

ANNEX F

Benefits and Project Evaluation

ANNEX-F

PROJECT EVALUATION

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ANNEX F PROJECT EVALUATION

F.1 General

The basic assumption for economic evaluation of the Project are summarized as follows:

- 1) The economic useful life of the Project is 50 years,
- 2) All prices are expressed at May 1996 prices in Rupee,
- 3) The exchange rate of US\$1.00 = Rs.34 = Yen 107.9 as of May, 1996,
- 4) A standard conversion factor (SCF) with 0.9 is applied to domestic cost elements such as transport, handling and processing for estimation of economic value,
- 5) The transfer payment such as tax, duty, subsidy and interest are excluded for the estimation of economic costs and prices,
- 6) Economic prices of farm inputs (urea, triple super phosphate and muriate potash) and tradable farm produce (wheat, maize, sugarcane, cotton, cotton seed, and citrus) are estimated on the basis of IBRD projection of world market prices for 2005 in constant 1996 terms. Economic prices of other non-tradable farm outputs and farm inputs are set at same financial prices.
- 7) The part of unskilled labor is converted to the economic value applying the conversion factor of 0.88, and
- 8) The construction components are converted to economic value applying Construction Conversion Factors (CCFs) which are calculated on the basis of proportions of local and foreign costs, transfer payment, unskilled labor and other local costs at the local portion.

F.2 Economic Cost

The financial cost for the construction components are grouped into two categories, local and foreign costs. The local costs are again divided into 3 portions which are, transfer payment, unskilled labor cost, and other costs for material and skilled labor. Construction Conversion Factors (CCFs) which are the weighted average of the respective cost items by applying other conversion factors are estimated by following the procedure stated below (See Table F.2-1).

- 1) Financial foreign cost accounts for the economic cost,
- 2) Transfer payment in the local cost at the rate of 10 % is excluded from the financial cost,
- 3) The rest of 90 % of financial cost is split into unskilled labor and others,
- 4) The portion of unskilled labor is converted to the economic value applying the conversion factor of 0.88,
- 5) The standard conversion factor of 0.9 is applied for the conversion of other costs, and

- 6) The CCFs by the project components are calculated as the sum of economic shares by cost items after the conversion of those financial shares

For the conversion of O&M cost and replacement cost, the standard conversion factor is applied.

Item	(Rs'000)	
	Financial	Economic
I. Project Cost	3,119,937	2,345,269
(1) Compensation	3,402	0
(2) Construction	1,985,496	1,794,295
(3) Engineering/Administration	284,236	266,558
(4) Institutional Reform	76,118	68,219
(5) Physical Contingency	234,925	213,206
(6) Price Contingency	535,760	0
II. Annual O&M Cost	22,832	20,549
III. Replacement Cost	794,198	717,718

F.3 Economic Benefit

The direct benefits to be expected from the canal lining are (1) increased production, (2) reduction of tubewell operation cost, and (3) reduction of operation and maintenance cost.

(1) Increased Production

Increased production will be expected from stabilized water supply, application of additional water. In addition, reduction of seepage will improve groundwater table and, hence, results in the mitigation of salinity and waterlogging problem, which contributes to the increase of crop production. For the evaluation, it is assumed that increased irrigation water will be reflected by the increased productivity only and no change in cropping intensity and cropping pattern is assumed. In the Fresh Groundwater Area (FGW), groundwater is used for supplemental irrigation and, accordingly, it can be assumed that available amount of irrigation water will be same even after the implementation of the project. Therefore, benefit from the increased productivity is realized only in the Saline Groundwater Area (SGW).

The economic price for major agricultural inputs and outputs are estimated from the price prospection of World Bank (Table F.3-1 and F.3-2). Expected increase in yield is calculated by the present yield multiplied by water saving rate and yield response factor which is estimated by FAO. The crop budgets for "without" and "with" cases are prepared based on this procedure (Table F.3-3 and F.3-4~15). The net production value of crop production is defined as the difference between "with project case" and "without project case" as summarized below. (See Table F.3-16)

	(Rs.'000)			
	SGW (ha)	Without Project	With Project	Net Production Increase
Lower Jhelum	56,350	837,342	999,306	161,964
Lower Chenab	108,740	1,304,706	1,577,321	272,585
Central Bari Doab	58,543	285,806	330,274	44,468
Total	193,633	2,427,884	2,906,901	479,017

It is assumed that production increase will be achieved soon after the completion of lining works of each canal. The benefit for all areas will be realized completely from 7th year.

(2) Reduction of Tubewell Operation Cost

In the Fresh Groundwater Area (FGW), groundwater is presently used for irrigation as the supplemental purpose. However, canal lining makes more irrigation water available from surface system and reduces recharging of groundwater. As a result, groundwater presently pumped up for irrigation in FGW will be replaced by surface irrigation water. Therefore, the operation cost of these pumps will not be required after the lining and the saved operation cost will be considered as a benefit. Total amount of saved water per annum is about 163.2 MCM and the portion for FGW is about 31.5 MCM per year. The benefit from reduction of tubewell operation cost is calculated by multiplying saved water in FGW by unit operation cost of tubewell. The unit operation costs for diesel and electronic tubewells are Rs.0.31/m³ and Rs.0.35/m³, respectively (including depreciation cost, see Table F.3-17). The expected benefit is about Rs.10.1 million per year. (See Table F.3-18)

(3) Reduction of Operation and Maintenance Cost

As an integrated components of the project, operation and maintenance of distributaries and minors will be transferred to Farmers' Organization (FO). The transfer of the O&M urges rationalization of O&M system and, as a result, the O&M cost will be reduced. This reduction of the cost will be considered as a benefit. The O&M cost for "without project case" is estimated as the cost for maintaining the capacity of the design discharge, and its personnel cost is assumed to be same as present situation. In the case of "with project", personnel cost is estimated by multiplying the number of staff required for FO and their assumed salary (the salary for PID staff is referred as in Table F.3-19). The maintenance and repair cost is calculated based on the necessary cost for maintaining the canal capacity of lined canals. The benefit for the reduction of operation and maintenance cost is defined as the difference between "with project" and "without project" as summarized below (See Table F.3-20).

	(Rs.'000)		
	Without Project	With Project	Benefit
Personnel Expense	11,968	4,525	7,443
M & R Cost*	13,596	16,023	-2,427
Total	2,565	20,549	5,016

*: Maintenance and Repair Cost
 Figures are indicated in economic price.

F.4 Economic Evaluation

Based on the flow of project cost and benefits shown in the Table F.4-1 and F.4-2, the economic rate of return is calculated as 19.9%. EIRR is also calculated also for 12 distributaries and the results are as follows.(See Table F.4-3~14).

System	Distributary	EIRR
LJC	Pindi	18.5
	Hujjan	24.1
	Kirana	16.5
LCC	Sarangwala	15.0
	Nasrana	26.6
	Gojra	31.2
	Mungi	22.9
	Janiwala/Hamza	29.7
	Pir Mahal	13.2
	Killianwala	17.3
CBDC	Thamman	11.3
	China	22.6
Overall		19.9

For the sensitivity analysis, (i) 10% and 20% increase in initial investment cost, and (ii) 10% and 20% decrease of crop production are assumed. The EIRR for each case is summarized below.

Benefit Decrease	Cost Increase		
	0%	10%	20%
0%	19.9%	18.1%	16.7%
10%	18.0%	16.4%	15.1%
20%	16.1%	14.7%	13.4%

Considering the results that EIRR of the Project (12 distributaries) is 19.9% and that for each distributary is above 12% except Thamman distributaries, the Project is economically feasible. From the result of the sensitivity analysis, it can be concluded that the Project is not sensitive to the increase of initial investment cost and to the decrease of crop production benefit.

F.5 Financial Analysis

(1) Farm Budget Analysis

Farm budget analysis on different farm size has been made for "with project" and "without project" case for three project areas (See Table F.5-1). It is expected that the farm income will be increase by 10% in average for all farm size after the implementation of the Project.

Farmers' capacity to pay for water charges is assessed by the comparison between farmers' net reserve and estimated water charge after the implementation of the Project. Water charge is computed by dividing the O&M cost and replacement cost (assuming 12% of discount rate) by CCA. The share of water charge against net reserve is less than 3% for all size of farmers, and no serious impact is expected. In case of assumption that farmers will also repay initial investment cost, water charge including amortization will be Rs.1,174/ha in Lower Jhelum, Rs.1,161/ha in Lower Chenab and Rs.1,097/ha in Central Bari Doab. Their shares against net reserves will be not more than 15% for all size of farmers.

	(Rs)			
Item	Marginal	Small	Medium	Large
Lower Jhelum				
1) Farm size (ha)	(1.56)	(3.49)	(6.36)	(16.45)
2) Net Reserve	12,600	33,440	74,980	232,500
3) Water charge	291	650	1,185	3,064
3) / 2) (%)	2.3%	1.9%	1.6%	1.3%
4) + Amortization	1,834	4,096	7,470	19,312
4) / 2) (%)	14.6%	12.2%	10.0%	8.3%
Lower Chenab				
1) Farm size (ha)	(1.52)	(3.70)	(6.82)	(13.99)
2) Net Reserve	19,920	54,230	110,170	222,010
3) Water charge	263	642	1,182	2,426
3) / 2) (%)	1.3%	1.2%	1.1%	1.1%
4) + Amortization	1,763	4,301	7,916	16,247
4) / 2) (%)	8.8%	7.9%	7.2%	7.3%
Central Bari Doab				
1) Farm size (ha)	(1.48)	(3.47)	(6.36)	(16.01)
2) Net Reserve	10,820	34,530	76,870	225,120
3) Water charge	243	572	1,049	2,638
3) / 2) (%)	2.3%	1.7%	1.4%	1.2%
4) + Amortization	1,621	3,810	6,981	17,564
4) / 2) (%)	15.0%	11.0%	9.1%	7.8%

(2) Repayment capability of the Project

The repayment capability of the Project is also studied by preparing cash flow statement. The cash flow statement is prepared on the basis of an annual disbursement schedule of the financial initial investment cost as summarized below.

Item	(Rs.'000)	
	F.C.	L.C.
Initial Investment Cost	1,388,971	1,195,206
Price Contingency	285,222	250,538
Total	1,674,193	1,445,744

It is assumed that the capital cost required for the implementation of the project will be arranged under the following conditions:

- (i) Foreign currency portion of the capital cost is financed by a loan from an international organization.
- (ii) Interest rate of the loan is 2.3% per annum and repayment period is 30 years including 10 years grace period.
- (iii) Local currency portion of the capital cost is financed by the Government Budget without repayment.

According to the above assumptions, the total fund requirements for construction of the project was estimated with its yearly breakdown as shown below.

Year	(Rs.'000)		
	International Fund	Governmental Budget	Total
1999	76,602	30,468	107,070
2000	68,114	44,478	112,592
2001	315,383	285,554	600,937
2002	366,983	324,094	691,077
2003	432,352	388,534	820,886
2004	414,760	372,615	787,375
Total	1,674,193	1,445,744	3,119,937

Assuming that repayment of the project cost is arranged by the budget of Government of Pakistan, amortization is estimated at about Rs.76 million in average during the repayment period.

F.6 Indirect Benefits and Socio-economic Impacts

Based on the data collected from the local government offices and the data of 1990's Agricultural Census, the estimated beneficiary is about 134,000 households and about 940,000 farmers. In addition to the tangible benefits mentioned above, following 4 items are considered as the expected indirect benefit and socio-economic impacts.

(1) Improvement of Inequitable Water Distribution

Along the unlined canal, it is often observed that canal bank is broken and excessive water is taken by some farmers at the up-stream and very little of water is available at the down-stream. After the lining of canals, this type of disturbance will be physically impossible. Additionally, institutional reform will make the unfair water utilization be impossible from the social points of view.

(2) Salinity Control

As it is mentioned in section 8.3, expansion of waterlogging and salinity area will be stopped by canal lining. In saline groundwater area, there are some cases that farmers use saline ground water for irrigation when they face extreme water shortage. In this case, soil which is presently in good condition can be affected by salinity and it will turn into unsuitable soil for cultivation. Lining of canals will make farmers have more surface water for irrigation and, as a result, expansion of salinity will be avoided.

(3) Increase of Employment Opportunity

After the implementation of the Project, total labor requirement for farm work will be 12.9 million man-day. Besides, it is expected that increase in agricultural production will activate its marketing and processing factory and, accordingly, result in the increase of labor requirement at relating factories and agencies.

(4) Securing Stable Food Supply

The project will contribute to the securing of self-sufficiency of agricultural produce. Sufficient supply of food will also make an important contribution to attain economic independence of Pakistan. In addition, the surplus would decrease the annual amount of imports of those produce and thereby save the foreign exchange.

TABLES

Table F.2-1 Weighted Conversion Factor of Cost Component

Project Cost Component	Financial Cost					Economic Cost				Weighted Average
	Local Cost		Foreign Cost	Total	Local Cost		Foreign Cost	Average		
	Transfer	n-skilled Others			Transfer	n-skilled Others				
						0.88	0.9			
I Compensation										
1.1 Compensation for Land, House etc	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	
1.2 Compensation for Hand Pump etc	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	
	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	
II Direct Construction Cost										
1. Gate and Installation	6.2	6.2	56.0	31.5	100.0	0.0	5.5	50.4	31.5	87.4
2. Earthwork										
2.1 Stripping (0.2 m)	2.0	11.4	18.1	68.5	100.0	0.0	10.0	16.3	68.5	94.8
2.2 Excavation for Canal Prism	2.4	18.2	22.0	57.4	100.0	0.0	16.0	19.8	57.4	93.2
2.3 Embankment and Compaction of Bank	2.0	12.1	17.8	68.1	100.0	0.0	10.7	16.0	68.1	94.8
2.4 Borrow & Haulage	2.1	5.0	18.8	74.1	100.0	0.0	4.4	16.9	74.1	95.4
2.5 Trimming & Surface finishing	5.1	49.3	45.7	0.0	100.0	0.0	43.4	41.1	0.0	84.4
2.6 Excavation for Diversion Work	2.4	21.1	21.2	55.4	100.0	0.0	18.5	19.1	55.4	93.0
2.7 Embankment for Diversion Work	2.0	2.7	17.8	77.4	100.0	0.0	2.4	16.1	77.4	95.9
	2.3	13.0	20.7	64.1	100.0	0.0	11.4	18.6	64.1	94.1
3. Lining Work										
3.1 Mortar Plaster	5.5	27.9	49.5	17.1	100.0	0.0	24.6	44.5	17.1	86.2
3.2 Concrete insitu	5.6	12.5	50.6	31.3	100.0	0.0	11.0	45.5	31.3	87.8
3.3 Precast Panel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.4 Joint	1.7	13.8	15.5	69.0	100.0	0.0	12.1	14.0	69.0	95.1
3.5 Geomembrane with geotextile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5.5	15.8	49.4	29.3	100.0	0.0	13.9	44.5	29.3	87.7
4. Structure (New/Replace Installation)										
Outlet	5.8	17.4	52.1	24.8	100.0	0.0	15.3	46.9	24.8	86.9
VR Bridge	5.8	17.4	52.1	24.8	100.0	0.0	15.3	46.9	24.8	86.9
Drop	5.8	17.4	52.1	24.8	100.0	0.0	15.3	46.9	24.8	86.9
Washing Step	5.8	17.4	52.1	24.8	100.0	0.0	15.3	46.9	24.8	86.9
Buffalo Wallow	5.8	17.4	52.1	24.8	100.0	0.0	15.3	46.9	24.8	86.9
Spillway	5.8	17.4	52.1	24.8	100.0	0.0	15.3	46.9	24.8	86.9
(Repair Work)										
DR Bridge	5.8	17.4	52.1	24.8	100.0	0.0	15.3	46.9	24.8	86.9
VR Bridge	5.8	17.4	52.1	24.8	100.0	0.0	15.3	46.9	24.8	86.9
	5.8	17.4	52.1	24.8	100.0	0.0	15.3	46.9	24.8	86.9
5. Miscellaneous Items	4.1	14.6	37.3	43.9	100.0	0.0	12.8	33.6	43.9	90.4
Direct Cost	4.1	14.6	37.3	43.9	100.0	0.0	12.8	33.6	43.9	90.4
III Administration and Consulting Cost	2.3	15.2	20.8	61.7	100.0	0.0	13.4	18.7	61.7	93.8
IV Institutional Reform Cost	5.5	0.0	49.2	45.4	100.0	0.0	0.0	44.2	45.4	89.6
V Physical Contingency (10% of item I, II, III and IV)	4.0	14.2	35.7	46.1	100.0	0.0	12.5	32.1	46.1	90.8
Base Construction Cost	4.0	14.2	35.7	46.1	100.0	0.0	12.5	32.1	46.1	90.8

Table F.3-1 Price Structure of Major Agricultural Outputs and Inputs (1/3)

