

Table G.3.2 Anticipated Production Increase

Unit : 1,000 G

Crops	Without Project <sup>1/</sup>	With Project (year) <sup>2/</sup>							Remarks	
		3rd	4th	5th	6th	7th	8th	9th (M/P)		10th (M/P)
Cotton	266,500	309,375	-----	----- ditto -----	-----	-----	309,375	253,125 61,875	253,125 67,500	Without Irrigation With Irrigation
Sugarcane	196,350	412,500	-----	----- ditto -----	-----	-----	412,500	123,750 336,875	123,750 385,000	Without Irrigation With Irrigation
Maize Mandioca	414,093	311,922	-----	----- ditto -----	-----	-----	311,922	311,922	311,922	
Fruits	239,530.2	263,417	321,228	360,640	400,051	413,188	426,325	426,325	426,325	
Mature Tree	231,880.2	263,417	294,954	294,954	294,954	294,954	294,954	294,954	294,954	
Newly Planted	7,650	-	26,274	65,686	105,097	118,234	131,371	131,371	131,371	
Vegetables	230,791	400,259	630,696	803,560	803,560	803,560	803,560	803,560	803,560	
Total	1,347,264	1,697,473	1,985,721	2,197,997	2,237,408	2,258,545	2,263,682	2,317,432	2,371,182	
Increased Products		350,209	638,457	850,733	890,144	903,283	916,418	970,168	1,023,318	
Increased Value for Quality Products <sup>3/</sup>		-	11,408	22,816	34,224	45,632	57,040	57,040	57,040	
Total		350,209	649,865	873,549	924,368	948,913	973,458	1,027,208	1,080,358	
										After Completion of the Project on the Master Plan

(Note) <sup>1/</sup> Refer to Table G.3.3(2), <sup>2/</sup> Refer to Table G.3.3(1) and Table G.3.3(3), <sup>3/</sup> Refer to Table G.3.4

Table G.3.3(1) Agricultural Production and Production Value  
with Project (Target Year)

Crops	Cropping Area (ha)	Yield (ton/ha)	Production (ton)	Unit Price (G/kg)	Production Value (1,000 G)
Cotton	825	1.5	1,237.5	250	309,375
Sugarcane	500	75.0	37,500	11	412,500
Maize	481	1.2	577.2	85	49,062
Poroto	275	0.8	220	213	46,860
Mandioca	300	18.0	5,400	40	216,000
Micellaneous Crops	-	-	-	-	-
Sub-total					1,033,797
Grape	75	22.0	1,650	170	280,500
Plum	75	7.0	525	213	111,825
Citrus	40	8.0	320	85	27,200
Other Fruits	10	8.0	80	85	6,800
Sub-total					426,325
Onion	120	15.0	1,800	68	122,400
Tomato	60	30.0	1,800	128	230,400
Water Melon	30	25.0	750	45	33,750
Melon	10	17.0	170	128	21,760
Green Pepper	30	15.0	450	170	76,500
Other Vegetables	150	25.0	3,750	85	318,750
Sub-total					803,560
Total	2,981		56,229.7		2,263,682

Increased Production Value:  $916,418 \times 10^3$  G, (2,263,682 - 1,347,264)

Table G.3.3(2) Agricultural Production and Production Value  
without Project

Crops	Cropping Area (ha)	Yield (ton/ha)	Production (ton)	Unit Price (G/kg)	Production Value (1,000 G)
Cotton	820	1.3	1,066	250	266,500
Sugarcane	255	70.0	17,850	11	196,350
Maize	355	1.2	426	85	36,210
Poroto	270	0.8	216	213	46,008
Mandioca	450	18.0	8,100	40	324,000
Micellaneous Crops	15	2.5	37.5	210	7,875
Grape	43	20.0	860	170	146,200
Plum	74	4.6	340.4	213	72,505.2
Citrus	25	5.0	125	85	10,625
Other Fruits	40	3.0	120	85	10,200
Onion	55	10.0	550	68	37,400
Tomato	25	20.0	500	128	64,000
Water Melon	15	20.0	300	45	13,500
Melon	6	12.0	72	128	9,216
Green Pepper	14	10.0	140	170	23,800
Other Vegetables	65	15.0	975	85	82,875
Total	2,577		31,677.9		1,347,264.2

Note : In case of the without project, the cropping area and yield of per ha are regarded the same as the present situation.

