



# Completion Report

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Project Number: 33268  
Loan Number: 2234  
October 2012

## Pakistan: Federally Administered Tribal Areas Rural Development Project

## CURRENCY EQUIVALENTS

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

		<b>At Appraisal</b> (06 July 2004)	<b>At Project Completion</b> (31 March 2012)
PRe1.00	=	\$0.017153	\$0.011028
\$1.00	=	PRs58.30	PRs90.68

## ABBREVIATIONS

ADB	–	Asian Development Bank
APB	–	agency project board
DMF	–	design and monitoring framework
EIRR	–	economic internal rate of return
FATA	–	federally administered tribal areas
MIS	–	management information system
O&M	–	operation and maintenance
PIU	–	project implementation unit
PMU	–	project management unit
PPMS	–	project performance management system
PRB	–	project review board
PSC	–	project steering committee
RRP	–	report and recommendation of the President
SAFRON	–	(Ministry of) States and Frontier Regions
VAHW	–	village animal husbandry worker

## 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	2234
3.	Project Title	Federally Administered Tribal Areas (FATA) Rural Development Project
4.	Borrower	Islamic Republic of Pakistan
5.	Executing Agency	FATA Secretariat
6.	Amount of Loan	SDR29,181,000
7.	Project Completion Report Number	1350

### B. Loan Data

1.	Appraisal	
	– Date Started	23 June 2004
	– Date Completed	6 July 2004
2.	Loan Negotiations	
	– Date Started	20 March 2006
	– Date Completed	21 March 2006
3.	Date of Board Approval	25 April 2006
4.	Date of Loan Agreement	14 June 2006
5.	Date of Loan Effectiveness	
	– In Loan Agreement	14 September 2006
	– Actual	8 August 2006
	– Number of Extensions	None
6.	Closing Date	
	– In Loan Agreement	31 December 2011
	– Actual	30 August 2012
	– Number of Extensions	1
7.	Terms of Loan	
	– Interest Rate	1% per year during grace period; 1.5% per year thereafter
	– Maturity (number of years)	32 years
	– Grace Period (number of years)	8 years
8.	Terms of Relending (if any)	
	– Interest Rate	Not applicable
	– Maturity (number of years)	Not applicable
	– Grace Period (number of years)	Not applicable
	– Second-Step Borrower	Not applicable

## 9. Disbursements

## a. Dates

**Initial Disbursement**  
6 March 2007

**Final Disbursement<sup>1</sup>**  
30 August 2012

**Time Interval**  
65 months, 25 days

**Effective Date**  
8 August 2006

**Original Closing Date**  
31 March 2012

**Time Interval**  
67 months, 24 days

## b. Amount (SDR)

<b>Category or Subloan</b>	<b>Original Allocation</b>	<b>Last Revised Allocation</b>	<b>Amount Canceled</b>	<b>Net Amount Available</b>	<b>Amount Disbursed</b>	<b>Un-disbursed Balance<sup>2</sup></b>
Civil works: Design and supervision	877,000	0	877,000	0	0	0
Civil works: Survey and investigation	150,000	0	150,000	0	0	0
Civil works: Construction	13,232,000	19,002,190	(5,770,190)	19,002,190	18,384,202	617,988
Vehicles and equipment: Vehicles	1,172,000	663,169	508,831	663,169	559,142	104,027
Vehicles and equipment: Equipment and furniture	633,000	231,786	401,214	231,786	230,075	1,711
specialist services	915,000	492,606	422,394	492,606	415,559	77,047
Service contracts	911,000	1,021,409	(110,409)	1,021,409	993,372	28,037
Training and capacity building	1,352,000	815,736	536,264	815,736	978,425	(162,689)
Crop demonstrations and trials	857,000	623,042	233,958	623,042	642,535	(19,493)
Forest nurseries and plantation	2,095,000	3,462,060	(1,367,060)	3,462,060	3,829,206	(367,146)
Studies, plans, and research	30,000	0	30,000	0	0	0
Implementation supervision: Contract staff	2,414,000	1,618,625	795,375	1,618,625	1,547,416	71,209
Implementation supervision: Incremental office and vehicle operating costs	1,593,000	649,377	943,623	649,377	649,937	(560)
Beneficiary-provided O&M	363,000	0	363,000	0	0	0
Interest charge	599,000	601,000	(2,000)	601,000	601,000	0
Unallocated	1,988,000	0	(1,988,000)	0	0	0
Imprest account	0	0	0	0	347,804	(347,804)
<b>Total</b>	<b>29,181,000</b>	<b>29,181,000</b>	<b>0</b>	<b>29,181,000</b>	<b>29,178,673</b>	<b>2,326</b>

O&M = operation and maintenance.

Note: Figures may not add up to the totals because of rounding.

<sup>1</sup> The final transaction date was 30 August 2012.

<sup>2</sup> The undisbursed balance will be cancelled upon closing of the loan account.

10. Local Costs (Financed)
- Amount (\$) Local cost financing not applicable to loan
  - Percentage of Local Costs
  - Percentage of Total Cost

### C. Project Data

#### 1. Project Cost (\$'000)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	11,400	60,495
Local Currency Cost	49,000	0
<b>Total</b>	<b>60,400</b>	<b>60,495</b>

Local cost financing not applicable

#### 2. Financing Plan (\$'000)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower Financed	15,400	12,363
ADB Financed	41,100	43,736
Other External Financing (Beneficiaries)	3,000	3,467
<b>Total</b>	<b>59,500</b>	<b>59,566</b>
IDC Costs		
Borrower Financed	0	0
ADB Financed	900	929
Other External Financing	0	0
<b>Total</b>	<b>60,400</b>	<b>60,495</b>

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

Note: Figures may not add up to the totals because of rounding.

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

Component	Appraisal Estimate	Actual
<b>A: Base Cost</b>		
1. Integrated Resource Management	11,469	10,656
2. Community Infrastructure Development	38,476	41,487
3. Project Management	9,555	7,423
<b>Subtotal</b>	<b>59,500</b>	<b>59,566</b>
<b>Interest During Construction</b>	900	929
<b>Total</b>	<b>60,400</b>	<b>60,495</b>

Note: Figures may not add up to the totals because of rounding.

#### 4. Project Schedule

Item	Appraisal Estimate	Actual
Date of Contract with Consultants		
Baseline Survey and Development of Management Information System		14 May 2007
Mian Zaki Ullah		16 April 2008
Nimmer Zaman		21 April 2008

Item	Appraisal Estimate	Actual
Iftikhar Ali		2 May 2008
Kifatayullah Baloch		7 May 2008
Saliheen Khan		21 July 2008
Asif Khan		1 August 2008
Khalid Khatak		5 August 2008
Khurshed Anwar		7 August 2008
Civil Works Contracts		
Award of First Contract		28 March 2007
Award of Last Contract		12 September 2011
Completion of First Contract		20 April 2007
Completion of Last Contract		31 March 2012
Equipment and Supplies		
Dates		
First Procurement		14 December 2006
Last Procurement		21 March 2010
Completion of Equipment Installation		30 June 2011

#### 5. Project Performance Report Ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
30 April 2006 – 31 December 2010	Satisfactory	Satisfactory
1 January 2011 – 30 August 2012	On track <sup>a</sup>	On track <sup>a</sup>

<sup>a</sup> From 1 January 2011 PPR system was replaced with e-ops where there are no more separate ratings.

#### D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members <sup>a</sup>
Fact finding	18 Sep–7 Oct 2003	6	102	a, b, c, d, e, f
Appraisal	23 Jun–6 Jul 2004	8	112	g, a, b, c, d, e, h, i
Inception	8–13 Nov 2006	2	12	j, k
Inception	4–8 Dec 2006	2	10	j, k
Review 1	22–27 Oct 2007	1	6	j
Review 2	25 Oct 2008	1	1	j
Midterm review	5–16 Oct 2009	1	6	j
Review 3	6–11 Dec 2010	2	12	j, k
Review 4	11–15 Oct 2011	1	5	j
Project completion review	22–26 May 2012	2	15	g, k, l

<sup>a</sup> a = senior rural development specialist; b = water resource specialist; c = project economist; d = economist; e = programs officer, Pakistan Resident Mission; f = section officer of the economic affairs division, Ministry of Finance and Economic Affairs; g = economist (consultant); h = water resource engineer (consultant); i = sociologist (consultant); j = project implementation officer; k = project analyst.



## I. PROJECT DESCRIPTION

1. The Federally Administered Tribal Areas (FATA) in Pakistan is one of the country's most underdeveloped regions. The majority of the population lives off agriculture and livestock and cannot move out of below-subsistence livelihoods because of low farm and livestock productivity, weak and inefficient management of natural resources, and poor access to productive and physical infrastructure. Moreover, the degradation of the physical environment is contributing to the pervasive poverty. The objective of the project<sup>1</sup> was to (i) improve the productive potential of participating watersheds and their associated natural resource base; (ii) strengthen the capacity of communities in the project area to participate in planning, implementation, social and environmental management, and maintenance of assets from local development programs; and (iii) support the implementing departments in the project area in more socially inclusive operations within the framework of a convergent watershed development planning process. This objective was to be accomplished by having community groups implement most of the subprojects through the project's participatory approach and capacity building initiatives. An institutional base for planning and implementing multisector activities was to be established to improve livelihoods in the targeted poor communities. The project was to operate in 18 *tehsils* (subdistricts) representing about 1,200 communities in three FATA agencies of Mohmand, Bajaur, and Khyber.

2. The project had three components: (i) integrated resource management to achieve a sustainable increase in production from renewable natural resources; (ii) community infrastructure development to improve crop production and transportation; and (iii) project planning, management, and support to strengthen agency planning, implementation, and capacity to deliver better services to communities. Because development interventions were new to the communities in the project area; the project would build a broad alliance between communities and government to address the need to improve farm production and incomes, reverse environmental degradation, and strengthen watershed management over the long term. The integrated resource management component comprised improvements in farming systems and crop production, livestock and fodder development, and community forestry and range management. The community infrastructure component involved water resources assessment and management planning, and the construction and improvement of drinking water supply schemes, small irrigation schemes, and rural roads. The project planning, management, and support component entailed hiring consultants and other specialist contract services, procuring vehicles and equipment, and establishing accounting, monitoring, and reporting systems.

## II. EVALUATION OF DESIGN AND IMPLEMENTATION

### A. Relevance of Design and Formulation

3. The project design conformed to the overall framework of the government's poverty reduction strategy outlined in its 10-year Perspective Development Plan 2001–2011. A key objective was to accelerate gross domestic product growth, reduce unemployment, and ultimately eliminate poverty. The country strategy of the Asian Development Bank (ADB) was based on Pakistan's development goals and priorities for poverty reduction.<sup>2</sup> It also incorporated ADB's overarching objective of poverty reduction and lessons learned from past operations in Pakistan. The ADB strategy attached importance to reviving growth in Pakistan, particularly through interventions that would promote growth in sectors or activities with maximum impact on poverty reduction, including rural development. At the time the project was designed, ADB and

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<sup>1</sup> ADB. 2006. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Islamic Republic of Pakistan for the Federally Administered Tribal Areas Rural Development Project*. Manila.

<sup>2</sup> The project first appeared in ADB. 2002. *Country Strategy and Program: Pakistan 2002-2004*. Manila.

other funding agencies had varied and extensive involvement in agriculture and rural development in Pakistan. Those interventions were intended to enhance agricultural productivity, promote market-oriented policy reforms, strengthen the institutional framework, and develop resource-scarce areas of the country. Experience indicated that, in general, project impact is reduced when there is inadequate focus on consulting beneficiaries, engendering ownership, maintaining flexibility in project design, properly sequencing and prioritizing interventions, increasing capacity, fixing the dysfunctional systems of project implementation agencies, and ensuring post-project operation and maintenance (O&M). Some subprojects were considerably delayed and had to undergo revisions in design and scope because of (i) limited and delayed counterpart funding; (ii) political disruptions and weak management; and (iii) design deficiencies arising from lack of information or inadequate attention to the legal, political, institutional, and sociocultural environment.

4. The project design was relevant at appraisal. The formulation process was adequate, key stakeholders (including beneficiaries) were consulted during the project preparatory technical assistance,<sup>3</sup> and stakeholders' concerns were addressed in the design. The lessons learned from past experience were adequately considered in the project design. The scope of the project ideally matched the needs of the target communities in the project area, and implementation arrangements were generally adequate, as demonstrated by the consistently satisfactory performance of the project and completion without significant delay. The implementation mechanism was based on a participatory development approach, which involved beneficiaries in subproject planning and implementation, and in subsequent O&M. A sense of ownership was thereby created in the beneficiary communities from the start of the project cycle. In 2006, the newly formed FATA Secretariat, to which the government had mandated the development and administration of FATA agencies, took over from the Ministry of States and Frontier Regions (SAFRON) as the executing agency. The Governor's Secretariat (FATA), which was the implementing agency at appraisal, was also merged into the FATA Secretariat. A major change in the scope of the project, approved by ADB in December 2006, proved to be supportive of project implementation. Because the FATA Secretariat was both executing and implementing agency, close coordination between the project management and the steering committee and higher authorities of FATA became possible. The coordination was instrumental in the timely implementation of the project.

5. The project area became a highly sensitive security zone during the war on terror from the second half of 2007 onward. A service contract for a baseline survey had been awarded to a consulting firm by that time, but travel to the project area became extremely risky for the experts, and the activity was delayed. The FATA Secretariat realized that the high security risk made it impossible to recruit consulting firms for other activities, as envisaged at appraisal. The FATA Secretariat and ADB took a timely decision to recruit individual consultants from the project area and the adjoining Khyber Pakhtunkhwa province instead, as local experts could move around with less risk. A minor change in the method of selecting consultants, approved by ADB in December 2007, facilitated the recruitment of the required experts for important activities such as the water assessment study and the establishment of the project performance management system (PPMS).

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<sup>3</sup> ADB. 2002. *Technical Assistance to the Islamic Republic of Pakistan for the Federally Administered Tribal Areas Rural Development Project*. Manila.

## B. Project Outputs

6. The project operated in all 20<sup>4</sup> *tehsils* (subdistricts) in the project area, and 1,820 communities participated in planning, design, and implementation. The project output and target indicators are defined in the design and monitoring framework (DMF), which was retrofitted<sup>5</sup>, provided in Appendix 1. The various types of outputs delivered by the project are explained below.

### 1. Component 1: Integrated Resource Management

7. Under this component, assistance was to be provided in identifying and selecting appropriate agricultural technologies, and in training farmers and extension workers in new agricultural techniques. The main target group comprised small landholders and farmers, some with irrigation water and some without. The formation of a community organization or water user association was a prerequisite for their participation. The component consisted of three subcomponents:

- (i) Farming systems and crop production
  - (a) Assistance in improved seed technology and farming demonstrations;
  - (b) Training of trainers and farmer field training in integrated crop management;
  - (c) Adaptive research trials;
  - (d) Varietal screening of specific seeds; and
  - (e) Training of relevant staff of line departments to strengthen their capabilities in extension techniques.
- (ii) Livestock and fodder development. This subcomponent involved community training and knowledge transfer in animal nutrition and animal husbandry practices through the following:
  - (a) Analysis, planning, and capacity building of staff of the line departments;
  - (b) Improvement of fodder and forage production; and
  - (c) Training of village animal husbandry workers (VAHWs).
- (iii) Community forestry and range management
  - (a) Integration of farm forestry activities into the existing farming system;
  - (b) Rehabilitation and development of denuded community lands through improvements in vegetation cover;
  - (c) Introduction of participatory and multiple-use forest management in existing scrub forests; and
  - (d) Development of the technical, social, institutional, and entrepreneurial capacity of small farmers.

8. The project achieved the outputs envisaged for this component at appraisal. Farm labor days have increased by 598,664 yearly (against the target of 500,000); plantation has been done on 10,427 hectares (ha) (versus 9,500 ha); animal health services through VAHWs have improved for 52,303 households (versus 35,000 households<sup>01</sup>); and forage availability on rangelands has increased by 35% (versus 20%). The key activities envisaged at appraisal for realizing the outputs, with target numbers, were completed with significant achievements. Crop production has gone up by 72% on 22,306 ha, benefiting 41,295 households, and by 100% on 6,312 ha (against targets of 20,000 ha and 37,000 households); livestock productivity has increased for 52,303 households (versus 35,000 households); and community forestry and

<sup>4</sup> The number of *tehsils* in the project area increased from 18 at appraisal to 20 during project implementation.

