

2. Project Cost

2.1 Condition of Cost Estimation

The Project cost is estimated under the following conditions.

(1) Equipment Cost

The construction works will be executed on the contract basis. The construction machinery and equipment required for construction will be provided by the contractor. Accordingly, only depreciation costs of machinery and equipment are included to the equipment cost.

(2) Basic Unit Price

The basic rate of labor, material and construction equipment is estimated in the prevailing rate in the Dominican Republic. Detailed basic rate is shown in Tables M.2.1 through M.2.4.

(3) Construction Cost

The construction cost is divided into the foreign and local currency portion. The local currency portion is estimated on the basis of the current price in the Dominican Republic as of December, 1985 and the foreign currency portion is estimated on the CIF price at Santo Domingo. Construction cost is estimated based on unit cost for individual working items.

(4) Indirect Cost

Indirect cost is consisted of O&M equipment, engineering and administration cost. O&M equipment cost is provided for procurement of necessary equipment for maintenance of irrigation and drainage facilities.

Engineering and administration costs are necessary expenditures for detailed design, preparation of tender documents, tendering, tender evaluation and construction supervision.

(5) Physical Contingency

The physical contingency related to the construction and indirect cost is set at 15% of the cost.

(6) Price Contingency

The price escalation is assumed as 3% for foreign currency portion and 13% for local currency portion.

2.2 Project Cost

2.2.1 Project Cost

The estimated project cost is shown in Table M.2.4. and breakdown of Alternative B-I in Table M.2.5.

2.2.2 Annual Disbursement Schedule

The annual disbursement schedule is estimated on the basis of the project implementation schedule, and the summary is shown in Table M.2.6.

TABLE M.2.1 LABOR RATES

Unit: RD\$

<u>Description</u>	<u>Rate/Day</u>
Labor	13.69
Skilled-labor	15.44
Foreman	27.50
Carpenter	15.29
Sr Carpenter	24.86
Head Carpenter	29.95
Sr Mason	33.80
Head Mason	39.62
Steelman	27.56
Head Steelman	41.18
Welder	28.70
Driver (Light equipment)	18.95
Driver (Heavy equipment)	20.49
Driver (General)	20.49
Mechanic	18.95
Master Mechanic	28.70
Electrician	29.64
Driller	29.02
Blaster	27.35
Plumber	21.53
Watchman	13.69
Surveyor	37.92
Operator (Mixing plant)	23.40
Assistant Operator	17.55

TABLE M.2.2 UNIT PRICE OF CONSTRUCTION MATERIAL

Unit: RD\$

Description	Unit	Total
Cement	ton	169.78
Gravel	m ³	15.45
Sand	m ³	31.45
Reinforcing Bar	ton	1 1820.00
Gasoline	G1	3.93
Diesel	G1	3.45
Lubrication Oil	G1	22.00
Concrete Pipe		
36"	m	171.20
30"	m	127.63
18"	m	35.57
15"	m	25.87

2.3 Operation and Maintenance Cost

The operation and maintenance cost annually required for the Project is composed of the salaries of O&M organization staff and the cost of operation and maintenance of O&M equipment and facilities. The estimated operation and maintenance cost is as follows.

Operation & Maintenance Cost per Year

(Unit: RD\$)

<u>Alternatives</u>	<u>O&M Cost/Year</u>	<u>per Ha/Year</u>
A-I	1,979,000	238.00
A-II	2,742,000	330.36
B-I	1,261,000	180.14
B-II	2,040,000	291.43

2.4 Replacement Period

Some of the facilities have shorter useful life than the project life and require replacement within the project life. The following table shows the useful life of the facilities.

Item	Useful Life	Cost (RD\$1,000)			
		A-I	A-II	B-I	B-II
Gate (small scale)	30 years	1,421	1,421	1,253	1,253
Pump and Motor	20 years	5,099	7,984	2,005	4,810
O&M Equipment	8 years	3,479	3,479	3,479	3,479

TABLE M.2.3 PROJECT COST

(Unit: RD\$1,000)

	F/C	L/C	Total
1. Construction Cost			
1.1 Preparatory Work	775	235	1,010
1.2 Headworks	10,127	3,130	13,257
1.3 Pumping Station	-	-	-
1.4 Sub-pumping Station	-	-	-
1.5 Irrigation Canal	7,020	9,377	16,397
1.5.1 Driving Canal	(316)	(424)	(740)
1.5.2 Main Irrigation Canal	(4,388)	(7,338)	(11,726)
1.5.3 Secondary Irrigation Canal	(780)	(1,030)	(1,810)
1.5.4 Related Structures	(1,536)	(585)	(2,121)
1.6 Drainage Canal	10,993	6,940	17,933
1.6.1 Main Drainage Canal	(9,481)	(5,361)	(14,842)
1.6.2 Secondary Drainage Canal	(865)	(688)	(1,533)
1.6.3 Lateral Drainage Canal	(387)	(628)	(1,015)
1.6.4 Outlet of Drainage Canal	(260)	(263)	(523)
1.7 Tide Gate	-	-	-
1.8 Training Dike	4,345	3,653	7,998
1.9 Outlet Gate	805	292	1,097
1.10 Road Work	2,495	2,802	5,297
1.10.1 Truck Road	(47)	(36)	(83)
1.10.2 Main In-farm Road	(800)	(648)	(1,448)
1.10.3 Lateral In-farm Road	(90)	(42)	(132)
1.10.4 Bridge	(1,498)	(1,920)	(3,418)
1.10.5 Crossing Structure	(60)	(156)	(216)
2. Total (1.1 - 1.10)	36,560	26,429	62,989
3. Indirect Cost	15,374	1,934	17,308
3.1 O&M Equipment	(3,459)	(20)	(3,479)
3.2 Engineering & Administration Cost	(11,915)	(1,914)	(13,829)
4. Total (2. - 3.)	51,934	28,363	80,297
5. Physical Contingency	7,777	4,246	12,023
6. Total (4. - 5.)	59,711	32,609	92,320
7. Price Escalation	9,509	31,931	41,340
8. Ground Total (6. - 7.)	69,220	64,440	133,660

TABLE M.2.4 CONSTRUCTION COST OF ALTERNATIVE B-1

1 Preparatory Works

(RD\$)

Description	Unit	Q'ty	Unit Rate			Amount			Remarks
			F/C	L/C	Total	F/C	L/C	Total	
Preparatory Work	L.S.					775,000	235,000	1,010,000	
Total						775,000	235,000	1,010,000	

2 Headwork

(RD\$)

Description	Unit	Q'ty	Unit Rate			Amount			Remarks
			F/C	L/C	Total	F/C	L/C	Total	
Temporary Works	L.S.								
Clearing	ha	1.50	1,941.00	915.00	2,856.00	548,000	137,000	685,000	10%
Coffering & Dewatering	L.S.								
Excavation	m ³	71,700	3.49	2.79	6.28	1,506,290	280,103	1,786,393	
Backfilling	"	10,900	2.63	5.43	8.06	250,233	200,043	450,276	
Concrete Work	"	9,050	207.74	180.03	387.77	28,667	59,187	87,854	
PC-Pile (\varnothing 350x350)	m	570	24.70	136.12	160.82	1,880,039	1,629,252	3,509,291	
Cut-off Wall	m	1,975	49.87	3.31	53.18	14,079	77,588	91,667	
Wet Masonry	m ²	9,600	9.02	29.14	38.16	98,493	6,537	105,030	
Foot Protection Mechanical & Electrical Work	m ²	2,310	58.80	75.87	134.67	86,592	279,744	366,336	
Operation House	L.S.								
Operation Office	Unit	4	8,800.00	8,800.00	17,600.00	4,894,000	56,000	4,950,000	
Miscellaneous (10%)	Unit	1							
Total						10,127,000	3,130,000	13,257,000	