Table G. 3. 3(3) Agricultural Production and Production Value  
with Project on M/P

Crops	Cropping Area (ha)	Yield (ton/ha)	Production (ton)	Unit Price Price (G/kg)	Production Value (1,000 G)
Cotton	675	1.5	1,012.5	250	253,125
- do -	150	1.8	270	250	67,500
Sugarcane	150	75	11,250	11	123,750
- do -	350	100	35,000	11	385,000
Maize	481	1.2	577.2	85	49,062
Poroto	275	0.8	220	213	46,860
Mandioca	306	18.0	5,400	40	216,000
Micellaneous Crops					
Grape	75	22.0	1,650	170	280,500
Plum	75	7.0	525	213	111,825
Citrus	40	8.0	320	85	27,200
Other Fruits	10	8.0	80	85	6,800
Onion	120	15.0	1,800	68	122,400
Tomato	60	30.0	1,800	128	230,400
Water Melon	30	25.0	750	45	33,750
Melon	10	17.0	170	128	21,760
Green Pepper	30	15.0	450	170	76,500
Other Vegetables	150	25.0	3,750	85	318,750
<b>Total</b>	<b>2,981</b>		<b>65,024.7</b>		<b>2,371,182</b>

Increased Production Value :  $1,023,918 \times 10^3 \text{ G}$  (2,371,182 - 1,347,264)

Table G. 3. 4 Valuation for Quality Produce

Crops	Produce (1,000 G)	Remarks
Grape	191.420	(1,650 - 524) ton X 170,000G
Plum	111,825	
Citrus	27,200	
Other Fruits	6,800	
Sub-total	337,245	
Vegetables	803,560	
Total	1,140,805	
Valuation	57,040	$1,140,805 \times 0.05$

<sup>1/</sup> Grapes of 524ton will be used as the materials of Winery

Table G. 3. 5(1) Production Cost With Project

Crops	Cropping Area (ha)	Unit Cost (1000G/ha)	Cost (1000G)
Cotton	825	229.2	189,090
Sugarcane	500	383.1	191,550
Maize	481	130.9	62,962.9
Poroto	275		
Mandioca	300	261	78,300
Micellaneous Crops	-	-	-
Grape	75	1,129	84,675
Plum	75	795.6	59,670
Citrus	40	412.5	16,500
Other Fruits	10	412.5	4,125
Onion	120	505.4	60,648
Tomato	60	2,446	146,760
Water Melon	30	982.5	29,475
Melon	10	982.5	9,825
Green Pepper	30	1,725	51,750
Other Vegetables	150	957.2	143,580
Total	2,981		1,128,910.9

Increased Cost:  $420,692.5 \times 10^3G (1,128,910.9 - 708,218.4)$

Increased Net Income:  $495,725 \times 10^3G (916,418 - 420,692.5)$

Table G. 3. 5(2) Production Cost Without Project

Crops	Cropping Area (ha)	Unit Cost (1000G/ha)	Cost (1000G)
Cotton	820	223.6	183,352
Sugarcane	255	359	91,545
Maize	355	130.9	46,469.5
Poroto	270		
Mandioca	450	261	117,450
Micellaneous Crops	15	182	2,730
Grape	43	1,129	48,547
Plum	74	796.6	58,948.4
Citrus	25	254.5	6,362.5
Other Fruits	40	254.5	10,180
Onion	55	380	20,900
Tomato	25	1,832	45,800
Water Melon	15	883	13,245
Melon	6	883	5,298
Green Pepper	14	1,175	16,450
Other Vegetables	65	631	41,015
Total	2,577		708,218.4

Note : Other Miscellaneous crops means Peanut, Other Fruits means Mango and other vegetable means cabbage.