Wheat (Import Substitution)		Cotton	
Item	Operation	Unit	Punjab
1 Projected Price*1 (Canadian No.1, Western red spring)		US\$/ton	132
2 Ocean freight and insurance*2	+	US\$/ton	35 60
3 CIF Karachi Price	=	US\$/ton	167
4 Port charge, storage and other cost*2	+	US\$ = Rs.	5,678
5 Rail/road transport, Karachi-Lahore*2	+	Rs./ton	300
7 Value of imported wheat at PJT site	=	Rs./ton	700
8 Transport and handling cost (threshing, flour procurement center)*3	-	Rs./ton	6,678
9 Farm gate price / threshing floor value	=	Rs./ton	90
			6,588
*1 World Bank Price Prospects for Major Primary Commodities, 1996-2005 (Aug.1996)			
*2 JICA Study Team			
*3 Marketing Committee, Department of Agriculture			
Maize (Import Substitution)		Cotton Seed (Import Substitution)	
Item	Operation	Unit	Punjab
1 Projected Price*1 (US No.2, Yellow Corn, FOB Gulf Ports)		US\$/ton	103
2 Ocean freight and insurance*2	+	US\$/ton	36 60
3 CIF Karachi Price	=	US\$/ton	139
4 Port charge, storage and other cost*2	+	US\$ = Rs.	4,726
5 Rail/road transport, Karachi-Lahore*2	+	Rs./ton	350
6 Value of imported corn in Lahore	=	Rs./ton	700
7 Transport and handling cost (threshing, *3 flour procurement center)	-	Rs./ton	5,776
8 Farm gate price / threshing floor value	=	Rs./ton	90
			5,686
*1 World Bank Price Prospects for Major Primary Commodities, 1996-2005 (Aug.1996)			
*2 JICA Study Team			
*3 Marketing Committee, Department of Agriculture			
Cotton Lint (Export Parity)		Cotton Seed (Import Substitution)	
1 Projected Price (Outlook "A" Index, Middling CIF Europe)		US\$/ton	1,778
2 Quality Difference (14% of CIF Price)	-	US\$/ton	249
3 Ocean freight and insurance	-	US\$/ton	70
4 FOB Karachi Price	=	US\$/ton	1,459
5 Port handling, warehousing, procurement and other cost	+	US\$ = Rs.	49,599
6 Value of lint, ginnery gate	=	Rs./ton	1,350
7 Value of lint component	=	Rs./ton	48,249
8 Value of cotton seed (62% yield)	+	Rs./ton	16,067
9 Ginning cost	-	Rs./ton	3,880
10 Value of seed cotton at ginnery gate	=	Rs./ton	1,500
11 Transport and handling cost, (farm-gate - factory)	-	Rs./ton	18,447
12 Farmgate price of seed cotton	=	Rs./ton	150
			18,297
*1 World Bank Price Prospects for Major Primary Commodities, 1996-2005 (Aug.1996)			
*2 JICA Study Team			
*3 Marketing Committee, Department of Agriculture			

Table F.3-1 Price Structure of Major Agricultural Outputs and Inputs (2/3)

Paddy (Export Parity)		Sugarcane (Import Parity)	
Item	Operation	Unit	Punjab
1 Projected Price*1 (5% broken, white, f.o.b. Bangkok)		US\$/ton	286
2 Adjustment of quality and market cost	0.2	US\$/ton	57.2
3 Ocean freight and insurance*2	=	US\$/ton	60.0
4 FOB Karachi Price		US\$/ton	283
	US\$ = Rs.	US\$/ton	9,629
5 Handling and transportation bet. port and market*2	-	Rs./ton	700
6 Milling and transportation cost*2	-	Rs./ton	554
7 Ex-mill price	=	Rs./ton	8,375
8 Conversion to paddy (67%)		Rs./ton	5,611.1
9 Handling and transportation (mill-farmgate)*3		Rs./ton	90
10 Farmgate price	=	Rs./ton	5,521

Citrus		Sugarcane (Import Parity)	
Item	Operation	Unit	Punjab
1 Projected Price*1 (5% broken, white, f.o.b. Bangkok)		US\$/ton	481
3 Ocean freight and insurance*2	=	US\$/ton	60.0
4 FOB Karachi Price		US\$/ton	541
	US\$ = Rs.	US\$/ton	18,394
5 Handling and transportation bet. port and market*2	-	Rs./ton	700
7 Wholesale price	=	Rs./ton	17,694
9 Handling and transportation*3		Rs./ton	90
10 Farmgate price	=	Rs./ton	17,784

Paddy (Export Parity)		Sugarcane (Import Parity)	
Item	Operation	Unit	Punjab
1 Projected Price*1 (ISA Daily, f.o.b. Greater Caribbean ports)		US\$/ton	282
2 Freight and insurance	+	US\$/ton	36
3 CIF value at Karachi	=	US\$/ton	318.1
	US\$ = Rs.	US\$/ton	10,814.6
4 Wharfage, cleaning and other port costs*2	+	Rs./ton	548
5 administration costs	+	Rs./ton	676
6 Storage Losses	+	Rs./ton	65
7 Transport, handling cost (Karachi-Sugar mill)*2	+	Rs./ton	1,000
8 Ex-mill value of Sugar	=	Rs./ton	13,103.4
9 Processing costs per mt sugar	-	Rs./ton	5,613
10 Conversion to cane	8.7%	Rs./ton	651.7
12 Transport and handling (farmgate - mill)*3	-	Rs./ton	138
13 Farmgate price	=	Rs./ton	514.2

*1 World Bank Price Prospects for Major Primary Commodities, 1996-2005 (Aug.1996)

*2 JICA Study Team

*3 Marketing Committee, Department of Agriculture

*1 World Bank Price Prospects for Major Primary Commodities, 1996-2005 (Aug.1996)

*2 JICA Study Team

*3 Marketing Committee, Department of Agriculture

Table F.3-1 Price Structure of Major Agricultural Outputs and Inputs (3/3)

Item	Operation	Unit	Punjab
I. UREA			
1 Bagged Price, FOB W. Europe*1			150
2 Ocean freight and insurance*2	+		36
3 CIF Karachi Price	=	US\$/ton	186
	US\$ = Rs.	34.0	US\$/ton
			6,322
4 Port charge, handling and warehousing, etc.*2	+	Rs./ton	200
5 Transport and handling cost, Karachi-Lahore*2	+	Rs./ton	700
6 Marketing and dealers' cost*3	+	Rs./ton	190
7 Transport and handling cost, dealer-farmer*3	+	Rs./ton	70
8 Farm gate price	=	Rs./ton	7,481
(Nutrient; Nitrogen)	46%	Rs./kg	16.3
(Ammonium Sulfate)	21%	Rs./kg	3.4
II. TSP			
1 Bulk, FOB U.S.Gulf*1		US\$/ton	127
2 Ocean freight and insurance	+	US\$/ton	36
3 CIF Karachi Price	=	US\$/ton	163
	US\$ = Rs.	34.0	Rs./ton
			5,553
4 Port charge, handling and warehousing, etc.*2	+	Rs./ton	200
5 Transport and handling cost, Karachi-Lahore*2	+	Rs./ton	700
6 Marketing and dealers' cost*3	+	Rs./ton	167
7 Transport and handling cost, dealer-farmer*3	+	Rs./ton	70
8 Farm gate price	=	Rs./ton	6,689
(Nutrient; Phosphorus)	46%	Rs./kg	14.5
III. MURIATE OF POTASH			
1 Bulk Export Price, FOB Vancouver*1		US\$/ton	108
2 Ocean freight and insurance	+	US\$/ton	36
3 CIF Karachi Price	=	US\$/ton	144
	US\$ = Rs.	30.0	Rs./ton
			4,328
4 Port charge, handling and warehousing, etc.*2	+	Rs./ton	200
5 Transport and handling cost, Karachi-Lahore*2	+	Rs./ton	700
6 Marketing and dealers' cost*3	+	Rs./ton	130
7 Transport and handling cost, dealer-farmer*3	+	Rs./ton	70
8 Farm gate price	=	Rs./ton	5,428
Adjusted to Sulfate of Potash			
(Nutrient; Potassium)	60%	Rs./kg	9.0

*1 World Bank Price Prospects for Major Primary Commodities, 1996-2005 (Aug.1996)

*2 JICA Study Team

*3 Marketing Committee, Department of Agriculture

Table F.3-2 Financial and Economic Farm Gate Prices of Agricultural Inputs and Outputs

Item	Outputs		Input	
	Unit	Price	Unit	Price
Cereals				
Wheat	Rs./kg	4.30	Seed/seedling	
Rice (Basmati)	Rs./kg	5.27	Wheat	Rs./kg = 5.29
			Rice (Basmati)	Rs./kg = 6.17
			Maize	Rs./kg = 6.93
Pulses			Mungbeans	Rs./kg = 15.77
Maize	Rs./kg	5.20	Mustard	Rs./kg = 13.58
Mungbeans	Rs./kg	12.89	Sugarcane	Rs./kg = 18.51
			Seed Cotton	Rs./kg = 17.43
Oil Seeds			Vegetables (Watermelon)	Rs./kg = 100.40
Mustard	Rs./kg	11.46	Citrus	Tree = 6.77
Sugarcane	Rs./kg	0.90	Sorgam (Maize fodder)	Rs./kg = 12.60
			Berseem	Rs./kg = 85.50
Seed Cotton	Rs./kg	18.90	Fertilizer	
			N	Rs./kg = 14.41
Other Crops			P	Rs./kg = 19.57
Vegetables (Watermelon)	Rs./kg	2.51	K	Rs./kg = 18.00
			Manure	Rs./40kg = 2.72
Fruits				
Citrus	Rs/ton	17.500	Agro-chemicals	
			Insecticide	Rs./kg = 44
Fodders			Pesticide	Rs./kg = 290
Sorgam	Rs./kg	0.84	Labor	Rs./day = 72.00
Berseem	Rs./kg	0.57		
By-Products			Machinery and Animal Power	
Wheat Straw	Rs./kg	0.40	Land preparation by Tractor	hours = 74.65
Rice Straw	Rs./kg	0.18	Land preparation by bullocks	days = 69.98
Sugarcane	Rs./kg	0.41	Interculture by bullocks	days = 69.98
Maize	Rs./kg	0.35	Harvesting	maunds = 64.15
Mung	Rs./kg	0.30		
Cotton	Rs./kg	0.27		

Table F.3-3 (1/2) Economic Crop Budget without Project Case (All Area)

Items	Unit per Acre	Sugarcane					Rice			Seed Cotton		
		Unit Price (Rs)	Fresh		Ratoon		Unit Price (Rs)	Basmati-385		Unit Price (Rs)	Mixed Cropping	
			Qty	Amount	Qty	Amount		Qty	Amount		Qty	Amount
Gross Return												
Production	(kg)	0.51	16,584	8,527	16,584	8,527	5.52	478	2,637	18.30	575	10,515
By-Products	(kg)	0.41	4,146	1,706	4,146	1,706	0.18	1,194	212	0.27	1,150	313
				10,232		10,232			2,849			10,828
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.51	10 marla	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	46	748	16.26	22	358	16.26	44	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				2,022		1,038			616			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	4	252	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(maunds)			0		0			0	10.98	41	451
5 threshing bullocks				0		0			0			0
Sub-total				521		521			386			1,082
Labor		63.4	52	3,282	28	1,758	63.4	18	1,140	63.4	22	1,402
Miscellaneous				292		166			107			196
Total Production Cost				6,128		3,482			2,250			4,112
Net Return per Acre				4,104		6,750			599			6,709

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit Price (Rs)	Watermelon		Unit Price (Rs)	Mung beans		Unit Price (Rs)	Irrigated Maize (Kharif)		Unit Price (Rs)	Sorgham (Maize for)	
			Qty	Amount		Qty	Amount		Qty	Amount		Qty	Amount
Gross Return													
Production	(kg)	2.51	8,106	20,346	12.89	206	2,655	5.69	579	3,292	0.84	5,196	4,365
By-Products	(kg)			0	0.30	103	31	0.35	1,158	401			0
				20,346			2,687		3,694				4,365
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.77	7	110	6.93	10	69	12.60	40	504
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,235				1,160
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(maunds)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0			0			0			0
Sub-total				572			123		386				323
Labor (man-day)		63.4	36	2,272	63.4	8	491	63.4	19	1,196	63.36	25	1,584
Miscellaneous				264			40		141				154
Total Production Cost				5,551			834		2,958				3,231
Net Return per Acre				14,795			1,852		736				1,131

Table F.3-3 (2/2) Economic Crop Budget without Project Case (All Area)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat Qty	Amount	Unit Price (Rs)	Berseem Qty	Amount	Unit Price (Rs)	Mustard Qty	Amount
Gross Return										
Production	(kg)	6.59	915	6,026	0.57	12,428	7,084	11.46	421	4,825
By-Products	(kg)	0.40	1,830	726			0			
				<u>6,752</u>			<u>7,084</u>			<u>4,825</u>
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
-N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
-P	(kg)	14.50	22	319	14.50		0	14.50	12	174
-K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
-Insecticides	(kg)	44.09		0	44.09		0	44.09		0
-Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				<u>1,302</u>			<u>1,593</u>			<u>526</u>
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	91	482			0			0
5 Threshing/processing				0			0			0
Sub-total				<u>668</u>			<u>386</u>			<u>323</u>
Labor	(man-day)	63.4	9	570	63.4	33	2,112	63.4	9	570
Miscellaneous (5% of above)				109			99			42
Total Production Cost				<u>2,856</u>			<u>4,197</u>			<u>1,462</u>
Net Return per Acre				<u>3,896</u>			<u>2,887</u>			<u>3,362</u>

Items	Total	Annual NPV 12%
Gross Return		
Production	<u>1,115,412</u>	<u>17,303</u>
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	59,691	
3 Fertilizer		
-N	16,895	
-P	7,153	
-K	7,459	
4 Agro-Chemicals		
-Insecticides	0	
-Pesticides	11,020	
5 Others		
-Silt	408	
Sub-total	<u>103,296</u>	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	<u>20,558</u>	
Labor	51,005	
Miscellaneous	6,130	
Total Production Cost	<u>180,989</u>	<u>3,174</u>
Net Return per Acre	<u>934,423</u>	<u>14,128</u>

Table F.3-4 (1/2) Economic Crop Budget With Project Case (Pindi)

Items	Unit per Acre	Sugarcane				Rice				Seed Cotton		
		Unit Price (Rs)	Fresh		Ratoon		Unit Price (Rs)	Basmati-385		Unit Price (Rs)	Mixed Cropping System	
			Quantity	Amount	Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return												
Production	(kg)	0.51	18,041	9,276	18,041	9,276	5.52	520	2,871	18.30	611	11,176
By-Products	(kg)	0.41	4,510	1,856	4,510	1,856	0.18	1,300	231	0.27	1150	313
				11,132		11,132			3,102			11,489
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.31	10 murla	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	46	748	16.26	22	358	16.26	44	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				2,029		1,038			616			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(maunds)			0		0			0	10.98	44	479
5 threshing bullocks				0		0			0			0
Sub-total				521		269			386			1,117
Labor		63.36	53	3,358	29	1,837	63.36	19	1,201	63.36	23	1,457
Miscellaneous				295		157			110			200
Total Production Cost				6,203		3,302			2,312			4,207
Net Return per Acre				4,918		7,830			785			7,282

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit Price (Rs)	Watermelon		Unit Price (Rs)	Mung beans		Unit Price (Rs)	Irrigated Maize (Kharif)		Unit Price (Rs)	Sorghum (Maize fodder)	
			Quantity	Amount		Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return													
Production	(kg)	2.51	8,759	21,984	12.89	221	2,850	5.69	617	3,509	0.84	5,538	4,652
By-Products	(kg)				0.30	111	2,883	0.35	1,234	428			4,652
				21,984			2,883		3,932				4,652
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.71	7	110	6.93	10	69	42.60	40	504
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,235				1,362
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(maunds)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0			0			0			0
Sub-total				372			192		386				323
Labor (man-day)		63.36	37	2,341	63.36	8	491	63.36	19	1,195	63.36	25	1,584
Miscellaneous				268			40		141				154
Total Production Cost				5,626			834		2,958				2,231
Net Return per Acre				16,359			2,049		979				1,422

Table F.3-4 (2/2) Economic Crop Budget With Project Case (Pindi)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat		Unit Price (Rs)	Berseem		Unit Price (Rs)	Mustard	
			Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return										
Production	(kg)	6.59	982	6,469	0.57	13,065	7,447	11.46	443.74	5,143
By-Products	(kg)	0.40	1,964	780			0			
				7,249			7,447			5,143
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
- N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
- P	(kg)	14.50	22	319	14.50		0	14.50	12	174
- K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
- Insecticides	(kg)	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				1,309			1,593			526
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	98	517			0			0
5 Threshing/processing				0			0			0
Sub-total				904			386			323
Labor	(man-day)	63.4	9	528	63.4	33	2,112	63.4	9	520
Miscellaneous (5% of above)				140			205			71
Total Production Cost				2,930			4,303			1,491
Net Return per Acre				4,318			3,144			3,652

Items	Total	Annual NPV 12%
Gross Return		
Production	1,192,923	18,506
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
- N	30,095	
- P	12,695	
- K	8,651	
4 Agro-Chemicals		
- Insecticides	0	
- Pesticides	11,020	
5 Others		
- Silt	408	
Sub-total	87,412	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	20,558	
Labor	51,005	
Miscellaneous	3,336	
Total Production Cost	164,316	2,824
Net Return per Acre	1,028,607	15,682

Table F.3-5 (1/2) Economic Crop Budget with Project Case (Hujjan)

Items	Unit per Acre	Sugarcane				Rice				Seed Cotton			
		Unit	Fresh		Unit	Ratoon		Unit	Basmati-385		Unit	Mixed Cropping System	
		Price (Rs)	Quantity	Amount	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount	
Gross Return													
Production	(kg)	0.51	19,147	9,845	19,147	9,845	5.52	552	3,047	18.30	638	11,673	
By Products	(kg)	0.41	4,787	1,969	4,787	1,969	0.18	1,380	245	0.27	1,150	313	
				11,814		11,814			3,292			11,986	
Production Cost													
Farm Inputs													
1 Seeds	(kg)	18.51	10 marla	165		0	6.17	4	25	17.43	6	105	
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102	
3 Fertilizer													
- N	(kg)	16.26	52	846	46	748	16.26	22	358	16.26	44	716	
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334	
- K	(kg)	9.05		0		0	9.05		0	9.05		0	
4 Agro-Chemicals													
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176	
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0	
Sub-total				2,022		1,038			616			1,632	
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134	
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378	
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126	
4 harvesting	(man-days)			0		0			0	10.98	46	500	
5 threshing bullocks				0		0			0			0	
Sub-total				521		269			356			1,138	
Labor		63.36	53	3,358	29	1,831	63.36	19	1,204	63.36	23	1,452	
Miscellaneous				295		157			110			301	
Total Production Cost				6,203		3,302			2,312			4,222	
Net Return per Acre				5,611		8,513			976			7,257	

