenous People's Policy, 1998, as amended from time to time.	Schedule 5, para. 21(b)	No indigenous people reported.

<p>31. The Borrower shall cause Punjab to ensure women's participation in the subproject planning, execution, and operation and maintenance. In this regard, HUD&PHED and all UCs shall ensure that women councilors and female CBOs will participate in the subproject planning, execution and operations and maintenance, together with the male CBOs, in accordance with the gender strategy as agreed between the Borrower and the Bank.</p>	Schedule 5, para. 22	Complied. Satisfactory.
<p>32. The Borrower shall cause Punjab to ensure that each proposed subproject (new or to be rehabilitated) meets the following criteria before it is approved for financing under the Loan: (i) the subproject shall be primarily located in Brackish or Barani areas; (ii) the subproject shall be in a Project community that does not have a water supply subproject; (iii) an initial environmental examination (IEE) and an environmental impact assessment examination (EIA), as required, for the subproject, including the formulation of any necessary mitigation measures, shall have been prepared. (iv) a Subproject Execution MOU substantially in the form agreed upon by the Bank and HUD&PHED, shall have been entered into between the CBO and HUD&PHED; and (v) the community concerned is prepared to contribute its share in the capital cost of the subproject to a level satisfactory to HUD&PHED.</p>	Schedule 5, para. 23(a)	Complied. Satisfactory.
<p>33. The Subproject Execution MOU referred to in clause (a) of this paragraph shall provide that upon its signing, the CBO shall with the assistance of HUD&PHED (i) have been established as a legal entity under the Local Government Ordinance 2001 of the Borrower, or any other applicable legislation; and (ii) have opened a joint account (the CBO Account) with the PIC in a local bank or post office and made a minimum deposit equivalent to the estimated operation and maintenance costs of the subproject for 2 months. The Subproject Execution MOU shall also include provisions that the CBO shall (i) manage, operate, and maintain the water an drainage subproject in the Project community, after HUD&PHED has commissioned and handed the subproject over to the CBO; and (ii) implement subproject-specific tariffs to recover all the operation and maintenance costs for the subproject constructed.</p>	Schedule 5, para. 23(b)	Complied. Satisfactory.
<p>34. HUD&PHED shall furnish ADB with a copy of each signed Subproject Execution MOU.</p>	Schedule 5, para. 23(c)	Complied. Satisfactory.

35. The Borrower shall cause Punjab, through HUD&PHED, to obtain ADB's prior approval for any subproject proposals estimated to cost the equivalent of \$300,000 or more. For this purpose, Punjab shall submit to ADB an application for the approval of each such subproject. Such application shall be in a form satisfactory to ADB and shall contain a full description and appraisal of each such subproject and any other information as ADB shall reasonably request;	Schedule 5, para. 24(a)	Complied. Satisfactory.
36. The Borrower shall cause Punjab to approve through HUD&PHED, subproject proposals estimated to cost the equivalent of less than \$300,000 and HUD&PHED shall inform ADB promptly upon giving its approval to such subproject proposals. The Borrower shall cause Punjab to submit to ADB, in requesting any withdrawal, a summary description of each such subproject and any other information as ADB shall reasonably request.	Schedule 5, para. 24(b)	Complied. Satisfactory.
37. The Borrower shall cause Punjab to submit, through HUD&PHED, along with the subproject proposal, to ADB for its review and approval the IEEs and EIAs, as required, of the subproject proposal estimated to cost the equivalent of \$300,000 or more. Punjab shall ensure that the EIA (if any) for any subproject proposal is cleared by the Punjab Environmental Protection Agency and endorsed by ADB.	Schedule 5, para. 25	Complied. Satisfactory.
38. HUD&PHED shall (i) ensure that a preventive maintenance schedule, as already developed under the PRWSSP, shall be made available to the CBO in Urdu language, for each water supply and drainage subproject it constructs; and (ii) provide training prior to handing over of subproject to the CBO on the operation and maintenance of the subproject under the Project.	Schedule 5, para. 26	Complied. Satisfactory.
39. The Borrower shall cause Punjab to ensure that HUD&PHED shall construct an adequate drainage subproject in any community where water supply subprojects are constructed under the Project or already exist without adequate drainage facilities.	Schedule 5, para. 27	Complied. Satisfactory.
40. The Borrower shall cause Punjab to allow the CBOs to implement subproject-specific tariffs to recover operation and maintenance costs for the community water supply and drainage subprojects constructed under the Project.	Schedule 5, para. 28(a)	Complied. Highly satisfactory.
41. The Borrower shall cause Punjab to ensure through HUD&PHED that adequate training is provided to the related CBO in tariff setting and revenue collection.	Schedule 5, para. 28(b)	Complied. Highly satisfactory.
42. The Borrower shall cause Punjab to carry out the Project with due diligence and efficiency and in conformity with sound administrative, financial engineering, environmental and community water supply, sanitation and health practices.	Article IV, section 4.01(a)	Complied. Highly satisfactory.