3 Irrigation Canal

(RDS)

Description	Unit	Q'ty	Unit Rate			Amount			Remarks
			F/C	L/C	Total	F/C	L/C	Total	
(1) Driving Canal	L.S.								
Temporary Works	ha	3	1,941.00	915.00	2,856.00	5,800	7,900	13,700	2%
Clearing	ha					5,823	2,745	8,568	
Excavation	m ³	39,000	5.57	4.59	10.16	217,230	179,010	396,240	
Lining Concrete	"	1,100	65.58	194.96	260.54	72,138	214,456	286,594	
Miscellaneous (5 %)						15,009	19,889	34,898	
Sub Total						316,000	424,000	740,000	
(2) Main Irrigation Canal	L.S.								
Temporary Works	ha	55	1,941.00	915.00	2,856.00	82,000	137,000	219,000	2%
Clearing	ha					106,755	50,325	157,080	
Excavation	m ³	178,300	5.57	4.59	10.16	993,131	818,397	1,811,528	
Embankment	"	217,500	6.87	5.85	12.72	1,494,225	1,272,375	2,766,600	
Lining Concrete	"	20,400	65.58	194.96	260.54	1,337,832	3,977,184	5,315,016	
Wet Masonry	m ³	43,400	3.81	16.91	20.72	165,354	733,894	899,248	
Miscellaneous (5 %)						208,703	348,825	557,528	
Sub Total						4,388,000	7,338,000	11,726,000	

Description	Unit	Q'ty	Unit Rate			Amount			Remarks
			F/C	L/C	Total	F/C	L/C	Total	
(3) Secondary Irrigation Canal	L.S.								
Temporary Works	ha	100	1,941.00	915.00	2,856.00	7,000	10,000	17,000	1%
Clearing	m ³	401,800	1.35	2.19	3.54	194,100	91,500	285,600	
Excavation						542,430	879,942	1,422,372	
Miscellaneous (5 %)						36,470	48,558	85,028	
Sub Total						780,000	1,030,000	1,810,000	
(4) Related Structure of Irrigation Canal	L.S.								
Temporary Works	m ³	4,810	1.36	1.91	3.27	69,000	26,000	95,000	5%
Excavation	"	3,922	1.01	1.13	2.14	6,541	9,187	15,728	
Backfilling	"	1,520	79.42	295.70	375.12	3,961	4,431	8,392	
Concrete Work	L.S.					120,717	449,466	570,183	
Slide Gate	Unit	3	6,485.	179.	6,664.	1,240,982	33,054	1,274,036	
Circular Gate 600mm	m ²	9,600	9.02	29.14	38.16	19,455	537	19,992	
Wet Masonry						86,592	279,744	366,336	
Precast									
Concrete Pipe (18")	m	740	4.20	46.78	50.98	3,108	34,617	37,725	
Miscellaneous (5 %)						72,236	27,708	99,944	
Sub Total						1,536,000	585,000	2,121,000	
Total						7,020,000	9,377,000	16,397,000	

4 Drainage Canal

(RDS)

Description	Unit	Qty	Unit Rate			Amount			Remarks
			F/C	L/C	Total	F/C	L/C	Total	
(1) Main Drainage Canal									
Temporary Works	L.S.								
Dredging	m ³	2412500	2.49	1.57	4.06	430,000	243,000	673,000	5 %
Excavation	m ³	882,000	2.94	1.22	4.16	6,007,125	3,787,625	9,794,750	
Miscellaneous (5 %)						2,593,080	1,076,040	3,669,120	
Sub Total						450,795	254,335	705,130	
						9,481,000	5,361,000	14,842,000	
(2) Secondary Drainage Canal									
Temporary Works	L.S.								
Excavation	m ³	194,000	2.94	1.22	4.16	16,000	13,000	29,700	2 %
Excavation	m ³	194,000	1.35	2.19	3.54	570,360	236,680	807,040	
Miscellaneous (2 %)						261,900	424,860	686,760	
Sub Total						16,740	13,460	30,200	
						865,000	688,000	1,553,000	
(3) Lateral Drainage Canal									
Temporary Works	L.S.								
Excavation	m ³	276,000	1.35	2.19	3.54	7,000	12,000	19,700	2 %
Miscellaneous (2 %)						372,000	604,440	977,040	
Sub Total						7,400	11,560	18,960	
						387,000	628,000	1,015,000	

(RD\$)

Description	Unit	Q'ty	Unit Rate			Amount			Remarks
			F/C	L/C	Total	F/C	L/C	Total	
(4) Outlet of Drainage Canal	L.S.								
Temporary Works	m ³	747	79.44	297.72	377.16	4,800	4,900	9,700	2 %
Concrete Work	Unit	19	9,568.93	228.46	9,797.39	59,340	222,400	281,740	
Circular Gate 800mm Precast	Unit					181,809	4,340	186,149	
Concrete Pipe(36")	m	88	20.20	215.69	235.89	1,777	18,980	20,757	
Miscellaneous (5 %)						12,274	12,380	24,654	
Sub Total						260,000	263,000	523,000	
Total						10,993,000	6,940,000	17,933,000	

5 Trainig Dike

(RD\$)

Description	Unit	Q'ty	Unit Rate			Amount			Remarks
			F/C	L/C	Total	F/C	L/C	Total	
Temporary Works	L.S.								
Concrete Work	m ³	300	79.64	318.96	398.60	358,800	300,000	658,000	10 %
Dredging	m ³	23,750	2.49	1.57	4.06	23,891	95,687	119,578	
Armour Concrete Unit	L.S					59,137	37,287	96,424	
Miscellaneous (10%)						3,509,912	2,888,560	6,398,472	
Total						394,060	331,466	725,526	
						4,345,000	3,653,000	7,998,000	

6 Outlet Gate

(R0\$)

Description	Unit	Q'ty	Unit Rate			Amount			Remarks
			F/C	L/C	Total	F/C	L/C	Total	
Temporary Works	L.S.								
Concrete Work	m ³	334	79.70	325.64	405.34	3,000	12,000	15,000	
PC-Pile (φ 350x350)	m	128	24.70	136.12	160.82	26,619	108,764	135,383	
Cabion Works	m ³	112	74.13	22.05	96.18	3,161	17,423	20,584	
Gate	L.S.					8,302	2,469	10,771	
Distribution Line	L.S.					755,000	133,000	888,000	
Miscellaneous (10%)						5,000	5,000	10,000	
Total						3,918	13,344	17,262	
						805,000	292,000	1,097,000	10%

7 Road Work

(RD\$)