Table G.3. 6 Breakdown of Production Cost

Crops	Yield (t)	(A) Gross Income	Seed	Fertilizer	Agri. Chemical	Labor	Interest	Others	Total	Produce's Price G/kg	(B) N.P.V.	B/A (%)
1. Cotton	without	325,000	16,000	-	32,000	136,600	-	39,000	223,600	250	101,400	31.2
	with	375,000	16,000	15,600	42,000	140,000	-	15,600	229,200	250	145,800	38.9
2. Sugarcane	without	770,000	-	56,000	-	215,000	-	88,000	359,000	G/ton	411,000	53.4
	with	825,000	-	68,026	12,026	215,000	-	88,000	383,052	11,000	441,947	53.6
3. Maize	without	102,000	1,920	-	6,000	53,500	-	-	61,420	G/kg	40,580	39.8
	with	102,000	1,920	-	6,000	53,500	-	-	61,420	85	40,580	39.8
4. Potato	without	170,400	10,000	-	6,000	53,500	-	-	69,500	G/kg	40,580	58.9
	with	170,400	10,000	-	6,000	53,500	-	-	69,500	213	100,900	59.2
5. Mandioca	without	720,000	40,000	-	-	221,000	-	-	261,000	G/kg	459,000	63.8
	with	720,000	40,000	-	-	221,000	-	-	261,000	40	459,000	63.8
6. Others	without	212,500	32,000	-	-	150,000	-	-	182,000	G/kg	30,500	14.4
	with	212,500	32,000	-	-	150,000	-	-	182,000	85	30,500	14.4
7. Onion	without	680,000	44,000	84,000	14,000	212,000	-	26,000	380,000	G/kg	300,000	44.1
	with	1,020,000	58,520	111,720	21,200	281,960	-	32,000	505,400	68	514,600	50.5
8. Tomato	without	2,560,000	130,000	576,000	258,000	548,000	-	320,000	1,832,000	G/kg	728,000	28.4
	with	3,840,000	130,000	750,000	466,000	720,000	-	320,000	2,446,000	128	1,394,000	36.3
9. Melon	without	1,536,000	325,000	262,000	84,000	212,000	-	-	883,000	G/kg	653,000	42.5
	with	2,176,000	357,825	288,462	92,484	233,412	-	10,269	982,452	128	1,193,548	54.9
10. Green paper	without	1,700,000	200,000	264,000	150,000	550,000	-	11,000	1,175,000	G/kg	525,000	30.9
	with	2,550,000	233,000	560,500	203,000	698,250	-	30,250	1,725,000	170	825,000	32.4
11. Other Veg.	without	750,000	65,000	280,000	36,000	235,000	-	15,000	631,000	G/kg	119,000	15.9
	with	1,250,000	175,000	285,000	164,200	305,000	-	28,000	957,200	50	492,800	39.4
12. Grape	without	4,000,000	-	315,000	133,000	320,000	175,000	186,000	1,129,000	G/kg	2,870,800	71.3
	with	4,400,000	-	315,000	133,000	320,000	175,000	186,000	1,129,000	200	3,270,800	74.3
13. Plum	without	979,800	-	303,000	53,600	214,000	135,000	90,000	795,600	G/kg	183,500	18.7
	with	1,171,500	-	303,000	53,600	214,000	135,000	90,000	795,600	213	375,200	32.4
14. Without Other Fruit	Without	680,000	-	210,000	32,000	150,000	85,000	32,000	509,000	85	171,000	25.1
	With	1,275,000	-	405,000	215,000	57,500	85,000	62,500	825,000	85	450,000	35.3

Table G.3.7 Economy in Transportation  
(Unit: 1,000 ₱)

Item	After Completion of the Project					Remarks
	(F/S) 1st	2nd	3rd	.....	(M/P) 10th	
Economized Expenses in Transportation						
In-Pit Materials and Products in Project Area	295,096	309,271	322,157	-- do --	533,333	469,070 X 1.137 = 532,864 Refer to Table G.3.8(1) and Table G.3.8(2)
In-pit Materials and Products in Surrounding Area	401,550	-----	do	-----	442,281	Refer to Table G.3.8(1) and Table G.3.8(2)
Products and Materials for the Fruit Processing Factory and Others	143,889	-----	do	-----	143,889	Refer to Table G.31.8(1)
Reduction of Bruise in Transportation	52,192	57,040	-----	do	57,040	Refer to Table G.3.13
Total	892,727	911,750	924,636	-- do --	1,176,543	

Table G.3. 8(1) Economized Expenses in Transportation  
After Completion of the Project on F/S