<sup>5</sup> ADB. 2011 "Good Project Implementation Practice: Retrofitting Ongoing Projects financed by loans and grants into eOperation." Memorandum, Central Operations Services Office, Manila, February.

range management has improved on 13,711 ha (versus 12,000 ha), including plantation on 10,427 ha (versus 9,500 ha). To improve farming systems and crop production, training was provided to 2,350 farmers and 513 staff members of the Agriculture Department. To improve livestock productivity, 1,673 VAHWs were trained, 2,144 community members went on exposure visits to model farms, 263 community members received poultry management training, and 190 staff members of the Livestock Department were trained. To improve community forestry and range management, 2,160 farmers were provided technical training and exposure visits, and 155 staff members of the Forestry Department were trained. Appendix 2 gives details of activities carried out under the three components, with targets and achievements.

## **2. Component 2: Community Infrastructure Development**

9. This component involved new construction and the improvement of drinking water supply, small-scale irrigation and water storage structures, and link and access roads to remove critical infrastructure obstacles to service delivery and productivity. The component comprised the following four subcomponents:

- (i) Water resources assessment and management planning
  - (a) Groundwater and surface water assessment;
  - (b) Development of a groundwater and surface water monitoring system; and
  - (c) Preparation of a groundwater and surface water development and management framework and plan.
- (ii) Construction of drinking water supply facilities
  - (a) Construction of around 212 spring-fed gravity flow systems, around 624 dug well-based and around 31 tube well-based water supply facilities in areas with a high and stable groundwater table, around 135 hand-pumps, and the Shalman–Landi Kotal water supply scheme; and
  - (b) Technical assistance during construction, and O&M training for selected communities.
- (iii) Construction and rehabilitation of small irrigation systems
  - (a) Rehabilitation of around 72 existing structures, and construction of around 36 new irrigation structures, around 80 small ponds, around 130 check dams, around 12 small dams, around 144 dug wells, and around 12 tube wells, through cost-sharing arrangements with communities;
  - (b) Training for communities in the construction of irrigation structures and O&M; and
  - (c) Construction of protection bunds along affected land.
- (iv) Road construction and improvement
  - (a) Construction of around 120 kilometers (km) of low-cost link roads, and improvement and upgrading of around 72 km of existing roads; and
  - (b) Training of communities in O&M.

10. The outputs envisaged for this component were also achieved. The water assessment study, the first study of its kind in the area, was completed and a management plan was prepared. No water balance estimation of watersheds had ever been done before. The study included complete analyses of surface water, groundwater, water availability and consumption, and agriculture in the 44 watersheds in the project area. A water balance model was developed for each watershed on the basis of these analyses. The study was used to identify potential sites for surface and groundwater interventions, such as small dams and tube wells, and to locate sites where stream gauges and rain gauges could be installed to monitor inflow (precipitation) and outflow (surface runoff and groundwater recharge). The water management and monitoring plan was based on the water balance for each watershed. The background information and data analyses presented in the report, and the results of the study, will have

long-term applicability in future planning in FATA and similar watersheds. The relevant staff members of the FATA Secretariat and line departments have been trained to use the water balance model.

11. With respect to drinking water supply facilities, 938 schemes of the types mentioned in para. 9 were completed. The Shalman–Landi Kotal scheme was not constructed, however, because the government decided not to implement it at an early stage of project implementation. The decision did not affect the achievement of the output targets<sup>6</sup> set for the subcomponent. Water collection time has been reduced by 90% among 27,933 households (against the targets of 80% time reduction and 17,500 households). The types and numbers of schemes were adjusted to suit the selection criteria for the schemes. Schemes were identified according to the needs of the communities and selected on the basis of the availability of water sources, the size of the community, and the capacity of the community to share the cost of schemes and bear subsequent O&M expenditures. In the case of tube wells and small dams, the findings of the water assessment study were considered and only those sites with potential for groundwater and surface water exploitation without adverse environmental impact on the watershed were selected. Under the irrigation subcomponent, 539 new irrigation structures were built, 16 existing structures were rehabilitated, and 6,312 ha of new land was brought under irrigation (against the target of 6,000 ha). In addition, 435 protective bunds were constructed to protect 1,371 ha cultivated land from erosion. Under the road construction and improvement subcomponent, 189 km of new low-cost link roads were constructed and 44 km of existing roads were improved and upgraded, benefiting 13,132 households directly. Vehicle operating cost has been reduced by 22% and travel time by 21% (against the target of 15% for both indicators). For the implementation and O&M of small infrastructure schemes, 6,108 members of community organizations received training in technical and management skills. Details of the activities, with targets and achievements, are provided in Appendix 2.

### **3. Component 3: Project Planning, Management, and Support**

12. Under this component, the project was to provide planning, management, and other support services to facilitate timely implementation. The support services consisted of (i) hiring consultants and other specialist contract services; (ii) procuring vehicles and equipment; and (iii) establishing accounting, monitoring, and reporting systems. A key feature was the establishment of a management information system (MIS) for the regular monitoring of the physical and financial progress and development impact of the project. The consultants and other specialists were recruited with some changes in the methods of recruitment (para. 5). Equipment and vehicles were procured on time, facilitating the implementation of the project. Accounting, monitoring, and reporting systems were established efficiently. Throughout the project implementation period the FATA Secretariat submitted monthly progress reports on the physical and financial progress of the project without delays. The PPMS was established and updated regularly every 6 months, and reports were submitted to ADB. A geographic information system (GIS)–based information system was also set up. The progress and PPMS reports covered the outcome, output, and activity indicators specified in the DMF.

#### **C. Project Costs**

13. The total cost of the project at appraisal was estimated at \$60.371 million, including taxes and duties. It was to be covered by an ADB loan of \$42.0 million and by contributions from the government (\$15.360 million) and the beneficiaries (\$3.011 million). The actual project cost

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<sup>6</sup> The targets of this Project Completion Report are based on the DMF retrofitted as indicated in footnote 5, p.3.

was \$60.495 million. The ADB loan of \$44.665 million<sup>7</sup> also covered the interest during construction of \$0.929 million. The balance amount of \$0.537 million will be cancelled at loan account closing. The government financed \$12.363 million and the beneficiaries contributed \$3.467 million.

#### **D. Disbursements**

14. An imprest account and the statement-of-expenditure procedure were used in paying contractors. Most of the bills were for less than \$50,000. This procedure was less time consuming and ensured the timely release of payments to the contractors. The use of the imprest account facilitated the execution of civil works, agriculture, livestock, and forestry activities. The consultants, suppliers, and contractors were paid directly in the case of bills exceeding \$50,000. The disbursement procedures were efficient and supported smooth project implementation. The imprest account turnover ratio remained more than two during the entire implementation period. Annual disbursements are provided in Appendix 3.

#### **E. Project Schedule**

15. The project schedule was realistic and there were no significant delays in implementation. The loan agreement was signed on 14 June 2006 and the loan was declared effective on 8 August 2006. The conditions for loan effectiveness (the establishment of a project management unit [PMU] and the appointment of a project director and deputy project directors) were met 36 days before the scheduled date of effectiveness. Implementation started immediately after loan signing and continued smoothly. Project implementation units (PIUs), a project steering committee (PSC), a project review board (PRB), and agency project boards (APBs) were established on time. The project consistently achieved the annual targets for contract awards and disbursements. There were no significant delays in the recruitment of consultants and the procurement of goods. Community mobilization started immediately after the PIUs were established in November 2006, and the first community organization was formed on 1 March 2007. The first civil works contract was awarded in May 2007. Overall, project implementation remained on schedule and all works, except five small dams and three irrigation weirs, were completed before the original loan closing date of 31 December 2011 (Appendix 4). Dams and weirs were delayed slightly by unprecedented rains during the 2011 monsoon and by a few security hazards at construction sites. ADB granted a 3-month extension of the loan closing date to allow these works to be completed.

#### **F. Implementation Arrangements**

16. The implementation arrangements were generally adequate. The project area became a high-security zone right after the start of implementation; a consultant was kidnapped and killed. The participatory approach of involving beneficiary communities in the planning and execution of works proved to be the key to the success of the project implementation. Beneficiary communities were appropriately organized, trained, and supported by the project staff and line departments. The communities demonstrated commendable ownership of subprojects. They resisted the terrorists, and works generally continued without significant delays. Agency administration provided security to the project. Political agents (heads of administration of FATA agencies) and assistant political agents were involved in project administration, particularly in ensuring that security arrangements were in place. Close monitoring of progress and timely

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<sup>7</sup> The loan amount increased from \$42.0 million to \$45.2 million because of a change in parity between the US dollar and the Special Drawing Rights.

decisions by the FATA Secretariat, the executing agency, also had a positive impact on the implementation of the project.

## **G. Conditions and Covenants**

17. Conditions for loan effectiveness were met before the scheduled date. The loan was declared effective on 8 August 2006, 37 days before the scheduled date of 14 September 2006. The borrower and the executing agency complied with 34 loan covenants out of 37. The two loan covenants became inapplicable after the government's decision not to implement the Shalman–Landi Kotal water supply scheme. One loan covenant related to the EA became also inapplicable after the change in the executing agency from the Ministry of SAFRON to the FATA Secretariat. The status of compliance with the loan covenants is summarized in Appendix 5. The FATA Secretariat gave special attention to the covenants related to implementation arrangements, and to progress and performance monitoring and reporting. The FATA Secretariat submitted monthly instead of quarterly progress reports as required in the loan covenants. The auditors' reports on the project accounts were due by 31 December of each year starting in 2007. The first report was received after a delay of about 6 months, the second was on time, the third was delayed by about 1.5 months, the fourth was delayed by 10 days, and the fifth was received 3 months after the scheduled date.

## **H. Consultant Recruitment and Procurement**

18. The selection of consultants was carried out in accordance with ADB's Guidelines on the Use of Consultants. A total of 147 person-months of long- and short-term consulting services—21 person-months international and 126 person-months national experts—procured individually or through a consulting firm were envisaged at appraisal. In addition, specialized service contracts were to be awarded for various activities such as a baseline survey, an information campaign, community mobilization, a water assessment study, and MIS development. As the security situation in the project area made it impossible to recruit firms, individual consultants were recruited after ADB approved the change in selection method at the request of the FATA Secretariat. The consultants provided 243 person-months of services and delivered the required output efficiently. The quality of the outputs, particularly the water assessment study, was satisfactory. There were no cost overruns: \$639,727 of the allocated \$756,131 was used. Thirty-one service contracts were awarded for the baseline survey and MIS development, radio information campaigns, geotechnical investigations for dams, topographic surveys, community mobilization, and farmer field schools.

19. Works and goods were procured in accordance with Schedule 3 of the loan agreement and ADB's Procurement Guidelines. In total, 1,187 contracts for civil works, and 12 contracts for equipment, vehicles, and office furniture, were awarded. The mode of procurement for vehicles and equipment was changed from international shopping to national competitive bidding for packages costing more than \$100,000 but no more than \$500,000, and from international shopping to national shopping for packages costing \$100,000 or less. ADB approved the change in the procurement method in August 2007. Detail on procurement contracts is provided in Appendix 6.

## **I. Performance of Consultants, Contractors, and Suppliers**

20. The performance of the consultants was *satisfactory*. They delivered the required output and the quality of the output was satisfactory. The performance of the civil works contractors and suppliers was also *satisfactory*. The satisfactory performance of the consultants, contractors, and suppliers resulted in the completion of the project without any significant

delays. The only activity that was delayed was the construction of small dams and weirs, and this delay was due to security incidents at the construction sites and not to the performance of the contractors.

#### **J. Performance of the Borrower and the Executing Agency**

21. The borrower provided the counterpart funds, facilities, services, and other resources required to carry out the project in a timely manner and complied with the obligations agreed upon under the loan agreement. The project had a high level of ownership by the borrower. Counterpart funds were provided without delay. Project supervision and monitoring was diligent, and the management of activities was commendable. There were no start-up delays. The quality of the contract staff recruited for the project was outstanding. Coordination between the line departments, project management and staff, the FATA Secretariat, and communities was efficient and productive. Overall, the performance of the borrower was *highly satisfactory*.

22. The executing agency, the FATA Secretariat, implemented the project as envisaged (except Shalman-Landi Kotal) and placed special emphasis on community mobilization, the selection of subprojects based on need, the involvement of beneficiaries in the design and implementation of subprojects, interventions benefiting women, environmental and social safeguards, compliance with loan covenants, the development of a PPMS, and the capacity building of communities to operate and maintain the subprojects. The project was completed with a delay of only 3 months despite difficult circumstances including heightened security risks, and the achievements of outcome and outputs exceeded the targets. The performance of the FATA Secretariat was *highly satisfactory*.

#### **K. Performance of the Asian Development Bank**

23. ADB played an active role in facilitating implementation to make sure that the project was completed on schedule and policies, procedures, and safeguards were complied with. ADB fielded regular loan review missions, took timely decisions to improve implementation, reallocated loan proceeds to ensure the achievement of targets in a timely manner, and interacted promptly with the government to seek support as and when required. The ADB staff worked with the project management and staff like team members, provided them with day-to-day guidance and support, and helped them address implementation issues promptly. ADB gave serious and prompt attention to submissions made by the FATA Secretariat either for approval or for guidance. Disbursements and approvals were given without undue delays. ADB also provided training to project staff in procurement of works, goods, and services, and in financial management and disbursement procedures. ADB's performance is rated *satisfactory*.

### **III. EVALUATION OF PERFORMANCE**

#### **A. Relevance**

24. The project was *relevant* to the government's development and poverty reduction strategy, as outlined in its Perspective Development Plan 2001–2011. 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 cost-effective subprojects with the involvement of beneficiary communities (para. 4).



## **B. Effectiveness in Achieving Outcome**

25. The project was *effective* in achieving the outcome of improving the productivity of selected watersheds. It exceeded the outcome targets as follows. Crop production has increased by 72% on 22,306 ha and 100% on 6,312 ha (target: 50% on 20,000 ha).

## **C. Efficiency in Achieving Outcome and Outputs**

26. The project was *highly efficient*, and the desired economic benefits have been achieved (Appendix 7). The composite economic internal rate of return (EIRR) is estimated at 22.2% (19.1% estimated at appraisal). The outputs and outcome in excess of expectations were the primary reason for the higher-than-expected EIRR. The project interventions were cost effective mainly because the beneficiary communities shared in the costs and participated in the planning, design, and execution. The project process, starting from the mobilization of communities to the completion of the subprojects, was highly efficient. Despite its very diverse scope, covering various economic and social sectors, and involving the participation of many stakeholders in the process, the project was not substantially delayed. This achievement is commendable. The gender action plan has also been implemented and the achievements against targets are provided in Appendix 8. The project recruited three female gender specialists for the implementation of the gender action plan. Though social and religious sensitivities of the project area restricted their interaction with the beneficiaries, they were able to devise an effective mechanism for reaching the beneficiaries and ensuring that the envisaged gender actions were mainstreamed in the key project activities such as drinking water supply, livestock and poultry improvement, and home-based nurseries. They also prepared three case studies (one for each agency), for which they interviewed beneficiary women to get their views on the impact of the project on the lives of women in the project area. The impact of providing drinking water at the doorstep was considered highly significant by those interviewed.

27. Under the project 1,820 communities were organized (versus the 1,200 envisaged at appraisal). Strong social mobilization, coupled with the capacity building of communities, resulted in strong ownership of the project facilities by the beneficiaries. As proof of the effectiveness of the integrated resources management component, incremental farm labor days increased by 598,664 annually (target: 500,000), the livestock productivity of 52,304 households improved (target: 35,000 households), and forage availability increased by 35% (target: 20%). The community infrastructure component also achieved all targets set out in the DMF (footnote 3). Travel time has been reduced by 21% and travel cost by 22% (target: 15%), 6,312 ha of new land has been brought under irrigation (target: 6,000 ha), and the water collection time of 27,933 households has been reduced by 90% (targets: 17,500 households and 80%).