Description	Unit	Q'ty	Unit Rate			Amount			Remarks
			F/C	L/C	Total	F/C	L/C	Total	
(1) Main Road	L.S.								
Temporary Works	ha	0.42	3,535.00	1,668.00	5,203.00	2,000	1,600	3,600	5 %
Stripping	ha								
Embankment	m ³	6,020	5.40	3.91	9.31	32,508	23,538	56,046	
Gravel Surfacing	m ³	700	13.26	12.32	25.58	9,282	8,624	17,906	t=0.2
Miscellaneous (5 %)						1,726	1,538	3,264	
Sub Total						47,000	36,000	83,000	
(2) Main Farm Road	L.S.								
Temporary Works	ha	18	3,535.00	1,668.00	5,203.00	36,000	29,000	65,000	5 %
Stripping	ha								
Embankment	m ³	51,520	5.40	3.91	9.31	63,630	30,024	93,654	
Gravel Surfacing	m ³	29,000	13.26	12.32	25.58	278,208	201,443	479,651	
Miscellaneous (5 %)						384,540	357,280	741,820	t=0.2
Sub Total						37,622	30,253	67,875	
						800,000	648,000	1,448,000	
(3) Lateral Farm Road	L.S.								
Temporary Works	ha	24	3,535.00	1,668.00	5,203.00	1,600	800	2,400	2 %
Stripping	ha								
Miscellaneous (5 %)						84,840	40,032	124,872	
Sub Total						3,560	1,168	4,728	
						90,000	42,000	132,000	

Description	Unit	Q'ty	Unit Rate			Amount			Remarks
			F/C	L/C	Total	F/C	L/C	Total	
(4) Bridge	L.S.								
Temporary Works	m	560	454.80	1,157.84	1,612.64	60,000	80,000	140,000	5 %
Coffering	day	480	106.77	83.36	190.13	254,688	648,390	903,078	
Dewatering	m ³	480	74.13	22.05	96.18	35,582	10,584	46,166	
Bridge Floor	m	163.5	4,000.00	4,000.00	8,000.00	654,000	654,000	1,308,000	
Abutment	Unit	16	25,000.00	25,000.00	50,000.00	400,000	400,000	800,000	
Miscellaneous(5%)						42,481	87,014	129,495	
Sub Total						1,498,000	1,920,000	3,418,000	
(5) Crossing	L.S.								
Structure									
Temporary Works	m ³	1,327	1.36	1.91	3.27	2,700	7,000	9,700	5 %
Excavation	m ³	180	1.01	1.13	2.14	1,804	2,534	4,338	
Backfilling	m ³	654	78.33	179.41	257.74	181	203	384	
Concrete(Type-A)	m					51,227	117,334	168,561	
Precast									
Concrete Pipe(30")	m	112	15.06	159.85	174.91	1,686	17,903	19,589	
Precast									
Concrete Pipe(15")	m	112	3.06	34.34	37.49	342	3,856	4,198	
Miscellaneous (5 %)						2,060	7,170	9,230	
Sub Total						60,000	156,000	216,000	
Total						2,495,000	2,802,000	5,297,000	

ANNEX N PROJECT EVALUATION

ANNEX N: PROJECT EVALUATION

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ANNEX N: PROJECT EVALUATION

1. Economic Evaluation

1.1 Annual Benefit

The expected benefit with the project is increased by production of rice crop. Increased production value in each alternative is estimated as follows:

In case of the medium term:

	<u>Alternative A</u>	<u>Alternative B</u>
Without project :	RD\$ 7,182,000	RD\$ 6,405,000
With project :	35,868,000	32,592,000
Increased benefit :	28,686,000	26,187,000

In case of the long term:

Without project :	RD\$ 7,182,000	RD\$ 6,405,000
With project :	53,474,000	49,358,000
Increased benefit :	46,292,000	42,953,000

Details are shown in Table N.1.1.

The increased production value has been calculated assuming the following conditions.

- The price of rice at the farmgate is sustained by the INESPRES in order to object of guarantee the farmer's income and stabilization of rice price by the price policy of the government. However, the price regarded as CIF, Santo Domingo by means of added freight and insurance to international trade price in the U.S. should be considered for the economic evaluation.

Financial price: RD\$707.7/ton (Sustaining price in 1985)
Economic price: RD\$840.0/ton (CIF, Santo Domingo in 1985)

	<u>Unit</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Sustaining Price (farmgate)	RD\$	300.2	462.7	707.7
Mill Factory Price	RD\$	555.5	831.0	1,311.0
INESPRE (selling price)	RD\$	594.6	882.0	1,355.4
International Price in the U.S. (milled rice, whole sale price)	US\$	381.5	382.6	384.2
Parity Price	RD\$	598.9	1,056.0	1,198.7
Whole Sale Price in DR	RD\$	625.0	908.8	-
Retail Price	RD\$	666.6	999.9	1,466.5

Source: Oficina de Planificacion e Informativa, INESPRES
Agricultural Outlook, March 1985, U.S.D.A.

- The foreign exchange is managed under the floating exchange market act issued on January 23, 1985. The quotation of foreign exchange in the latest 3 years is as follows:

<u>Year</u>	<u>Buying Rate</u>	<u>Selling Rate</u>
1983 (Average)	1.557	1.571
1984 (Average)	2.762 (+1.205)	2.785 (+1.215)
1985 (November)	3.000 (+0.237)	3.010 (+0.224)
1985 (Average)*	3.106 (+0.344)	3.124 (+0.338)

Note: * Average of January - November, 1985
Value in parenthesis is the mean of escalation.

The exchange rate used for this study is US\$1.00 = RD\$3.12.

- In order to decide the price of agricultural input and cost for the project, the following items are taken into consideration.
- The domestic market price is applied for the economic price of the agricultural inputs. However, the inputs of low price are sold to the settlers in the IAD's settlement area, in accordance with the policy of the government.

- According to the census in 1981, the family structure in rural area surrounding the project area is composed of 4.9 persons per family and 2.0 persons engaged in farming practices. The wage for farming is low level caused by over labor force in and around the project area, and it seems that these situation will probably no dissolve in future after completion of the project. Hence, the minimum wage of RD\$8.00 per day is applied for the labor wage.
- Preparation cost with the project is estimated on the basis of the farm management plan shown in Annex J. In case of without project, preparation cost is applied at RD\$400 per ha as official price of the IAD.
- Interest for farming credit and water charge are not included in the production cost for calculation of the internal rate of return.
- Water charge is included in O & M cost.
- Annual production cost after completion of the project is equal to the cost corresponding to the target yield.

1.2 Costs

1.2.1 Project Cost

Project cost excluding price contingency will be paid corresponding to the process of works as described in Annex M. Annual outlay of each alternative is estimated as follows:

	(Unit: RD\$1,000)			
<u>Year</u>	<u>A-I</u>	<u>A-II</u>	<u>B-I</u>	<u>B-II</u>
1987	2,645	2,645	2,645	2,645
1988	5,073	5,043	5,005	4,977
1989	14,930	18,905	10,407	13,799
1990	37,607	28,105	28,308	20,391
1991	45,419	44,983	33,553	33,420
1992	23,366	23,370	12,402	12,403
Total	129,040	123,051	92,320	87,640

1.2.2 Replacement Cost

Replacement cost of each replacement period of O & M facilities and equipment will be required as follows:

Unit: RD\$1,000

Equipment	Life (Year)	Alternative			
		A-I	A-II	B-I	B-II
O&M Equipment	8	3,479	3,479	3,479	3,479
Pump (small scale)	20	2,004	2,004	-	-
Pump (main)	20	-	4,548	-	4,548
Gate (small scale)	30	1,421	1,421	1,253	1,253
Motor for Large Scale Gate	20	3,095	1,343	2,005	253

The total amount of replacement cost in the project life of each alternative is estimated as follows:

	Unit: RD\$1,000			
	<u>A-I</u>	<u>A-II</u>	<u>B-I</u>	<u>B-II</u>
Total	30,724	36,494	22,658	29,969
Annual Base	614.5	729.0	453.2	599.4

Detailed replacement schedule is shown in Tables N.1.6 (1) to (4).