43. The Borrower shall make available to Punjab, or shall cause Punjab to make available, promptly as needed, and on terms and conditions acceptable to the Bank, the funds, facilities, services, land and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project.	Article IV, section 4.02	Complied. Highly satisfactory.
44. The Borrower shall furnish, or cause to be furnished, to the Bank all such reports and information as the Bank shall reasonably request concerning (i) the Loan, and the expenditure of the proceeds and maintenance of the service thereof; (ii) the goods and services and other items of expenditure financed out of the proceeds of the Loan; (iii) the Project; (iv) the administration, operations and financial condition of HUD&PHED, Punjab and any other agencies of the Borrower or Punjab responsible for the carrying out of the Project and operation of the Project facilities, or any part thereof; (v) financial and economic conditions in the territory of the Borrower and the international balance-of-payments position of the Borrower; and (vi) any other matters relating to the purposes of the Loan.	Article IV, section 4.04	Complied. Satisfactory.
45. The Borrower shall enable the Bank's representatives to inspect the Project, the goods financed out of the proceeds of the Loan, and any relevant records and documents.	Article IV, section 4.05	Complied. Highly satisfactory.
46. Except as the Bank may otherwise agree, all goods and services to be financed out of the proceeds of the Loan shall be procured in accordance with the provision of Schedule 3 and Schedule 4 of the Loan Agreement. The Bank may refuse to finance contract where goods or services have not been procured under procedures substantially in accordance with those agreed between the Borrower and the Bank or where the terms and conditions of the contract are not satisfactory to the Bank.	Article II, section 2.03(b)	Complied. Satisfactory.
47. Punjab shall carry out the Project in accordance with plans, design standards, specifications, work schedules and construction methods acceptable to the Bank. Punjab shall furnish, or cause to be furnished, to the Bank, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as the Bank shall reasonably request.	Article II, section 2.04	Complied. Highly satisfactory.
48. Punjab shall maintain, or cause to be maintained, records and accounts adequate to identify the goods and services and other items of expenditure financed out of the proceeds of the Loan, to disclose the use thereof in the Project, to record the progress of the Project (including the cost thereof) and to reflect, in accordance with consistently maintained sound accounting principles, its operations and financial condition.	Article II, section 2.06	Complied. Highly satisfactory.

<p>49. Punjab shall furnish to the Bank all such reports and information as the Bank shall reasonably request concerning (i) the Loan and the expenditure of the proceeds thereof; (ii) the goods and services and other items of expenditure financed out of such proceeds; (iii) the Project; (iv) the administration, operations and financial condition of Punjab and HUD&PHED; (v) any other matters relating to the purposes of the Loan.</p>	<p>PA, Article II, section 2.08(a)</p>	<p>Complied. Satisfactory.</p>
<p>50. Without limiting the generality of the foregoing, Punjab through HUD&PHED shall furnish to the Bank monthly reports on the execution of the Project and on the operation and management of the Project facilities. Such reports shall be submitted in such form and in such detail and within such a period as the Bank shall reasonably request, and shall indicate, among other things, (i) progress made against established targets, including pre-identified monitoring indicators; (ii) delays and problems encountered, and actions taken or proposed to be taken to remedy these problems; (iii) compliance with Loan covenants; (iv) proposed program of activities to be undertaken during the next month; and (v) expected progress during the next 3 months.</p>	<p>PA, Article II, section 2.08(b)</p>	<p>Complied. Highly satisfactory.</p>
<p>51. Promptly after physical completion of the Project, but in any event not later than 3 months thereafter or such later date as the Bank may agree for this purpose, Punjab through the HUD&PHED, shall prepare and furnish to the Bank a report, in such form and in such detail as the Bank shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by Punjab of its obligations under this Project Agreement and the accomplishment of the purposes of the Loan.</p>	<p>PA, Article II, section 2.08(c)</p>	<p>Complied. Satisfactory.</p>
<p>52. Punjab through the HUD&PHED shall (i) maintain separate accounts for the Project; (ii) have such accounts and related financial statements (balance sheet, statement of income and expenses, and related statements) audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to the Bank; and (iii) furnish to the Bank, promptly after their preparation but in any event not later than 9 months after the close of the fiscal year to which they relate, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and compliance with the covenants of the Loan Agreement as well as on the use of the procedures for Imprest Account, SOE, all in the English language. Punjab shall furnish to the Bank such further information concerning such accounts and financial statements and the audit thereof as the Bank shall from time to time reasonably request.</p>	<p>PA, Article II, section 2.09</p>	<p>Complied. Highly satisfactory.</p>