Unit: 1,000 G

Zone	Farm Land (ha)	Name of Road Length (km)	Freight (ton)	Without Project / With Project				Cost (1,000G)	Economized Expenses (1,000 G)	Remarks
				Transportation Ways (km)	Distance (both Ways) (km)	Speed (km/hr)	Time Required (hr)			
EAST YBAROTY	390	251-16 (2.4)	950	Carriage	4.8	2.5	2.92	16,297	17,983	1 hr. for transshipment is added to the Time Required
				Truck	4.8	25.0	0.19	396		
				Carriage	4.8	2.5	1.92	75,012		
				Truck	4.8	25.0	0.19	2,770		
		251-20 (1.4)	1,500	Carriage	1.8	2.5	1.72	15,158	* 72,242	
				Truck	-	-	1.0	3,288		
				Truck	1.8	25.0	0.07	230		
				Carriage	6.0	2.5	2.4	64,296		
WEST YBAROTY	360	251-17-3 (2.0) 251-22-1 (2.0)	* 4,560 (240 x 19)	Truck	6.0	25.0	0.24	2,399	* 61,897	
				Camioneta	8.0	15.0	0.53	10,971		
				Truck	8.0	25.0	0.32	4,209		
				Truck	8.0	25.0	0.32	4,209		
		251-22 (5.8) 251-22-1 (2.0)	3,000	Carriage	8.0	2.5	4.2	74,225	84,917	1 hr. for transshipment is added to the Time Required
				Camioneta	8.0	15.0	1.53	15,836		
				Truck	16.0	25.0	0.64	4,944		
				Carriage	5.6	2.5	2.24	145,023		
TRANQUERA	540	805 (2.8)	*11,020 (560 x 19)	Camioneta	6.0	15.0	0.4	15,208	*149,119	
				Truck	11.6	25.0	0.46	11,112		
				Camioneta	3.8	15.0	0.25	1,294		
				Truck	3.8	25.0	0.15	493		
								801		

Zone	Farm Land (ha)	Name of Road Length (km)	Freight (ton)	Without Project / With Project			Cost (1,000G)	Economized Expenses (1,000 G)	Remarks	
				Transportation Distance (both Ways) (km)	Speed (km/hr)	Time Required (hr)				
TRANQUERA			*36,100 (1,900 x 19)	5.6	15.0	0.37	46,082			
				5.6	25.0	0.22	17,409	28,673		
		818-01 (5.2)	6,000	7.0	15.0	0.47	9,729			
				7.0	25.0	0.28	3,683	6,046		
		818-01-3	2,000	1.8	2.5	1.72	20,210		1 hr. for transshipment is added to the Time Required	
				10.4	15.0	1.69	11,661			
				12.2	25.0	0.24	1,052	30,819		
		818 (1.5)	8,000	3.0	30.0	0.1	2,760			
				4,000	3.0	40.0	0.08	1,403	1,357	
			818-02 (3.2)	4,000	7.2	2.5	2.9	68,150		To La Colmena through 818
				5.2	25.0	0.1				
				3.0	40.0	0.4	43,384	63,766		
RORY		818-06 (4.6)	6,000	6.2	15.0	0.41	8,487			
		818-01-1(1.1)		6.0	30.0	0.2	4,140			
				6.2	25.0	0.25	3,288	7,366	- do -	
				6.0	40.0	0.15	1,973			
		818-04 (3.6)	4,000	4.8	15.0	0.32	4,416		To La Colmena through 818	
				6.0	30.0	0.2	2,760			
				4.8	25.0	0.19	1,666	4,195	- do -	
				6.0	40.0	0.15	1,315			
			* 8,930 (478 x 19)	7.2	15.0	0.48	14,788		To La Colmena through 818	
				6.0	30.0	0.2	6,141			
				7.2	25.0	0.29	5,677	*12,316	- do -	
				6.0	40.0	0.15	2,936			



Unit: 1,000 G

Zone	Farm Land (ha)	Name of Road Length (km)	Freight (ton)	Without Project / With Project			Cost (1,000G)	Economized Expenses (1,000 G)	Remarks	
				Transportation Distance (both Ways) (km)	Speed (km/hr)	Time Required (hr)				
RORY-MI	380	818-06 (5.6)	3,500	Camioneta	5.4 11.0	15.0 30.0	0.36 0.37	4,347 4,468	To La Colmena through 818	
				Truck	5.4 11.0	25.0 40.0	0.22 0.28	1,688 2,148		4,979
				*14,440 (780 x 19)	Camioneta	11.2 11.0	15.0 30.0	0.75 0.37	37,364 18,433	To La Colmena through 818
					Truck	11.2 11.0	25.0 40.0	0.45 0.28	14,244 8,863	
			818-03-2(2.4) 818-03-3(1.7)	1,500	Carriage	5.4 6.0 11.0	2.5 15.0 30.0	3.16 1.4 0.37	27,848 7,245 1,915	1 hr. for transshipment is added to the Time Required To La Colmena through 818
					Truck	11.4 11.0	25.0 40.0	0.46 0.28	1,512 921	
			818-05 818-05-1	4,500	Camioneta	7.0 8.0	15.0 30.0	0.47 0.27	7,297 4,192	To La Colmena through 818
					Camioneta	7.0 8.0	25.0 40.0	0.28 0.2	2,762 1,973	
				*11,210 (580 x 19)	Camioneta	10.4 8.0	15.0 30.0	0.69 0.27	26,685 10,422	To La Colmena through 818
					Truck	10.4 8.0	25.0 40.0	0.42 0.2	10,320 4,914	
MBOCAYATI	530	818-07 (2.1)	1,700	Carriage	2.8 12.0	2.5 30.0	2.12 1.4	22,174 8,211	1hr for transshipment is added to the Time Required To La Colmena through 818	
				Truck	2.8 11.0	25.0 40.0	0.11 0.3	410 1,118		28,857