1.2.3 Production Cost

Production cost of the project is estimated as follows:

In case of the medium term:

	<u>Alternative A</u>	<u>Alternative B</u>
Without project :	RD\$ 4,436,000	RD\$ 3,956,000
With project :	20,271,000	17,825,000
Increased cost :	15,835,000	13,869,000

In case of the long term:

	<u>Alternative A</u>	<u>Alternative B</u>
Without project :	RD\$ 4,436,000	RD\$ 3,956,000
With project :	26,996,000	24,170,000
Increased cost :	22,560,000	20,214,000

Details are shown in Tables N.1.2 to 4.

1.2.4 O&M Cost

Annual O&M cost for the project are shown in Annex M.

1.3 Economic Internal Rate of Return

Based on the benefit and cost as mentioned above, economic rate of return is calculated under the assumption that project life is 50 years. Summary is listed below and details are shown in Tables N.1.6 (1) to (4).

<u>Alternative</u>	<u>EIRR</u>
A-I	10.7%
A-II	10.5%
B-I	13.5%
B-II	13.3%

1.4 Relation between Benefit and Cost

Relation between benefit and cost with a 10% discount rate is calculated as follows:

<u>Alternative</u>	<u>B/C</u>
A-I	1.03
A-II	1.02
B-I	1.18
B-II	1.16

Details are shown in Table N.1.5.

1.5 Sensitivity Analysis

Sensitivity analysis have been made considering the parameters employed such as increase in construction cost, reduction in production, and combinations of these parameters.

	<u>A-I</u>	<u>B-I</u>
Case (1) A 10% increase in construction cost	9.9%	12.6%
Case (2) A 10% reduction in production	8.7%	11.3%
Case (3) A combination of (A) and (B)	8.0%	10.5%
	(1)	(2)

Detailed analysis is shown in Tables N.1.7 (1) to (6).

2. Financial Analysis

Financial analysis has been made on the Alternatives A-I and B-I to which the high priority among the Alternatives A and B is given in the economic evaluation.

Assuming that a foreign currency portion of the project cost will be financed from an international monetary institution and the remain is assumed to be covered by the responsibility of the government.

Assumption for financial analysis is as follows:

(1) Financing

Unit: RS\$1,000

<u>Alternative A-I</u>			
<u>Year</u>	<u>Amount</u>	<u>F/C</u>	<u>L/C</u>
1 1987	2,890	2,391	499
2 1988	5,816	4,694	1,122
3 1989	19,419	10,983	8,436
4 1990	45,863	20,842	25,021
5 1991	69,633	33,517	36,116
6 1992	37,973	18,625	19,348
TOTAL	188,594	98,052	90,542
		(52%)	(48%)

Unit: RS\$1,000

Alternative B-I

<u>Year</u>	<u>Amount</u>	<u>F/C</u>	<u>L/C</u>
1 1987	2,890	2,391	499
2 1988	5,718	4,694	1,024
3 1989	13,410	7,937	5,473
4 1990	39,211	20,594	18,617
5 1991	51,931	24,103	27,828
6 1992	20,500	9,501	10,999
TOTAL	133,660	69,220 (51.8%)	64,440 (48.2%)

(2) Interest Rate and Term of Repayment

Interest Rate	:	5% per annum
Grace Period	:	7 years
Loan Period	:	25 years
Amortization	:	2 times repayment annually with constant amount uniformity of the principal

Detailed analysis is shown in Table N.2.7.

Balance of agricultural household economy and revenue and expenditure of model settler are presented in Tables N.2.1 to 6. In addition, comparison between annual amortization and allotment (tentative) of the Alternatives A-I and B-I is shown in Table N.2.8.

TABLE N.1.1 TOTAL AMOUNT OF INCREMENTAL PRODUCTION

Item	Without Project	With Project	
		Medium Term	Long Term
Harvested Area (Ha)			
Alternative (A)	3,420	12,400	15,500
Alternative (B)	3,050	11,000	14,000
Yield (t/ha)			
Alternative (A)	2.5	3.4	4.1
Alternative (B)		3.5	4.2
Production (t)			
Alternative (A)	8,550	42,700	63,660
Alternative (B)	7,625	38,800	58,760
Incremental Production (t)			
Alternative (A)	-	34,150	55,110
Alternative (B)		31,175	51,135
Incremental Value of Production (RD\$707.70/t)			
Alternative (A)	-	24,167,955	39,001,347
Alternative (B)		22,062,547	36,188,240
Incremental Value of Production (RD\$840/t)			
Alternative (A)	-	28,686,000	46,292,000
Alternative (B)		26,187,000	42,953,000

TABLE N.1.2 RICE PRODUCTION COST (FINANCIAL)

UNIT : RD\$/ha

ITEM	PRODUCTION COST							TARGET YIELD t/ha	GROSS INCOME (A) @RD\$707.7	N.P.V. (B)	B/A (%)			
	SEED	PERT. AGRO CHEM.	LABOR FAMILY HIRED	MACH. DRAFT ANIMAL	WATER CHARGE	OTHERS	TOTAL							
1. WITHOUT PROJECT	108	95	33	445	112	400	30	25	40	1,288	2.5	1,769	481	27
2. WITH PROJECT														
(1) 1R AREA														
- MEDIUM TERM	43	165	246	456	240	210	48	80	41	1,529	3.8	2,689	1,160	43
- LONG TERM	43	195	289	480	256	233	48	80	48	1,672	5.0	3,539	1,867	53
(2) 2R AREA														
- MEDIUM TERM	43	156	231	432	232	210	48	80	39	1,471	3.4	2,406	935	39
- MEDIUM TERM*	48	147	190	648	352	254	65	80	34	1,818	3.6	2,548	730	29
- LONG TERM	43	185	274	456	240	233	48	80	46	1,605	4.0	2,831	1,226	43
(3) 3R AREA														
- MEDIUM TERM*	48	147	190	648	352	254	65	80	34	1,818	2.8	1,982	164	8
- LONG TERM	43	165	246	456	248	210	48	80	41	1,537	3.2	2,265	728	32
(4) 4R AREA														
- MEDIUM TERM*	48	147	190	648	352	254	65	80	34	1,818	2.6	1,840	22	1
- LONG TERM*	48	184	238	688	368	282	65	80	42	1,995	3.0	2,123	128	6

NOTE * Traditional variety

TABLE N.1.3 RICE PRODUCTION COST (ECONOMIC)