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit	Watermelon		Unit	Mung beans		Unit	Irrigated Maize (Kharif)		Unit	Sorghum (Maize Fodder)	
		Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount
Gross Return													
Production	(kg)	2.51	9,254	23,229	12.89	233	2,977	5.69	646	3,674	0.84	5,798	4,871
By Products	(kg)			23,229	0.30	116	3,033	0.35	1,292	448			4,871
										4,122			
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.77	7	110	6.93	10	69	12.60	40	504
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			140			1,235			1,162
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(man-days)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0		0		0		0			0
Sub-total				572			122			356			322
Labor (man-day)		63.36	37	2,341	63.36	8	421	63.36	19	1,196	63.36	25	1,581
Miscellaneous				268			90			141			154
Total Production Cost				5,626			834			2,958			2,221
Net Return per Acre				17,603			2,198			1,164			1,640

Table F.3-5 (2/2) Economic Crop Budget with Project Case (Hujjan)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat		Unit Price (Rs)	Berseem		Unit Price (Rs)	Mustard	
			Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return										
Production	(kg)	6.59	1,033	6,804	0.57	13,549	7,723	11.46	469.80	5,384
By-Products	(kg)	0.40	2,066	830			0			
				7,634			7,723			5,384
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
- N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
- P	(kg)	14.50	22	319	14.50		0	14.50	12	174
- K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
- Insecticides	(kg)	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				1,302			1,523			526
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	103	544			0			0
5 Threshing/processing				0			0			0
Sub-total				230			386			323
Labor	(man-day)	63.4	9	578	63.4	33	2,112	63.4	9	570
Micellaneous (5% of above)				141			205			71
Total Production Cost				2,958			4,303			1,491
Net Return per Acre				4,666			3,419			3,893

Items	Total	Annual NPV 12%
Gross Return		
Production	1,251,824	19,420
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
- N	30,095	
- P	12,695	
- K	8,651	
4 Agro-Chemicals		
- Insecticides	0	
- Pesticides	11,020	
5 Others		
- Silt	408	
Sub-total	87,417	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	20,558	
Labor	51,005	
Micellaneous	5,336	
Total Production Cost	164,316	2,824
Net Return per Acre	1,087,509	16,596

Table F.3-6 (1/2) Economic Crop Budget with Project Case (Kirana)

Items	Unit	Sugarcane				Rice				Seed Cotton		
		Unit	Fresh		Ratoon		Unit	Basmati-385		Unit	Mixed Cropping System	
		Price (Rs)	Quantity	Amount	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount
Gross Return												
Production	(kg)	0.51	18,859	9,697	18,859	9,697	5.52	541	3,001	18.30	631	11,543
By-Products	(kg)	0.41	4,715	1,940	4,715	1,940	0.18	1,359	242	0.27	1150	313
				11,636		11,636			3,243			11,856
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.51	10 marla	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	46	748	16.26	22	358	16.26	44	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				2,029		1,038			616			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(maunds)			0		0			0	10.98	45	495
5 threshing bullocks				0		0			0			0
Sub-total				521		269			385			1,133
Labor		63.36	53	3,358	29	1,832	63.36	19	1,204	63.36	23	1,452
Miscellaneous				295		157			110			201
Total Production Cost				6,202		3,202			2,312			4,223
Net Return per Acre				5,433		8,335			936			7,633

Items	Unit	Other Crops			Other Crops			Maize			Fodder		
		Unit	Watermelon		Unit	Mung beans		Unit	Improved Maize (KJari)		Unit	Sorghum (Maize fodder)	
		Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount
Gross Return													
Production	(kg)	2.51	9,125	22,904	12.89	230	2,959	5.69	639	3,631	0.84	5,731	4,814
By-Products	(kg)			22,904	0.30	115	35	0.35	1,277	443			4,814
						2,924			4,074				
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.77	7	110	6.93	10	69	12.60	40	504
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,235				1,162
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(maunds)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0		0		0		0			0
Sub-total				522		123			385				323
Labor (man-days)		63.36	37	2,344	63.36	8	507	63.36	19	1,195	63.36	25	1,584
Miscellaneous				268			40		141				154
Total Production Cost				5,626		834			2,958				3,221
Net Return per Acre				17,278		2,159			1,116				1,583

Table F.3-6 (2/2) Economic Crop Budget with Project Case (Kirana)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat		Unit Price (Rs)	Berseem		Unit Price (Rs)	Mustard	
			Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return										
Production	(kg)	6.59	1,020	6,717	0.57	13,422	7,651	11.46	464.31	5,321
By-Products	(kg)	0.40	2,039	809			0			
				7,526			7,651			5,321
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
- N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
- P	(kg)	14.50	22	319	14.50		0	14.50	12	174
- K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
- Insecticides	(kg)	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				1,309			1,593			526
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	102	537			0			0
5 Threshing/processing				0			0			0
Sub-total				923			386			323
Labor	(man-day)	63.4	9	528	63.4	33	2,112	63.4	9	520
Miscellaneous (5% of above)				141			205			71
Total Production Cost				2,951			4,303			1,491
Net Return per Acre				4,575			3,348			3,830

Items	Total	Annual NPV 12%
Gross Return		
Production	1,216,530	19,181
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
- N	30,095	
- P	12,695	
- K	8,651	
4 Agro-Chemicals		
- Insecticides	0	
- Pesticides	11,020	
5 Others		
- Sit	408	
Sub-total	87,417	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	20,558	
Labor	51,005	
Miscellaneous	5,335	
Total Production Cost	164,316	2,834
Net Return per Acre	1,072,214	16,357

Table F.3-7 (1/2) Economic Crop Budget with Project Case (Sarangwala)

Items	Unit per Acre	Sugarcane				Rice				Seed Cotton		
		Unit	Fresh		Patoon		Unit	Basmati-385		Unit	Mixed Cropping System	
		Price (Rs)	Quantity	Amount	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount
Gross Return												
Production	(kg)	0.51	18,644	9,586	18,644	9,586	5.52	537	2,967	18.30	626	11,447
By-Products	(kg)	0.41	4,661	1,918	4,661	1,918	0.18	1,343	239	0.27	1,150	313
				11,501		11,501			3,206			11,760
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.51	10 marla	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	45	748	16.26	22	358	16.26	44	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				2,022		1,038			616			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(maunds)			0		0			0	10.98	45	490
5 threshing bullocks				0		0			0			0
Sub-total				521		262			386			1,129
Labor		63.1	53	3,341	29	1,830	63.1	19	1,199	63.1	23	1,451
Miscellaneous				295		151			110			201
Total Production Cost				6,489		3,291			2,312			4,213
Net Return per Acre				5,315		8,210			894			7,547

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit	Watermelon		Unit	Mung beans		Unit	Irrigated Maize (Kharif)		Unit	Sorghum (Maize Kharif)	
		Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount
Gross Return													
Production	(kg)	2.51	9,029	22,662	12.89	227	2,930	5.69	633	3,599	0.84	5,680	4,771
By-Products	(kg)			22,662	0.30	114	34	0.35	1,266	439			4,271
						2,962			4,038				4,271
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.77	7	110	6.93	10	69	12.60	40	504
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,235				1,162
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(maunds)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0		0				0			0
Sub-total				529		192			385				321
Labor (man-day)		63.36	37	2,341	63.36	8	491	63.1	19	1,191	63.1	25	1,578
Miscellaneous				268			40		141				154
Total Production Cost				5,626			834		2,951				3,221
Net Return per Acre				17,037			2,130		1,085				1,541

Table F.3-7 (2/2) Economic Crop Budget with Project Case (Sarangwala)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit	Wheat		Unit	Berseem		Unit	Mustard	
		Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount
Gross Return										
Production	(kg)	6.59	1,010	6,652	0.57	13,328	7,597	11.46	460.22	5,274
By-Products	(kg)	0.40	2,019	802			0			
				7,453			2,597			5,274
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
- N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
- P	(kg)	14.50	22	319	14.50		0	14.50	12	174
- K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
- Insecticides	(kg)	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				1,309			1,593			526
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	101	532			0			0
5 Threshing/processing				0			0			0
Sub-total				918			356			323
Labor	(man-day)	63.4	9	578	63.4	33	2,119	63.4	9	570
Miscellaneous (5% of above)				140			205			71
Total Production Cost				2,946			4,303			1,491
Net Return per Acre				4,508			3,294			3,783

Items	Total	Annual NPV 12%
Gross Return		
Production	1,225,085	19,004
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
- N	30,095	
- P	12,695	
- K	8,651	
4 Agro-Chemicals		
- Insecticides	0	
- Pesticides	11,020	
5 Others		
- Silt	408	
Sub-total	87,417	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	20,558	
Labor	51,065	
Miscellaneous	5,336	
Total Production Cost	164,316	2,824
Net Return per Acre	1,060,770	16,180

Table F.3-8 (1/2) Economic Crop Budget with Project Case (Nasrana)

Items	Unit per Acre	Sugarcane				Rice				Seed Cotton		
		Unit Price (Rs)	Fresh Quantity	Fresh Amount	Ratoon Quantity	Ratoon Amount	Unit Price (Rs)	Basmati-385 Quantity	Basmati-385 Amount	Unit Price (Rs)	Mixed Cropping System Quantity	Mixed Cropping System Amount
Gross Return												
Production	(kg)	0.51	19,099	9,820	19,099	9,820	5.52	551	3,039	18.30	637	11,651
By-Products	(kg)	0.41	4,775	1,965	4,775	1,965	0.18	1,376	245	0.27	1,150	313
				11,785		11,785			1,284			11,964
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.51	10 mada	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	46	748	16.26	22	358	16.26	44	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				2,022		1,038			616			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(maunds)			0		0			0	10.98	45	499
5 threshing bullocks				0		0			0			0
Sub-total				521		269			386			1,132
Labor		63.1	53	2,344	29	1,820	63.1	19	1,199	63.1	23	1,451
Miscellaneous				295		157			110			201
Total Production Cost				6,182		2,291			2,312			4,222
Net Return per Acre				5,596		8,491			972			7,743

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit Price (Rs)	Watermelon Quantity	Watermelon Amount	Unit Price (Rs)	Mung beans Quantity	Mung beans Amount	Unit Price (Rs)	Irrigated Maize (Kharif) Quantity	Irrigated Maize (Kharif) Amount	Unit Price (Rs)	Sorghum (Maize fodder) Quantity	Sorghum (Maize fodder) Amount
Gross Return													
Production	(kg)	2.51	9,233	23,175	12.89	232	2,991	5.69	645	3,667	0.84	5,787	4,861
By-Products	(kg)				0.30	116	35	0.35	1,290	447			0
				23,322			3,026		4,114				4,861
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.77	7	110	5.93	10	69	12.60	40	504
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,232				1,162
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(maunds)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0		0		0		0			0
Sub-total				579			123		386				322
Labor (man-day)		63.36	37	2,344	63.36	8	491	63.4	19	1,191	63.1	25	1,578
Miscellaneous				268			40		141				154
Total Production Cost				5,626			834		2,953				2,224
Net Return per Acre				17,542			2,192		1,161				1,637

Table F.3-8 (2/2) Economic Crop Budget with Project Case (Nasrana)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat Quantity	Wheat Amount	Unit Price (Rs)	Berseem Quantity	Berseem Amount	Unit Price (Rs)	Mustard Quantity	Mustard Amount
Gross Return										
Production	(kg)	6.59	1,031	6,790	0.57	13,528	7,711	11.46	468.89	5,374
By-Products	(kg)	0.40	2,061	818			0			
				<u>7,608</u>			<u>7,711</u>			<u>5,374</u>
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	35.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
- N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
- P	(kg)	14.50	22	319	14.50		0	14.50	12	174
- K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
- Insecticides	(kg)	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				<u>1,309</u>			<u>1,593</u>			<u>526</u>
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	103	543			0			0
5 Threshing/processing				0			0			0
Sub-total				<u>929</u>			<u>386</u>			<u>323</u>
Labor	(man-day)	63.4	9	572	63.4	33	2,119	63.4	9	570
Micellaneous (5% of above)				141			205			71
Total Production Cost				<u>2,951</u>			<u>4,303</u>			<u>1,491</u>
Net Return per Acre				<u>4,651</u>			<u>3,408</u>			<u>3,883</u>

Items	Total	Annual NPV 12%
Gross Return		
Production	1,249,351	19,380
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
- N	30,095	
- P	12,695	
- K	8,651	
4 Agro-Chemicals		
- Insecticides	0	
- Pesticides	11,020	
5 Others		
- Silt	408	
Sub-total	<u>87,417</u>	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	<u>20,558</u>	
Labor	51,005	
Micellaneous	5,336	
Total Production Cost	<u>164,316</u>	<u>2,824</u>
Net Return per Acre	<u>1,085,036</u>	<u>16,556</u>

Table F.3-9 (1/2) Economic Crop Budget with Project Case (Gojra)

Items	Unit per Acre	Sugarcane				Rice				Seed Cotton		
		Unit Price (Rs)	Fresh		Ratoon		Unit Price (Rs)	Basmati-385		Unit Price (Rs)	Mixed Cropping System	
			Quantity	Amount	Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return												
Production	(kg)	0.51	18,612	9,570	18,612	9,570	5.52	536	2,962	18.30	625	11,432
By-Products	(kg)	0.41	4,653	1,914	4,653	1,914	0.18	1,341	238	0.27	1150	313
				11,454		11,454			3,200			11,745
Production Cost												
Farm Inputs												
1 Soak	(kg)	18.51	10 marla	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	46	748	16.26	22	358	16.26	44	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				2,022		1,033			615			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(man-h)			0		0			0	10.95	45	490
5 threshing bullocks				0		0			0			0
Sub-total				521		262			385			1,128
Labour		63.36	53	3,358	29	1,837	63.36	19	1,204	63.36	23	1,457
Miscellaneous				295		157			110			201
Total Production Cost				6,203		3,302			2,317			4,218
Net Return per Acre				5,281		8,183			883			7,527

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit Price (Rs)	Watermelon		Unit Price (Rs)	Mung beans		Unit Price (Rs)	Irrigated Maize (Khan)		Unit Price (Rs)	Sorghum (Maize Fodder)	
			Quantity	Amount		Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return													
Production	(kg)	2.51	9,015	22,627	12.89	227	2,926	5.69	632	3,594	0.84	5,673	4,765
By-Products	(kg)				0.30	113	34	0.35	1,264	438			0
				22,627			2,960		4,032				4,763
Production Cost													
Farm Inputs													
1 Soak	(kg)	180.40	2	151	15.77	7	110	6.93	10	69	12.60	40	504
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,235				1,152
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(man-h)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0			0	0		0			0
Sub-total				522			191		386				322
Labour (man-day)		63.36	37	2,344	63.36	8	501	63.36	19	1,195	63.36	25	1,584
Miscellaneous				268			40		141				154
Total Production Cost				2,626			831		2,958				3,231
Net Return per Acre				17,001			2,126		1,074				1,534

Table F.3-9 (2/2) Economic Crop Budget with Project Case (Gojra)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat		Unit Price (Rs)	Berseem		Unit Price (Rs)	Mustard	
			Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return										
Production	(kg)	6.59	1,008	6,642	0.57	13,314	7,589	11.45	459.61	5,267
By-Products	(kg)	0.40	2,016	800			0			
				<u>7,442</u>			<u>7,589</u>			<u>5,267</u>
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
- N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
- P	(kg)	14.50	22	319	14.50		0	14.50	12	174
- K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
- Insecticides	(kg)	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				<u>1,302</u>			<u>1,592</u>			<u>526</u>
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	101	531			0			0
5 Threshing/processing				0			0			0
Sub-total				<u>918</u>			<u>385</u>			<u>323</u>
Labor	(man-day)	63.4	9	578	63.4	33	2,112	63.4	9	570
Miscellaneous (5% of above)				140			205			71
Total Production Cost				<u>2,945</u>			<u>4,302</u>			<u>1,491</u>
Net Return per Acre				<u>4,498</u>			<u>3,286</u>			<u>3,776</u>

Items	Total	Annual NPV 12%
Gross Return		
Production	1,223,329	18,928
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
- N	30,095	
- P	12,695	
- K	8,651	
4 Agro-Chemicals		
- Insecticides	0	
- Pesticides	11,020	
5 Others		
- Silt	408	
Sub-total	<u>87,417</u>	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	<u>20,558</u>	
Labor	51,005	
Miscellaneous	5,336	
Total Production Cost	<u>154,316</u>	<u>2,824</u>
Net Return per Acre	<u>1,059,074</u>	<u>16,154</u>

Table F.3-10 (1/2) Economic Crop Budget with Project Case (Mungi)