53. Except as the Bank may otherwise agree, Punjab shall not sell, lease or otherwise dispose of any of its assets which shall be required for the efficient carrying on of its operations or the disposal of which may prejudice its ability to perform satisfactorily any of its obligations under the Project Agreement.	PA, Article II, section 2.12	Complied. Satisfactory.
54. Except as the Bank may otherwise agree, Punjab shall apply the proceeds of the Loan to the financing of expenditures on the Project in accordance with the provisions of the Loan Agreement and this Project Agreement, and shall ensure that all goods and services financed out of such proceeds are used exclusively in the carrying out of the Project.	PA, Article II, section 2.13	Complied. Highly satisfactory.

ECONOMIC ANALYSIS

A. Introduction

1. The following analysis is an ex post facto economic reevaluation at the close of the Project to estimate the anticipated economic returns based on actual costs and anticipated and visible benefits, and compare those with the returns estimated at appraisal. The reevaluation generally follows the methodology adopted at appraisal, but the present analysis relies on data provided by the Housing, Urban Development and Public Health Engineering Department and presented in the project performance management system, and data collected from visits to 34 sample subprojects by the project completion report mission.

2. The Project provided water supply and sanitation (WSS) facilities to those communities that shared subproject capital costs and undertook responsibility for the operation and maintenance (O&M) of the facilities. Due to the limited availability of fresh water from alternate sources, the subprojects were designed mainly to provide safe water at the doorstep, with provision for incremental water deliveries.

B. Methodology and Approach

3. The Project consists of 778 WSS subprojects—578 new pumping and gravity-based schemes and 200 rehabilitation schemes—implemented in 30 districts of Punjab province. A sample group of 78 subprojects—51 new pumping and gravity-based schemes and 27 rehabilitation schemes—selected through stratified random sampling was used for carrying out economic analysis and calculating the economic internal rate of return (EIRR). The EIRR has been calculated on the basis of the capital cost incurred, actual and estimated O&M cost, and benefits achieved and estimated to date.

4. Quantifiable benefit is derived from net time savings in daily collection of water by the main beneficiaries, i.e., women. The resulting time savings accruing to women from reduced cartage of water could permit greater labor inputs in (i) agricultural activities during seasonal peaks; (ii) cottage industries; (iii) other livelihood improvement activities, including those initiated with microcredit provided under the social uplift and poverty eradication program; and (iv) more leisure time, which is also assumed to have an economic benefit. The health benefits resulting from Project cannot be quantified, however, and thus are not included for the purposes of the EIRR analysis. The health benefits are regarded as long-term benefits and their true impact on the beneficiaries should be measured at least 3 to 4 years after provision of a particular facility.

5. In most of the subprojects the tariff is based on the actual monthly expenditures for O&M of the subproject. The tariff in 63 subprojects is charged on the basis of actual household water usage, as determined using water meters. In the remaining subprojects the water supply is rationed, with fixed delivery hours for each household and a fixed monthly tariff.