UNIT : RD\$/ha

ITEM	PRODUCTION COST							TARGET YIELD t/ha	GROSS INCOME (A) @RD\$707.7	N.P.V. (B)	B/A (%)		
	SEED	FERT.	ACRO CHEM.	LABOR FAMILY HIRED	MACH. DRAFT ANIMAL	WATER CHARGE	OTHERS					TOTAL	
1. WITHOUT PROJECT	108	110	52	445	112	400	30	40	1,297	2.5	2,100	803	38
**													
2. WITH PROJECT													
(1) 1R AREA													
- MEDIUM TERM	43	188	334	456	240	210	48	57	1,576	3.8	3,192	1,616	51
- LONG TERM	43	221	395	480	256	233	48	66	1,742	5.0	4,200	2,458	59
(2) 2R AREA													
- MEDIUM TERM	43	177	316	432	232	210	48	54	1,512	3.4	2,856	1,344	47
- MEDIUM TERM*	48	165	212	648	352	254	65	42	1,786	3.6	3,024	1,238	41
- LONG TERM	43	199	358	456	240	233	48	60	1,637	4.0	3,360	1,723	51
(3) 3R AREA													
- MEDIUM TERM*	48	165	212	648	352	254	65	42	1,786	2.8	2,352	566	24
- LONG TERM	43	188	334	456	248	210	48	69	1,806	3.2	2,688	882	33
(4) 4R AREA													
- MEDIUM TERM*	48	165	212	648	352	254	65	42	1,786	2.6	2,184	398	18
- LONG TERM*	48	206	265	688	368	282	65	52	1,974	3.0	2,520	576	23

NOTE * Traditional variety ** Water charge is excluded

TABLE N.1.4 TOTAL AMOUNT OF PRODUCTION COST (ECONOMIC)

ALTERNATIVE	WITHOUT PROJECT			WITH PROJECT					
	AREA (ha)	COST PER ha	TOTAL COST	MEDIUM TERM PLAN			LONG TERM PLAN		
				AREA (ha)	COST PER ha	TOTAL COST	AREA (ha)	COST PER ha	TOTAL COST
	RD\$	RD\$1000		RD\$	RD\$1000		RD\$	RD\$1000	
ALTERNATIVE A									
1 R (2,900 ha)				5,800	1,576	9,141	5,800	1,742	10,104
2 R (2,400 ha)				2,400	1,512	3,629	4,800	1,637	7,858
	3,420	1,297	4,436	1,200	1,786	2,143			
3 R (1,900 ha)				1,900	1,786	3,393	3,800	1,806	6,863
4 R (1,100 ha)				1,100	1,786	1,965	1,100	1,974	2,171
<u>TOTAL (A)</u>			<u>4,436</u>			<u>20,271</u>			<u>26,996</u>
ALTERNATIVE B									
1 R (2,900 ha)				5,800	1,576	9,141	5,800	1,742	10,104
2 R (2,200 ha)	3,050	1,297	3,956	2,200	1,512	3,326	4,400	1,637	7,203
				1,100	1,786	1,965			
3 R (1,900 ha)				1,900	1,786	3,393	3,800	1,806	6,863
<u>TOTAL (B)</u>			<u>3,956</u>			<u>17,825</u>			<u>24,170</u>

TABLE N.1.5 RELATION OF BENEFIT AND COST (B/C)

UNIT : 1,000 RD\$

- WITH A FACTOR OF 10 % DISCOUNT RATE -

	ΣB	ΣC	B/C	DIFFERENCE(N.P.V.)
A - I	214,764	207,759	1.03	7,006
A - II	214,764	209,376	1.02	5,388
B - I	198,176	167,748	1.18	30,428
B - II	198,216	170,560	1.16	27,654

TABLE N.1.7(4) SENSITIVITY ANALYSIS (ALTERNATIVE B-I)

(1) A 10% increase in construction cost

(UNIT : THOUSAND RDS)

YEAR	PROJECT COSTS				TOTAL	INCREMENTAL BENEFIT	PROJECT RETURN	PRESENT WORTH VALUE - DISCOUNT RATE	
	CONSTRUC- TION COSTS	O & M COSTS	REPLACE- MENT COSTS	PRODUC- TION COSTS				(12 %)	(13 %)
1 1987	2910.00	0.00	0.00	0.00	2910.00	0.00	-2910.00	-2598.21	-2575.22
2 1988	5506.00	0.00	0.00	0.00	5506.00	0.00	-5506.00	-4389.35	-4312.01
3 1989	11448.00	0.00	0.00	0.00	11448.00	0.00	-11448.00	-8148.46	-7934.04
4 1990	31139.00	0.00	0.00	0.00	31139.00	0.00	-31139.00	-19789.40	-19098.10
5 1991	36908.00	0.00	0.00	0.00	36908.00	0.00	-36908.00	-20942.60	-20032.20
6 1992	13642.00	0.00	0.00	0.00	13642.00	0.00	-13642.00	-6911.47	-6552.51
7 1993	0.00	1261.00	0.00	13869.00	15130.00	26187.00	11057.00	5001.63	4699.90
8 1994	0.00	1261.00	0.00	13869.00	15130.00	26187.00	11057.00	4465.74	4159.20
9 1995	0.00	1261.00	0.00	13869.00	15130.00	26187.00	11057.00	3987.27	3680.71
10 1996	0.00	1261.00	0.00	13869.00	15130.00	26187.00	11057.00	3560.06	3257.26
11 1997	0.00	1261.00	0.00	13869.00	15130.00	26187.00	11057.00	3178.63	2882.53
12 1998	0.00	1261.00	1710.00	13869.00	16840.00	26187.00	9347.00	2599.14	2156.41
13 1999	0.00	1261.00	1769.00	20214.00	23244.00	42953.00	19709.00	4516.80	4023.88
14 2000	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	4394.83	3880.57
15 2001	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	3923.96	3434.13
16 2002	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	3503.53	3039.06
17 2003	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	3128.15	2689.43
18 2004	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	2793.00	2380.03
19 2005	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	2493.75	2106.22
20 2006	0.00	1261.00	1710.00	20214.00	23185.00	42953.00	19768.00	2049.29	1715.51
21 2007	0.00	1261.00	1769.00	20214.00	23244.00	42953.00	19709.00	1824.26	1513.62
22 2008	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	1775.00	1459.72
23 2009	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	1584.82	1291.78
24 2010	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	1415.02	1143.17
25 2011	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	1263.41	1011.66
26 2012	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	1128.04	895.27
27 2013	0.00	1261.00	2005.00	20214.00	23480.00	42953.00	19473.00	913.16	718.32
28 2014	0.00	1261.00	1710.00	20214.00	23185.00	42953.00	19768.00	827.67	645.31
29 2015	0.00	1261.00	1769.00	20214.00	23244.00	42953.00	19709.00	736.79	569.36
30 2016	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	716.89	549.09
31 2017	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	640.08	485.92
32 2018	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	571.50	430.02
33 2019	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	510.27	380.54
34 2020	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	455.60	336.77
35 2021	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	406.79	298.02
36 2022	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	363.20	263.74
37 2023	0.00	1261.00	3022.00	20214.00	26497.00	42953.00	18456.00	278.66	200.56
38 2024	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	289.54	206.54
39 2025	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	258.52	182.78
40 2026	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	230.82	161.75
41 2027	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	206.09	143.15
42 2028	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	184.01	126.68
43 2029	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	164.29	112.10
44 2030	0.00	1261.00	1710.00	20214.00	23185.00	42953.00	19768.00	135.01	91.31
45 2031	0.00	1261.00	1769.00	20214.00	23244.00	42953.00	19709.00	120.19	80.56
46 2032	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	116.94	77.69
47 2033	0.00	1261.00	2005.00	20214.00	23480.00	42953.00	19473.00	94.66	62.34
48 2034	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	93.22	60.85
49 2035	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	83.24	53.85
50 2036	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21478.00	74.32	47.65
51 2037	0.00	1261.00	0.00	20214.00	21475.00	42953.00	21473.00	66.36	42.17
52 2038	0.00	1261.00	1710.00	20214.00	23185.00	42953.00	19768.00	54.53	34.35
TOTAL	101553.00	58006.00	22658.00	891774.00	1073990.00	1875240.00	801251.00	4199.19	-2722.65