Items	Unit per Acre	Sugarcane				Rice				Seed Cotton		
		Unit Price (Rs)	Fresh		Ratoon		Unit Price (Rs)	Basmati-385		Unit Price (Rs)	Mixed Cropping System	
			Quantity	Amount	Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return												
Production	(kg)	0.51	18,865	9,700	18,865	9,700	5.52	544	3,002	18.30	631	11,546
By-Products	(kg)	0.41	4,716	1,940	4,716	1,940	0.18	1,359	242	0.27	1150	313
				11,640		11,640			2,244			11,859
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.51	10 marla	185		0	6.17	4	25	12.43	6	105
2 FYM/Compost	(40kg)	2.72		175	476		0	2.72	6	16	2.72	37.5
3 Fertilizer												
- N	(kg)	16.26		52	846	46	748	16.26	22	358	16.26	44
- P	(kg)	14.50		16	232		0	14.50	13	189	14.50	23
- K	(kg)	9.05			0		0	9.05		0	9.05	
4 Agro-Chemicals												
- Insecticides	(kg)	44.09			0		0	44.09		0	44.09	4
- Pesticides	(kg)	290.00		1	290	1	290	290.00	0.1	29	290.00	
Sub-total				2,029		1,038			616			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18		4	269	4	269	67.18	2	134	67.18	2
2 Land prep. bullocks	(days)	62.99		4	252		0	62.99	4	252	62.99	6
3 Interculture bullocks	(days)	62.99			0		0	62.99		0	62.99	2
4 harvesting	(mounds)				0		0			0	10.98	45
5 threshing bullocks					0		0			0		0
Sub-total				521		269			386			1,133
Labor		63.1	53	3,344	29	1,830	63.1	19	1,192	63.1	23	1,451
Miscellaneous				295		157			110			201
Total Production Cost				6,182		3,224			2,212			4,217
Net Return per Acre				5,451		8,346			932			7,642

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit Price (Rs)	Watermelon		Unit Price (Rs)	Mung beans		Unit Price (Rs)	Irrigated Maize (Kharif)		Unit Price (Rs)	Sorghum (Maize Fodder)	
			Quantity	Amount		Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return													
Production	(kg)	2.51	9,128	22,911	12.89	240	2,960	5.69	639	3,632	0.84	5,732	4,815
By-Products	(kg)				0.30	145	35	0.35	1,277	443			0
				22,911			2,994			4,075			4,815
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.80		2	151	15.77	7	110	6.93	10	69	12.60	40
2 FYM/Compost	(40kg)	2.72		175	476	2.72		0	2.72	100	272	2.72	125
3 Fertilizer													
- N	(kg)	16.26		52.5	854	16.26		0	16.26	38	618	16.26	20
- P	(kg)	14.50		24	348	14.50		0	14.50	19	276	14.50	
- K	(kg)	9.05		30	271	9.05		0	9.05		0	9.05	
4 Agro-Chemicals													
- Insecticides	(kg)	44.09		1	44	44.09		0	44.09		0	44.09	
- Pesticides	(kg)	290.00		1	290	290.00		0	290.00		0	290.00	
Sub-total				2,434			110			1,235			1,162
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18		3	202	67.18	1	67	67.18	2	134	67.18	2
2 Land prep. bullocks	(days)	62.99		6	378	62.99	2	126	62.99	4	252	62.99	3
3 Interculture bullocks	(days)	62.99			0	62.99		0	62.99		0	62.99	
4 harvesting	(mounds)				0	0.00		0	10.98		0	10.98	
5 threshing bullocks					0			0			0		
Sub-total				579		193			386			323	
Labor (man-day)		63.36	37	2,344	63.36	8	421	63.1	19	1,191	63.1	25	1,578
Miscellaneous				268			40			141			154
Total Production Cost				5,626			834			2,953			3,224
Net Return per Acre				17,285			2,160			1,122			1,591

Table F.3-10 (2/2) Economic Crop Budget with Project Case (Mungi)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat Quantity	Amount	Unit Price (Rs)	Berseem Quantity	Amount	Unit Price (Rs)	Mustard Quantity	Amount
Gross Return										
Production	(kg)	6.59	1,020	6,719	0.57	13,425	7,652	11.46	464.42	5,322
By-Products	(kg)	0.40	2,040	810			0			
				7,528			7,652			5,322
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
- N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
- P	(kg)	14.50	22	319	14.50		0	14.50	12	174
- K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
- Insecticides	(kg)	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				1,302			1,583			526
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	102	537			0			0
5 Threshing/processing				0			0			0
Sub-total				924			386			322
Labor	(man-day)	63.4	9	578	63.4	33	2,119	63.4	9	570
Micellaneous (5% of above)				141			205			71
Total Production Cost				2,951			4,303			1,491
Net Return per Acre				4,577			3,349			3,831

Items	Total	Annual NPV 12%
Gross Return		
Production	1,236,847	19,186
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
- N	30,095	
- P	12,695	
- K	8,651	
4 Agro-Chemicals		
- Insecticides	0	
- Pesticides	11,020	
5 Others		
- Silt	408	
Sub-total	87,412	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	20,558	
Labor	51,605	
Micellaneous	5,336	
Total Production Cost	164,316	2,824
Net Return per Acre	1,072,532	16,362

Table F.3-11 (1/2) Economic Crop Budget with Project Case (Janiwala/Hamza)

Items	Unit per Acre	Sugarcane				Rice				Seed Cotton		
		Unit Price (Rs)	Fresh		Ratoon		Unit Price (Rs)	Basmati-385		Unit Price (Rs)	Mixed Cropping System	
			Quantity	Amount	Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return												
Production	(kg)	0.51	18,678	9,603	18,678	9,603	5.52	538	2,972	18.30	626	11,462
By-Products	(kg)	0.41	4,669	1,921	4,669	1,921	0.18	1,346	239	0.27	1150	313
				11,525		11,525			3,212			11,725
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.51	10 marla	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	46	748	16.26	22	358	16.26	44	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				1,032		1,038			636			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(maunds)			0		0			0	10.98	45	491
5 threshing bullocks				0		0			0			0
Sub-total				521		269			286			1,129
Labor		63.36	53	3,358	29	1,837	63.36	19	1,204	63.36	23	1,452
Miscellaneous				295		157			110			201
Total Production Cost				6,202		3,302			2,317			4,230
Net Return per Acre				5,324		8,223			895			7,555

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit Price (Rs)	Watermelon		Unit Price (Rs)	Mung beans		Unit Price (Rs)	Irrigated Maize (Khand)		Unit Price (Rs)	Sorghum (Maize Kibler)	
			Quantity	Amount		Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return													
Production	(kg)	2.51	9,044	22,701	12.89	228	2,935	5.69	634	3,604	0.84	5,688	4,378
By-Products	(kg)			22,701	0.30	114	35	0.35	1,268	439			4,378
				22,701		2,962			4,042				4,378
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.77	7	110	6.93	10	69	12.60	40	504
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,235				1,162
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(maunds)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0			0			0			0
Sub-total				579			123		285				323
Labor (man-day)		63.36	37	2,344	63.36	8	491	63.36	19	1,196	63.36	25	1,584
Miscellaneous				268			40		141				154
Total Production Cost				3,626			831		2,958				3,231
Net Return per Acre				17,075			2,135		1,085				1,547

Table F.3-11 (2/2) Economic Crop Budget with Project Case (Janiwala/Hamza)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat Quantity	Amount	Unit Price (Rs)	Berseem Quantity	Amount	Unit Price (Rs)	Mustard Quantity	Amount
Gross Return										
Production	(kg)	6.59	1,011	6,662	0.57	13,343	7,606	11.46	460.86	5,281
By-products	(kg)	0.40	2,023	803			0			
				2,465			7,606			5,281
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
- N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
- P	(kg)	14.50	22	319	14.50		0	14.50	12	174
- K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
- Insecticides	(kg)	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				1,302			1,593			526
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	101	533			0			0
5 Threshing/processing				0			0			0
Sub-total				912			386			323
Labor	(man-day)	63.4	9	578	63.4	33	2,119	63.4	9	570
Miscellaneous (5% of above)				140			205			71
Total Production Cost				2,947			4,301			1,491
Net Return per Acre				4,518			3,302			3,790

Items	Total	Annual NPV 12%
Gross Return		
Production	1,226,882	19,032
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
- N	30,095	
- P	12,695	
- K	8,651	
4 Agro-Chemicals		
- Insecticides	0	
- Pesticides	11,020	
5 Others		
- Silt	408	
Sub-total	87,417	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	20,558	
Labor	51,005	
Miscellaneous	5,336	
Total Production Cost	164,316	2,824
Net Return per Acre	1,062,571	16,208

Table F.3-12 (1/2) Economic Crop Budget with Project Case (Pir Mahal)

Items	Sugarcane						Rice			Seed Cotton		
	Unit per Acre	Unit Price (Rs)	Fresh		Ratoon		Unit Price (Rs)	Basmati-385		Unit Price (Rs)	Mixed Cropping System	
			Quantity	Amount	Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return												
Production	(kg)	0.51	19,812	10,187	19,812	10,187	5.52	571	3,153	18.30	654	11,972
By-Products	(kg)	0.41	4,953	2,038	4,953	2,038	0.18	4,428	254	0.27	1150	313
				12,224		12,224			2,422			12,285
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.51	10 marla	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	46	748	16.26	22	358	16.26	44	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				2,022		1,038			616			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(maunds)			0		0			0	10.98	47	513
5 threshing bullocks				0		0			0			0
Sub-total				521		269			356			1,151
Labor		63.36	53	3,353	29	1,827	63.36	19	1,204	63.36	23	1,451
Miscellaneous				293		157			110			202
Total Production Cost				6,203		3,302			2,212			4,243
Net Return per Acre				6,021		8,923			1,000			8,042

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit Price (Rs)	Watermelon		Unit Price (Rs)	Mung beans		Unit Price (Rs)	Irrigated Maize (Quart)		Unit Price (Rs)	Sorghum (Maize Fodder)	
			Quantity	Amount		Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return													
Production	(kg)	2.51	9,552	23,976	12.89	239	3,086	5.69	664	3,773	0.84	5,955	5,002
By-Products	(kg)			23,976	0.30	120	36	0.35	1,327	460			5,002
							3,122		4,233				
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.77	7	110	6.93	10	69	12.60	40	504
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,233				1,159
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(maunds)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0			0			0			0
Sub-total				529			123		355				323
Labor (man-day)		63.36	37	2,334	63.36	8	491	63.36	19	1,206	63.36	25	1,584
Miscellaneous				268			40		141				154
Total Production Cost				2,626			831		2,958				3,231
Net Return per Acre				18,350			2,288		1,275				1,771

Table F.3-12 (2/2) Economic Crop Budget with Project Case (Pir Mahal)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat Quantity	Wheat Amount	Unit Price (Rs)	Berseem Quantity	Berseem Amount	Unit Price (Rs)	Mustard Quantity	Mustard Amount
Gross Return										
Production	(kg)	6.59	1,063	7,006	0.57	13,839	7,888	11.46	482.46	5,529
By-Products	(kg)	0.40	2,127	844			0			
				7,850			7,888			5,529
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
- N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
- P	(kg)	14.50	22	319	14.50		0	14.50	12	174
- K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
- Insecticides	(kg)	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				1,302			1,593			526
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	106	560			0			0
5 Threshing/processing				0			0			0
Sub-total				917			386			323
Labor	(man-day)	63.4	9	578	63.4	33	2,112	63.4	9	570
Miscellaneous (5% of above)				142			205			71
Total Production Cost				2,975			4,303			1,491
Net Return per Acre				4,875			3,585			4,038

Items	Total	Annual NPV 12%
Gross Return		
Production	1,287,286	19,969
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
- N	30,095	
- P	12,695	
- K	8,651	
4 Agro-Chemicals		
- Insecticides	0	
- Pesticides	11,020	
5 Others		
- Silt	408	
Sub-total	87,412	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	20,558	
Labor	51,005	
Miscellaneous	5,336	
Total Production Cost	164,316	2,824
Net Return per Acre	1,122,971	17,145

Table F.3-13 (1/2) Economic Crop Budget with Project Case (Killianwala)

Items	Unit per Acre	Sugarcane				Rice				Seed Cotton		
		Unit	Fresh		Ratoon		Unit	Basmati-385		Unit	Mixed Cropping System	
		Price (Rs)	Quantity	Amount	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount
Gross Return												
Production	(kg)	0.51	18,435	9,479	18,435	9,479	5.52	531	2,934	18.30	620	11,353
By-Products	(kg)	0.41	4,609	1,896	4,609	1,896	0.18	1,328	236	0.27	1150	313
				11,375		11,375			3,170			11,666
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.51	10 marla	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(10kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	46	748	16.26	23	358	16.26	44	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				2,022		1,025			616			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(maunds)			0		0			0	10.98	44	486
5 threshing bullocks				0		0			0			0
Sub-total				521		269			385			1,125
Labor		63.36	53	3,358	29	1,837	63.36	19	1,204	63.36	23	1,457
Miscellaneous				295		157			110			201
Total Production Cost				6,201		3,302			2,317			4,215
Net Return per Acre				5,172		8,073			853			7,451

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit	Watermelon		Unit	Mung beans		Unit	Irrigated Maize (Kharif)		Unit	Sorghum (Maize fodder)	
		Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount	Price (Rs)	Quantity	Amount
Gross Return													
Production	(kg)	2.51	8,935	22,427	12.89	225	2,902	5.69	627	3,568	0.64	5,631	4,730
By-Products	(kg)				0.30	113	34	0.35	1,255	435			0
				22,427			2,926		4,001				4,730
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.77	7	110	6.93	10	69	12.60	40	504
2 FYM/Compost	(10kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,235				1,162
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(maunds)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0		0		0		0			0
Sub-total				572			123		385				313
Labor (man-day)		63.36	37	2,344	63.36	8	491	63.36	19	1,196	63.36	25	1,584
Miscellaneous				268			40		141				154
Total Production Cost				5,624			831		2,958				3,211
Net Return per Acre				16,802			2,102		1,045				1,499

Table F.3-13 (2/2) Economic Crop Budget with Project Case (Killianwala)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat		Unit Price (Rs)	Berseem		Unit Price (Rs)	Mustard	
			Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return										
Production	(kg)	6.59	1,000	6,539	0.57	13,237	7,545	11.46	456.24	5,228
By-Products	(kg)	0.40	2,000	794			0			5,228
				2,383			7,545			
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
-N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
-P	(kg)	14.50	22	319	14.50		0	14.50	12	174
-K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
-Insecticides	(kg)	44.09		0	44.09		0	44.09		0
-Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				1,309			1,523			526
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	100	527			0			0
5 Threshing/processing				0			0			0
Sub-total				913			386			323
Labor	(man-day)	63.4	9	578	63.4	33	2,119	63.4	9	570
Miscellaneous (5% of above)				140			205			71
Total Production Cost				2,949			4,303			1,491
Net Return per Acre				4,442			3,242			3,737

Items	Total	Annual
		NPV 12%
Gross Return		
Production	1,213,959	18,831
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
-N	30,095	
-P	12,695	
-K	8,651	
4 Agro-Chemicals		
-Insecticides	0	
-Pesticides	11,020	
5 Others		
-Silt	408	
Sub-total	87,417	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	20,558	
Labor	51,005	
Miscellaneous	5,336	
Total Production Cost	164,316	2,824
Net Return per Acre	1,049,644	16,007

Table F.3-14 (1/2) Economic Crop Budget with Project Case (Thamman)

Items	Unit per Acre	Sugarcane					Rice			Seed Cotton		
		Unit Price (Rs)	Fresh		Ratoon		Unit Price (Rs)	Basmati-385		Unit Price (Rs)	Mixed Cropping System	
			Quantity	Amount	Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return												
Production	(kg)	0.51	17,764	9,134	17,764	9,134	5.52	512	2,827	18.30	604	11,051
By-Products	(kg)	0.41	4,441	1,827	4,441	1,827	0.18	1,280	228	0.27	1,150	313
				10,261		10,961			3,054			11,264
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.51	10 marla	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	46	748	16.26	22	358	16.26	44	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				2,029		1,038			616			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(maunds)			0		0			0	10.98	43	474
5 threshing bullocks				0		0			0			0
Sub-total				521		262			386			1,112
Labor		63.36	53	2,358	29	1,837	63.36	19	1,204	63.36	23	1,457
Miscellaneous				295		157			110			200
Total Production Cost				6,203		3,302			2,317			4,201
Net Return per Acre				4,758		7,659			738			7,163

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit Price (Rs)	Watermelon		Unit Price (Rs)	Mang beans		Unit Price (Rs)	Irrigated Maize (Kharif)		Unit Price (Rs)	Seragam (Maize fodder)	
			Quantity	Amount		Quantity	Amount		Quantity	Amount		Quantity	Amount
Gross Return													
Production	(kg)	2.51	8,635	21,673	12.89	218	2,813	5.69	610	3,468	0.84	5,473	4,598
By Products	(kg)			21,632	0.30	109	2,846	0.35	1,220	423			4,598
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.72	7	110	6.93	10	69	12.60	40	594
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,315				1,159
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(maunds)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0			0			0			0
Sub-total				579			191		386				321
Labor (man-day)		63.36	37	2,311	63.36	8	507	63.36	19	1,196	63.36	25	1,581
Miscellaneous				268			40		141				154
Total Production Cost				3,626			831		2,958				3,231
Net Return per Acre				15,047			2,012		933				1,367

Table F.3-14 (2/2) Economic Crop Budget with Project Case (Thamman)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat Quantity	Wheat Amount	Unit Price (Rs)	Berseem Quantity	Berseem Amount	Unit Price (Rs)	Mustard Quantity	Mustard Amount
Gross Return										
Production	(kg)	6.59	969	6,385	0.57	12,944	7,378	11.46	443.47	5,082
By-Products	(kg)	0.40	1,939	769			0			
				2,155			7,378			5,082
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
- N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
- P	(kg)	14.50	22	319	14.50		0	14.50	12	174
- K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
- Insecticides	(kg)	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				1,309			1,593			525
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	97	511			0			0
5 Threshing/processing				0			0			0
Sub-total				897			386			323
Labor	(man day)	63.4	9	578	63.4	33	2,119	63.4	9	570
Miscellaneous (5% of above)				139			205			71
Total Production Cost				2,923			4,303			1,491
Net Return per Acre				4,232			3,075			3,591