C. Assumptions

6. The main assumptions adopted for the analysis are as follows:

- (i) The year in which a subproject is completed is taken as its base year.
- (ii) Each subproject is assumed to have a useful economic life of 20 years, with no residual value in year 20. An allowance of 10% of the total capital cost has been

made in year 10 for the replacement of electromechanical equipment, as compared to the 16-year replacement period assumed at appraisal.

- (iii) Revenue and costs, including capital and O&M costs, are expressed at their economic prices through application of conversion factors, and are taken in the local currency cost (i.e., Pakistan rupees [PRs]). The following conversion factors and assumptions are used:

Inflation factor	1.04
Standard conversion factor (SCF)	0.90
Conversion factor for unskilled labor	0.70
Rural wage rate (per hour)	12.50
Increase in wage rate (% per year)	5%
Percentage of time savings	50%
Discount rate	10%
Replacement cost (every 10th year)	10%
Increase in No. of connections per year	2.5%

- (iv) The labor component of O&M costs is assumed to increase at a real rate of 5% per annum over the period of analysis, whereas the other O&M costs, including the costs incurred for running the scheme, are assumed to increase at a real rate of 4% per annum based on the prevalent inflation rate.
- (v) In order to accommodate the increase in population in each subproject, a limited number of new connections are assumed to be given each year based on the population growth rate of 2.5%.
- (vi) The opportunity cost of water is assumed to be zero as the water supply schemes will cater to geographically dispersed communities, and will not significantly reduce the volume of water available for the irrigation of crops.
- (vii) Land costs are not included in the economic analysis as the opportunity cost of land is assumed to be zero.
- (viii) The only benefit incorporated into the EIRR is the value of time saved from fetching water, especially that of women. Field survey find an average time saving of 4.37 hours per household per day. As such the average time saving benefit for each subproject has been valued in terms of the rural market wage rate of women for agriculture or cottage industry (i.e., PRs12.5 per hour). A 100% wage rate is applied in the analysis as the opportunity cost of agricultural/rural labor is likely to be roughly equal to the actual market wage rate. The wage rate is assumed to increase at a real rate of 5% per annum over the period of analysis.
- (ix) The real opportunity cost of capital is 12% per annum.
- (x) The annual production/delivery has been designed at around 40 liters per capita per day, with no provision for unaccounted-for water due to leakages.
- (xi) The shadow wage rate is 0.7 for female workers (to reflect their opportunity cost).
- (xii) The population will increase at 2.5% annually.

- (xiii) The water supply has not been differentiated as being incremental and non-incremental, as was done in the report and recommendation of the President. In all sample subprojects visited, the CBOs were operating the tubewells for a standard time duration and average water consumption has remained more or less the same before and after the Project. The number of exceptions to the incremental use of water in subprojects was negligible; they were purely needs-based to facilitate special occasions, and were free of charge. A CBO may increase its water supply in the future by increasing the running time of the tubewell, but that has been incorporated in the project analysis by assuming a certain rate of increase in water connections and O&M costs over the life of the subproject. Further, a specific value cannot be ascertained for the incremental water produced by the system as the CBOs are not selling water.

D. Estimation of EIRR

7. The average EIRR for the 78 schemes is estimated as 41.63%. The figure is conservative, as it does not include benefits derived from sanitation improvements and health benefits. For individual schemes the EIRR ranges between 7.17% and 129.50%. Across the schemes, the EIRR estimates vary as a function of scheme size, distance of source from the settlement, population, and household size. The EIRR is in tandem with the estimates for similar schemes done at appraisal. Table 1 presents the EIRR for the project as a whole.

E. Sensitivity Analysis

8. The sensitivity analysis of economic costs and benefits is presented in Table 2. The Project is robust and insensitive to increase in cost. It can absorb more than 50% increase in cost and 50% decrease in benefits. The Project is also viable even if there is a simultaneous increase of 50% in cost and 50% decrease in benefits.

F. Financial Analysis

9. Financial analysis was not undertaken at appraisal, but an estimation of the average incremental financial cost (AIFC) and an affordability analysis were performed. The AIFC is the ratio of the discounted cost (both capital and O&M) of measurable addition to the capacity divided by the total discounted water delivered in cubic meters over its expected life. However, as the actual tariff per household per subproject (which ranged between PRs30–PRs150 per household per month) was available, there is no need to calculate the AIFC at completion. Furthermore, the financial analysis has not been done at completion, because the communities are bearing only the subproject O&M costs, and are not charging a tariff to recover the subproject capital costs. This is also in line with the project objectives, as the project focused on the provision of WSS schemes to communities that lacked access to safe drinking water and were mostly poor, and therefore lacked the capacity to make the needed infrastructure investments, particularly given that most were in small settlements a significant distance from water sources.