INTERNAL RATE OF RETURN (IRR) = $12 + \frac{4199.19}{(4199.19 + 2722.65)} = 12.6\%$

TABLE N.1.7(5) SENSITIVITY ANALYSIS (ALTERNATIVE B-1)

(2) A 10% reduction in production

(UNIT : THOUSAND R0\$)

YEAR	PROJECT COSTS					INCREMENTAL BENEFIT	PROJECT RETURN	PRESENT WORTH VALUE	
	CONSTRUCTION COSTS	O & M COSTS	REPLACEMENT COSTS	PRODUCTION COSTS	TOTAL			(11 %)	(12 %)
1 1987	2645.00	0.00	0.00	0.00	2645.00	0.00	-2645.00	-2382.88	-2361.63
2 1988	5005.00	0.00	0.00	0.00	5005.00	0.00	-5005.00	-4062.17	-3989.96
3 1989	10407.00	0.00	0.00	0.00	10407.00	0.00	-10407.00	-7609.51	-7407.50
4 1990	28308.00	0.00	0.00	0.00	28308.00	0.00	-28308.00	-18647.40	-17990.30
5 1991	33553.00	0.00	0.00	0.00	33553.00	0.00	-33553.00	-19912.10	-19038.90
6 1992	12402.00	0.00	0.00	0.00	12402.00	0.00	-12402.00	-6630.62	-6263.24
7 1993	0.00	1261.00	0.00	13869.00	15130.00	23568.00	8438.00	4064.24	3816.93
8 1994	0.00	1261.00	0.00	13869.00	15130.00	23568.00	8438.00	3661.47	3407.97
9 1995	0.00	1261.00	0.00	13869.00	15130.00	23568.00	8438.00	3298.63	3042.83
10 1996	0.00	1261.00	0.00	13869.00	15130.00	23568.00	8438.00	2971.73	2716.81
11 1997	0.00	1261.00	0.00	13869.00	15130.00	23568.00	8438.00	2677.24	2425.73
12 1998	0.00	1261.00	1710.00	13869.00	16840.00	23568.00	6728.00	1923.14	1726.91
13 1999	0.00	1261.00	1769.00	20214.00	23244.00	38658.00	15414.00	3969.33	3532.50
14 2000	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	3986.37	3515.99
15 2001	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	3591.32	3139.28
16 2002	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	3235.43	2802.92
17 2003	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	2914.80	2502.61
18 2004	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	2625.95	2234.47
19 2005	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	2365.72	1995.07
20 2006	0.00	1261.00	1710.00	20214.00	23185.00	38658.00	15473.00	1919.18	1604.04
21 2007	0.00	1261.00	1769.00	20214.00	23244.00	38658.00	15414.00	1722.40	1426.72
22 2008	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	1729.79	1420.05
23 2009	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	1558.37	1267.90
24 2010	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	1403.94	1132.05
25 2011	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	1264.81	1010.76
26 2012	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	1139.47	902.47
27 2013	0.00	1261.00	2005.00	20214.00	23480.00	38658.00	15178.00	906.77	711.75
28 2014	0.00	1261.00	1710.00	20214.00	23185.00	38658.00	15473.00	832.76	647.85
29 2015	0.00	1261.00	1769.00	20214.00	23244.00	38658.00	15414.00	747.39	576.23
30 2016	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	750.60	573.54
31 2017	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	676.22	512.09
32 2018	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	609.21	457.22
33 2019	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	548.84	408.23
34 2020	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	494.45	364.49
35 2021	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	445.45	325.44
36 2022	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	401.30	290.57
37 2023	0.00	1261.00	3022.00	20214.00	24497.00	38658.00	14161.00	297.95	213.81
38 2024	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	325.71	231.64
39 2025	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	293.43	206.62
40 2026	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	264.35	184.66
41 2027	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	238.15	164.86
42 2028	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	214.55	147.21
43 2029	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	193.29	131.44
44 2030	0.00	1261.00	1710.00	20214.00	23185.00	38658.00	15473.00	156.81	105.68
45 2031	0.00	1261.00	1769.00	20214.00	23244.00	38658.00	15414.00	140.73	94.00
46 2032	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	141.33	93.56
47 2033	0.00	1261.00	2005.00	20214.00	23480.00	38658.00	15178.00	112.47	73.79
48 2034	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	114.71	74.56
49 2035	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	103.34	66.59
50 2036	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	93.10	59.46
51 2037	0.00	1261.00	0.00	20214.00	21475.00	38658.00	17183.00	83.87	53.09
52 2038	0.00	1261.00	1710.00	20214.00	23185.00	38658.00	15473.00	68.04	42.63
TOTAL	92320.00	58006.00	22658.00	391774.00	1064760.00	1687730.00	622970.00	2033.53	-4636.16

INTERNAL RATE OF RETURN (IRR) = $11 + 2033.53 / (2033.53 + 4636.16) = 11.3 \%$

TABLE N.2.1 BALANCE OF AGRICULTURAL HOUSEHOLD ECONOMY
(WITHOUT PROJECT)

	- WITHOUT PROJECT -		REMARKS
AREA OF PARCELATION	ha	2.5	
HARVESTED AREA	ha	2.5	MEAN
GROSS FARM INCOME	RD\$	4,423	
1) RICE PRODUCTION	t	6.25	2.5t/ha
2) VALUE OF PRODUCTION	RD\$	4,423	
PRODUCTION COST			
1) SEED	RD\$	270	
2) FERTILIZER AND AGROCHEMICALS	RD\$	357	
3) WAGE	RD\$	280	
4) MACHINERY	RD\$	1,000	RD\$400/ha
5) DRAFT ANIMAL	RD\$	75	
6) WATER CHARGE	RD\$	63	RD\$ 25/ha
7) OTHERS	RD\$	100	
8) INTEREST OF CREDIT	RD\$	174	
TOTAL	RD\$	2,319	
FARM INCOME	RD\$	2,104	
NON-AGRICULTURAL INCOME	RD\$	2,288	
AGRICULTURAL HOUSEHOLD INCOME	RD\$	4,392	
LIVING EXPENCE	RD\$	4,392	
SURPLUS OF HOUSEHOLD ECONOMY	RD\$	0	