Items	Total	Annual NPV 12%
Gross Return		
Production	1,178,242	18,211
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
- N	30,095	
- P	12,695	
- K	8,651	
4 Agro-Chemicals		
- Insecticides	0	
- Pesticides	11,020	
5 Others		
- Silt	408	
Sub-total	87,417	
Machinery and Animal Power		
1 Land prep. tractor	403	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	20,558	
Labor	51,003	
Miscellaneous	5,336	
Total Production Cost	164,316	2,824
Net Return per Acre	1,013,934	15,453

Table F.3-15 (1/2) Economic Crop Budget with Project Case (China)

Items	Unit per Acre	Sugarcane			Ratoon		Rice			Seed Cotton		
		Unit Price (Rs)	Fresh Quantity	Amount	Quantity	Amount	Unit Price (Rs)	Basmati-385 Quantity	Amount	Unit Price (Rs)	Mixed Cropping System Quantity	Amount
Gross Return												
Production	(kg)	0.51	18,188	9,352	18,188	9,352	5.52	524	2,894	18.30	614	11,242
By-Products	(kg)	0.41	4,547	1,871	4,547	1,871	0.18	1,311	233	0.27	1,150	313
				11,222		11,222			3,122			11,555
Production Cost												
Farm Inputs												
1 Seeds	(kg)	18.51	10 marla	185		0	6.17	4	25	17.43	6	105
2 FYM/Compost	(40kg)	2.72	175	476		0	2.72	6	16	2.72	37.5	102
3 Fertilizer												
- N	(kg)	16.26	52	846	46	748	16.26	22	358	16.26	41	716
- P	(kg)	14.50	16	232		0	14.50	13	189	14.50	23	334
- K	(kg)	9.05		0		0	9.05		0	9.05		0
4 Agro-Chemicals												
- Insecticides	(kg)	44.09		0		0	44.09		0	44.09	4	176
- Pesticides	(kg)	290.00	1	290	1	290	290.00	0.1	29	290.00		0
Sub-total				2,029		1,038			616			1,432
Machinery and Animal Power												
1 Land prep. tractor	(hrs)	67.18	4	269	4	269	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252		0	62.99	4	252	62.99	6	378
3 Interculture bullocks	(days)	62.99		0		0	62.99		0	62.99	2	126
4 harvesting	(mounds)			0		0			0	10.98	44	482
5 threshing bullocks				0		0			0			0
Sub-total				521		269			286			1,120
Labor		63.36	53	3,358	29	1,837	63.36	19	1,204	63.36	23	1,457
Miscellaneous				295		157			110			200
Total Production Cost				6,203		3,302			2,311			4,210
Net Return per Acre				5,019		7,921			811			7,345

Items	Unit per Acre	Other Crops			Other Crops			Maize			Fodder		
		Unit Price (Rs)	Watermelon Quantity	Amount	Unit Price (Rs)	Mung Beans Quantity	Amount	Unit Price (Rs)	Irrigated Maize (Kharif) Quantity	Amount	Unit Price (Rs)	Sorghum (Maize Fodder) Quantity	Amount
Gross Return													
Production	(kg)	2.51	8,825	22,150	12.89	223	2,869	5.69	621	3,531	0.84	5,573	4,681
By-Products	(kg)			22,150	0.30	111	34	0.35	1,242	431			0
						2,903			2,952				4,681
Production Cost													
Farm Inputs													
1 Seeds	(kg)	100.40	2	151	15.77	7	110	6.93	10	69	12.60	40	504
2 FYM/Compost	(40kg)	2.72	175	476	2.72		0	2.72	100	272	2.72	125	340
3 Fertilizer													
- N	(kg)	16.26	52.5	854	16.26		0	16.26	38	618	16.26	20	325
- P	(kg)	14.50	24	348	14.50		0	14.50	19	276	14.50		0
- K	(kg)	9.05	30	271	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals													
- Insecticides	(kg)	44.09	1	44	44.09		0	44.09		0	44.09		0
- Pesticides	(kg)	290.00	1	290	290.00		0	290.00		0	290.00		0
Sub-total				2,434			110		1,235				1,362
Machinery and Animal Power													
1 Land prep. tractor	(hrs)	67.18	3	202	67.18	1	67	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	6	378	62.99	2	126	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0	62.99		0
4 harvesting	(mounds)			0	0.00		0	10.98		0	10.98		0
5 threshing bullocks				0		0		0		0			0
Sub-total				572		122			386				322
Labor (man-day)		63.36	37	2,335	63.36	8	491	63.36	19	1,196	63.36	25	1,584
Miscellaneous				268			40		141				154
Total Production Cost				5,626			834		2,958				3,231
Net Return per Acre				16,524			2,069		1,004				1,451

Table F.3-15 (2/2) Economic Crop Budget with Project Case (China)

Items	Unit per Acre	Grain			Fodder			Oil Seed		
		Unit Price (Rs)	Wheat Quantity	Amount	Unit Price (Rs)	Borseent Quantity	Amount	Unit Price (Rs)	Mustard Quantity	Amount
Gross Return										
Production	(kg)	6.59	989	6,514	0.57	13,129	7,484	11.46	451.54	5,175
By-Products	(kg)	0.40	1,977	785			0			
				7,299			7,484			5,175
Production Cost										
Farm Inputs										
1 Seeds	(kg)	5.29	40	212	85.50	8	684	13.58	2	27
2 FYM/Compost	(40kg)	2.72	35	95	2.72	125	340	2.72		0
3 Fertilizer										
-N	(kg)	16.26	42	683	16.26	35	569	16.26	20	325
-P	(kg)	14.50	22	319	14.50		0	14.50	12	174
-K	(kg)	9.05		0	9.05		0	9.05		0
4 Agro-Chemicals										
-Insecticides	(kg)	44.09		0	44.09		0	44.09		0
-Pesticides	(kg)	290.00		0	290.00		0	290.00		0
Sub-total				1,302			1,592			526
Machinery and Animal Power										
1 Land prep. tractor	(hrs)	67.18	2	134	67.18	2	134	67.18	2	134
2 Land prep. bullocks	(days)	62.99	4	252	62.99	4	252	62.99	3	189
3 Interculture bullocks	(days)	62.99		0	62.99		0	62.99		0
4 Harvesting	(kg)	5.27	99	521			0			0
5 Threshing/processing				0			0			0
Sub-total				907			386			322
Labor	(man-day)	63.4	9	578	63.4	33	2,119	63.4	9	570
Micellaneous (5% of above)				140			205			71
Total Production Cost				2,934			4,303			1,491
Net Return per Acre				4,365			3,180			3,684

Items	Total	Annual NPV 12%
Gross Return		
Production	1,200,820	18,628
Production Cost		
Farm Inputs		
1 Citrus plants	670	
2 FYM/Compost	23,877	
3 Fertilizer		
-N	30,095	
-P	12,695	
-K	8,651	
4 Agro-Chemicals		
-Insecticides	0	
-Pesticides	11,070	
5 Others		
-Silt	408	
Sub-total	82,412	
Machinery and Animal Power		
1 Land prep. tractor	493	
2 Land prep. bullocks	0	
3 harvesting	20,155	
4 transport	0	
Sub-total	20,558	
Labor	51,005	
Micellaneous	5,336	
Total Production Cost	164,316	2,824
Net Return per Acre	1,036,504	15,804

Table F.3-16 (1/3) Crop Production Benefit

Crop/Season	Paddy (15,533 ha)					Dryland (20,529 ha)					Khan (34,357 ha)						
	Area (ha)	Yield (t/ha)	Prodn (t/ha)	Value (R.000)	Incremental (ha)	Area (ha)	Yield (t/ha)	Prodn (t/ha)	Value (R.000)	Incremental (ha)	Area (ha)	Yield (t/ha)	Prodn (t/ha)	Value (R.000)	Incremental (ha)		
Rice Season																	
Supernow	40	40.98	2,459	605	44.38	2,475	946	316	945	48,098	15,935	47.31	56,274	20,726	6.33	7,537	4,300
Common	34	1.42	48	563	1.51	51	611	3	48	798	935	1.54	885	1,076	0.16	87	1,454
Rice (Banana)	36	1.18	42	55	1.28	49	69	4	46	627	741	1.24	855	1,012	0.18	115	584
Vegetable	10	19.45	199	367	21.45	215	406	16	39	1,621	2,086	22.66	1,851	3,532	2.81	238	367
Misc	193	1.48	286	351	1.54	305	467	16	19	2,022	2,479	1.65	2,234	3,060	0.17	252	1,451
Podder	479	12.84	6,153	1,263	13.68	6,538	1,683	605	340	5,984	16,774	14.33	45,757	24,530	1.49	8,906	7,477
Mung	21	0.51	11	97	0.54	12	107	1	10	324	356	0.58	397	3,461	0.07	43	545
Subtotal	813		3,323	4,822							31,325		38,143				12,737
Wheat	182	2.26	1,927	620	2.43	2,064	970	0.17	141	165,536	70,461	2.55	18,905	64,320	0.29	2,130	13,920
Podder	46	30.71	1,417	529	32.28	1,490	339	1.57	73	96,723	22,440	33.48	109,440	26,013	2.77	6,721	4,145
Oil Seeds	62	1.43	89	202	1.52	95	241	0.09	45	705	4,098	1.60	797	4,745	0.17	82	647
Total	261		2,052	1,002						30,067	20,961		113,025			14,711	14,711
Final Season																	
Wheat	379	9.49	3,649	1,323	10.34	3,924	14,677	0.67	255	60,891	219,462	10.87	68,342	257,791	1.19	7,451	36,329
Podder	32										219,462						36,329
Total	411		3,649	1,323						60,891	219,462		68,342	257,791		7,451	36,329
Final Total																	49,162
Rice Season																	
Supernow	1,238	40.98	50,717	16,596	46.07	57,016	20,680	5.09	6,799	4,084	96,299	47.20	338,921	124,984	6.22	44,637	24,684
Common	75	1.42	104	1,208	1.53	113	1,318	0.12	6	2,571	30,054	1.57	2,648	36,425	0.15	276	4,621
Rice (Banana)	36	19.45	715	1,317	21.11	796	1,516	2.26	81	199	490	22.61	4,495	8,617	2.76	345	3,852
Vegetable	1,464	1.48	2,780	3,532	1.62	2,994	4,944	0.14	284	1,891	7,881	1.65	12,092	22,408	0.17	1,527	6,383
Misc	1,654	1.48	16,679	4,077	14.04	36,414	5,502	1.20	1,740	1,445	16,275	14.30	33,027	23,492	1.46	4,490	7,217
Podder	78	0.51	14	130	0.54	16	149	0.09	1	775	6,964	0.57	872	8,241	0.06	98	1,277
Mung	540										121,626						51,782
Subtotal	3,300		2,242	31,799		2,49	42,34	0.25	772	4,972	166,245	2.55	43,968	194,499	0.29	4,926	32,234
Wheat	374	30.71	11,496	2,690	32.93	12,329	3,047	2.22	633	477	51,439	33.43	53,991	14,104	2.72	4,551	21,155
Podder	471	1.43	674	1,620	1.56	737	4,407	0.13	63	3,318	30,858	1.59	3,393	35,680	0.16	405	4,782
Total	4,546		34,520	14,007						222,512						20,424	36,937
Final Season																	
Wheat	395	9.49	3,626	1,379	10.64	4,022	13,792	0.95	376	8,228	29,665	10.83	9,216	34,752	1.16	968	5,066
Podder	32										29,665						5,066
Total	427		3,626	1,379						8,228	29,665		9,216	34,752		968	5,066
Final Total																	36,937

Table F.3-16 (2/3) Crop Production Benefit

Crop/Cowpea	Shingo (27,151 ha)							Interim/Chiriqui (27,151 ha)							San Mateo (30,810 ha)							San Mateo (30,810 ha)									
	Sown Area (ha)	Yield (t/ha)	Prodn (t)	Value (\$/t)	Profit (\$/ha)	Inc. Profit (\$/ha)	Total Profit (\$/ha)	Sown Area (ha)	Yield (t/ha)	Prodn (t)	Value (\$/t)	Profit (\$/ha)	Inc. Profit (\$/ha)	Total Profit (\$/ha)	Sown Area (ha)	Yield (t/ha)	Prodn (t)	Value (\$/t)	Profit (\$/ha)	Inc. Profit (\$/ha)	Total Profit (\$/ha)	Sown Area (ha)	Yield (t/ha)	Prodn (t)	Value (\$/t)	Profit (\$/ha)	Inc. Profit (\$/ha)	Total Profit (\$/ha)			
Bean/Beans																															
Supergreen	2,113	40.96	86,513	26,310	40,602	96,411	35,987	1,005	40.96	41,098	13,448	46,236	16,792	517	5,188	3,333	1,622	40.96	46,433	21,794	44,966	79,426	29,934	7.98	12,941	8,196					
Green	2,246	1.42	3,191	37,234	1,56	3,502	42,410	756	1.42	1,074	12,533	1,55	1,170	41,11	99	1,560	1,260	1.42	1,021	22,549	1,62	2,199	27,028	0.20	200	44,979	0.20	200	44,979		
Rice (Banana)	464	1.18	550	689	1.36	626	1,073	1,33	1.18	87	109	127	162	0.15	11	54	2,537	1.18	2,996	3,782	1,41	3,279	4,651	0.23	363	3,079	0.23	363	3,079		
Vegetable	381	19.85	11,534	21,244	22.35	12,968	24,819	129	19.85	2,534	4,705	22.15	2,630	3,430	2.36	296	725	105	19.85	2,905	3,787	23,39	24,819	4,672	3.54	365	905				
Maize	2,796	1.48	4,090	5,010	1.63	4,509	7,660	1,334	1.48	2,004	2,461	1,62	2,195	3,630	0.14	190	1,170	927	1.48	1,872	1,905	1,70	1,573	2,921	0.22	200	1,235				
Maize	2,658	12.84	34,101	7,465	14.16	37,618	10,442	900	12.84	11,946	2,608	14,025	13,077	3,337	1,211	949	1,596	12.84	13,984	20,491	4,874	14,71	23,402	6,985	1.87	2,991	2,512				
Mung	300	0.51	178	1,802	0.57	199	1,999	512	0.51	260	2,341	0.56	208	3,527	0.05	28	357	105	0.51	34	481	0.59	62	966	0.08	9	113				
Total	11,156			101,338			124,328	4,326			31,328			66,323			8,321			28,864			28,864			28,864			20,322		
Rain/Beans																															
Wheat	8,328	2.26	19,280	82,087	2.52	21,490	90,447	3,349	2.26	4,023	34,105	2.50	3,849	39,629	0.24	364	3,462	6,878	2.26	14,647	62,339	2,63	17,023	78,029	0.32	2,376	15,670				
Podder	985	30.71	29,623	4,881	33.17	35,000	7,983	1,022	30.71	4,375	1,102	32.9	4,097	1,102	226	322	146	596	30.71	16,313	4,254	34,20	30,395	5,263	3.49	2,079	1,029				
Oil Seeds	1,602	1.43	2,291	13,308	1.58	2,527	15,165	603	1.43	802	3,064	1.57	943	5,644	0.14	82	626	1,006	1.43	1,437	8,349	1,68	1,647	10,027	0.21	210	1,078				
Total	11,028			102,229			118,528	4,224			50,827			56,823			6,266			24,962			24,962			24,962			18,322		
Eranoal/Crops																															
Crust	1,014	9.09	9,820	33,394	10.74	10,889	40,900	1,40	9.09	1,411	3,080	10.65	1,532	5,435	0.97	141	740	449	9.09	4,345	15,040	11.18	5,015	19,009	1.49	470	3,344				
Total	1,014			33,394			40,900	1,40			3,080			5,435			740			15,040			15,040			15,040			1,49		
Chiriqui (27,151 ha)																															
Supergreen																															
2,949	40.96	122,921	40,224	45,255	138,439	49,882	4.37	13,718	8,859	1,037	43,900	45,317	15,907	2.92	3,024	2,603	1,477	40.96	60,509	19,800	44,96	66,381	33,917	3.98	5,852	14,117					
Green	1,913	1.42	2,718	31,713	1,53	2,933	32,219	576	1.42	818	9,243	1.49	3,59	10,169	0.07	41	646	147	1.42	209	2,444	1.52	228	2,676	0.10	14	232				
Rice (Banana)	326	1.18	385	482	1.31	428	647	2,062	1.18	2,790	3,494	1.27	2,989	4,306	0.08	199	812	200	1.18	236	296	1.30	259	401	0.11	23	105				
Vegetable	71	19.85	1,400	2,579	21.88	1,543	2,928	220	14.5	350	5,531	21.14	3,199	5,999	1.29	196	468	346	19.85	4,866	12,462	21.61	7,473	14,170	1.76	609	1,477				
Maize	5,903	1.48	8,737	10,730	1.60	9,468	15,290	0.12	731	4,509	1,763	1,56	2,780	4,109	0.06	141	899	1,341	1.48	2,380	2,800	1.59	2,444	3,870	0.11	145	1,020				
Podder	2,329	12.84	32,490	7,889	13.91	35,187	9,320	2,384	12.84	30,349	6,020	13.52	31,969	7,945	0.69	1,020	1,519	3,138	12.84	40,289	8,790	13.77	43,212	11,249	0.93	2,923	2,453				
Mung	369	0.51	198	1,999	0.56	205	1,918	512	0.51	278	2,341	0.54	17	3,527	0.03	1	12	34	0.51	17	154	0.53	19	172	0.04	1	18				
Total	14,440			98,402			115,845	3,381			42,466			48,653			4,522			149,023			149,023			149,023			10,621		
Rain/Wheat																															
10,171	2.26	22,995	97,903	2.47	25,174	111,618	0.21	2,139	13,726	8,447	2,40	20,231	46,325	0.15	1,133	7,013	3,722	2.26	12,826	55,076	2.44	13,979	61,207	0.18	1,043	6,632					
Podder	1,706	30.71	52,451	12,184	32.21	58,066	13,982	2,00	30.71	43,628	19,426	31.96	47,100	20,911	1.27	3,471	1,285	1,077	30.71	33,009	7,662	32.46	34,936	1,405	1.73	1,866	781				
Oil Seeds	1,199	1.43	1,714	9,938	1.35	1,838	11,070	603	1.43	908	3,273	1.51	966	4,832	0.08	48	339	763	1.43	1,991	6,307	1.53	1,170	6,943	0.10	79	609				
Total	13,077			120,283			138,309	11,653			100,011			118,588			2,584			62,953			62,953			62,953			7,111		
Eranoal/Crops																															
Crust	861	9.09	8,337	30,047	10.34	9,073	34,044	347	9.09	3,340	12,109	10.23	3,549	13,245	0.55	189	1,139	203	9.09	2,545	9,174	10.43	2,740	10,251	0.74	195	1,068				
Total	861			30,047			34,044	347			12,109			13,245			1,139			9,174			9,174			9,174			1,068		
Total	24,043			245,537			264,432	40,500			160,605			176,546			15,990			176,546			176,546			176,546			24,522		