G. Project Benefits

10. The Project is benefiting a population of about 2.6 million, which is expected to increase to about 3.8 million in 20 years. The main benefit is the economic value of the time saved by women and diverted to activities that will enhance household income. The resultant time saving

significantly reduces the stress on women and girls. With water available on their doorstep, women's contribution to farm-related activities, tending livestock, and other off-farm income generating activities has increased considerably. Moreover, women have more time for household chores and better child care. Girls that formerly shared the burden of fetching water are now able to attend school regularly.

11. In addition, there are other significant non-quantifiable benefits, especially in relation to health improvement. Access to clean water has significantly reduced the incidence of waterborne diseases and other illnesses, and the related loss in productivity due to absenteeism from work. These benefits are difficult to quantify and have been excluded from the EIRR estimate. Based on anecdotal evidence collected in the field, on average PRs125–Rs150 has been saved on health expenditures per household per month. Similarly, stagnant ponds that served as breeding places for mosquitoes have been eliminated. Use of drainage effluent for irrigation after treatment in oxidation ponds is also generating additional economic benefits.

12. The community mobilization done by the Project has also accrued indirect benefits to the communities involved. The communities have undertaken several initiatives on a self-help basis and have linked themselves to various other government projects, district governments, and civil society organizations. Nearly 100% of the project communities have registered with their local government as a community citizen board (CCB), allowing them to access public funds. The communities have also lined their water courses, installed street lights, and started various small businesses by accessing microfinance from the project's social uplift and poverty eradication program component, as well as other microfinance institutions.

Table A4.1: Economic Internal Rate of Return of the Project
(PRs million)

Year	Total Economic Benefits	Capital	Labor (O&M)	Others (O&M)	Total (O&M)	Total	Total Economic Costs	Net Economic Benefits	EIRR
2004	0	120.46	0	0	0	120.46	108.41	(108.41)	41.63%
2005	36.09	178.89	0.87	3.36	4.23	183.11	164.80	(128.71)	
2006	96.18	158.25	2.21	7.03	9.24	167.49	150.74	(54.56)	
2007	169.76	12.83	3.85	11.33	15.18	28.01	25.20	144.56	
2008	184.96	0	4.13	11.93	16.07	16.07	14.46	170.50	
2009	199.07	0	4.34	12.41	16.75	16.75	15.08	183.99	
2010	214.25	0	4.56	12.91	17.46	17.46	15.72	198.53	
2011	230.58	0	4.79	13.42	18.21	18.21	16.39	214.20	
2012	248.16	0	5.03	13.96	18.98	18.98	17.09	231.08	
2013	267.09	0	5.28	14.52	19.79	19.79	17.82	249.27	
2014	287.45	12.05	5.54	15.10	20.64	32.68	29.42	258.04	
2015	309.37	17.89	5.82	15.70	21.52	39.41	35.47	273.90	
2016	332.96	15.82	6.11	16.33	22.44	38.26	34.44	298.52	
2017	358.35	1.28	6.41	16.98	23.40	24.68	22.21	336.14	
2018	385.67	0	6.73	17.66	24.40	24.40	21.96	363.72	
2019	415.08	0	7.07	18.37	25.44	25.44	22.90	392.18	
2020	446.73	0	7.42	19.10	26.53	26.53	23.88	422.85	
2021	480.79	0	7.80	19.87	27.66	27.66	24.90	455.90	
2022	517.45	0	8.19	20.66	28.85	28.85	25.96	491.49	
2023	556.91	0	8.59	21.49	30.08	30.08	27.08	529.83	
2024	599.37	0	9.02	22.35	31.37	31.37	28.24	571.14	
2025	488.15	0	7.18	15.87	23.05	23.05	20.75	467.40	
2026	276.12	0	4.07	8.78	12.85	12.85	11.57	264.55	
2027	9.13	0	0.24	0.31	0.56	0.56	0.50	8.63	

O&M = operation and maintenance.