## **D. Preliminary Assessment of Sustainability**

28. The project is considered *likely to be sustainable*, because (i) the selection of subprojects was based on need and demand; (ii) the beneficiaries shared the capital cost of the subprojects; (iii) the beneficiaries demonstrated strong ownership of the project facilities because they were involved in the planning, design, and implementation; (iv) the communities have taken over O&M responsibilities, and maintenance committees and accounts have been established; (v) the communities were trained in effective and efficient O&M under the project; (vi) the annual funding requirements of each subproject have been worked out and community organizations are collecting savings from their members for O&M expenditures, indicating their capacity to sustain the project facilities; (vii) the project's strong social mobilization and effective training have made community organizations financially and technically self-sufficient in the O&M of the schemes; and (viii) the project completion review mission, in a visit to some

randomly selected subprojects including those completed in 2008, noted that these were fully operational and well maintained. A few larger irrigation, roads, and forest plantation schemes are to be maintained by the line departments. All the agencies have prepared maintenance plans. The Forestry Department has included project-financed plantation in its annual maintenance plans. The Communication and Works Department is maintaining project-financed roads from its annual maintenance funds. The annual maintenance plans of the Irrigation Department include five small dams and three weirs.

## **E. Impact**

29. The overall impact of the project is *positive*. None of the subprojects caused involuntary resettlement or had a negative impact on indigenous peoples. The environmental impact of the project is *positive*. The environmental assessment of subprojects was carried out before start of execution. Negative environmental impacts and mitigation measures were identified and made part of the environmental management plans, which were implemented. The water assessment study done under the project provided an exact account of available groundwater, a key measure in controlling the environmental degradation of groundwater aquifers. The forest plantation done on 10,427 ha is not only having a positive impact on the environment but also improving the condition of degraded watersheds. Communities are likewise getting economic benefits from plantation on private and communal land. The improvement of rangelands through controlled grazing and soil erosion check dams has improved watersheds and increased forage availability. According to beneficiaries, the provision of drinking water has reduced their expenditures on health. The workload of around 13,400 women beneficiaries in fetching water has been substantially reduced. The new land brought under irrigation has increased the average farm size of each of the 24,960 beneficiary households by about 20%. The average per capita income of a farming household is estimated to have increased by PRs1,800 to PRs4,300 per year from new land brought under irrigation, with positive impact on economic conditions and the overall poverty status of the project area. The social mobilization process and the formation of community organizations have created a sense of ownership and responsibility in the communities. The involvement of beneficiaries in the decision-making process has boosted their confidence, as demonstrated in their response to the information campaign launched through weekly radio programs. The project had positive economic and social impact on more than 87,000 households, comprising about 800,000 persons (38% of the total population in the project area) and including about 375,000 women.

## **IV. OVERALL ASSESSMENT AND RECOMMENDATIONS**

### **A. Overall Assessment**

30. The project was implemented as conceived. Some difficulties due to the security situation arose but were overcome by timely decisions of the FATA Secretariat and ADB. The outcome and output targets of all components and subcomponents of the project, outlined in the DMF, were achieved. The performance management system was robust and enabled monthly and biannual monitoring and evaluation of progress and performance. The project was relevant, effective, highly efficient, and is likely to be sustainable. The project is therefore rated *successful*.

### **B. Lessons**

31. The project was a success primarily because of its design, which accounted for actual conditions in the project area, applied lessons from previous interventions, and incorporated and adopted efficient and sustainable delivery mechanisms. The involvement of beneficiaries in the project through effective social mobilization was critical to its success. Training, awareness

raising, and capacity building of beneficiaries was also instrumental in ensuring that the subprojects were owned and operated by the communities and were sustainable.

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

33. The active support of the borrower and the executing agency, through timely provision of counterpart funds, steering committee meetings convened for timely decisions and approvals, and consistent monitoring and supervision, helped ensure smooth and timely implementation.

34. ADB's proactive participation in implementation, supervision, and monitoring, and its flexibility in addressing actual conditions in the project area and providing essential support to the FATA Secretariat in a timely manner was also a central factor for the success of the project.

### **C. Recommendations**

35. The project has evolved into a cost-effective, efficient, productive, and sustainable model for rural development in FATA. It marked a significant deviation from the conventional FATA development approach, where resources are channeled through political agents to *maliks* (tribal heads) and often do not reach the poor communities. The project managed to reach the poor communities directly, without excluding the political agents and other government agencies and line departments from decision making, and implementation management and supervision. The government and development partners should adopt this model for rural development in FATA in the future.

36. The population of the FATA region, nearly 5.0 million, is almost entirely rural. Because of limited resources, the project reached only 38% of the population in three agencies of FATA. The government and development partners should plan for reaching the remaining population in the next 10 years through similar interventions to improve their livelihood, which is mainly based on natural resources.

37. The water assessment study set a benchmark for water resources development and management in Mohmand, Khyber, and Bajaur agencies. Investment decisions on the water sector in these agencies should be based on the water balance of watersheds provided in the study. Similar studies to estimate the water balance of watersheds in other agencies would help in the planning and decision making of the government and development partners.

38. The GIS facility and information system established under the project is a powerful planning tool for decision makers. It should be housed in the Planning and Development Department of the FATA Secretariat and expanded to cover the entire FATA region.

39. For projects in FATA and similar security-sensitive regions, project staff and consultants should be provided life insurance plans from project resources.

40. The FATA Secretariat should continue performing the following tasks every 6 months:

- (i) Monitoring and evaluating performance, with the help of the PPMS;
- (ii) Monitoring groundwater and surface water; and
- (iii) Reviewing the O&M of schemes maintained by communities.

## DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators	Achievement at Project Completion
<b>Impact</b> Poverty in the project area (Bajaur, Khyber, and Mohmand agencies) is reduced.	Annual incremental farm income of beneficiary household increases by about PRs6,000 by 2012.  Household livestock-related income from livestock increases by about PRs1,600 annually by 2012.	The project has had positive economic and social impact on more than 87,000 households, comprising more than 800,000 persons and including 375,000 women. The impact on farm income cannot be measured at this stage, but the increase in farm income from the additional land brought under irrigation is estimated to range between PRs1,800 and PRs4,300.
<b>Outcome</b> The productivity of selected watersheds improves, as does their associated natural resource base.	Crop production increases by 50% on 20,000 ha of rain-fed ( <i>barani</i> ) lands by 2012 compared with the baseline (0.8 tons/ha) in 2006.	Crop production increased by 72% on 22,306 ha and by 100% on 6,132 ha.
<b>Outputs</b> (by project component) 1. Integrated resource management improved	Incremental farm labor days increase by about 500,000 annually by 2012.  Plantation is completed on 9,500 ha by 2012.  Forage availability on rangelands increases by 20% by 2012 compared with the baseline in 2006.  Animal health-care services through village animal health workers improve for 35,000 households by 2012.	Farm labor days increased by 598,664 annually.  Plantation was completed on 10,427 ha.  Forage availability on rangelands increased by 35%.  Animal health services improved for 52,303 households.
2. Community infrastructure improved	6,000 ha of new land is brought under irrigation by 2012.  By 2012 there is at least a 15% saving in vehicle operating costs and travel time compared with the baseline conditions in 2006.  Water collection time for 17,500 households is reduced by 80% by 2012 compared with the baseline in 2006.	6,132 ha new land was brought under irrigation  Vehicle operating cost was reduced by 22% and travel time by 21%.  Water collection time of 27,933 households was reduced by 90%.

Design Summary	Performance Targets and Indicators	Achievement at Project Completion
3. Project planning, management, and support strengthened	<p>The project management structure is established and is functional.</p> <p>The project supervision and advisory structure is established and is functional</p> <p>Procurement is carried out in a timely manner.</p>	<p>The project management structure and the supervision and advisory structure were established on time and functioned efficiently throughout implementation.</p> <p>Procurement was carried out in a timely manner.</p>
<p><b>Activities with Milestones</b></p> <p><b>1. Integrated Resource Management</b></p> <p>1.1 Farming systems and crop production improved on 20,000 ha for about 37,000 households</p> <p>1.2 Livestock productivity improved for about 35,000 households</p> <p>1.3 Community forestry and range management improved on 12,000 ha</p> <p><b>2. Community Infrastructure Development</b></p> <p>2.1 Water resource assessment and management plan prepared</p> <p>2.2 Drinking water supply schemes developed for 17,500 households through: about 100 spring-fed gravity schemes, 300 dug-well schemes, 500 hand pumps, and 8 tube-well schemes</p> <p>2.3 Small irrigation systems developed to serve an additional area of around 6,000 ha</p> <p>2.4 About 120 km of new link roads constructed and 72 km of the existing roads improved</p> <p><b>3. Project Planning, Management, and Support</b></p> <p>3.1 Line departments, community mobilization, and project implementation unit staff operating as a team</p> <p>3.2 All project activities defined within coherent areas on the basis of community participation and common interests in the watershed or subbasin</p> <p>3.3 Team building training conducted for project and agency staff; line department staff to be trained and institution to provide the training identified</p> <p>3.4 Regular coordination and planning included in watershed management plans</p> <p>3.5 Project monitoring system established with initial baseline information</p>		<p><b>Input</b></p> <p><b>Asian Development Bank</b></p> <p>Civil works: \$29.6 million</p> <p>Vehicles and equipment: \$1.4 million</p> <p>Specialist services and contracts: \$2.3 million</p> <p>Training and capacity building: \$1.3 million</p> <p>Crop demonstrations and trials: \$1.0 million</p> <p>Forest nurseries, plantations, and grazing management: \$5.4 million</p> <p>Supervision and implementation: \$3.5 million</p>

ha = hectare, km = kilometer.

## PROJECT ACTIVITIES: TARGETS AND ACHIEVEMENTS

Component/Activity	Unit	Target	Achievement
<b>A. Formation of Community Organizations</b>	no. of organizations	1,200	1,820
<b>B. Integrated Resource Management</b>			
<b>Farming systems and improved crop production</b>			
- Demonstration plots	no. of plots	2,040	4,518
- Field days	days	4,080	4,560
- Farmer field schools and capacity building (integrated crop management)	no. of schools	75	87
<b>Improved livestock productivity</b>			
- Fodder demonstration plots	no. of plots	1,440	1,443
- Farmers' field days	days	2,880	2,782
- Farmers' exposure visits	no. of farmers	1,920	2,144
- Animal husbandry workers, poultry, and staff training	no. of persons	1,890	2,126
<b>Community forestry and range management</b>			
- Plantation	hectares	9,500	10,427
- Community-controlled grazing	blocks	77	181
- Department-controlled grazing without water harvesting	blocks	18	19
- Erosion protection works	no. of schemes	120	153
- Farmer training	no. of farmers	-	1,527
- Exposure visits	no. of farmers	-	633
- Staff training	no. of staff	-	155
<b>C. Community Infrastructure Development</b>			
<b>Drinking water</b>			
- Spring-fed schemes	no. of schemes	212	101
- Dug well-based schemes	no. of schemes	624	328
- Hand pumps/Pressure pumps	no. of pumps	135	501
- Tube well-based schemes	no. of schemes	8	8
- Community (O&M) training	no. of persons	-	930
- Staff training	no. of persons	-	35
<b>Irrigation</b>			
- Surface irrigation schemes (new)	no. of schemes	36	141
- Surface irrigation schemes (rehabilitated)	no. of ponds	72	16
- Small irrigation ponds	no. of ponds	80	83
- Dug well irrigation schemes	no. of schemes	144	166
- Tube well-based schemes	no. of schemes	12	6
- Water harvesting check dams	no. of schemes	130	135
- Delayed-action dams/weirs	no. of dams	12	8
- Erosion protection works/spurs	no. of works	-	435
- Community (O&M) training	no. of persons	-	980
- Staff training	no. of persons	-	35
<b>Link roads</b>			
- Construction of new roads	km	120	189
- Improvement of existing roads	km	72	44
- Community (O&M) training	no. of persons	-	406
- Staff training	no. of persons	-	69

O&amp;M = operation and maintenance.

**ANNUAL DISBURSEMENT**  
(\$ million)

	<b>Category</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
01	Civil Works							
(a)	Civil works: Design and supervision	-	-	-	-	-	-	-
(b)	Civil works: Survey and investigation	-	-	-	-	-	-	-
(c)	Civil works: Construction	2,806,219	4,401,168	6,027,026	7,814,798	5,028,947	2,368,632	28,446,790
02	Vehicle, Equipment and Supplies							
(a)	Vehicles and equipment: Vehicles	331,971	553,609	-	-	-	-	885,580
(b)	Vehicles and equipment: Equipment and furniture	128,135	22,248	38,354	131,754	27,880	-	348,371
03	Specialist services	52,969	104,998	164,647	235,255	61,893	19,965	639,727
04	Service contracts	87,107	133,695	559,429	701,847	42,650	-	1,524,728
05	Training and capacity building	164,606	80,248	280,264	360,247	643,512	-	1,528,877
06	Crop demonstrations and trials	185,239	223,243	367,324	117,034	98,687	-	991,527
07	Forest nurseries and plantation	542,183	874,394	784,596	1,889,900	1,750,477	132,177	5,973,727
08	Studies, plans, and research	-	-	-	-	-	-	-
09	Project Support							
(a)	Implementation supervision: Contract staff	606,110	419,393	438,858	528,518	373,733	24,626	2,391,238
(b)	Implementation supervision: Incremental office and vehicle operating costs	172,612	195,078	169,325	247,570	190,454	30,776	1,005,815
10	Beneficiary-provided O&M	-	-	-	-	-	-	-
11	Interest charge	7,846	65,875	141,684	241,351	358,160	114,282	929,198
12	Unallocated	-	-	-	-	-	-	-
99	Imprest account	-	-	-	-	-	535,782	532,608
	<b>Total</b>	<b>5,084,997</b>	<b>7,073,949</b>	<b>8,971,507</b>	<b>12,268,274</b>	<b>8,576,393</b>	<b>3,223,066</b>	<b>45,198,186</b>

# IMPLEMENTATION SCHEDULE

Agency	2006				2007				2008				2009				2010				2011				2012			
Project Start-Up Activities	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Appoint Project Director																												
Establish Project Management Unit																												
<b>Component 1: Integrated Resource Management</b>																												
Farming System and Crop Production																												
Livestock and Fodder Development																												
Community Forestry and Range Management																												
<b>Component 2: Community Infrastructure Development</b>																												
Link Road																												
Community Drinking Water Supply																												
Irrigation Development																												
<b>Component 3: Project Planning, Management, and Support</b>																												

Appraisal

Actual



### STATUS OF COMPLIANCE WITH LOAN COVENANTS

No.	Reference	Covenant	Status
1	<b>LA Section 4.02, Article IV</b>	<p>The Borrower shall:</p> <p>(a)</p> <ul style="list-style-type: none"> <li>(i) Maintain, or cause to be maintained, separate accounts for the Project;</li> <li>(ii) Have such accounts and related financial statements audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB;</li> <li>(iii) Furnish to ADB, as soon as available but in any event not later than six (6) months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and the report of auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and compliance with the financial covenants of this Loan Agreement as well as on the use of the procedures of imprest accounts/statement of expenditure), all in English language; and</li> <li>(iv) Furnish to ADB such other information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request.</li> </ul> <p>(b) The Borrower shall enable ADB, upon ADB's request, to discuss the Borrower's financial statements for the Project and its financial affairs related to the Project from time to time with the Borrower's auditors, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB, provided that any such discussion shall be conducted only in the presence of an authorized officer of the Borrower unless the Borrower shall otherwise agree.</p>	Complied with
2	<b>LA Section 4.03, Article IV</b>	Without limiting the generality of Section 6.05(a) of the Loan Regulations, the Borrower shall furnish, or cause to be furnished, to ADB quarterly reports on the carrying out of the Project and on the operation and management of the Project facilities.	Complied with
3	<b>LA Section 4.04, Article IV</b>	The Borrower shall enable ADB's representatives to inspect the Project, the goods financed out of the proceeds of the Loan, and any relevant records and documents.	Complied with