Table F-3-16 (3/3) Crop Production Benefit

	14.55 (26,340 lbs)				14.55 (26,340 lbs)				14.55 (26,340 lbs)				14.55 (26,340 lbs)				14.55 (26,340 lbs)				14.55 (26,340 lbs)								
	Sown		Incremental		Sown		Incremental		Sown		Incremental		Sown		Incremental		Sown		Incremental		Sown		Incremental		Sown		Incremental		
	Area (ha)	Prof'n (com)	Value (\$1,000)	Prof'n (com)	Area (ha)	Prof'n (com)	Value (\$1,000)	Prof'n (com)	Area (ha)	Prof'n (com)	Value (\$1,000)	Prof'n (com)	Area (ha)	Prof'n (com)	Value (\$1,000)	Prof'n (com)	Area (ha)	Prof'n (com)	Value (\$1,000)	Prof'n (com)	Area (ha)	Prof'n (com)	Value (\$1,000)	Prof'n (com)	Area (ha)	Prof'n (com)	Value (\$1,000)	Prof'n (com)	
Major Crops																													
Sugarcane	4,879	199,777	65,397	27,882	83,361	28,125	17,944	43,271	717,645	234,837	819,177	300,846	101,482	65,210	62,111	103,002	33,706	111,878	49,823	8,476	16,119	54,356	1,020,404	333,909	1,158,887	433,232	136,483	99,323	
Corn	2,653	3,772	44,018	4,147	50,221	378	6,203	21,278	12,235	142,761	13,694	103,191	1,229	20,470	1,797	1,077	11,987	1,083	12,865	56	877	25,720	17,033	198,796	18,694	226,277	1,660	27,311	
Rice (Diamant)	1,676	1,982	2,482	2,264	3,903	293	1,421	9,860	4,727	5,970	5,540	10,131	813	4,231	4,331	3,026	3,790	3,248	4,707	221	917	17,899	9,733	12,192	11,053	18,761	1,317	6,549	
Vegetable	543	10,777	19,550	12,149	21,274	1,377	3,374	2,901	23,301	42,916	26,313	50,326	3,012	7,411	1,228	9,867	18,173	10,671	20,119	604	1,946	4,672	43,944	80,939	40,134	93,670	5,188	12,731	
Mango	6,346	9,393	11,534	10,374	12,588	982	6,004	54,923	32,999	40,462	34,224	61,127	3,335	20,326	8,213	4,919	6,041	5,226	7,830	368	1,888	69,481	47,211	57,977	51,304	86,644	4,823	26,604	
Potato	12,172	18,275	36,118	17,126	46,234	16,831	14,144	40,315	209,674	45,732	291,683	66,201	22,139	18,799	13,595	15,922	73,181	19,233	4,242	3,872	66,081	496,808	99,271	479,940	131,998	43,552	36,726		
Misc	1,511	799	6,914	963	8,116	94	1,202	7,926	1,633	14,681	1,823	17,169	196	2,479	162	33	799	36	330	2	30	9,598	2,438	21,865	2,723	23,696	297	3,771	
	20,222		154,283		234,628		30,292	180,503		527,252		666,528		139,220	22,520	89,418		143,602		24,382	242,882		289,250		1,010,432		245,239		
Rice-Saman																													
Wheat	24,878	56,247	239,474	62,837	292,330	6,390	42,476	130,766	119,633	509,338	133,742	601,170	14,109	91,832	35,011	32,035	136,308	34,210	150,032	2,175	13,945	190,635	207,915	965,200	230,789	1,033,552	22,874	146,332	
Potato	7,025	215,722	50,110	233,923	36,643	18,201	8,532	14,543	180,747	41,966	195,254	44,712	14,507	6,726	9,340	136,697	27,108	122,034	29,153	3,337	2,044	30,938	533,146	119,204	551,211	136,508	38,045	17,304	
Oil Seeds	1,970	2,422	16,394	3,118	18,724	296	2,330	23,685	13,707	79,634	15,176	91,199	1,468	11,566	3,453	1,998	11,610	2,126	12,375	128	965	29,112	18,527	107,638	20,419	122,449	1,892	14,861	
	33,873		292,578		350,717		53,218	168,973		620,628		754,081		127,123	57,814	173,109		191,261		1,541	16,653		250,705		1,112,642		1,292,555		
Forestry Crops																													
Citrus	9,942	96,300	347,060	107,452	404,912	1,132	57,801	10,371	40,656	146,430	45,090	169,736	4,434	23,206	1,506	5,985	21,203	6,289	23,506	384	2,223	21,820	142,840	514,692	156,631	598,153	15,971	83,261	
	9,942		347,060		404,912		57,801	10,371		146,430		169,736		23,206	1,506		21,203		23,506										
Total	21,159		837,365		992,305		161,094	339,459		1,308,726		1,672,621		277,345	84,826	263,806		330,274		44,468	44,468								

Table F.3-17 Unit Operation Cost of Diesel and Electronic Tubewell

Description	Unit	1984 price		1996 price	
		# of Unit	Cost (Rs)	# of Unit	Cost (Rs)
Electric					
Operating Assumptions					
Rated Discharge	cusecs (cfs)	1.00	1.00	1.00	1.00
Required Lift	feet	30.00	30.00	30.00	30.00
Pump Efficiency	%	50.00	50.00	60.00	60.00
Energy use	KWh/hour	4.86	4.86	2.10	2.10
Working Time	hours	1,750.00	1,750.00	1,750.00	1,750.00
Annual output	Acres feet	145.83	145.83	145.83	145.83
A. Vainable Cost					
1. Energy Cost	Rs/Kwh	0.58	4,930.44	2.80	23,802.15
a. Energy charge	Rs/Kwh	0.52	4,420.40	0.00	0.00
b. Fuel surcharge	%ofA/B	0.08	394.24	0.00	0.00
2. Repair & maintenance costs	Rs/hour	0.60	1,049.48	0.60	1,049.48
a. Motor	Rs/hour	0.42	734.63	0.42	734.63
b. Pump	Rs/hour	0.22	384.81	0.22	384.81
c. Other	Rs/hour	2.28	3,988.01	2.28	3,988.01
3. Cost of Operator	Rs/hour	15,902.02	15,902.02	15,902.02	15,902.02
Total Variable Cost	Rs	47.98	2,797.97	0.00	0.00
B. Semi-Variable Costs					
1. Flat Energy Charges	Rs/Kwh/Mon	10.00	119.94	10.00	119.94
2. Meter rent	Rs/Month	2,917.21	2,917.21	2,917.21	2,917.21
Total semi-var. costs	Rs	15,660.20	15,660.20	15,660.20	15,660.20
C. Fixed Cost					
1. Components					
a. Well, casing and strainer	Rs	36,981.59	36,981.59	36,981.59	36,981.59
b. Motor	Rs	0.00	0.00	0.00	0.00
c. Pump & accessories	Rs	35,382.38	35,382.38	35,382.38	35,382.38
d. Building	Rs	17,271.40	17,271.40	17,271.40	17,271.40
e. Elec. connection	Rs	99,950.25	99,950.25	99,950.25	99,950.25
f. Other misc. costs	Rs	3,998.01	3,998.01	3,998.01	3,998.01
Total Investment Costs	Rs	193,583.61	193,583.61	193,583.61	193,583.61
2. Annual capital costs	Life (Years)	15.00	15.00	15.00	15.00
a. Depreciation	Sal. value	11,861.56	11,861.56	11,861.56	11,861.56
b. Interest charges	Rate (%)	14,381.16	14,381.16	14,381.16	14,381.16
Annualized costs	Rs	26,242.72	26,242.72	26,242.72	26,242.72
C. Per Unit Costs					
1. Variable costs	Rs per hour	9.09	9.09	9.09	9.09
2. Semi-variable costs	Rs per hour	1.67	1.67	1.67	1.67
3. Annual fixed costs	Rs per hour	15.00	15.00	15.00	15.00
Total Pumping Costs	Rs per hour	25.75	25.75	25.75	25.75
1. Variable costs	Rs per Ac.ft	109.04	109.04	109.04	109.04
2. Semi-variable costs	Rs per Ac.ft	20.01	20.01	20.01	20.01
3. Annual fixed costs	Rs per Ac.ft	179.95	179.95	179.95	179.95
Total Pumping Costs	Rs per Ac.ft	309.01	309.01	309.01	309.01
Diesel					
Operating Assumptions					
Rated Discharge	cusecs (cfs)	1.00	1.00	1.00	1.00
Required Lift	feet	30.00	30.00	30.00	30.00
Pump Efficiency	%	60.00	60.00	60.00	60.00
Fuel used	lit/hour	2.10	2.10	2.10	2.10
Working Time	hours	1,750.00	1,750.00	1,750.00	1,750.00
Annual output	Acres feet	145.83	145.83	145.83	145.83
A. Vainable Cost					
1. Energy Cost	Rs/liter	7.96	29,238.44	5.32	19,541.27
a. Light diesel oil	Rs/liter	23.99	14,692.68	23.99	14,692.68
b. Lubricating oil	Rs	0.00	0.00	0.00	0.00
c. Others	Rs	0.00	0.00	0.00	0.00
2. Repair & maintenance costs	Rs/hour	0.86	1,504.25	0.86	1,504.25
a. Motor	Rs/hour	0.20	349.83	0.20	349.83
b. Pump	Rs/hour	0.22	384.81	0.22	384.81
c. Other	Rs/hour	2.28	3,988.01	2.28	3,988.01
3. Cost of Operation	Rs	50,158.02	50,158.02	50,158.02	50,158.02
Total Variable Cost	Rs	105,227.60	105,227.60	105,227.60	105,227.60
B. Fixed Cost					
1. Components					
a. Well, casing and strainer	Rs	36,981.59	36,981.59	36,981.59	36,981.59
b. Motor	Rs	29,985.07	29,985.07	29,985.07	29,985.07
c. Pump & accessories	Rs	16,991.54	16,991.54	16,991.54	16,991.54
d. Building	Rs	17,271.40	17,271.40	17,271.40	17,271.40
e. Other misc. costs	Rs	3,998.01	3,998.01	3,998.01	3,998.01
Total Investment Costs	Rs	105,227.60	105,227.60	105,227.60	105,227.60
2. Annual capital costs	Life (Years)	15.00	15.00	15.00	15.00
a. Depreciation	Sal. value	6,824.60	6,824.60	6,824.60	6,824.60
b. Interest charges	Rate (%)	7,843.65	7,843.65	7,843.65	7,843.65
Annualized costs	Rs	15,403.35	15,403.35	15,403.35	15,403.35
C. Per Unit Costs					
1. Variable costs	Rs per hour	28.66	28.66	28.66	28.66
2. Annual fixed costs	Rs per hour	8.80	8.80	8.80	8.80
Total Pumping Costs	Rs per hour	37.46	37.46	37.46	37.46
1. Variable costs	Rs per Ac.ft	343.95	343.95	343.95	343.95
2. Annual fixed costs	Rs per Ac.ft	105.63	105.63	105.63	105.63
Total Pumping Costs	Rs per Ac.ft	449.57	449.57	449.57	449.57

Note: Calculation is based on the method of the Pakistan Economic Analysis Network Project, 1989

Note: Calculation is based on the method of the Pakistan Economic Analysis Network Project, 1989

Table F.3-18 Benefit of Saved Pumping Cost

	Authorized Discharge (m ³ /s)	Total Discharge (m ³ /year)	Water Saving after Lining		% of Pump Type		Unit Pumping Cost		Saved Pumping Cost				
			Total Saved Water (%)	FGW Area Saved Water in FGW (%)	Diesel (%)	Electric (%)	Diesel (Rs/m ³)	Electric (Rs/m ³)	Diesel (Rs'000)	Electric (Rs'000)	Total (Rs'000)		
LJC													
Pindi	0.46	13,314,240	7.32	974,602	32.91	320,744	80.1	19.9	0.31	0.35	80	22	102
Hujan	5.16	149,351,040	12.88	19,236,414	19.60	3,770,142	80.1	19.9	0.31	0.35	936	263	1,199
Kirana	10.52	304,490,880	11.43	34,803,308	31.99	11,132,131	80.1	19.9	0.31	0.35	2,764	777	3,541
Sub-total	16.14	467,156,160		55,014,324		15,223,017					3,780	1,062	4,842
LCC													
Sarangwala	1.99	57,598,560	10.35	5,961,451	0.00	0	79.5	20.5	0.31	0.35	0	0	0
Nasrana	7.02	203,186,880	12.64	25,682,822	0.00	0	79.5	20.5	0.31	0.35	0	0	0
Gojra	1.64	47,468,160	10.19	4,837,006	0.00	0	79.5	20.5	0.31	0.35	0	0	0
Mungi	4.05	117,223,200	11.46	13,433,779	5.04	676,562	79.5	20.5	0.31	0.35	167	48	215
Janiwala/Hamza	1.31	37,916,640	10.52	3,988,831	0.00	0	79.5	20.5	0.31	0.35	0	0	0
Pir Mahal	3.88	112,302,720	16.22	18,215,501	34.22	6,232,933	79.5	20.5	0.31	0.35	1,537	447	1,984
Kiliamwala	5.66	163,823,040	9.3	15,235,543	16.59	2,527,279	79.5	20.5	0.31	0.35	623	181	805
Sub-total		739,519,200		87,354,931		9,436,774					2,328	676	3,004
CBDC													
Tharman	7.27	210,422,880	5.93	12,478,077	30.82	3,846,025	40.6	59.4	0.31	0.35	484	800	1,284
China	3.6	104,198,400	8.06	8,398,391	35.07	2,945,330	40.6	59.4	0.31	0.35	371	612	983
Sub-total		314,621,280		20,876,468		6,791,355					855	1,412	2,267
Total		1,521,296,640		163,245,723		31,451,146					6,963	3,151	10,114

Table F.3-19 Staff Expenditure for "With Project" Case

Name of Disty (Unit Number)	Canal Length* (km)	No. of FOs (no)	Number of Staff									(no)
			Chairman	Member	Tech	Canal	Gauge	Regulat'n	Member	Revenue	Account.	
			(1)	(1)	(1)	Patrol 1/8km	Reader (1)	Baildar (2)	Revenue (1)	Superv. (1)	(1)	
LJC												
Pindi	6.86	1	1	1	1	1	1	2	1	1	1	
Hujjan	80.13	1	1	1	1	11	1	2	1	1	1	
Kirana	107.13	1	1	1	1	14	1	2	1	1	1	
sub-total	194.12	3	3	3	3	26	3	6	3	3	3	
LCC												
Sarangwala	25.04	1	1	1	1	4	1	2	1	1	1	
Nasrana	81.42	1	1	1	1	11	1	2	1	1	1	
Gojra	17.77	1	1	1	1	3	1	2	1	1	1	
Mungi	41.29	1	1	1	1	6	1	2	1	1	1	
Janiwala/Hamza	18.58	1	1	1	1	3	1	2	1	1	1	
Pir Mahal	82.13	1	1	1	1	11	1	2	1	1	1	
Killianwala	59.61	1	1	1	1	8	1	2	1	1	1	
sub-total	325.84	7	7	7	7	46	7	14	7	7	7	
CBDC												
Thamman	86.32	1	1	1	1	11	1	2	1	1	1	
China	33.27	1	1	1	1	5	1	2	1	1	1	
sub-total	119.59	2	2	2	2	16	2	4	2	2	2	
Total	639.55	12	12	12	12	88	12	24	12	12	12	