FARMING PATTERN : RICE CULTIVATION WITH FARM MECHANIZATION

NUMBER OF FAMILY: 5 PERSONS FAMILY LABOR FORCE: 2 PERSONS

LABOR DAYS OF FAMILY : 139 DAYS

FARM INCOME PER ha : 950 RD\$

PRODUCTION COST PER ha: 820 RD\$

TABLE N.2.2 REVENUE AND EXPENDITURE OF MODEL SETTLER
(MODEL 1 R)

		- WITH PROJECT -		
		MEDIUM TERM	LONG TERM	REMARKS
AREA OF PARCELATION	ha	2.5	2.5	
HARVESTED AREA	ha	5.0	5.0	DOUBLE CROPPING
GROSS FARM INCOME	RD\$	13,446	17,692	
1) RICE PRODUCTION	t	19	25	
2) VALUE OF PRODUCTION	RD\$	13,446	17,692	707.7 RD\$ / t
PRODUCTION COST				
1) SEED	RD\$	215	215	
2) FERTILIZER AND AGROCHEMICALS	RD\$	2,055	2,420	
3) WAGE	RD\$	1,200	1,280	
4) MACHINERY	RD\$	1,050	1,165	
5) DRAFT ANIMAL	RD\$	240	240	
6) WATER CHARGE	RD\$	200	200	80 RD\$ / ha
7) OTHERS	RD\$	227	263	
8) INTEREST OF CREDIT	RD\$	422	469	17 % / 6 months
TOTAL	RD\$	5,609	6,252	
FARM INCOME	RD\$	7,837	11,440	
NON-AGRICULTURAL INCOME				
AGRICULTURAL HOUSEHOLD INCOME				
LIVING EXPENCE	RD\$	4,392	4,392	
SURPLUS OF HOUSEHOLD ECONOMY	RD\$	3,445	7,048	

FARMING PATTERN : RICE CULTIVATION WITH FARM MECHANIZATION

NUMBER OF FAMILY: 5 PERSONS FAMILY LABOR FORCE: 2 PERSONS

LABOR DAYS OF FAMILY : MEDIUM TERM 285 DAYS

LONG TERM 300 DAYS

TABLE N.2.3 REVENUE AND EXPENDITURE OF MODEL SETTLER
(MODEL 2 R)

		- WITH PROJECT -		
		MEDIUM TERM	LONG TERM	REMARKS
AREA OF PARCELATION	ha	2.5	2.5	
HARVESTED AREA	ha	5.0	5.0	DOUBLE CROPPING
GROSS FARM INCOME	RD\$	12,031	14,154	
1) RICE PRODUCTION	t	17	20	
2) VALUE OF PRODUCTION	RD\$	12,031	14,154	707.7 RD\$ / t
PRODUCTION COST				
1) SEED	RD\$	215	215	
2) FERTILIZER AND AGROCHEMICALS	RD\$	1,935	2,295	
3) WAGE	RD\$	1,160	1,200	
4) MACHINERY	RD\$	1,050	1,165	
5) DRAFT ANIMAL	RD\$	240	240	
6) WATER CHARGE	RD\$	200	200	80 RD\$ / ha
7) OTHERS	RD\$	215	251	
8) INTEREST OF CREDIT	RD\$	408	452	17 % / 6 months
TOTAL	RD\$	5,423	6,018	
FARM INCOME	RD\$	6,608	8,136	
NON-AGRICULTURAL INCOME				
AGRICULTUAL HOUSEHOLD INCOME				
LIVING EXPENCE	RD\$	4,392	4,392	
SURPLUS OF HOUSEHOLD ECONOMY	RD\$	2,216	3,744	

FARMING PATTERN : RICE CULTIVATION WITH FARM MECHANIZATION

NUMBER OF FAMILY: 5 PERSONS FAMILY LABOR FORCE: 2 PERSONS

LABOR DAYS OF FAMILY : MEDIUM TERM 270 DAYS

LONG TERM 285 DAYS

TABLE N.2.4 REVENUE AND EXPENDITURE OF MODEL SETTLER
(MODEL 2 R)

		- WITH PROJECT -		
		MEDIUM TERM	LONG TERM	REMARKS
AREA OF PARCELATION	ha	2.5	2.5	
HARVESTED AREA	ha	2.5	5.0	DOUBLE CROPPING
GROSS FARM INCOME	RD\$	6,369	14,154	
1) RICE PRODUCTION	t	9	20	
2) VALUE OF PRODUCTION	RD\$	6,369	14,154	707.7 RD\$ / t
PRODUCTION COST				
1) SEED	RD\$	120	215	
2) FERTILIZER AND AGROCHEMICALS	RD\$	842	2,295	
3) WAGE	RD\$	880	1,200	
4) MACHINERY	RD\$	635	1,165	
5) DRAFT ANIMAL	RD\$	162	240	
6) WATER CHARGE	RD\$	200	200	80 RD\$ / ha
7) OTHERS	RD\$	96	251	
8) INTEREST OF CREDIT	RD\$	241	452	17 % / 6 months
TOTAL	RD\$	3,176	6,018	
FARM INCOME	RD\$	3,193	8,136	
NON-AGRICULTURAL INCOME				
AGRICULTURAL HOUSEHOLD INCOME				
LIVING EXPENCE	RD\$	4,392	4,392	
SURPLUS OF HOUSEHOLD ECONOMY	RD\$	-1,199	3,744	

FARMING PATTERN : RICE CULTIVATION WITH FARM MECHANIZATION

NUMBER OF FAMILY: 5 PERSONS FAMILY LABOR FORCE: 2 PERSONS

LABOR DAYS OF FAMILY : MEDIUM TERM 202 DAYS

LONG TERM 285 DAYS

TABLE N.2.5 REVENUE AND EXPENDITURE OF MODEL SETTLER
(MODEL 3 R)

		- WITH PROJECT -		
		MEDIUM TERM	LONG TERM	REMARKS
AREA OF PARCELATION	ha	2.5	2.5	
HARVESTED AREA	ha	2.5	5.0	DOUBLE CROPPING
GROSS FARM INCOME	RD\$	4,954	11,323	
1) RICE PRODUCTION	t	7	16	
2) VALUE OF PRODUCTION	RD\$	4,954	11,323	707.7 RD\$ / t
PRODUCTION COST				
1) SEED	RD\$	120	215	
2) FERTILIZER AND AGROCHEMICALS	RD\$	842	2,055	
3) WAGE	RD\$	880	1,240	
4) MACHINERY	RD\$	635	1,050	
5) DRAFT ANIMAL	RD\$	162	240	
6) WATER CHARGE	RD\$	200	200	80 RD\$ / ha
7) OTHERS	RD\$	96	227	
8) INTEREST OF CREDIT	RD\$	241	425	17 % / 6 months
TOTAL	RD\$	3,176	5,652	
FARM INCOME	RD\$	1,781	5,671	
NON-AGRICULTURAL INCOME				
AGRICULTURAL HOUSEHOLD INCOME				
LIVING EXPENCE	RD\$	4,392	4,392	
SURPLUS OF HOUSEHOLD ECONOMY	RD\$	-2,611	1,279	

FARMING PATTERN : RICE CULTIVATION WITH FARM MECHANIZATION

NUMBER OF FAMILY: 5 PERSONS FAMILY LABOR FORCE: 2 PERSONS

LABOR DAYS OF FAMILY : MEDIUM TERM 202 DAYS

LONG TERM 285 DAYS

TABLE N.2.6 REVENUE AND EXPENDITURE OF MODEL SETTLER
(MODEL 4 R)