No.	Reference	Covenant	Status
4	<b>L.A. Schedule 6 para 1</b>	<p>The Ministry of SAFRON shall be the Project Executing Agency and shall be responsible for:</p> <ul style="list-style-type: none"> <li>(a) Overall coordination and management of the Project, including, inter alia, coordination with the concerned ministries, agencies, and stakeholders;</li> <li>(b) Ensuring timely budgetary allocations to the PMU for the smooth implementation of the Project; and</li> <li>(c) Ensuring timely issuance of national-level approvals necessary for the carrying out the Project.</li> </ul>	Not applicable. The FATA Secretariat took over from the Ministry of SAFRON as executing agency. ADB approved this change in implementation arrangements in December 2006.
5	<b>L.A. Schedule 6 para 2</b>	The Governor's Secretariat (FATA) shall be the Project Implementing Agency and shall be responsible for, inter-alia, coordination and day- to-day supervision of the Project.	Complied with
6	<b>L.A. Schedule 6 para 3</b>	<p>Prior to the Effective Date, the Borrower shall ensure the establishment of the PMU and appointment on full-time basis:</p> <ul style="list-style-type: none"> <li>(a) The Project Director, who shall head the PMU and be responsible for, inter alia, resolution of operational issues;</li> <li>(b) Deputy director, finance and administration; and</li> <li>(c) Deputy Director, planning and monitoring, all with qualifications, experience, expertise and terms of reference acceptable to ADB.</li> </ul> <p>Within three (3) months of the Effective Date, the Borrower shall ensure that the PMU shall have:</p> <ul style="list-style-type: none"> <li>(a) Been fully staffed and operational; and</li> <li>(b) Established the accounting and financial management systems, acceptable to ADB.</li> </ul> <p>The Borrower shall establish prior to undertaking any land acquisition and resettlement activities, a land acquisition and resettlement cell within the PMU.</p>	Complied with
7	<b>L.A. Schedule 6 para 4</b>	<p>The PMU shall:</p> <ul style="list-style-type: none"> <li>(a) Coordinate on Project related issues with the Project Executing Agency, Project Implementing Agency, PIUs, and private and civil society;</li> <li>(b) Consolidate work plans prepared by PIUs and facilitate their approval by the PSC;</li> <li>(c) Award any procurement contract exceeding the amount equivalent to one hundred thousand United States Dollars (US\$100,000);</li> <li>(d) Recruit consultants under the Project;</li> </ul>	Complied with

No.	Reference	Covenant	Status
		<p>The PMU shall:</p> <ul style="list-style-type: none"> <li>(e) Perform monitoring and evaluation under the Project;</li> <li>(f) Supervise consultants and contractors; and</li> <li>(g) Manage finances under the Project.</li> </ul> <p>Within six (6) months of the Effective Date, the Borrower shall ensure that the PMU undertake a community mobilization process, acceptable to ADB.</p>	
8	<b>L.A. Schedule 6 para 5</b>	<p>Within three months of the Effective Date, the Borrower shall ensure:</p> <ul style="list-style-type: none"> <li>(a) The establishment of a PIU in each Agency;</li> <li>(b) That the PIUs are fully staffed and operational; and</li> <li>(c) That the PIUs shall have established their accounting and financial management systems, acceptable to ADB.</li> </ul> <p>Each PIU shall have the responsibilities to:</p> <ul style="list-style-type: none"> <li>(a) Coordinate the relevant activities of Line Departments that are related to the Project in their respective Agency;</li> <li>(b) Award procurement contract worth equivalent to one hundred thousand United States Dollars (US\$100,000) or less;</li> <li>(c) Assist the PMU in the supervision of the consultants and contractors;</li> <li>(d) Prepare work-plans under the Project</li> <li>(e) Assist the PMU in the monitoring and evaluation process; and Manage finances related to the activities in their respective Agency.</li> </ul> <p>Each PIU shall be headed by a Project Manager and assisted by, among others,</p> <ul style="list-style-type: none"> <li>(a) Deputy Manager for finance and administration, and</li> <li>(b) Deputy Manager for planning and monitoring. The Project Manager shall report to the Project Director.</li> </ul>	Complied with
9	<b>L.A. Schedule 6 para 6</b>	<p>Within one (1) month of the Effective Date, the Borrower shall ensure the establishment of the Project Steering Committee (PSWC), which shall:</p> <ul style="list-style-type: none"> <li>(a) Provide policy guidance and interpretations in implementation of the Project;</li> <li>(b) Approve the periodic consolidated annual work</li> </ul>	Complied with

No.	Reference	Covenant	Status
		<p>plans under the Project;</p> <p>(c) Review on semi-annual basis, the progress of the Project including the performance of the Project Director and other PMU staff;</p> <p>(d) Coordinate and direct the activities of the Line Departments under the Project; and</p> <p>(e) Recommend issues for consideration the PRB.</p> <p>The PSC shall be chaired by the Secretary, Governor's Secretariat (FATA) and include as members:</p> <p>(a) A representative of the ministry of SAFRON;</p> <p>(b) Representatives of the Line Departments;</p> <p>(c) The Political Agents; and</p> <p>(d) The Project Director who shall also serve as the secretary of the PSC.</p> <p>The PSC shall meet as required but not less than four times a year.</p>	
10	<b>L.A. Schedule 6 para 7</b>	<p>Within one (1) month of the Effective Date, the Borrower shall ensure the establishment of the PRB, which shall:</p> <p>(a) Resolve issues of strategic importance which may affect smooth implementation of the Project;</p> <p>(b) Take related policy decisions; and</p> <p>(c) Undertake annual progress reviews.</p> <p>The PRB shall be chaired by the Governor, NWFP with the Secretary, Ministry of SAFRON as its deputy chair. The other members of the PRB shall comprise:</p> <p>(i) The Chief Secretary, NWFP</p> <p>(ii) The Additional Chief Secretary, NWFP;</p> <p>(iii) The Secretary, Governor's Secretariat (FATA);</p> <p>(iv) A representative of the economic affairs division of the Ministry of Finance and Economic Affairs; and</p> <p>(v) The Project Director</p> <p>(vi) The Secretary, Governor's Secretariat (FATA) shall also serve as the Secretary of the PRB.</p> <p>The PRB shall meet as required but not less than twice a year.</p>	Complied with
11	<b>L.A. Schedule 6 para 8</b>	<p>Within three (3) months of the Effective Date, the Borrower shall ensure the establishment of the Agency Project Board (APB) in each Agency. Each APB shall be chaired by the Political Agent of such Agency. The other members of the APB shall comprise: (a) the representatives from the Line Departments in such</p>	Complied with

No.	Reference	Covenant	Status
		<p>Agency, (b) two tribal elders; (c) two Agency councilors; and, (c) the Project Manager in such Agency, who shall also serve as the secretary of the APB.</p> <p>The APB shall meet as required to review and endorse annual work plans within the Agency.</p>	
12	<b>L.A. Schedule 6 para 9</b>	To ensure continuity, efficiency and smooth implementation of the Project, the Borrower shall ensure that the requisite government staff, with qualifications, experience, expertise and terms of reference acceptable to ADB, shall be seconded to the Project for, at least, for a term of three (3) years.	Complied with
13	<b>L.A. Schedule 6 para 10</b>	The Borrower shall ensure that the Loan proceeds shall not be used for sinking of tube-wells in areas not sanctioned under the Water Resources Assessment and Management Plan.	Complied with
14	<b>L.A. Schedule 6 para 11</b>	The Borrower shall select the eligible watersheds in accordance with the agreed watershed selection criteria as provided in Appendix 8 of the RRP; and (b) select and implement community infrastructure in accordance with: (i) the agreed subproject intervention procedures as provided in Appendix 9 of the RRP; (ii) the agreed subproject intervention procedures as provided in Appendix 9 of the RRP.	Complied with
15	<b>L.A. Schedule 6 para 12</b>	The Borrower (a) acknowledges to ADB that customary arrangements exist between Borrower and the Islamic Republic of Afghanistan for withdrawal of water by the Borrower from the Kabul river bank, where the river is located at the boundary between the Borrower and the Islamic Republic of Afghanistan; and (b) confirmed that it has and shall remain to have the right and ability to withdraw a minimum of approximately zero point two (0.2) cubic meter/second of water needed for the Shalman-Landikotal Water Supply Scheme.	<p>Not applicable.</p> <p>The scheme was not financed under the project.</p>
16	<b>L.A. Schedule 6, para 13</b>	Prior to the commencement of the Shalman-Landi Kotal Water Supply Scheme, the Borrower shall carry out (a) a detailed socio-economic survey to identify the target beneficiaries of the proposed scheme. The survey shall, among others, carefully examine the willingness of the target beneficiaries to pay water charges; (b) an environmental assessment and resettlement/land acquisition plan based on the detailed designs. The assessment shall be approved by the appropriate government agencies of the Borrower and ADB; and (c) an economic analysis of the Project.	<p>Not applicable.</p> <p>The scheme was not financed under the project.</p>

No.	Reference	Covenant	Status
17	<b>L.A. Schedule 6, para 14</b>	The Borrower shall cause the Project Executing Agency and the Project Implementing Agency to monitor and report to ADB, on a quarterly basis, the progress in Project performance, focusing on the use of inputs, participation by local communities, progress in implementation activities, and achievement of outputs. Each PIU shall, after consultation with the Line Departments and endorsement by the APB, submit the annual work plans through the PMU to PSC for final approval. The annual work plans shall detail activities scheduled for the forthcoming year, with target dates, material and financial inputs needed and the outputs expected.	Complied with
18	<b>L.A. Schedule 6, para 15</b>	PIUs shall submit to the Project Director brief quarterly progress reports detailing the physical and financial progress of activities against the targets set in the annual work plans. Within six (6) months of Effective Date, the PMU shall carry out the Project benchmark socioeconomic survey. The Project Director shall submit to the Borrower and ADB (a) consolidated quarterly progress reports; (b) a summary of findings of the semi-annual reviews with a description of actions taken based on the findings of the semi-annual reviews; and (c) comprehensive year-end annual reports measured against the benchmark socioeconomic survey.	Complied with
19	<b>L.A. Schedule 6, para 16</b>	To ensure that the Project activities and the Project facilities shall be managed efficiently and that target groups receive the intended benefits, the Borrower shall cause PMU to establish, within nine (9) months of the Effective Date, a participatory Project Performance Management System (PPMS), acceptable to ADB, for monitoring Project impact.	Complied with
20	<b>L.A. Schedule 6, para 17</b>	The PPMS shall be done in a format acceptable to ADB and reflect the benchmark socioeconomic survey referred to in paragraph 15 herein above. The output generated from the PPMS shall form part of the MIS established under the Project.  The key indicators of the benchmark socioeconomic survey shall be: (a) Incorporated in the regular monitoring process to learn from the ground reality and to adapt the Project strategy to the changing socioeconomic and political environment and evolving needs of the people; (b) Reassessed at each comprehensive review and at Project completion to prepare the reports;	Complied with

No.	Reference	Covenant	Status
		<p>(c) Used to compare with districts' indicators and programs in NWFP; and</p> <p>(d) Used to measure Project contribution to the achievement of the Borrower's Mid-Term Development Framework targets, the Millennium Development Goals, and other relevant targets.</p>	
21	<b>L.A. Schedule 6, para 18</b>	The Borrower shall facilitate access to public documents of immediate relevance to the Project and shall ensure that all documents and information relating to the Project shall be in the public domain and freely accessible to the stakeholders and other interested parties.	Complied with
22	<b>L.A. Schedule 6, para 19</b>	The Borrower shall ensure that the PIUs disseminate information relating to the activity selection, expenditure reporting and operation and maintenance of the various subprojects to the relevant Project stakeholders, including the poor and the disfranchised within the Project area. The dissemination of such information shall be carried out in a transparent manner and in accordance with a methodology acceptable to ADB.	Complied with
23	<b>L.A. Schedule 6, para 20</b>	To ensure maximum participation from all segments, the Borrower shall advertise in at least two dailies with nationwide coverage all local contracts for goods and services under the Project.	Complied with
24	<b>L.A. Schedule 6, para 21</b>	The Borrower acknowledges that ADB reserves the right to undertake, directly or through its agents, investigation of any possible financial or managerial impropriety in the conduct of the Project. The Borrower and each of its relevant agencies shall fully cooperate with any such investigation and extend all necessary assistance, including access to all relevant books and records that may be needed for satisfactory completion of such investigations.	Complied with
25	<b>L.A. Schedule 6, para 22</b>	Within three (3) months of physical completion, the Borrower shall submit a Project completion report to ADB.	Complied with
26	<b>L.A. Schedule 6, para 23</b>	The Borrower shall allocate and make available, in a timely manner, requisite counterpart funds from its budget for each fiscal year for the smooth implementation of the Project.	Complied with
27	<b>L.A. Schedule 6, para 24</b>	Prior to the completion of the Project, the Borrower shall cause the Line Departments to prepare maintenance plans, satisfactory to ADB, for operation	Complied with

No.	Reference	Covenant	Status
		and maintenance of the Project facilities. Upon completion of the Project facilities, the Borrower shall cause the Line Departments to fully implement such maintenance plans.	
28	<b>L.A. Schedule 6, para 25</b>	The Borrower shall: (a) allocate and make available or cause to be allocated and made available, in a timely manner, sufficient funds needed for each fiscal year for operation and maintenance of the Project facilities; and (b) ensure that the Project facilities are properly operated and maintained.	Complied with
29	<b>L.A. Schedule 6, para 26</b>	The Borrower shall provide adequate security necessary for the safe mobility of persons carrying out the Project to ensure timely and uninterrupted implementation of the Project.	Complied with
30	<b>L.A. Schedule 6, para 27</b>	The Borrower shall ensure that adequate protection, safety and mitigation are included in the design of the facilities and shall further ensure that the facilities are constructed, extended, renovated, operated and maintained accordance with the Borrower's Environmental laws and regulations and ADB's Environmental Policy (2002).	Complied with
31	<b>L.A. Schedule 6, para 28</b>	The Borrower shall ensure that no persons shall be adversely affected in terms of ADB's Policy on Involuntary Resettlement (1995). The Borrower shall further ensure that land acquisition/involuntary resettlement, if any under the Project shall be undertaken in accordance with: (a) ADB's Policy on Involuntary Resettlement (1995), to the satisfaction of ADB; (b) the Summary Resettlement Framework set out in Appendix-6, RRP; and (c) the Resettlement Framework set out in Suppl. Appendix D of the RRP, as agreed between the Borrower and the ADB.	Complied with
32	<b>L.A. Schedule 6, para 29</b>	The Borrower shall ensure that no persons shall be adversely affected in terms of ADB's Policy on Indigenous People (1998). In the event adverse impacts on indigenous people are identified during Project implementation, the Borrower shall prepare an indigenous peoples development plan in accordance with ADB's Policy on Indigenous People (1998).	Complied with
33	<b>L.A. Schedule 6, para 30</b>	The Borrower shall ensure timely and effective implementation of the Gender Strategy and Plan developed by the Borrower, in consultation with ADB, and shall further ensure that the requisite female technical staff to be engaged for the purposes of the	Complied with



No.	Reference	Covenant	Status
		Project shall be regularized after the completion of the Project, in accordance with the application procedures of the Borrower.	
34	<b>Loan Agreement (LA) Section 3.01, Article III</b>	The Borrower shall cause the proceeds of the Loan to be applied to the financing of expenditures on the Project in according with the provisions of this LA.	Complied with
35	<b>LA Section 3.03 Article III</b>	Except as ADB may otherwise agree, all goods and services to be financed out of the proceeds of the Loan shall be procured in accordance with the provisions of Schedule 4 and Schedule 5 to this LA.	Complied with  At the executing agency's request, ADB approved the hiring of individual consultants instead of a consulting firm.
36	<b>LA Schedule 4, para 10 (a) &amp; (b)</b>	<p>The Borrower shall ensure that all ADB-financed goods and services procured including without limiting all computer hardware, software and systems, whether separately procured or incorporated within other goods and services procured) do not violate or infringe any industrial property and intellectual property right or claim of any third party.</p> <p>The Borrower shall ensure that all ADB-financed contracts for the procurement of goods and services contain appropriate representations, warranties and, if appropriate, indemnities from the contractor or supplier with respect to the matters referred to in subparagraph (a) of this paragraph.</p>	Complied with
37	<b>LA Schedule 5, para 5</b>	The Borrower shall ensure that all ADB financed contracts with consultants contain appropriate representations, warranties and, if appropriate indemnities from the consultants to ensure that the consulting services provided do not violate or infringe any industrial property or intellectual property right or claim of any third party.	Complied with

LA = Loan Agreement; PRB = Project Review Board; RRP = Report and Recommendation of the President; NWFP = North-West Frontier Province.