Table A4.2: Sensitivity Analysis of the Economic Internal Rate of Return

	Magnitude of Change	Estimated EIRR with Increase in Total Cost (%)	Estimated EIRR with Decrease in Benefits (%)
1	Base case	41.63	41.63
2	10% change (increase/decrease)	38.27	37.93
3	20%	35.44	34.18
4	30%	33.01	30.36
5	40%	30.91	26.42
6	50%	29.06	22.31
7	207% increase	14.31	-
8	67% decrease	-	14.53
9	50% simultaneous increase/decrease	14.70	14.70

ASSESSMENT OF OVERALL PROJECT PERFORMANCE

Criterion	Assessment	Rating (0-3)	Weight (%)	Weighted Average
Relevance	Highly Relevant	3	20	0.6
Effectiveness	Highly Effective	3	30	0.9
Efficiency	Highly Efficient	3	30	0.9
Sustainability	Most Likely	3	20	0.6
Overall Rating	Successful		100	3.0

Highly Successful (HS): Overall weighted average is greater than 2.7.

Successful (S): Overall weighted average is between 1.6 and less than 2.7.

Partly Successful (PS): Overall weighted average is between 0.8 and less than 1.6.

Unsuccessful (U): Overall weighted average is less than 0.8.

PROCUREMENT PACKAGES

No.	Package	Unit	Method	Value (\$ '000)
1	Design and Project Implementation Support – Consulting Services (Domestic)	1	NCB	1,122
2	Community Development Unit Consultants	5	NCB	158
3	Civil Works and Machinery	778	NCB	71,132
4	Machinery for Laboratories	12	NCB	122
5	Supply of Vehicles	4	NCB	487
6	Supply of Office Equipment	4	NCB	94

NCB = national competitive bidding.

CHRONOLOGY OF MAJOR EVENTS

Event	Date
Fact-Finding	July/August 2002
Loan Negotiations	October 2002
Board approval	November 2002
Loan agreement	January 2003
Inception mission	February 2003
Loan effectiveness	April 2003
Contract with two individual consultants	May 2003
Award of first batch of 23 civil works contracts	September 2003
Award of second batch of 17 civil works contracts	October 2003
First contract for the procurement of 20 vehicles	November 2003
Contract with technical support consultants consortium	November 2003
First loan review mission	December 2003
Award of second contract for the procurement of three vehicles	December 2003
Award of third batch of 45 civil works contracts	January 2004
Award of fourth batch of 40 civil works contracts	February 2004
Award of fifth batch of 32 civil works contracts	July 2004
Second loan review mission	August 2004
Award of sixth batch of 31 civil works contracts	August 2004
Award of seventh batch of 34 civil works contracts	September 2004
Award of third batch of 31 civil works contracts	December 2004
Procurement of posters	January 2005
Award of ninth batch of 34 civil works contracts	January 2005
Award of 10 th batch of 28 civil works contracts	February 2005
Midterm review mission	February 2005
Award of 11 th batch of 49 civil works contracts	April 2005
Approval of first reallocation of loan proceeds	April 2005
Award of 12 th batch of 33 civil works contracts	July 2005
Environment safeguard review mission	July 2005
Award of 13 th batch of 74 civil works contracts	August 2005
Award of 14 th batch of 46 civil works contracts	October 2005
Award of 15 th batch of 29 civil works contracts	November 2005
Award of 16 th batch of 32 civil works contracts	December 2005
Third loan review mission	December 2005
Award of 17 th batch of 49 civil works contracts	January 2006
Approval of second reallocation of loan proceeds	January 2006
Award of 18 th batch of 71 civil works contracts	April 2006
Award of 19 th batch of 36 civil works contracts	May 2006
Award of 20 th batch of 23 civil works contracts	July 2006
Award of 12 contracts for procurement of equipment for PHED laboratories	September 2006
Fourth loan review mission	November 2006
Fifth loan review mission	December 2006
Award of 21 st batch of 12 civil works contracts	December 2006
Award of 22 nd batch of 12 civil works contracts	March 2007
Project completion report	August 2007

PHED = Public Health Engineering Department