Name of Disty	Annual Payment for FO Staff										Total	
	Chairman	Member	Tech	Canal	Gauge	Regulat'n	Member	Revenue	Account.			
	(52,000)	(52,000)	(27,300)	(16,500)	(19,000)	(16,000)	(52,000)	(27,300)	(36,400)	Financial	Economic	
LJC												
Pindi	52,000	52,000	27,300	16,500	19,000	32,000	52,000	27,300	36,400	314,500	283,050	
Hujjan	52,000	52,000	27,300	181,500	19,000	32,000	52,000	27,300	36,400	479,500	431,550	
Kirana	52,000	52,000	27,300	231,000	19,000	32,000	52,000	27,300	36,400	529,000	476,100	
sub-total	156,000	156,000	81,900	429,000	57,000	96,000	156,000	81,900	109,200	1,323,000	1,190,700	
LCC												
Sarangwala	52,000	52,000	27,300	66,000	19,000	32,000	52,000	27,300	36,400	364,000	327,600	
Nasrana	52,000	52,000	27,300	181,500	19,000	32,000	52,000	27,300	36,400	479,500	431,550	
Gojra	52,000	52,000	27,300	49,500	19,000	32,000	52,000	27,300	36,400	347,500	312,750	
Mungi	52,000	52,000	27,300	99,000	19,000	32,000	52,000	27,300	36,400	397,000	357,300	
Janiwala/Hamza	52,000	52,000	27,300	49,500	19,000	32,000	52,000	27,300	36,400	347,500	312,750	
Pir Mahal	52,000	52,000	27,300	181,500	19,000	32,000	52,000	27,300	36,400	479,500	431,550	
Killianwala	52,000	52,000	27,300	132,000	19,000	32,000	52,000	27,300	36,400	430,000	387,000	
sub-total	364,000	364,000	191,100	759,000	133,000	224,000	364,000	191,100	254,600	2,845,000	2,560,500	
CBDC												
Thamman	52,000	52,000	27,300	181,500	19,000	32,000	52,000	27,300	36,400	479,500	431,550	
China	52,000	52,000	27,300	82,500	19,000	32,000	52,000	27,300	36,400	380,500	342,450	
sub-total	104,000	104,000	54,600	264,000	38,000	64,000	104,000	54,600	72,800	860,000	774,000	
Total	624,000	624,000	327,600	1,452,000	228,000	384,000	624,000	327,600	436,800	5,028,000	4,525,200	

Table F.3-20 Benefit from the Reduction of O&M Cost

Financial										(Rs'000)
Name of Distributaries	Without Project			With Project			Incremental			
	Staff	M&R	Total	Staff	M&R	Total	Staff	M&R	Total	
LCC										
Pindi	143	192	335	315	226	541	172	34	206	
Hujjan Disty	1,666	2,189	3,855	480	2,580	3,059	-1,187	391	-796	
Kirana Disty	2,227	2,702	4,929	529	3,184	3,713	-1,698	482	-1,216	
sub-total	4,036	5,083	9,119	1,323	5,990	7,313	-2,713	907	-1,806	
LJC										
Sarang wala	521	693	1,214	364	816	1,180	-157	123	-34	
Nasrana	1,693	2,122	3,815	480	2,500	2,980	-1,214	378	-835	
Gojra	370	435	805	348	512	860	-23	77	55	
Mungi	858	1,045	1,903	397	1,231	1,628	-461	186	-275	
Janiwala/	387	520	907	348	613	961	-40	93	54	
Pir Mahal	1,708	2,300	4,008	480	2,710	3,190	-1,229	410	-818	
Killian wala	1,239	1,035	2,274	430	1,220	1,650	-809	185	-624	
sub-total	6,776	8,130	14,926	2,845	9,604	12,449	-3,931	1,454	-2,477	
CBDC										
Thaman	1,795	948	2,743	480	1,118	1,597	-1,316	170	-1,146	
Chhinna	691	926	1,617	381	1,092	1,472	-311	166	-145	
sub-total	2,486	1,874	4,360	860	2,209	3,069	-1,626	335	-1,291	
Total	13,298	15,107	28,405	5,028	17,804	22,832	-8,270	2,697	-5,573	

Economic									
Name of Distributaries	Without Project			With Project			Incremental		
	Staff	M&R	Total	Staff	M&R	Total	Staff	M&R	Total
LCC									
Pindi	129	173	302	283	204	487	154	31	185
Hujjan Disty	1,499	1,970	3,470	432	2,322	2,753	-1,068	352	-716
Kirana Disty	2,004	2,432	4,436	476	2,866	3,342	-1,528	434	-1,094
sub-total	3,632	4,575	8,207	1,191	5,391	6,582	-2,442	817	-1,625
LJC									
Sarang wala	469	624	1,093	328	735	1,062	-141	111	-30
Nasrana	1,524	1,910	3,434	432	2,250	2,682	-1,092	341	-752
Gojra	333	392	725	313	461	774	-20	69	49
Mungi	772	941	1,713	357	1,108	1,465	-415	168	-247
Janiwala/	348	468	816	313	552	865	-36	84	48
Pir Mahal	1,537	2,070	3,607	432	2,439	2,871	-1,106	369	-736
Killian wala	1,115	932	2,047	387	1,098	1,485	-728	167	-561
sub-total	6,098	7,335	13,433	2,561	8,644	11,204	-3,538	1,309	-2,229
CBDC									
Thaman	1,616	853	2,469	432	1,006	1,437	-1,184	153	-1,031
Chhinna	622	833	1,455	342	982	1,325	-279	149	-130
sub-total	2,237	1,687	3,924	774	1,988	2,762	-1,463	302	-1,162
Total	11,968	13,596	25,565	4,525	16,023	20,542	-7,443	2,427	-5,016

Table F.4-1 Annual Disbursement Schedule (for all areas)
(Rs'000)

Work Item	Financial Cost (Rs'000)	Const. Conv. Factor	Economic Cost (Rs'000)	Disbursement Schedule						Total
				1999 1st	2000 2nd	2001 3rd	2002 4th	2003 5th	2004 6th	
I Compensation	3,401.9	0.0	0	0	0	0	0	0	0	0
II Direct Construction Cost										
1. Gate and Installation	10,704.0	87.4	9,358	0	780	1,560	3,899	3,119	0	9,358
2. Earthwork	834,889.7	94.1	785,475	0	14,146	157,853	184,821	214,327	214,327	785,475
3. Lining Work	1,019,251.8	87.7	893,609	0	15,959	189,787	203,121	242,371	242,371	893,609
4. Structure	62,820.0	86.9	54,607	0	1,351	12,352	11,798	14,553	14,553	54,607
5. Miscellaneous Items	57,830.0	90.4	52,261	0	967	10,851	12,096	14,222	14,125	52,261
Direct Cost Total	1,985,495.5	90.4	1,794,295	0	33,215	372,556	415,293	488,276	484,955	1,794,295
III Administration and Consulting Cost	284,236.3	93.8	266,558	79,968	39,984	39,984	39,984	39,984	26,656	266,558
IV Institutional Reform Cost	76,118.2	89.6	68,219	3,411	10,233	13,644	20,466	20,466	0	68,219
V Physical Contingency	234,925.2	90.8	213,206	8,084	8,253	42,768	47,751	55,068	51,282	213,206
Base Construction Cost	2,584,177.0	90.8	2,345,269	88,926	90,787	470,450	525,259	605,749	564,097	2,345,269

Table E-4.2 Cost and Benefit Flow

(Rs. 000)

No Year	Without					With					Benefit					Total	B-C
	Capital		O&M		Rep.	Capital		O&M		Rep.	Crop Production		Pumpage cost		Incremental		
	Total	Net	Total	Net	Total	Total	Net	Total	Net	W/O	With	W/O	With				
1	25,565	25,565	88,926	88,926	114,490	88,926	0	88,926	0	2,427,884	2,427,884	0	0	0	0	-88,926	
2	25,565	25,565	90,787	90,787	116,352	90,787	0	90,787	0	2,427,884	2,427,884	-37	0	0	0	-37	
3	25,565	25,565	470,450	470,450	498,922	470,450	-93	470,357	0	2,427,884	2,427,884	8,451	187	187	8,638	461,219	
4	25,565	25,565	525,259	525,259	549,689	525,259	-1,124	524,125	0	2,427,884	2,427,884	107,863	2,267	2,267	2,287	413,674	
5	25,565	25,565	605,749	605,749	629,018	605,749	-2,295	603,454	0	2,427,884	2,427,884	218,651	4,628	4,628	4,628	223,279	
6	25,565	25,565	564,097	564,097	586,002	564,097	-3,660	560,437	0	2,427,884	2,427,884	349,008	7,380	7,380	7,380	356,389	
7	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
8	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
9	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
10	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
11	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
12	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
13	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
14	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
15	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
16	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
17	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
18	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
19	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
20	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
21	25,565	25,565	338,859	338,859	379,408	338,859	0	-5,016	338,859	333,843	2,427,884	2,427,884	479,017	10,114	10,114	489,131	
22	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
23	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
24	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
25	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
26	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
27	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
28	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
29	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
30	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
31	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
32	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
33	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
34	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
35	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
36	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
37	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
38	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
39	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
40	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
41	25,565	25,565	338,859	338,859	379,408	338,859	0	-5,016	338,859	333,843	2,427,884	2,427,884	479,017	10,114	10,114	489,131	
42	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
43	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
44	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
45	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
46	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
47	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
48	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
49	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	
50	25,565	25,565	20,549	20,549	20,549	20,549	0	-5,016	0	2,427,884	2,427,884	479,017	10,114	10,114	10,114	489,131	

Economic Internal Rate of Return = 19.97%

Table F.4.3 Cost and Benefit Flow (Pindi)

No	Year	Without				Cost				Benefit				B - C			
		Capital	OpEx	Total	Rep.	Capital	OpEx	Total	Rep.	W/O	With	Incremental	W/O	With	Incremental	Total	B - C
1	1999	302	302	1,210	0	1,210	25,853	0	0	25,853	25,853	0	0	0	0	-1,210	
2	2000	302	302	3,322	0	3,322	25,853	0	0	25,853	25,849	4	0	0	0	-3,326	
3	2001	302	302	11,252	37	11,289	25,853	26,464	611	26,464	26,464	0	20	20	631	-10,657	
4	2002	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
5	2003	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
6	2004	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
7	2005	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
8	2006	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
9	2007	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
10	2008	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
11	2009	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
12	2010	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
13	2011	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
14	2012	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
15	2013	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
16	2014	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
17	2015	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
18	2016	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
19	2017	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
20	2018	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
21	2019	302	302	0	487	487	185	0	185	25,902	25,902	3129	102	102	3,231	3,046	
22	2020	302	302	0	487	487	185	2,410	2,595	25,853	25,902	3129	102	102	3,231	3,046	
23	2021	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
24	2022	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
25	2023	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
26	2024	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
27	2025	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
28	2026	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
29	2027	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
30	2028	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
31	2029	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
32	2030	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
33	2031	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
34	2032	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
35	2033	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
36	2034	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
37	2035	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
38	2036	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
39	2037	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
40	2038	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
41	2039	302	302	0	487	487	185	2,410	2,595	25,853	25,902	3129	102	102	3,231	3,046	
42	2040	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
43	2041	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
44	2042	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
45	2043	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
46	2044	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
47	2045	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
48	2046	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
49	2047	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	
50	2048	302	302	0	487	487	185	0	185	25,853	25,902	3129	102	102	3,231	3,046	

Economic Internal Rate of Return = 18.5%

Table F.4-4 Cost and Benefit Flow (Huijian)

No	Year	Without			Cost			Incremental			Benefit			Total	B - C	
		Capital	O&M	Rep.	Capital	O&M	Rep.	Total	Capital	O&M	Rep.	W/O	With			Incremental
1	1999	3,470	3,470	0	17,696	0	0	17,696	0	0	0	367,737	367,737	0	0	-17,696
2	2000	3,470	3,470	0	12,602	0	0	12,602	0	0	0	367,737	367,737	0	0	-12,602
3	2001	3,470	3,470	0	65,636	0	0	65,636	0	0	0	367,737	367,691	-46	0	-65,636
4	2002	3,470	3,470	0	68,640	3,290	0	71,930	-179	0	0	367,737	306,166	-61,571	300	-41,271
5	2003	3,470	3,470	0	65,350	3,111	0	68,461	-358	0	0	367,737	404,640	66,903	600	67,503
6	2004	3,470	3,470	0	65,350	2,932	0	68,282	-537	0	0	367,737	423,114	55,377	900	56,277
7	2005	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
8	2006	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
9	2007	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
10	2008	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
11	2009	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
12	2010	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
13	2011	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
14	2012	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
15	2013	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
16	2014	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
17	2015	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
18	2016	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
19	2017	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
20	2018	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
21	2019	3,470	3,470	0	2,753	2,753	44,119	46,873	-716	44,119	43,403	367,737	441,635	73,897	1,199	75,097
22	2020	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
23	2021	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
24	2022	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
25	2023	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
26	2024	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
27	2025	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
28	2026	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
29	2027	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
30	2028	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
31	2029	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
32	2030	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
33	2031	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
34	2032	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
35	2033	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
36	2034	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
37	2035	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
38	2036	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
39	2037	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
40	2038	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
41	2039	3,470	3,470	0	2,753	2,753	44,119	46,873	-716	44,119	43,403	367,737	441,635	73,897	1,199	75,097
42	2040	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
43	2041	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
44	2042	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
45	2043	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
46	2044	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
47	2045	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
48	2046	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
49	2047	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097
50	2048	3,470	3,470	0	2,753	2,753	0	5,506	-716	0	0	367,737	441,635	73,897	1,199	75,097

Economic Internal Rate of Return= 24.1%

Table F.4-5 Cost and Benefit Flow (Kirana)

No.	Year	Without			With			Cost			Benefit			Total	B · C													
		Capitol	O&M	Rep.	Capitol	O&M	Rep.	Total	W/O	With	Incremental	W/O	With			Incremental												
1	1999	4,436	4,436	31,100	4,436	4,436	31,100	31,100	443,751	443,751	0	0	0	0	-31,100													
2	2000	4,436	4,436	15,834	4,436	4,436	15,834	0	443,751	443,751	0	0	0	0	-15,834													
3	2001	4,436	4,436	115,735	4,436	4,436	115,735	0	443,751	443,751	0	0	0	0	-115,735													
4	2002	4,436	4,436	119,613	4,436	4,436	119,613	0	443,751	443,751	0	0	0	0	-119,613													
5	2003	4,436	4,436	115,450	4,436	4,436	115,450	0	443,751	443,751	0	0	0	0	-115,450													
6	2004	4,436	4,436	115,450	4,436	4,436	115,450	0	443,751	443,751	0	0	0	0	-115,450													
7	2005	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
8	2006	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
9	2007	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
10	2008	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
11	2009	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
12	2010	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
13	2011	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
14	2012	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
15	2013	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
16	2014	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
17	2015	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
18	2016	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
19	2017	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
20	2018	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
21	2019	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
22	2020	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
23	2021	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
24	2022	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
25	2023	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
26	2024	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
27	2025	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
28	2026	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
29	2027	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
30	2028	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
31	2029	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
32	2030	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
33	2031	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
34	2032	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
35	2033	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
36	2034	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
37	2035	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
38	2036	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
39	2037	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
40	2038	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
41	2039	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
42	2040	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
43	2041	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
44	2042	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
45	2043	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
46	2044	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
47	2045	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
48	2046	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
49	2047	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
50	2048	4,436	4,436	3,342	4,436	4,436	3,342	0	443,751	443,751	0	0	0	0	-3,342													
														77,958	77,958	77,958	77,958	77,958	77,958	77,958	77,958	77,958	77,958	77,958	77,958	77,958	77,958	16.5%

Table F.4-6 Cost and Benefit Flow (Sarangwala)

No	Year	Cost				Benefit				Total	B - C	
		With		Without		With		Without				
		Cap	Opex	Cap	Opex	Cap	Opex	Cap	Opex			
1	1999	1,093	1,093	6,153	0	6,153	79,015	79,015	0	0	0	-6,153
2	2000	1,093	1,093	19,968	0	19,968	79,015	79,015	0	0	0	-19,978
3	2001	1,093	1,093	36,791	-6	36,785	79,015	79,015	3,094	0	3,094	-33,700
4	2002	1,093	1,093	37,796	-18	37,778	79,015	79,015	9,278	0	9,278	-27,425
5	2003	1,093	1,093	0	0	0	79,015	79,015	15,484	0	15,484	15,515
6	2004	1,093	1,093	0	0	0	79,015	79,015	15,484	0	15,484	15,515
7	2005	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
8	2006	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
9	2007	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
10	2008	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
11	2009	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
12	2010	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
13	2011	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
14	2012	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
15	2013	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
16	2014	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
17	2015	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
18	2016	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
19	2017	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
20	2018	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
21	2019	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
22	2020	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
23	2021	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
24	2022	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
25	2023	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
26	2024	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
27	2025	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
28	2026	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
29	2027	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
30	2028	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
31	2029	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
32	2030	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
33	2031	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
34	2032	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
35	2033	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
36	2034	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
37	2035	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
38	2036	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
39	2037	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
40	2038	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
41	2039	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
42	2040	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
43	2041	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
44	2042	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
45	2043	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
46	2044	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
47	2045	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
48	2046	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
49	2047	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515
50	2048	1,093	1,093	1,062	0	1,062	79,015	79,015	15,484	0	15,484	15,515

Economic Internal Rate of Return: 15.0%

Table F.4-7 Cost and Benefit Flow (Nastrana)

(RS.1000)