## PROCUREMENT CONTRACTS

Contract Description	Contractor/Supplier/ Consultant Name	Contract Award	Dates Completion	Amount (\$ equivalent) Contract	Disbursed
Procurement of 11 double-cabin pickups	Muslim INSAF Motors	12/12/2006	08/03/2007	291,431	291,431
Procurement of 60 motorcycles	T.S.C. International (Pvt) Limited	17/05/2007	02/06/2007	40,540	40,540
Baseline survey and development of MIS, Package A	AAB (Pvt) Ltd.	14/05/2007	04/02/2008	48,251	47,491
Procurement of six water tankers	Hino Pak Motors Ltd.	12/04/2008	11/05/2008	234,205	234,205
Procurement of 11 double-cabin pickups	Mitsubishi Peshawar Motors	11/01/2008	11/04/2008	281,610	281,610
Water resource specialist/Team leader (individual consultant) Iftikhar Ali	Iftikhar Ali	02/05/2008	01/05/2010	37,340	37,340
Environment specialist (individual consultant) Nimmer Zaman	Nimmer Zaman	21/04/2008	31/12/2011	37,152	37,152
Geographic information system (GIS) specialist (individual consultant) Kifatayullah Baloch	Kifatayullah Baloch	07/05/2008	06/05/2010	27,189	27,189
NRM specialist (individual consultant) Zaki Ullah Mian	Zaki Ullah Mian	16/04/2008	15/04/2011	39,714	39,714
Recruitment of hydraulic design engineer Asif Khan	Hydraulic design engineer	01/08/2008	31/07/2010	12,706	12,706
Recruitment of individual consultant (hydrologist) Khalid Khattak	Khalid Khattak	05/08/2008	31/12/2011	50,790	46,915
Recruitment of individual consultant (groundwater specialist) Khurshid Anwar	Khurshed Anwar	07/08/2008	06/08/2010	6,691	6,691
Recruitment of individual consultant (economist) Saliheen Khan	Saliheen Khan	21/07/2008	31/12/2011	40,411	36,333
Rehabilitation of Tangu Zarmana Irrigation (Rd 5000-13000) at Kuki Khwel Tirah	M/S Haji Gul Jamal	06/07/2009	30/06/2010	18,187	18,187
Rehabilitation of Kham Irrigation Phase 1 - Rd 00-1000, Qamber Khel Tirah, Khyber Agency	M/S Laiq Khan	07/07/2009	30/06/2010	7,984	7,984
Construction of Arkhi Killi Irrigation Qaroon Khel at Serra Villa, Tirah Kukikhel, Khyber Agency	M/S Rehmat Ullah	06/07/2009	30/06/2009	17,103	17,103
Rehabilitation of Tangu Zarmana Irrigation Rd 00-5000 Jamrud, Khyber Agency	M/S Turab Khan	06/07/2009	30/06/2010	7,393	7,393
Upgrading of Haji Saifur Rehman Killi - Ghundai Bara Road (2 km), Khyber Agency	M/S Ikhtlaq ud Din	12/05/2009	12/05/2010	13,304	13,304
Construction of Khurshid delayed-action dam, Package A	National RCC Works (PVT) Ltd.	26/03/2011	20/12/2011	945,866	367,747
Construction of Aqrab Dag dam	M/S Haq Nawaz and Brother	29/03/2011	19/12/2011	931,728	305,034
Construction of Yusaf Khel dam in Mohmand Agency	M/S New Malik Afridi & Co. (Pvt) Ltd.	15/04/2011	26/12/2011	621,437	119,658

Contract Description	Contractor/Supplier/ Consultant Name	Contract Dates		Amount (\$ equivalent)	
		Award	Completion	Contract	Disbursed
Construction of Mechnai Dam in Mohmand Agency	M/S New Malik Afridi & Co.	16/04/2011	27/12/2011	815,521	398,129
Construction of Khunari Dam in Khyber Agency	M/S Pir Muhammad & Co.	23/04/2011	31/12/2011	776,282	243,026
Construction of Khurshid delayed-action dam (Package B0), Mohmand Agency	M/S National RCC Works	29/06/2011	31/10/2011	162,188	119,415
Construction of weir at Tangi in Bajaur Agency	M/S Juma Said & Sons Const. Co.	12/09/2011	31/12/2011	168,551	6,961
Construction of weir at Kit Kot in Bajaur Agency	M/S Muhammad Younas gov't contractor	12/09/2011	31/12/2011	155,956	77,365
Construction of weir at Mena in Bajaur Agency	M/S Juma Said & Sons Const. Co.	12/09/2011	31/12/2011	142,964	58,580
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	-	-
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	-	-
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	1,095,534	1,095,534
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	-	-
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	93,326	93,326
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	-	-
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	18,519	18,519
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	59,014	59,014
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	118,428	118,428
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	318,506	318,506
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	-	-
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	425,293	425,293
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	111,558	111,558
Umbrella PCSS for small contracts	Various	13/05/2007	31/12/2007	-	-
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	-	-
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	-	-
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	4,350,376	4,350,376
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	37,794	37,794
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	52,251	52,251
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	27,882	27,882
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	119,219	119,219
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	149,245	149,245
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	129,764	129,764
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	859,484	859,484

Contract Description	Contractor/Supplier/ Consultant Name	Contract Dates		Amount (\$ equivalent)	
		Award	Completion	Contract	Disbursed
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	481,480	481,480
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	195,416	195,416
Umbrella PCSS for small contracts for 2008	Various	02/01/2008	31/12/2008	-	-
Umbrella PCSS for 2009	Various	07/11/2008	31/12/2009	6,348,972	6,348,972
Umbrella PCSS for 2009	Various	07/11/2008	31/12/2009	-	-
Umbrella PCSS for 2009	Various	07/11/2008	31/12/2009	34,673	34,673
Umbrella PCSS for 2009	Various	07/11/2008	31/12/2009	46,516	46,516
Umbrella PCSS for 2009	Various	07/11/2008	31/12/2009	398,541	398,541
Umbrella PCSS for 2009	Various	07/11/2008	31/12/2009	219,763	219,763
Umbrella PCSS for 2009	Various	07/11/2008	31/12/2009	395,589	395,589
Umbrella PCSS for 2009	Various	07/11/2008	31/12/2009	566,880	566,880
Umbrella PCSS for 2009	Various	07/11/2008	31/12/2009	475,743	475,743
Umbrella PCSS for 2009	Various	07/11/2008	31/12/2009	180,322	180,322
Umbrella PCSS for small contracts 2010	Various	02/01/2010	31/12/2010	7,127,104	7,127,104
Umbrella PCSS for small contracts 2010	Various	02/01/2010	31/12/2010	130,923	130,923
Umbrella PCSS for small contracts 2010	Various	02/01/2010	31/12/2010	152,700	152,700
Umbrella PCSS for small contracts 2010	Various	02/01/2010	31/12/2010	661,122	661,122
Umbrella PCSS for small contracts 2010	Various	02/01/2010	31/12/2010	344,211	344,211
Umbrella PCSS for small contracts 2010	Various	02/01/2010	31/12/2010	230,117	230,117
Umbrella PCSS for small contracts 2010	Various	02/01/2010	31/12/2010	1,280,465	1,280,465
Umbrella PCSS for small contracts 2010	Various	02/01/2010	31/12/2010	399,903	399,903
Umbrella PCSS for small contracts 2010	Various	02/01/2010	31/12/2010	199,599	199,599
Umbrella PCSS for small works - 2011	Various	01/01/2011	31/12/2011	3,991,055	3,991,055
Umbrella PCSS for small works - 2011	Various	01/01/2011	31/12/2011	37,198	37,198
Umbrella PCSS for small works - 2011	Various	01/01/2011	31/12/2011	97,333	97,333
Umbrella PCSS for small works - 2011	Various	01/01/2011	31/12/2011	327,326	327,326
Umbrella PCSS for small works - 2011	Various	01/01/2011	31/12/2011	742,324	742,324
Umbrella PCSS for small works - 2011	Various	01/01/2011	31/12/2011	116,505	116,505
Umbrella PCSS for small works - 2011	Various	01/01/2011	31/12/2011	2,586,741	2,586,741
Umbrella PCSS for small works - 2011	Various	01/01/2011	31/12/2011	503,628	503,628
Umbrella PCSS for small works - 2011	Various	01/01/2011	31/12/2011	248,948	248,948
Small works 2012	Various	01/01/2012	31/03/2012	1,062,451	1,062,451
Small works 2012	Various	01/01/2012	31/03/2012	3,800	3,800
Small works 2012	Various	01/01/2012	31/03/2012	14,319	14,319
Small works 2012	Various	01/01/2012	31/03/2012	1,124	1,124
Small works 2012	Various	01/01/2012	31/03/2012	229,475	229,475
Small works 2012	Various	01/01/2012	31/03/2012	72,739	72,739
Small works 2012	Various	01/01/2012	31/03/2012	33,394	33,394

PCSS = Procurement Contract Summary Sheet.

## ECONOMIC AND FINANCIAL ANALYSIS

### A. Summary

1. Economic analysis was carried out at the completion of the Federally Administered Tribal Areas (FATA) Rural Development Project to estimate the economic returns of the project. The overall economic internal rate of return (EIRR) is estimated at 22.2%, against the 19.1% estimated at appraisal. The difference is due to variations in the EIRR values of subcomponents. In the present analysis, the EIRR is estimated for all components, but the financial internal rate of return (FIRR) is estimated only for the community forestry and range management component. The same approach was adopted at appraisal.

#### 1. Component 1: Integrated Resource Management

2. **Farming system and crop production.** The EIRR estimated at completion is 25.9%, against the 37.3% estimated at appraisal. The lower EIRR is due to an increase in the prices of inputs compared with the prices of outputs and yields. The subcomponent achieved its objectives by benefiting 41,295 households, against the targeted 37,500 households, and improved the farming system on 22,306 hectares (ha). In addition, a *barani* area of 6,312 ha has also been brought under irrigation through the development of new irrigation schemes under the community infrastructure component. Overall, the farming system and crop production subcomponent benefited 28,618 ha. Better management of irrigation water and of other inputs will improve wheat yield by 68% in Bajaur Agency, 72% in Mohmand Agency; and 77% in Khyber Agency. The average overall increase in wheat yield is estimated at 72%, against 50% at appraisal. To avoid double counting of benefits, the economic returns from the 6,312 ha *barani* area brought under irrigation through new irrigation infrastructure have been evaluated under the community infrastructure component.

3. **Livestock and fodder development.** The estimated EIRR at completion is 24.8%, compared with 17.8% at appraisal. The EIRR value is higher because the benefits achieved were higher than anticipated in view of the increased number of beneficiary households—52,303, compared with the 35,000 targeted at appraisal.

4. **Community forestry and range management.** The economic analysis at project completion reveals an EIRR of 18.5%, against the 17.5% estimated at appraisal. The higher-than-appraised EIRR is due to the realization of benefits on a wider area than anticipated at appraisal. This subcomponent encompasses a number of interventions, including nursery raising, plantation, range management, and natural regeneration. Nursery development is mainly an income-generating activity for farmers, especially for women farmers. The financial analysis indicates that home-based (homestead) nursery may generate a net income of PRs84,550 from an investment of PRs17,450. Plantation development has a long gestation period and generates a small cash income in the 4th, 8th, and 12th years, followed by the main harvest in the 16th year. Overall financial analysis of plantation reveals an FIRR of 16.2%. The FIRR ranges from 15.6% to 22.3%, depending on the size of farm.

#### 2. Component 2: Community Infrastructure Development

5. **Drinking water supply schemes.** The EIRR at completion is estimated at 35.0%, compared with 31.0% at appraisal. The higher EIRR at completion is due to a rise in labor rates and the 60% increase in households (27,933 households) provided water, compared with the 17,500 households targeted at appraisal.

6. **Small irrigation systems.** The EIRR at completion is estimated at 25.2%, against 14.6% at appraisal. The higher value of EIRR at completion is due to the realization of benefits from bringing 6,312 ha of new areas under irrigation. A conservative approach was adopted in the analysis of this subcomponent and the production of wheat cultivated on *barani* land, pre-project, was also accounted for.

7. **Road construction and improvement.** The EIRR estimated at project completion is 16.6%, at par with the appraisal estimate of 16.5%.

## B. Project Impact

8. **Increase in production.** The availability of adequate water in timely manner will result in improved crop yield, as described above under the farming system and crop production and irrigation systems development subcomponents. The farming system and crop production subcomponent alone will increase annual production of wheat by about 5,240 tons, maize by about 3,000 tons, and vegetables by about 550 tons at full development. After full realization of benefits, an incremental income of PRs189.5 million per year will be realized from the developed farming system. The new area brought under irrigation (6,312 ha) will also produce an annual incremental production of about 1,565 tons of wheat, about 10,065 tons of vegetables, about 3,249 tons of maize, and about 1,786 tons of rice, at an estimated value of PRs273.5 million per year. The total incremental income from crop production is estimated at PRs463.0 million per year.

9. **Impact on household farm income.** The average farm size in the project area is 1.4 ha and the average family size is nine. Farm budget analysis shows that the farming system improvements on a typical farm will yield annual incremental income of about PRs16,200 per year. Under the new irrigation schemes, which generated negligible farm income before the project, the average increase in farm income will be about PRs39,000 per year. The annual increase in per capita income will range from PRs1,800 on existing farms to PRs4,300 on new farms at full development.

10. **Impact on employment.** The project will also generate more than 598,000 additional person-days of farm labor per year. It will improve the food security of the beneficiary farm households in the project area and indicate that the project will achieve its objectives.

11. The results of the EIRR analysis are summarized in Table A7.1.

**Table A7.1: Summary of Results of the Economic Analysis**

Description	Appraisal	Completion
<b>Overall</b>	19.1	22.2
<b>Integrated Resource Management</b>		
Farming system and crop production	37.3	25.9
Livestock and fodder development	17.8	24.8
Community forestry and range management	17.5	18.5
<b>Community Infrastructure Development</b>		
Drinking water supply schemes	31.0	35.0
Small irrigation systems	14.6	25.2
Road construction and improvement	16.5	16.6

## C. Detailed Economic and Financial Analysis

### 1. Introduction

12. The Federally Administered Tribal Areas (FATA) Rural Development Project supported the development of key rural infrastructure in the FATA region. The project had three main components: (i) integrated resource management, covering (a) farming system and crop production, (b) livestock and fodder development, and (c) community forestry and range management; (ii) community infrastructure development, including (a) drinking water supply schemes, (b) small irrigation systems, and (c) road construction and improvement; and (iii) project planning, management, and support. The project boundaries extended over three FATA agencies, namely, Bajaur, Mohmand, and Khyber. The project started in 2006 and was completed in 6 years. A summary of the project's targets and achievements is presented in Table A7.2.