		- WITH PROJECT -		
		MEDIUM TERM	LONG TERM	REMARKS
AREA OF PARCELATION	ha	2.5	2.5	
HARVESTED AREA	ha	2.5	2.5	
GROSS FARM INCOME	RD\$	4,600	5,308	
1) RICE PRODUCTION	t	6.5	7.5	
2) VALUE OF PRODUCTION	RD\$	4,600	5,308	707.7 RD\$ / t
PRODUCTION COST				
1) SEED	RD\$	120	120	
2) FERTILIZER AND AGROCHEMICALS	RD\$	842	1,055	
3) WAGE	RD\$	880	920	
4) MACHINERY	RD\$	635	705	
5) DRAFT ANIMAL	RD\$	162	162	
6) WATER CHARGE	RD\$	200	200	80 RD\$ / ha
7) OTHERS	RD\$	96	117	
8) INTEREST OF CREDIT	RD\$	241	269	17 % / 6 months
TOTAL	RD\$	3,176	3,548	
FARM INCOME	RD\$	1,424	1,760	
NON-AGRICULTURAL INCOME				
AGRICULTURAL HOUSEHOLD INCOME				
LIVING EXPENCE	RD\$	4,392	4,392	
SURPLUS OF HOUSEHOLD ECONOMY	RD\$	-2,968	-2,632	

FARMING PATTERN : RICE CULTIVATION WITH FARM MECHANIZATION

NUMBER OF FAMILY: 5 PERSONS FAMILY LABOR FORCE: 2 PERSONS

LABOR DAYS OF FAMILY : MEDIUM TERM 202 DAYS

LONG TERM 215 DAYS

TABLE N.2.7(1) REPAYMENT SCHEDULE OF FOREIGN LOAN (A-I)

Unit: RD\$1,000

Year in Order	Foreign Loan	Accumulated Foreign Loan	Interest Payment	Capital Payment	Total Payment
1	2,391	2,391	120		120
2	4,694	7,085	354		354
3	10,983	18,068	904		904
4	27,842	45,910	2,296		2,296
5	33,517	79,427	3,972		3,972
6	18,625	98,052	4,903		4,903
7		98,052	4,903	5,161	10,064
8		92,891	4,645	5,161	9,806
9		87,730	4,387	5,161	9,548
10		82,569	4,129	5,161	9,290
11		77,408	3,870	5,161	9,031
12		72,247	3,612	5,161	8,773
13		67,086	3,354	5,161	8,515
14		61,925	3,096	5,161	8,257
15		56,764	2,838	5,161	7,999
16		51,603	2,580	5,161	7,741
17		46,442	2,322	5,161	7,483
18		41,281	2,064	5,161	7,225
19		36,120	1,806	5,161	6,967
20		30,959	1,548	5,161	6,709
21		25,798	1,290	5,161	6,451
22		20,637	1,032	5,161	6,193
23		15,476	774	5,161	5,935
24		10,315	526	5,161	5,687
25		5,154	258	5,154	5,419
26	-	0	0	0	0

TABLE N.2.7 (2) REPAYMENT SCHEDULE OF FOREIGN LOAN (B-I)

Unit: RD\$1,000

Year in Order	Foreign Loan	Accumulated Foreign Loan	Interest Payment	Capital Payment	Total Payment
1	2,391	2,391	120		120
2	4,694	7,085	354		354
3	7,937	15,022	751		751
4	20,594	35,616	1,781		1,781
5	24,103	59,719	2,986		2,986
6	9,501	69,220	3,461		3,461
7		69,220	3,461	3,644	7,105
8		65,576	3,279	3,644	6,923
9		61,932	3,097	3,644	6,741
10		58,288	2,914	3,644	6,558
11		54,644	2,732	3,644	6,376
12		51,000	2,550	3,644	6,194
13		47,356	2,368	3,644	6,012
14		43,712	2,186	3,644	5,830
15		40,068	2,003	3,644	5,647
16		36,424	1,821	3,644	5,465
17		32,780	1,639	3,644	5,283
18		29,136	1,457	3,644	5,101
19		25,492	1,275	3,644	4,919
20		21,848	1,092	3,644	4,736
21		18,204	910	3,644	4,554
22		14,560	728	3,644	4,372
23		10,916	546	3,644	4,190
24		7,272	364	3,644	4,008
25		3,628	181	3,628	3,825
26	-	0	0	0	0

TABLE N.2.8 (1) ANNUAL AMORTIZATION (REPAYMENT) AND SETTLERS'
ALLOTMENT (TENTATIVE)
- ALTERNATIVE A-1 -

YEAR	FOREIGN LOAN (RD\$1000)	AMORTIZATION (RD\$1000)	AMORTIZATION (P.W.V.) (RD\$1000)	ALLOTMENT PER ha (RD\$)	ALLOTMENT PER SETTLER (RD\$)
1	2,391	120	114		
2	4,694	354	321		
3	10,983	904	781		
4	27,842	2,296	1,889		
5	33,517	3,972	3,112		
6	18,625	4,903	3,659		
7		10,064	7,152	862	2,155
8		9,806	6,637	800	2,000
9		9,548	6,155	742	1,855
10		9,290	5,703	687	1,718
11		9,031	5,280	636	1,590
12		8,773	4,885	589	1,473
13		8,515	4,516	544	1,360
14		8,257	4,170	502	1,255
15		7,999	3,848	464	1,160
16		7,741	3,546	427	1,068
17		7,483	3,265	393	983
18		7,225	3,002	362	905
19		6,967	2,757	332	830
20		6,709	2,529	305	763
21		6,451	2,316	279	698
22		6,193	2,117	255	638
23		5,935	1,932	233	583
24		5,687	1,763	212	530
25		5,419	1,600	193	483

TABLE N.2.8 (2) ANNUAL AMORTIZATION (REPAYMENT) AND SETTLERS' ALLOTMENT (TENTATIVE)

- ALTERNATIVE B-1 -

YEAR	FOREIGN LOAN (RD\$1000)	AMORTIZATION (RD\$1000)	AMORTIZATION (P.W.V.) (RD\$1000)	ALLOTMENT PER ha (RD\$)	ALLOTMENT PER SETTLER (RD\$)
1	2,391	120	114		
2	4,694	345	313		
3	7,937	751	649		
4	20,594	1,781	1,465		
5	24,103	2,986	2,340		
6	9,501	3,461	2,583		
7		7,105	5,049	721	1,803
8		6,923	4,686	669	1,673
9		6,741	4,345	621	1,553
10		6,558	4,026	575	1,438
11		6,376	3,728	533	1,333
12		6,194	3,449	493	1,233
13		6,012	3,188	455	1,138
14		5,830	2,945	421	1,053
15		5,647	2,716	388	970
16		5,465	2,504	358	895
17		5,283	2,305	329	823
18		5,101	2,120	303	758
19		4,919	1,947	278	695
20		4,736	1,785	255	638
21		4,554	1,635	234	585
22		4,372	1,495	214	535
23		4,190	1,364	195	488
24		4,008	1,243	178	445
25		3,825	1,130	161	403

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