No Year	Without				With				Cost				Benefit				Total	B - C			
	Capital	O&M	Rev.	Total	Capital	O&M	Rev.	Total	Capital	O&M	Rev.	Total	W/O	With	Incremental	W/O			With	Incremental	
																					Incremental
1 1999	3,434	3,434	0	6,868	19,996	3,434	23,430	19,996	0	0	0	19,996	410,464	410,464	0	0	0	0	0	-11,496	
2 2000	3,434	3,434	0	6,868	10,281	3,434	13,715	10,281	0	0	0	10,281	410,464	410,464	0	0	0	0	0	0	-10,281
3 2001	3,434	3,434	0	6,868	75,311	3,434	78,744	75,311	0	0	0	75,311	410,464	410,464	0	0	0	0	0	0	-102,751
4 2002	3,434	3,434	0	6,868	75,026	3,246	78,272	75,026	0	0	0	75,026	410,464	410,464	0	0	0	0	0	0	23,912
5 2003	3,434	3,434	0	6,868	75,026	3,058	78,084	75,026	0	0	0	75,026	410,464	410,464	0	0	0	0	0	0	47,925
6 2004	3,434	3,434	0	6,868	75,026	2,870	77,896	75,026	0	0	0	75,026	410,464	410,464	0	0	0	0	0	0	71,939
7 2005	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
8 2006	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
9 2007	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
10 2008	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
11 2009	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
12 2010	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
13 2011	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
14 2012	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
15 2013	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
16 2014	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
17 2015	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
18 2016	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
19 2017	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
20 2018	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
21 2019	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
22 2020	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
23 2021	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
24 2022	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
25 2023	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
26 2024	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
27 2025	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
28 2026	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
29 2027	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
30 2028	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
31 2029	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
32 2030	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
33 2031	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
34 2032	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
35 2033	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
36 2034	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
37 2035	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
38 2036	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
39 2037	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
40 2038	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
41 2039	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
42 2040	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
43 2041	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
44 2042	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
45 2043	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
46 2044	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
47 2045	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
48 2046	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
49 2047	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054
50 2048	3,434	3,434	0	6,868	2,682	2,682	5,370	2,682	0	0	0	2,682	410,464	410,464	0	0	0	0	0	0	96,054

Economic Internal Rate of Return

26.6%

Table F.4-8 Cost and Benefit Flow (Gojra)

No	Year	Without		With		Incremental		Crop Production		Benefit		Total	B - C
		Capital	Op&M	Capital	Op&M	Capital	Op&M	W/O	With	W/O	Incremental		
1	1999	725	725	4,039	4,764	0	0	4,039	99,203	99,203	0	0	-4,039
2	2000	725	725	11,072	11,797	0	0	11,072	99,203	99,198	0	-4	-11,077
3	2001	725	725	37,949	38,674	10	0	37,959	99,203	102,690	0	3,487	34,472
4	2002	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
5	2003	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
6	2004	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
7	2005	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
8	2006	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
9	2007	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
10	2008	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
11	2009	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
12	2010	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
13	2011	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
14	2012	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
15	2013	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
16	2014	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
17	2015	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
18	2016	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
19	2017	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
20	2018	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
21	2019	725	725	0	774	8,130	0	8,130	99,203	116,727	0	17,524	17,475
22	2020	725	725	0	774	8,130	0	8,130	99,203	116,727	0	17,524	17,475
23	2021	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
24	2022	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
25	2023	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
26	2024	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
27	2025	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
28	2026	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
29	2027	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
30	2028	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
31	2029	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
32	2030	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
33	2031	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
34	2032	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
35	2033	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
36	2034	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
37	2035	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
38	2036	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
39	2037	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
40	2038	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
41	2039	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
42	2040	725	725	0	774	8,130	0	8,130	99,203	116,727	0	17,524	17,475
43	2041	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
44	2042	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
45	2043	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
46	2044	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
47	2045	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
48	2046	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
49	2047	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475
50	2048	725	725	0	774	0	0	49	99,203	116,727	0	17,524	17,475

Economic Internal Rate of Return 31.2%

(Rs. '000)

Table F.4-9 Cost and Benefit Flow (Mungi)

No	Year	Without			With			Cost			Benefit			Total	B - C	
		Capex	Opex	Res.	Capex	Opex	Res.	Capex	Opex	Res.	Capex	Opex	Res.			
1	1999	1713	1713	0	1713	1713	0	4,670	0	0	4,670	240,499	240,499	0	0	-4,670
2	2000	1713	1713	0	1713	1713	0	4,809	0	0	4,809	240,499	240,499	0	0	-4,809
3	2001	1713	1713	0	1713	1713	0	57,877	0	0	57,877	240,992	240,992	0	0	-57,877
4	2002	1713	1713	0	1713	1713	0	57,629	0	0	57,629	240,999	240,999	0	0	-57,629
5	2003	1713	1713	0	1713	1713	0	57,629	0	0	57,629	240,999	240,999	0	0	-57,629
6	2004	1713	1713	0	1713	1713	0	0	0	0	0	240,999	240,999	0	0	0
7	2005	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
8	2006	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
9	2007	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
10	2008	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
11	2009	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
12	2010	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
13	2011	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
14	2012	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
15	2013	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
16	2014	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
17	2015	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
18	2016	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
19	2017	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
20	2018	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
21	2019	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
22	2020	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
23	2021	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
24	2022	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
25	2023	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
26	2024	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
27	2025	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
28	2026	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
29	2027	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
30	2028	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
31	2029	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
32	2030	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
33	2031	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
34	2032	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
35	2033	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
36	2034	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
37	2035	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
38	2036	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
39	2037	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
40	2038	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
41	2039	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
42	2040	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
43	2041	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
44	2042	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
45	2043	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
46	2044	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
47	2045	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
48	2046	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
49	2047	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465
50	2048	1713	1713	0	1713	1713	0	1,465	0	0	1,465	240,999	240,999	0	0	-1,465

Economic Internal Rate of Return= 22.9%

Table F.4-10 Cost and Benefit Flow (Janiwala/Hamza)

(Rs. 000)

No	Year	Without				Cost				Benefit				Total	B - C		
		Capital		OpM		With		OpM		Incremental		Ren.				Pumping cost	
		Cap	OpM	Cap	OpM	Cap	OpM	Cap	OpM	Cap	OpM	Ren.	Ren.			W/O	With
1	1999	816	816	3,685	816	4,502	0	0	3,685	83,918	83,918	0	0	0	0	0	-3,685
2	2000	816	816	9,827	816	10,644	9,827	0	9,827	83,918	83,917	0	0	0	0	0	-9,826
3	2001	816	816	33,661	826	34,487	33,661	10	33,671	86,075	86,075	0	0	0	0	0	2,958
4	2002	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
5	2003	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
6	2004	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
7	2005	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
8	2006	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
9	2007	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
10	2008	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
11	2009	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
12	2010	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
13	2011	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
14	2012	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
15	2013	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
16	2014	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
17	2015	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
18	2016	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
19	2017	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
20	2018	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
21	2019	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
22	2020	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
23	2021	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
24	2022	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
25	2023	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
26	2024	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
27	2025	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
28	2026	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
29	2027	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
30	2028	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
31	2029	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
32	2030	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
33	2031	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
34	2032	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
35	2033	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
36	2034	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
37	2035	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
38	2036	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
39	2037	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
40	2038	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
41	2039	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
42	2040	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
43	2041	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
44	2042	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
45	2043	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
46	2044	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
47	2045	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
48	2046	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
49	2047	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
50	2048	816	816	0	865	865	0	48	0	48	83,918	83,918	0	0	0	0	14,802
														Economic Internal Rate of Return=		29.7%	

Table F.4-11 Cost and Benefit Flow (Pir Mahal)

(Rs. 000)

No	Year	Cost				Incremental				Benefit				Total	B - C
		Capital	Op&M	With	Total	Capital	Op&M	Rep	Total	W/O	With	Incremental	Total		
1	1999	3,607	3,607	19,382	22,989	0	0	0	19,382	149,861	149,861	0	0	0	-19,382
2	2000	3,607	3,607	9,976	13,583	9,976	0	0	9,976	149,861	149,861	0	0	0	-9,976
3	2001	3,607	3,607	71,170	74,777	71,170	0	0	71,170	149,861	149,861	-34	-34	-34	-71,203
4	2002	3,607	3,607	70,884	74,507	70,884	-134	0	70,750	149,861	149,861	496	496	496	10,864
5	2003	3,607	3,607	70,884	74,123	70,884	-368	0	70,516	149,861	149,861	992	992	992	21,762
6	2004	3,607	3,607	70,884	73,939	70,884	-552	0	70,331	149,861	149,861	1,488	1,488	1,488	32,660
7	2005	3,607	3,607	70,884	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
8	2006	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
9	2007	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
10	2008	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
11	2009	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
12	2010	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
13	2011	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
14	2012	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
15	2013	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
16	2014	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
17	2015	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
18	2016	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
19	2017	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
20	2018	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
21	2019	3,607	3,607	2,871	2,871	48,154	51,024	48,154	47,417	149,861	191,469	41,607	41,607	41,607	37,873
22	2020	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
23	2021	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
24	2022	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
25	2023	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
26	2024	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
27	2025	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
28	2026	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
29	2027	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
30	2028	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
31	2029	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
32	2030	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
33	2031	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
34	2032	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
35	2033	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
36	2034	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
37	2035	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
38	2036	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
39	2037	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
40	2038	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
41	2039	3,607	3,607	2,871	2,871	48,154	51,024	48,154	47,417	149,861	191,469	41,607	41,607	41,607	37,873
42	2040	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
43	2041	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
44	2042	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
45	2043	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
46	2044	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
47	2045	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
48	2046	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
49	2047	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873
50	2048	3,607	3,607	2,871	2,871	0	-736	0	-736	149,861	191,469	41,607	41,607	41,607	37,873

Economic Internal Rate of Return= 13.2%

Table F.4-12 Cost and Benefit Flow (Killianwala)

No	Year	Cost				Benefit				Total	B - C	
		Without		With		Without		With				
		CapM	Rep	CapM	Rep	CapM	Rep	CapM	Rep			
1	1999	2,047	2,047	12,541	14,588	0	12,541	245,723	245,723	0	0	-12,541
2	2000	2,047	2,047	7,048	9,095	0	7,048	245,723	245,723	0	0	-3
3	2001	2,047	2,047	82,395	84,435	7	82,388	245,723	246,228	505	10	-7,051
4	2002	2,047	2,047	82,321	84,176	192	82,179	245,723	246,697	15,974	275	-81,873
5	2003	2,047	2,047	82,082	83,752	670	81,705	245,723	277,120	31,396	540	-65,840
6	2004	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	-69,769
7	2005	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
8	2006	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
9	2007	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
10	2008	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
11	2009	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
12	2010	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
13	2011	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
14	2012	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
15	2013	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
16	2014	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
17	2015	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
18	2016	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
19	2017	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
20	2018	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
21	2019	2,047	2,047	0	1,485	40,592	42,077	245,723	292,627	46,904	805	48,269
22	2020	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
23	2021	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
24	2022	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
25	2023	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
26	2024	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
27	2025	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
28	2026	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
29	2027	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
30	2028	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
31	2029	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
32	2030	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
33	2031	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
34	2032	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
35	2033	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
36	2034	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
37	2035	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
38	2036	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
39	2037	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
40	2038	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
41	2039	2,047	2,047	0	1,485	40,592	42,077	245,723	292,627	46,904	805	48,269
42	2040	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
43	2041	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
44	2042	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
45	2043	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
46	2044	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
47	2045	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
48	2046	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
49	2047	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269
50	2048	2,047	2,047	0	1,485	0	561	245,723	292,627	46,904	805	48,269

Economic Internal Rate of Return= 17.3%

Table F.4-13 Cost and Benefit Flow (Thamman)

(Rs. 000)

No Year	Without				With				Benefit				Total	B - C		
	Capital	O&M	Rep.	Total	Capital	O&M	Rep.	Total	W/O	With	Incremental	W/O			With	Incremental
1 1999	2,469	2,469	0	9,537	6,888	0	0	6,888	161,021	161,021	0	0	0	0		
2 2000	2,469	2,469	0	9,027	6,559	0	0	6,559	161,021	161,017	-4	0	0	-4		
3 2001	2,469	2,469	15	70,931	68,477	-15	0	68,462	161,021	161,113	92	19	19	8,457		
4 2002	2,469	2,469	523	70,423	68,478	-523	0	67,955	161,021	168,427	7,406	651	651	16,943		
5 2003	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
6 2004	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
7 2005	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
8 2006	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
9 2007	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
10 2008	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
11 2009	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
12 2010	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
13 2011	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
14 2012	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
15 2013	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
16 2014	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
17 2015	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
18 2016	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
19 2017	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
20 2018	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
21 2019	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
22 2020	2,469	2,469	23,002	24,439	0	-1,031	23,002	21,971	161,021	176,680	15,659	1,284	1,284	16,943		
23 2021	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
24 2022	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
25 2023	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
26 2024	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
27 2025	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
28 2026	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
29 2027	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
30 2028	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
31 2029	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
32 2030	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
33 2031	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
34 2032	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
35 2033	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
36 2034	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
37 2035	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
38 2036	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
39 2037	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
40 2038	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
41 2039	2,469	2,469	23,002	24,439	0	-1,031	23,002	21,971	161,021	176,680	15,659	1,284	1,284	16,943		
42 2040	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
43 2041	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
44 2042	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
45 2043	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
46 2044	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
47 2045	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
48 2046	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
49 2047	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		
50 2048	2,469	2,469	0	1,437	0	-1,031	0	-1,031	161,021	176,680	15,659	1,284	1,284	16,943		

Economic Internal Rate of Return = 11.3%

Table F.4-14 Cost and Benefit Flow (China)

(R=1000)

No	Year	Without				Cost				Benefit				Total	B - C
		Cap	OpM	Ren	Total	Cap	OpM	Ren	Total	Cap	OpM	Ren	Total		
1	1999	1,455	1,455	0	1,455	5,674	0	5,674	0	0	0	0	0	0	-5,674
2	2000	1,455	1,455	0	1,455	5,744	0	5,744	0	0	0	0	0	0	-5,744
3	2001	1,455	1,455	0	1,455	56,732	2	56,734	0	0	0	0	0	0	-56,730
4	2002	1,455	1,455	0	1,455	56,679	46	56,613	0	0	0	0	0	0	-56,613
5	2003	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
6	2004	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
7	2005	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
8	2006	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
9	2007	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
10	2008	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
11	2009	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
12	2010	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
13	2011	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
14	2012	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
15	2013	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
16	2014	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
17	2015	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
18	2016	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
19	2017	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
20	2018	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
21	2019	1,455	1,455	0	1,455	0	-130	19,114	18,984	0	0	0	0	0	130
22	2020	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
23	2021	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
24	2022	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
25	2023	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
26	2024	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
27	2025	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
28	2026	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
29	2027	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
30	2028	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
31	2029	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
32	2030	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
33	2031	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
34	2032	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
35	2033	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
36	2034	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
37	2035	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
38	2036	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
39	2037	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
40	2038	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
41	2039	1,455	1,455	0	1,455	0	-130	19,114	18,984	0	0	0	0	0	130
42	2040	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
43	2041	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
44	2042	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
45	2043	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
46	2044	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
47	2045	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
48	2046	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
49	2047	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130
50	2048	1,455	1,455	0	1,455	0	-130	0	-130	0	0	0	0	0	130

Economic Internal Rate of Return= 22.6%

Table F.5-1 Farm Budget by Farm Size

Item	Marginal (1.56)		Small (3.49)		Medium (6.36)		Large (16.45)	
	without	with	without	with	without	with	without	with
Lower Jhelum (Rs.)								
A. Gross farm income from crop production	35,080	37,410	78,340	83,550	142,870	152,370	369,550	393,910
B. Crop production cost	10,140	10,240	22,630	22,860	41,280	41,690	106,710	107,770
C. Net farm income from crop production (A-B)	24,940	27,170	55,710	60,690	101,590	110,680	262,840	286,140
D. Other Income	33,070	33,070	34,630	34,630	44,930	44,930	58,960	58,960
E. Living expense	47,640	47,640	61,880	61,880	80,630	80,630	112,600	112,600
F. Net reserve (C+D-E)	10,370	12,600	28,460	33,440	65,890	74,980	209,000	232,500
Lower Chenab (Rs.)								
Item	Marginal (1.52)		Small (3.70)		Medium (6.82)		Large (13.99)	
	without	with	without	with	without	with	without	with
A. Gross farm income from crop production	38,670	40,290	94,360	98,320	173,660	180,940	356,390	371,340
B. Crop production cost	10,280	10,360	25,090	25,270	46,180	46,520	94,770	95,460
C. Net farm income from crop production (A-B)	28,390	29,930	69,270	73,050	127,480	134,420	261,620	275,880
D. Other Income	37,630	37,630	43,060	43,060	56,380	56,380	58,730	58,730
E. Living expense	47,640	47,640	61,880	61,880	80,630	80,630	112,600	112,600
F. Net reserve (C+D-E)	18,380	19,920	50,450	54,230	103,230	110,170	207,750	222,010
Central Bari Doab (Rs.)								
Item	Marginal (1.48)		Small (3.47)		Medium (6.36)		Large (16.01)	
	without	with	without	with	without	with	without	with
A. Gross farm income from crop production	35,190	36,070	82,720	84,790	151,560	155,360	381,310	390,870
B. Crop production cost	10,400	10,470	24,450	24,610	44,790	45,090	112,690	113,450
C. Net farm income from crop production (A-B)	24,790	25,600	58,270	60,180	106,770	110,270	268,620	277,420
D. Other Income	32,860	32,860	36,230	36,230	47,230	47,230	60,300	60,300
E. Living expense	47,640	47,640	61,880	61,880	80,630	80,630	112,600	112,600
F. Net reserve (C+D-E)	10,010	10,820	32,620	34,530	73,370	76,870	216,320	225,120

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