**Table A7.2: Targets and Achievements**

<b>Component/Subcomponents</b>	<b>Target</b>	<b>Actual Achievement</b>	<b>% of Target</b>
<b>Integrated Resource Management</b>			
Farming systems and crop production improvement			
- Beneficiary households	37,000	41,295	111.6%
Livestock productivity improvement (households)	35,000	52,303	149.4%
Improvement in community forestry and range management (ha)	12,000	13,711	114.3%
<b>Community Infrastructure Development</b>			
Drinking water supply schemes (no.)			
- Spring-fed gravity flow	100	101	101.0%
- Dug wells	300	328	109.3%
- Hand pumps	500	501	100.2%
- Tube wells	8	8	100.0%
Irrigation development (ha)	6,000	6,312	105.2%
Road construction and upgrading			
- New link roads (km)	120	189	157.8%
- Improvement of existing roads (km)	72	44	61.4%

FATA = federally administered tribal areas; ha = hectare; km = kilometer.

13. The initial project design and objective remained unchanged over the project implementation period.

14. At appraisal, the financial and economic analysis estimated the economic returns likely to benefit farm households and the economy. These benefits were expected to derive from (i) improved or increased yields as a result of better irrigation and increased area of irrigated land; (ii) increased dairy and livestock production, including live weight, and better health; (iii) supplemental household incomes through community-based plantation and forest development activities; (iv) time savings in household water supply provision; (v) conversion of *barani* agriculture to irrigated agriculture; and (vi) time and cartage cost savings from road transport.

15. In addition, the project also produced indirect and non-quantifiable benefits through technical assistance provided to communities in agriculture farming, as well as to government staff in designing and implementing infrastructure schemes.

16. The economic analysis at the completion of the project was done to reevaluate the financial and economic analysis of the project on the basis of the actual cost of the project at completion and the benefits realized from the project interventions, all in real terms.

17. At completion, several factors contributed to differences in economic results between the current analyses and the appraisal estimates. These factors included improvements in the assumed and actual benefited area and in crop yield, cropping pattern improvements, and a higher number of beneficiary households as compared with the envisaged at appraisal.

## 2. Approach and Methodology

18. For the purpose of reevaluation, cash flows were developed on the basis of actual costs and projected benefits at the level of full development, assumed to be attained 4 years after the project completion. These data were gathered from various departments of the government, private farmers, and beneficiaries during a pilot visit to all three agencies and in the course of interviews with the beneficiaries, staff of the Agriculture and Irrigation departments, and contractors in the field during implementation, as well as from project performance management system (PPMS) and progress reports.

19. The current analysis reestimates the project benefits using the appraisal methodology but applies actual data on the size of the improved area, changes in cropping yield, benefit accumulation, project costs, and other parameters as reported during and after project implementation.

20. The analysis estimates net incremental returns attributable to the project by comparing returns in the with-project and without-project scenarios over the 25-year life of the project, including 6 years of implementation, at a discount rate of 12%. Major assumptions made regarding the components and subcomponents are given below.

21. **Farming systems and crop production.** Under the without-project scenario, the analysis assumes that the farmers will continue to use nondescript and poor-quality seeds, and indiscriminately and uneconomically apply agrochemicals, resulting in low and stagnant yield and, hence, low household income. Under the with-project scenario, on the other hand, crop yield will increase as a result of improved and screened varieties, and integrated crop management practices.

22. Non-quantifiable benefits include increased food security; better nutrition; transition from below-subsistence to subsistence and commercial agriculture; increased use of environmentally friendly production packages; enhanced technical and farm management capabilities of farmers owing to farmer training programs; and increased employment for transporters, processors, and market functionaries.

23. **Livestock and fodder development.** Without the project, poor animal husbandry practices, poor feed management, inadequate live weight gain, and reduced yield of milk and other dairy products will continue, resulting in falling household income. With the project, animal husbandry and feed management will improve with the help of trained village animal husbandry



and livestock extension workers. Household incomes will increase with improvements in dairy and livestock products, including live weight and the health of households will improve.

24. Other benefits that are not quantified are better nutrition for the household; enhanced technical and livestock management capabilities of farmers with the help of animal husbandry extension workers and the farmer training program; and increased employment for transporters, processors, and market functionaries.

25. **Community forestry and range management.** Without the project, there will be no improvement in the current situation and runoff water will continue to erode topsoil. With the project, private and community-based plantations will supplement household incomes, and will generate demand for nursery plants by establishing profitable nurseries. Range management (controlled grazing) does not have any direct quantifiable benefits.<sup>1</sup>

26. Indirect or intangible benefits include higher nutrition status through increased production of milk and other dairy products; increased recharge of aquifers; reversal of degradation; and increased employment opportunities for wage earners in non-timber handling, processing, and marketing.

27. **Drinking water supply schemes.** Without the project, women and girls in particular will continue to haul water (with waterborne diseases) from considerable distances, enduring stress, discomfort, and waste of time. The project, on the other hand, will make water available at the doorstep and save time for women to engage in other economically productive work.

28. **Small irrigation systems.** Without the project, low water availability and its allocation to low-value crops will continue and crop production will be restricted to below-subsistence level, with low marketable surplus. With the project, irrigation development will help increase cropping intensity, the adoption of high-value crops, and the conversion of *barani* agriculture to irrigated agriculture. It is expected that, with the availability of irrigation water and the adoption of recommended farm production practices, production will be at par with that from other irrigated areas. It is assumed, both for *barani* and currently irrigated areas, that full development will be achieved in about 10 years. This would significantly increase the household income of farmers and provide employment to labor, both men and women.

29. **Road construction and improvement.** Under the without-project scenario, the low mobility and access to social services of communities will continue, and so will the long travel time. The construction of link roads under the project will generate household savings through lower fares and reduced cartage charges for farm input, output, and consumables. The roads will also encourage mobility among students, particularly female students.

30. Though the overall situation under without-project scenario will further deteriorate in all areas covered by the project subcomponents, the analyses take the conservative approach of assuming status quo and do not consider any deterioration in the situation over the period of analysis.

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<sup>1</sup> It, however, reduces soil erosion, improve moisture retention, and increase carrying capacity. The conservation of water helps increase the availability of moisture for crop production and increase carrying capacity, and has a direct bearing on livestock productivity.

### 3. Project Data

31. The analyses are based mainly on data available in the project reports, particularly the final report issued in March 2012, and the PPMS. Other data on the socioeconomic characteristics of farm households, agricultural production level, and input practices in the project area were collected in the field through interviews with the beneficiaries and supplemented with secondary data available at the Bureau of Statistics (FATA Cell), Planning and Development Department, FATA Secretariat, Peshawar.

32. **Project cost.** Investment cost data, by project component, are taken from project records available at the project management unit (PMU). The analysis uses March 2012 prices for all inputs and outputs for the entire project period and for the analysis. Investment costs related to each subcomponent, including actual disbursements for site acquisition, schemes development, and provision of basic infrastructure and services, are used in developing cash flows. The year of project completion is taken as the starting point for ex-post financial and economic analysis.

33. **Prices.** Data on open-market prices of agricultural commodities and for skilled and unskilled labor were collected through various sources, including price bulletins issued by the government, to determine farm-gate financial prices.

34. In the economic analysis, the financial prices were converted into economic values by excluding taxes and subsidies from input and output prices, and calculating import and export parity prices of major inputs and outputs (rice, wheat, sugarcane, and fertilizers). A shadow wage rate of 0.9 was used to convert a financial price into an economic value for non-tradable goods; 0.8 was used for unskilled labor, 1.1 for skilled labor, and 0.6 for polythene bags. International prices for agricultural commodities and fertilizers were taken from data issued by the World Bank in January 2012.

35. In the present analysis, the EIRR is estimated for all the components, whereas the financial analysis is carried out only for the community forestry and range management component. The same approach was adopted at appraisal.

### 4. Main Assumptions

36. The following are the main assumptions used in the analysis:

- (i) The useful life of the civil works supported under the project is 25 years, including the investment period of 6 years.
- (ii) The actual project cost is in Pakistan rupees; therefore, cash flows are also developed in local currencies in the analyses. Where applicable, however, the conversion rate \$1 = PRs90.50 is used, at March 2012 prices.
- (iii) The total actual cost of project implementation—PRs4.725 billion (\$78.177 million), defrayed over 6 years—is accounted for. For the purposes of the economic analysis, this cost is converted into an economic value.
- (iv) The financial and economic analyses bring the preceding project investments to the March 2012 level by using Manufactures Unit Value (MUV) Index Values.<sup>2</sup>
- (v) In the analysis at appraisal, the operation and maintenance expenditure for interventions that would be handed over to beneficiaries on completion was not

<sup>2</sup> World Bank. 2012. *Price Forecast Bulletin*. Washington, DC. February.

considered as project-related expenditure. A similar approach was adopted at project completion.

- (vi) The project benefits were worked out separately in financial and economic terms for each subcomponent, as well as for the whole project. At appraisal, these benefits were determined by developing farm budgets to assess the impact of the project on farm productivity and returns to the economy.
- (vii) Project management cost has been added in the cash flow developed for overall project evaluation, in an approach similar to that adopted at appraisal.

## 5. Economic Analysis

37. Economic evaluation was undertaken separately for the six subcomponents to determine the economic viability of the investment by computing the EIRR. Economic benefits and costs were estimated over the economic life of the project, expected to be about 25 years.

38. **Economic internal rate of return.** The overall economic internal rate of return for the project is 22.2%, compared with 19.1% estimated at appraisal. The achievements under each project subcomponent and the results of the analysis, by subcomponent, are discussed briefly in the following paragraphs.

### a. Component 1: Integrated Resource Management

39. **Farming system and crop production.** The farming system and crop production subcomponent was aimed at increasing farm productivity, largely by raising yield. The following main activities were undertaken: (i) establishment of 4,518 demonstration plots using improved seed technology and farming practices; (ii) plantation on 10,427 ha, against the target of 9,500 ha; and (iii) provision of various types of training to farmers and to the staff of the Agriculture Department. Most of the input and benefits are measurable and have direct impact on household income. This subcomponent was evaluated by developing 1 ha typical farm budgets, similar to the methodology adopted at appraisal. All major crops were considered in the development of farm model budgets. An area of 22,306 ha was improved under the farming system and crop production subcomponent. In addition, a *barani* area of 6,312 ha was also brought under irrigation through new irrigation schemes developed under the community infrastructure component. Overall, therefore, the farming system and crop production subcomponent has benefited 28,618 ha. The area developed under this subcomponent in each of the three agencies is shown in Table A7.3.

**Table A7.3: Area Developed under the Farming System and Crop Production and Small Irrigation Schemes Subcomponents**  
(ha)

Description	Bajaur	Mohmand	Khyber	Total
Farming system and crop production	6,373	10,622	5,311	22,306
Small irrigation schemes ( <i>barani</i> area)	1,818	2,424	2,070	6,312
Total	8,191	13,046	7,381	28,618

ha = hectare.

40. Better management of irrigation water and of other input will improve wheat yields by 68% in Bajaur Agency, 72% in Mohmand Agency, and 77% in Khyber Agency. The average overall increase in wheat yield is estimated at 72%, against the 50% estimated at appraisal. To

avoid double-counting of benefits, the economic returns of 6,312 ha *barani* area have been evaluated under the community infrastructure component.

41. The EIRR estimated at project completion is 25.9%, against the 37.3% estimated at appraisal. The lower EIRR is due to rise in input prices compared with output and yield prices. The subcomponent achieved its objectives by benefiting 41,295 households, against the 37,000 targeted at appraisal.

42. **Livestock and fodder development.** This subcomponent was aimed at increasing livestock productivity through better animal husbandry practices, including better feed management. At appraisal, 35,000 households were targeted as beneficiaries of the project; at project completion more than 52,300 households, including households with 1,443 plots developed for fodder over 535 ha, were beneficiaries. This subcomponent also raised awareness of fodder farming among farmers. Before the project, the livestock used to depend only on field grazing.

43. The estimated EIRR at completion is 24.8%, compared with 17.8% at appraisal. The high value of EIRR is due to the higher-than-anticipated benefits achieved because of the increase in the number of beneficiary households (52,303 households, compared with 35,000 at appraisal).

44. **Community forestry and range management.** The community forestry and range management subcomponent encompassed a number of interventions including nursery raising, plantation, range management, and natural regeneration. Nursery development is mainly an income-generating activity for farmers, especially for women farmers. The returns are realized within the year. Plantation development has a long gestation period, and quantifiable and non-quantifiable benefits are realized over a period of 20 years. After investing heavily in the first year, plantations earn small cash incomes in the 4th, 8th, and 12th years, and then the main harvest occurs in the 16th year. The cash income continues thereafter if the plantations are properly managed. The project is expected to increase household income by increasing nursery raising and tree plantation.

45. Under this subcomponent, an area of 12,000 ha was targeted for forestry and range management improvements at appraisal. The project improved 13,711 ha by developing 366 nurseries, 402 private and community-managed plantations, 181 community-controlled grazing blocks, and 153 soil erosion works.

46. The economic analysis at completion reveals an EIRR of 18.5%, against the 17.5% estimated at appraisal. The EIRR at completion is higher than the EIRR at appraisal because benefits have been realized over a wider area than anticipated at appraisal.

## **b. Component 2: Community Infrastructure Development**

47. **Drinking water supply schemes.** The project provided drinking water supply at the doorstep to 27,933 households, against the target of 17,500 households, by providing 938 schemes of various types including: 101 spring-fed gravity flow systems, 328 dug wells, 501 hand pumps, and 8 tube wells. The benefits have been estimated largely as the time saved particularly by girls and women who used to fetch water. Significant benefits accrue to women in the project area who no longer have to haul water from considerable distances and are able to reallocate the time saved. The other economic benefits are to school-going children who are

freed of the burden of water carrying, a major reason for school absenteeism. The analysis reveals that the water collection time of the 27,933 households has been reduced by 90%.

48. The EIRR at completion is estimated at 35.0%, compared with 31.0% at appraisal. The higher EIRR at completion is due to a rise in labor rates and a 60% increase in households (27,933 households) provided water at their doorstep over the appraisal estimate (17,500 households).

49. **Small irrigation systems.** The benefits under this subcomponent accrued after the existing water channels that had experienced heavy seepage and conveyance losses were realigned, improved, and rehabilitated. The project provided irrigation storage facilities and increased water availability to 6,312 ha of *barani* area through 141 surface irrigation schemes (new), 16 surface irrigation schemes (rehabilitated), 83 pond irrigation schemes, 166 dug-well irrigation schemes, 6 tube-well irrigation schemes, 135 water harvesting check dams, 5 delayed-action dams, 3 weirs, and 435 schemes that offered protection against land erosion from floods. The project also provided protection bunds along the cultivable land that was either abandoned or had been washed away by floods.

50. Before the project, the yield of wheat grown partially on 6,312 ha of rain-fed area was low. A conservative approach was adopted in the analysis of this subcomponent, and wheat production of before the project was accounted for in the without-project scenario.

51. The EIRR at completion is estimated at 25.2%, against the 14.6% estimated at appraisal. The higher EIRR value at completion is due to the benefits realized by bringing rain-fed areas under irrigation.

52. **Road construction and improvement.** The main purpose of developing link roads was to provide access to the existing main roads. The project provided 233 km of link roads, against the 192 km envisaged at appraisal. The link roads will improve access to health and other social services. They will also encourage entrepreneurs and the private sector to invest in nonfarm ventures. Similar to the approach taken during appraisal, the main benefits from road improvement and rehabilitation are assumed to be (i) savings in vehicle operating cost, and (ii) travel time saved. The analysis is made from standard perspectives.

53. The EIRR estimated at completion is 16.6%, which is very close to the 16.5% estimated at appraisal.

### c. Summary Results of Overall Economic Analysis

54. At appraisal, the costs and benefits of the various components, including the project administrative and implementation costs, were added to estimate the overall EIRR. The same approach and methodology was used at project completion.

55. The overall EIRR is 22.2%, against 19.1% at appraisal. The difference is due to variations in the EIRR of subcomponents. The results are summarized in Table A7.4.

**Table A7.4: Summary Results of the EIRR Analysis (%)**

<b>Description</b>	<b>Appraisal</b>	<b>Completion</b>
<b>Overall</b>	19.1	22.2
<b>Integrated Resource Management</b>		
Farming system and crop production	37.3	25.9
Livestock and fodder development	17.8	24.8
Community forestry and range management	17.5	18.5
<b>Community Infrastructure Development</b>		
Drinking water supply schemes	31.0	35.0
Small irrigation systems	14.6	25.2
Road construction and improvement	16.5	16.6

EIRR = economic internal rate of return.

## 6. Financial Analysis

56. At appraisal, only the community forestry and range management subcomponent was subjected to financial analysis. The same approach was adopted at project completion.

57. The financial evaluation is based on indicative model budgets for representative farms for home-based and field-based nurseries managed by small farmers, especially by women, nurseries operated and maintained by the Forestry Department, model forest plantations managed by individual farmers or by the community, and plantations managed by the Forestry Department, with and without water harvesting input.

58. Representative budgets for nursery raising indicate that the enterprise is very remunerative. A home-based (homestead) nursery can be established with an investment of PRs17,450 and will generate a net income of PRs84,550 to investors (including female entrepreneurs). A field-based nursery, on the other hand, requires an investment of PRs39,960 and generates net income of more than PRs200,000.

59. Plantation development model budgets were also prepared under various management and technical specifications. Small amounts of revenue will be realized in the 4th, 8th, and 12th years and the bulk of the revenue will be received in the 20th year. If the farmer wishes to continue after that, the investment in the 21st year will be less than start-up cost.

60. The overall FIRR is estimated at 16.2%. The FIRR ranges from 15.6% to 22.3%, depending on the size of the farm. The results of the financial analysis are summarized in Table A7.5.

**Table A7.5: Financial Analysis of Plantation Model Budgets**

<b>Type of Plantation</b>	<b>FIRR (%)</b>	
	<b>Appraisal</b>	<b>Completion</b>
5 ha, managed by farmers	18.1	20.9
25 ha, managed by the community (without WH)	19.0	22.3
25 ha, managed by the community (with WH)	16.9	16.2
50 ha, managed by the Forestry Department (without WH)	19.1	22.3
50 ha, managed by the Forestry Department (with WH)	16.9	15.6

FIRR = financial internal rate of return, WH = water harvesting and soil conservation structures.

## D. Project Impact

61. **Increase in production.** The timely availability of adequate water will result in improved crop yield, as described above under the farming system and crop production and irrigation systems development subcomponents. The farming system and crop production subcomponent alone will increase the annual production of wheat by about 5,240 tons, maize by about 3,000 tons, and vegetables by about 550 tons at full development. After the full realization of benefits, incremental income of PRs189.5 million per year will be realized from the developed farming system. The new area brought under irrigation (6,312 ha) will also produce annual incremental production of about 1,565 tons of wheat, about 10,065 tons of vegetables, about 3,249 tons of maize, and about 1,786 tons of rice, with an estimated value of PRs273.5 million per year. The total incremental income from crop production is estimated at PRs463.0 million per year.

62. **Impact on household farm income.** The average farm size in the project area is 1.4 ha and the average family size is nine. The farm budget analysis shows that the farming system improvements on a typical farm will yield incremental income of about PRs16,200 per year. Under the new irrigation schemes, which generated negligible farm income before the project, the average increase in income from a farm will be about PRs39,000 per year. The annual increase in per capita income will range from about PRs1,800 on an existing farm to about PRs4,300 on a new farm at full development.

63. **Impact on employment.** The project will also generate about 598,000 additional person-days per year of farm labor and improve the food security of the beneficiary farm households in the project area. From all indications, the project will achieve its objectives.

64. **Conclusion.** Although it is too early to fully document the entire impact of the project on agricultural performance and on per capita increase in annual income, the results of the analysis at project completion clearly indicate that the project will achieve its development objectives.

## E. Tabular Presentation of Evaluation

65. Details of the evaluation results for each subproject are shown in Tables A7.6–A7.15.

**Table A7.6: Financial and Economic Prices**

<b>Item/Description</b>	<b>Unit</b>	<b>E/F Ratio</b>	<b>Economic Price (PRs)</b>	<b>Financial Price (PRs)</b>
<b>Farm Output</b>				
Rice (grain)	Kg	0.61	14.8	24.0
Rice (straw)	Kg	0.9	1.8	2.0
Maize (grain)	Kg	0.9	13.5	15.0
Maize (straw)	Kg	0.9	1.4	1.5
Tomato	Kg	0.9	13.5	15.0
Okra	Kg	0.9	12.6	14.0
Wheat (grain)	Kg	1.29	27.3	21.3
Wheat (straw)	Kg	0.9	1.8	2.0
Barley	Kg	0.9	11.7	13.0
Barley (straw)	Kg	0.9	1.4	1.5
Mustard	Kg	0.9	31.5	35.0
Berseem	Kg	0.9	1.8	2.0
Onion	Kg	0.9	8.1	9.0
Tomato (off-season)	Kg	0.9	36.0	40.0
Sugarcane	Kg	0.9	2.8	3.1
Sugarcane (by-product)	Kg	0.9	0.5	0.5
<b>Farm Input (Seeds)</b>				
Rice seed	Kg	0.9	29.16	32.40
Maize seed	Kg	0.9	16.88	18.75
Tomato seed	Kg	0.9	2,070	2,300
Okra seed	Kg	0.9	15.8	17.50
Wheat seed	Kg	0.9	25.8	28.69
Barley seed	Kg	0.9	14.6	16.25
Mustard seed	Kg	0.9	37.8	42
Berseem seed	Kg	0.9	225	250
Onion seed	Kg	0.9	1,260	1,400
Sugarcane seed	Kg	0.9	1.6	1.80
Forest grass seed	Kg	0.9	225	250
Seedlings (plantation)	seedling	0.9	13.5	15.0
<b>Other Farm Input</b>				
Tractor	per hour	0.9	292.5	325.0
Urea	Kg	1.09	40.23	37.0
DAP	Kg	1.11	55.30	50.0
Sulfate of potash (SOP)	Kg	1.09	41.32	38.0
Farmyard manure	cart	0.9	720	800
Pesticides	factor	1.0	1.0	1.0
Threshing (maize, rice, etc.)	%	0.9	11.25	12.5
Threshing (wheat)	%	0.9	7.2	8.0



Item/Description	Unit	E/F Ratio	Economic Price (PRs)	Financial Price (PRs)
<b>Livestock and Dairy</b>				
Milk	PRs/liter	0.79	40.89	35
Live weight	Kg	0.9	45	50
Dung	Kg	0.9	0.9	1.0
<b>Livestock Input</b>				
Concentrate	PRs/kg	0.9	18	20
Medicine	unit	0.9	450	500
<b>Forest Plantation</b>				
Seedlings (nursery)	seedling	0.9	3.6	4.0
Tool kit	seedling	0.9	1,800	2,000
Pole (4 years)	PRs/no.	0.9	270	300
Pole (8 years)	PRs/no.	0.9	540	600
Small tree	PRs/no.	0.9	810	900
Timber tree	PRs/no.	0.9	1,800	2,000
Nursery/Seedling	seedling	0.9	4.5	5.0
<b>Forest Products</b>				
Seedlings (nursery)	Seedling	0.9	5.4	6.0
Seedlings (bare-rooted)	Seedling	0.9	10.8	12.0
Pole (4 years)	PRs/No.	0.9	270	300
Pole (8 years)	PRs/No.	0.9	540	600
Small tree	PRs/No.	0.9	810	900
Timber tree	PRs/No.	0.9	1,800	2,000
Nursery/Seedling	Seedling	0.9	10.8	12.0
<b>Labor</b>				
Skilled labor	PRs/day	1.1	550	500
Unskilled labor	PRs/day	0.8	240	300
Female labor	PRs/day	0.7	175	250
Forest harvesters	PRs/day	1.1	660	600
<b>Cost of Irrigation</b>				
Natural source	Factor	0.9	0.9	1.0
Ponds, etc.	PRs/irrig	0.9	1.8	2.0
Dug well	PRs/irrig	0.7	35	50
Tube well	PRs/irrig	0.7	70	100
<b>Others</b>				
Polythene bags	Kg	0.6	90	150
Growing medium (forest)	Kg	0.9	1,800	2,000

Source: World Bank commodity prices and government of Pakistan price bulletins.

**Table A7.7: Economic Analysis,  
Farming System and Crop Production Cost and Benefit Streams, All Agencies (With Project)**  
(PRs million)

Year	Traditional technology		With Project				Total		Incremental			
	Area (ha)	Production Cost	Value of Production	Area (ha)	Cost of Production	Value of Production	Production Cost	Value of Production	Gross Margin	Benefit	Costs	Cash Flow
1	22,306.0	597.5	1,740.0	-	-	-	597.5	1,740.0	1,142.5	-	4.5	(4.5)
2	22,306.0	597.5	1,740.0	-	-	-	597.5	1,740.0	1,142.5	-	22.3	(22.3)
3	20,075.4	537.8	1,566.0	2,230.6	87.9	207.9	625.7	1,773.9	1,148.2	5.7	44.8	(39.1)
4	17,844.8	478.0	1,392.0	4,461.2	175.8	415.8	653.8	1,807.7	1,153.9	11.4	27.3	(15.9)
5	15,614.2	418.3	1,218.0	6,691.8	263.7	623.7	682.0	1,841.6	1,159.6	17.2	24.0	(6.8)
6	13,383.6	358.5	1,044.0	8,922.4	351.7	831.5	710.2	1,875.5	1,165.4	22.9	6.8	16.1
7	11,153.0	298.8	870.0	11,153.0	439.6	1,039.4	738.3	1,909.4	1,171.1	28.6	-	28.6
8	8,922.4	239.0	696.0	13,383.6	527.5	1,247.3	766.5	1,943.3	1,176.8	34.3	-	34.3
9	6,691.8	179.3	522.0	15,614.2	615.4	1,455.2	794.7	1,977.2	1,182.5	40.1	-	40.1
10	4,461.2	119.5	348.0	17,844.8	703.3	1,663.1	822.8	2,011.1	1,188.2	45.8	-	45.8
11	2,230.6	59.8	174.0	20,075.4	791.2	1,871.0	851.0	2,045.0	1,194.0	51.5	-	51.5
12	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
13	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
14	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
15	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
16	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
17	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
18	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
19	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
20	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
21	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
22	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
23	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
24	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
25	-	-	-	22,306.0	879.1	2,078.8	879.1	2,078.8	1,199.7	57.2	-	57.2
							<b>5,732.3</b>	<b>14,905.3</b>	<b>9,173.0</b>	<b>212.6</b>	<b>88.2</b>	<b>124.4</b>
										<b>EIRR</b>		<b>25.9%</b>

**Table A7.8: Economic Analysis**  
**Annual Livestock-Related Cost and Benefit Streams, All Agencies**  
(PRs million)

Year	Traditional technology			Improved Technology Package			With Project		Total		Incremental	
	Farm HH	Production Cost	Value of Production	Farm HH	Cost of Production	Value of Production	Production Cost	Value of Production	Gross Margin	Benefit	Costs	Cash Flow
1	52,303	1,241.7	3,146.4	-	-	-	1,241.7	3,146.4	1,904.7	-	2.9	(2.9)
2	52,303	1,241.7	3,146.4	-	-	-	1,241.7	3,146.4	1,904.7	-	11.6	(11.6)
3	47,073	1,117.5	2,831.7	5,230	145.1	339.9	1,262.6	3,171.6	1,909.0	4.3	20.6	(16.3)
4	41,842	993.3	2,517.1	10,461	290.3	679.8	1,283.6	3,196.9	1,913.3	8.6	40.0	(31.4)
5	36,612	869.2	2,202.5	15,691	435.4	1,019.7	1,304.6	3,222.2	1,917.6	12.9	34.5	(21.6)
6	31,382	745.0	1,887.8	20,921	580.6	1,359.6	1,325.6	3,247.4	1,921.9	17.2	3.4	13.7
7	26,152	620.8	1,573.2	26,152	725.7	1,699.5	1,346.5	3,272.7	1,926.2	21.5	-	21.5
8	20,921	496.7	1,258.5	31,382	870.8	2,039.4	1,367.5	3,298.0	1,930.5	25.8	-	25.8
9	15,691	372.5	943.9	36,612	1,016.0	2,379.3	1,388.5	3,323.3	1,934.8	30.1	-	30.1
10	10,461	248.3	629.3	41,842	1,161.1	2,719.2	1,409.5	3,348.5	1,939.1	34.4	-	34.4
11	5,230	124.2	314.6	47,073	1,306.3	3,059.2	1,430.4	3,373.8	1,943.4	38.7	-	38.7
12	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
13	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
14	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
15	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
16	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
17	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
18	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
19	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
20	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
21	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
22	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
23	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
24	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
25	-	-	-	52,303	1,451.4	3,399.1	1,451.4	3,399.1	1,947.7	42.9	-	42.9
							<b>10,517.5</b>	<b>25,615.9</b>	<b>15,098.4</b>	<b>159.5</b>	<b>73.2</b>	<b>86.3</b>
										<b>EIRR</b>		<b>24.8%</b>

**Table A7.9: Forest Nursery Models (Farmer-Managed)**

Quantities				Description	Financial Prices		Economic Prices		
No.	Description	Home Based Nursery	Field Based Nursery	No.		Home Based Nursery	Field Based Nursery	Home Based Nursery	Field Based Nursery
A	Main Output			A	Revenue (PRs)				
	Seedlings	8,500	21,000		Seedlings	102,000	252,000	91,800	226,800
B	Inputs				Gross Income (PRs)	102,000	252,000	91,800	226,800
1	Seed (no. of Packets)	5.0	15.0	B	Costs (PRs)				
2	Polythene bags (kg)	40.0	-	1	Seed	1,250	3,750	1,125	3,375
3	Growing medium (no.)	1.0	3.0	2	Polythene bags	6,000	-	3,600	-
4	Insecticides/pesticides (no.)	1.0	3.0	3	Growing medium	2,000	6,000	1,800	5,400
5	Watering (no.)	1.0	3.0	4	Insecticides/pesticides	2,000	6,000	1,800	5,400
6	Hired labor (days)	10.0	60.0	5	Watering	2,000	4,000	1,800	2,700
7	Family labor (days)	50.0	100.0	6	Hired labor	3,200	19,200	2,400	14,400
8	Other costs	1.0	1.0	7	Family labor	-	-	8,750	17,500
				8	Other costs	1,000	1,000	900	900
				C	Total Cash Cost (PRs)	17,450	39,950	22,175	49,675
				D	Gross Margins (PRs)	84,550	212,050	69,625	177,125

**Table A7.10: Forest Nursery Models (Department-Managed)**

Quantities				Financial Prices				Economic Prices	
No.	Description	Tube Nursery	Bare Rooted Nursery	No.	Description	Tube Nursery	Bare Rooted Nursery	Tube Nursery	Bare Rooted Nursery
<b>A</b>	<b>Main Output</b>				<b>Revenue (PRs)</b>				
	Seedlings	450,000	60,000		Seedlings	2,700,000	720,000	2,430,000	648,000
<b>B</b>	<b>Inputs</b>			<b>C</b>	<b>Gross Income (PRs)</b>	<b>2,700,000</b>	<b>720,000</b>	<b>2,430,000</b>	<b>648,000</b>
					<b>Costs (PRs)</b>				
1	Seed (l/s)	1.0	1.0	1	Seed	10,000	2,000	9,000	1,800
2	Polythebe bags (kg)	2,000.0	-	2	Polythene bags	300,000	-	180,000	-
3	Tools and implements (l/s)	1.0	1.0	3	Tools and implements	15,000	1,000	13,500	900
4	Agrochemicals (l/s)	1.0	1.0	4	Agrochemicals	5,000	3,000	4,500	2,700
5	Fencing material (l/s)	1.0	1.0	5	Fencing material	25,000	9,100	22,500	8,190
6	Land rent (l/s)	1.0	1.0	6	Land rent	10,000	10,000	9,000	9,000
7	Land preparation (l/s)	1.0	1.0	7	Land preparation	1,000	90	900	81
8	Labor/guards (days)	3,780.0	1,042.0	8	Labor/guards	1,134,000	312,600	907,200	250,080
				<b>D</b>	<b>Total Cash Cost (PRs)</b>	<b>1,500,000</b>	<b>337,790</b>	<b>1,146,600</b>	<b>272,751</b>
				<b>E</b>	<b>Gross Margins (PRs)</b>	<b>1,200,000</b>	<b>382,210</b>	<b>1,283,400</b>	<b>375,249</b>

**Table A7.11: Economic Analysis,  
Annual Cost and Benefit Streams,  
All Agencies (Community Forestry and Range Management)**  
(PRs million)

Year	Gross Margin			Incremental	
	Nurseries	Plantation	Total	Economic Costs	Cash Flow
1	-	-	-	5.6	(5.6)
2	12.1	(94.4)	(82.3)	30.9	(113.2)
3	24.2	(12.5)	11.7	54.0	(42.4)
4	30.2	(12.5)	17.7	90.2	(72.5)
5	42.3	97.0	139.3	112.5	26.8
6	60.4	(25.0)	35.4	54.2	(18.8)
7	60.4	(25.0)	35.4	-	35.4
8	60.4	(25.0)	35.4	-	35.4
9	60.4	50.0	110.5	-	110.5
10	60.4	(25.0)	35.4	-	35.4
11	60.4	(25.0)	35.4	-	35.4
12	60.4	(25.0)	35.4	-	35.4
13	60.4	190.8	251.3	-	251.3
14	60.4	(25.0)	35.4	-	35.4
15	60.4	(25.0)	35.4	-	35.4
16	60.4	(25.0)	35.4	-	35.4
17	60.4	(25.0)	35.4	-	35.4
18	60.4	(25.0)	35.4	-	35.4
19	60.4	(25.0)	35.4	-	35.4
20	60.4	(25.0)	35.4	-	35.4
21	60.4	1,194.9	1,255.4	-	1,255.4
22	60.4	(21.8)	38.6	-	38.6
23	60.4	(21.8)	38.6	-	38.6
24	60.4	65.0	125.4	-	125.4
25	60.4	(22.7)	37.8	-	37.8
<b>NPV @ 12%</b>	<b>326.2</b>	<b>52.9</b>	<b>379.1</b>	<b>216.7</b>	<b>162.4</b>
				<b>EIRR</b>	<b>18.5%</b>

EIRR= economic internal rate of return.

**Table A7.12: Economic Analysis,  
Cash, Drinking Water Supply Schemes**

<b>Year</b>	<b>No. of Households Benefited</b>	<b>Economic Benefits (PRs million)</b>	<b>Investment Cost (PRs million)</b>	<b>Incremental Cash Flow (PRs million)</b>
1	-	-	8.2	(8.2)
2	274	44.6	95.9	(73.6)
3	8,963	89.2	164.0	(119.4)
4	20,198	133.8	336.0	(269.1)
5	25,860	167.3	169.4	(85.7)
6	27,933	189.6	62.0	32.8
7	27,933	223.0	-	111.5
8	27,933	223.0	-	111.5
9	27,933	223.0	-	111.5
10	27,933	223.0	-	111.5
11	27,933	223.0	-	111.5
12	27,933	223.0	-	111.5
13	27,933	223.0	-	111.5
14	27,933	223.0	-	111.5
15	27,933	223.0	-	111.5
16	27,933	223.0	-	111.5
17	27,933	223.0	-	111.5
18	27,933	223.0	-	111.5
19	27,933	223.0	-	111.5
20	27,933	223.0	-	111.5
21	27,933	223.0	-	111.5
22	27,933	223.0	-	111.5
23	27,933	223.0	-	111.5
24	27,933	223.0	-	111.5
25	27,933	223.0	-	111.5
NPV @ 12%		<b>1,207.3</b>	<b>541.5</b>	<b>665.8</b>
			<b>EIRR</b>	<b>35.0%</b>

EIRR= economic internal rate of return.

**Table A7.13: Economic Analysis,  
Cash Flow of Annual Economic Cost and Benefits,  
All Agencies and All Irrigation Schemes  
(PRs million)**

Year	Area To be Covered			With Project Area Covered			Production Cost	Total Value of Production	Gross Margin	Benefit	Incremental	
	Area (ha)	Production Cost	Value of Production	Area (ha)	Cost of Production	Value of Production					Costs	Cash Flow
1	6,312.3	10.0	31.0	-	-	-	10.0	31.0	20.9	-	10.2	(10.2)
2	6,312.3	10.0	31.0	-	-	-	10.0	31.0	20.9	-	112.0	(112.0)
3	5,681.1	9.0	27.9	631.2	29.6	83.3	38.6	111.2	72.6	51.7	214.2	(162.5)
4	5,049.8	8.0	24.8	1,262.5	59.1	166.6	67.1	191.4	124.3	103.3	309.0	(205.6)
5	4,418.6	7.0	21.7	1,893.7	88.7	250.0	95.7	271.6	176.0	155.0	347.5	(192.4)
6	3,787.4	6.0	18.6	2,524.9	118.2	333.3	124.2	351.9	227.6	206.7	559.7	(353.0)
7	3,156.2	5.0	15.5	3,156.2	147.8	416.6	152.8	432.1	279.3	258.4	-	258.4
8	2,524.9	4.0	12.4	3,787.4	177.3	499.9	181.3	512.3	331.0	310.0	-	310.0
9	1,893.7	3.0	9.3	4,418.6	206.9	583.2	209.9	592.5	382.7	361.7	-	361.7
10	1,262.5	2.0	6.2	5,049.8	236.4	666.6	238.4	672.8	434.3	413.4	-	413.4
11	631.2	1.0	3.1	5,681.1	266.0	749.9	267.0	753.0	486.0	465.1	-	465.1
12	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
13	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
14	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
15	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
16	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
17	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
18	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
19	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
20	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
21	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
22	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
23	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
24	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
25	-	-	-	6,312.3	295.5	833.2	295.5	833.2	537.7	516.7	-	516.7
						<b>1,138.8</b>	<b>3,222.2</b>	<b>2,083.4</b>	<b>1,919.1</b>	<b>927.9</b>		<b>991.2</b>
											<b>EIRR</b>	<b>25.2%</b>

ha = hectare; EIRR = economic internal rate of return.



**Table A7.14: Economic Cost–Benefit Analysis of Link Roads**

Parameters	Year	1	2	3	4	5	6	7	8	9	10	11	12	13-25
Road Under construction	km	-	45.0	45.0	45.0	45.0	-	-	-	-	-	-	-	-
Available for Traffic use	km	-	-	45.0	90.0	135.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
Road To Be Constructed	km	180.0	135.0	90.0	45.0	-	-	-	-	-	-	-	-	-
<b>Before Improvement Daily Average Vehicles Count</b>														
Motorcycles	per day	10.0	10.2	10.4	10.6	10.8	11.0	11.3	11.5	11.7	12.0	13.2	14.6	16.1
Car/Pickups	per day	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.9	6.0	6.6	7.3	8.0
Light Public Transport	per day	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.9	6.0	6.6	7.3	8.0
Light Transport vehicles	per day	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.4	2.6	2.9	3.2
Tractor Trolleys	per day	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.9	6.0	6.6	7.3	8.0
Buses/Trucks	per day	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.5	1.6
<b>Subtotal</b>	per day	<b>28.0</b>	<b>28.6</b>	<b>29.1</b>	<b>29.7</b>	<b>30.3</b>	<b>30.9</b>	<b>31.5</b>	<b>32.2</b>	<b>32.8</b>	<b>33.5</b>	<b>36.9</b>	<b>40.8</b>	<b>45.0</b>
<b>VOC Saving/Yr (Rs million)</b>														
Motorcycles		-	-	0.17	0.35	0.53	0.72	0.74	0.76	0.77	0.79	0.87	0.96	1.06
Car/Pickups		-	-	0.51	1.04	1.60	2.17	2.21	2.25	2.33	2.37	2.60	2.88	3.15
Light Public Transport		-	-	1.02	2.09	3.19	4.34	4.42	4.49	4.65	4.73	5.20	5.76	6.31
Light Transport vehicles		-	-	0.41	0.83	1.30	1.73	1.81	1.81	1.81	1.89	2.05	2.29	2.52
Tractor Trolleys		-	-	0.51	1.04	1.60	2.17	2.21	2.25	2.33	2.37	2.60	2.88	3.15
Buses/Trucks		-	-	0.39	0.87	1.30	1.73	1.73	1.73	1.89	1.89	2.05	2.37	2.52
<b>Subtotal</b>		-	-	<b>3.03</b>	<b>6.22</b>	<b>9.52</b>	<b>12.86</b>	<b>13.12</b>	<b>13.29</b>	<b>13.78</b>	<b>14.03</b>	<b>15.37</b>	<b>17.12</b>	<b>18.72</b>
<b>With Project Value of Time Saved (Rs million)</b>														
<b>Type of Vehicle</b>	Minutes/km			<b>1.37</b>	<b>2.79</b>	<b>4.26</b>	<b>5.78</b>	<b>5.94</b>	<b>6.04</b>	-	-	-	-	-
Motorcycles	8.0	-	-	1.37	2.79	4.26	5.78	5.94	6.04	6.15	6.31	6.94	7.67	8.46
Car/Pickups	16.0	-	-	5.47	11.14	17.03	23.13	23.76	24.18	24.60	25.23	27.75	30.70	33.85
Light Public Transport	24.0	-	-	4.10	8.36	12.77	17.34	17.82	18.13	18.45	18.92	20.81	23.02	25.39
Light Transport vehicles	24.0	-	-	6.15	4.40	6.60	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80
Tractor Trolleys	24.0	-	-	3.07	6.27	9.58	13.01	13.36	13.60	13.84	14.19	15.61	17.27	19.04
Buses/Trucks	20.0	-	-	2.56	5.22	7.98	10.84	11.14	11.33	11.53	11.83	13.01	14.39	15.87
<b>Subtotal</b>		-	-	<b>22.72</b>	<b>38.18</b>	<b>58.22</b>	<b>78.90</b>	<b>80.81</b>	<b>82.09</b>	<b>83.36</b>	<b>85.27</b>	<b>92.92</b>	<b>101.84</b>	<b>111.40</b>
<b>Incremental Benefits</b>														
1 VOC Saving		-	-	3.03	6.22	9.52	12.86	13.12	13.29	13.78	14.03	15.37	17.12	18.72
2. Value of Time Saved		7.00	-	22.72	38.18	58.22	78.90	80.81	82.09	83.36	85.27	92.92	101.84	111.40
<b>Total Benefits</b>		-	-	<b>25.75</b>	<b>44.40</b>	<b>67.74</b>	<b>91.77</b>	<b>93.93</b>	<b>95.38</b>	<b>97.14</b>	<b>99.31</b>	<b>108.30</b>	<b>118.97</b>	<b>130.12</b>
<b>Incremental Cost</b>														
Incremental Cash Flow		18.21	143.02	163.15	191.29	64.97	6.64	-	-	-	-	-	-	-
		(18.21)	(143.02)	(137.40)	(146.89)	2.77	85.13	93.93	95.38	97.14	99.31	108.30	118.97	130.12
<b>EIRR</b>	<b>16.6%</b>													
<b>NPV @ 12 %</b>	<b>147.5</b>													

VOC = vehicle operating cost.

**Table A7.15: Economic Analysis of Overall Project,  
All Components in Economic Terms,  
Net Incremental Benefits and Costs**  
(PRs million)

<b>All Components in Economic Terms Net Incremental Benefits and Costs</b>			
<b>Year</b>	<b>Benefits</b>	<b>Economic Costs</b>	<b>Net Cash Flow</b>
1	-	81.1	(81.1)
2	(37.7)	479.5	(517.2)
3	188.3	718.3	(529.9)
4	319.3	1,049.8	(730.5)
5	559.3	809.8	(250.4)
6	563.5	724.6	(161.1)
7	660.8	-	660.8
8	723.9	-	723.9
9	862.4	-	862.4
10	851.2	-	851.2
11	921.9	-	921.9
12	994.2	-	994.2
13	1,221.2	-	1,221.2
14	1,005.4	-	1,005.4
15	1,005.4	-	1,005.4
16	1,005.4	-	1,005.4
17	1,005.4	-	1,005.4
18	1,005.4	-	1,005.4
19	1,005.4	-	1,005.4
20	1,005.4	-	1,005.4
21	2,225.3	-	2,225.3
22	1,008.6	-	1,008.6
23	1,008.6	-	1,008.6
24	1,095.4	-	1,095.4
25	1,007.7	-	1,007.7
<b>NPV @ 12%</b>	<b>3,234.2</b>	<b>4,432.9</b>	<b>2,459.7</b>
		<b>EIRR</b>	<b>22.2%</b>

## COMPONENTS AND TARGETS FOR GENDER STRATEGY

Component	Actions and Targets	Status
<b>Project Components</b>	Allocation of 33% gender-specific targets in annual work plans for components involving direct benefits to women.	33% gender-specific targets allocated in annual work plans benefiting women.
	Proactive efforts to ensure participation of women, particularly vulnerable women and widows, in project activities.	Three female gender development specialists were recruited. They were responsible for monitoring gender aspects of project activities. They also provided input into the social mobilization, community training, and awareness raising activities.
	Gender-disaggregated progress reporting across the project sectors and components to monitor gender equality in project results and achievements.	Gender-disaggregated progress is reported in the PPMS.
	Advocacy campaigns for promoting gender and development objectives of the project	A radio program targeting women was broadcast four times a week over Radio Pakistan and FM Khyber. Issues such as importance of good hygiene, women and child health, female education, and cottage industry activities were discussed.
<b>Implementation Arrangements</b>	Placement of gender specialists in the PMU and PIUs to mainstream a gender. equality perspective in all project activities, particularly support for line agencies in gender planning, implementation, and monitoring: (i) one senior gender adviser in the PMU; and (ii) one gender specialist in each PIU.	Three female gender specialists were recruited and were based at the PMU. They provided support to the PIUs in gender activities.
	Placement of female technical staff in line agencies and provision of professional training for them from recognized training institutes to ensure service delivery to rural beneficiaries. The staff will include: (i) one female veterinary officer and 2–3 livestock assistants per agency in the Livestock Department of each agency and their training at a recognized livestock extension institute such as the Animal Husbandry In-Service; Training Institute; (ii) one female forester and 6 female forestry extension workers in the Forestry Department of each agency and their professional training at a recognized forestry extension institute such as Sarhad Forest School; and (iii) one-third of community mobilization staff will be women	Female staff members were not hired because of cultural and religious constraints in the project area. Female gender specialists in the PMU filled the gap. They provided training to the line departments and staff of PMU and PIUs to ensure gender-specific focus of during project implementation.
	Provision of additional office spaces for female staff in the Livestock Department at the agency	One room was constructed for female staff in the office of the assistant director, Livestock Department, in each agency.
	Establishment of a hostel for women staff members in each agency.	A women's hostel was constructed in Bajaur and Mohmand. No women's hostel was constructed in Khyber because of that agency's proximity to Peshawar.

<b>Component</b>	<b>Actions and Targets</b>	<b>Status</b>
<b>Technical Support under Consulting Services</b>	<p>Regular technical support for gender assessment, planning and performance auditing, and capacity building under local service contracts will include:</p> <p>(i) gender-disaggregated baseline surveys under the performance review audit contract;</p> <p>(ii) performance audit of gender-specific activities under the project, identifying key issues, lessons learned, and required follow-up actions in the 6-monthly and yearly reports produced under the performance review audit contract; and</p> <p>(iii) training for female and male staff of the PMU, PIUs, and line departments in gender assessment and planning concepts and tools under the community mobilization and training contract.</p>	<p>Gender development specialists provided input into the social mobilization, community training, and awareness raising activities.</p> <p>Three case studies were prepared on one family in each agency, reflecting the performance of gender-specific activities and their impact.</p> <p>59 staff members of the PMU, PIU, and Livestock Department were trained in gender mainstreaming and gender-responsive governance, and gender sensitization.</p>
<b>Assurance by Government in Loan Agreement</b>	<p>Assurance given by the government in the loan agreement that, on the basis of satisfactory performance, female technical staff members of line departments will be regularized after project completion, and recurrent costs related to their salaries and other support will be incrementally assumed by the government on the revenue side.</p>	<p>Female staff members could not be recruited because of social, cultural, and religious constraints.</p>