Unit: 1,000 G

Zone	Farm Land (ha)	Name of Road Length (km)	Freight (ton)	Without Project / With Project			Cost (1,000G)	Economized Expenses (1,000 G)	Remarks
				Transportation Ways (km)	Distance (both (km/hr)	Time Required (hr)			
MBOCAVATY		818	10,350	Truck	14.0	25.0	0.56	12,705	
				Truck	14.0	40.0	0.36	7,941	
				Truck	23.6	25.0	0.94	61,073	
				Truck	23.6	40.0	0.59	38,333	
Total							723,707	Project Area : 322,157 Surrounding Area : 401,550	
Fruit Processing Factory and Others		818	160,000	Truck	23.6	25.0	0.94	350,814	
				Truck	23.6	40.0	0.59	206,925	

Note: 1. Weight of Freight is estimated as follow;

- For the Project Area (Cropping area benefited by the road) X 25ton/ha, Refer to Table G.3.9
- For the Surrounding Area (Number of houses) X 19ton/household; Refer to Table G.3.12

2. Freight-age is as follows:

- Carriage : 5,875 G/ton. hr Refer to Table G.3.14
- Camioneta : 3,450 G/ton. hr
- Truck : 2,192 G/ton. hr

Table G.3. 8(2) Economized Expenses in Transportation  
After Completion of the Project on M/P

Unit: 1,000 G

Zone	Farm Land (ha)	Name of Road Length (km)	Freight (ton)	Without Project / With Project			Economized Expenses (1,000 G)	Remarks
				Transportation Distance (both Ways) (km)	Speed (km/hr)	Time Required (hr)		
EAST YBARTY	390	251-15 (1.2)	4,300	2.2	2.5	1.88	47,494	1hr for transshipment is added to the Time Required
		251-18 (2.2)				1.0	9,425	
		251-19 (2.2)				0.09	848	
		251-21 (1.0)						
819-01 (1.4)	3,000	20.0	0.19	1,249				
819 (2.8)								
		251-17-1 (1.3)	* 2,280 (120 X 19)	3.8	30.0	0.13	855	1hr for transshipment is added to the Time Required
						2.04	26,794	
						1.0	4,988	
		819 (2.8)	*40,850 (2,150 X 19)	2.6	25.0	0.1	500	* 31,292
						20.0	25,072	
						30.8	17,013	
MBOCAVATY		818-06-10 (1.8)	1,200	2.4	2.5	1.96	13,818	1hr for transshipment is added to the Time Required
						1.75	7,245	
						0.37	1,532	
		818-09 (2.7)	5,500	13.6	25.0	0.54	1,420	1hr for transshipment is added to the Time Required
		818-10 (1.9)				0.28	737	
						2.04	65,918	
						1.0	2,192	
		818-12 (1.2)		2.6	25.0	0.1	1,206	66,904
		Average: (1.9)						
		818-11 (0.4)				0.8	557	
		818-08 (0.4)	* 3,230 (170 X 19)	0.8	15.0	0.05	214	* 345
						0.03	1,572	
						0.05		
Total								* 1,035
Accumulation								187,644
								911,351

Project Area : 146, 913  
\* Surrounding Area: 40, 731  
Project Area : 469, 070  
\* Surrounding Area: 442, 281

Table G.3.9 In-Put Materials and Products in the Project Area

After Comlision of the Project (year)	In-Put materials (ton)	Products (ton)	Total (ton)	(%)	(ton/ha)
1st	12,024.1	46,692.1	58,716.2	91.6	22.6
2nd	- do -	49,556.2	61,580.3	96.0	23.7
3rd	- do -	51,682.7	63,706.8	99.4	24.5
4th	- do -	51,931.8	63,955.9	99.7	24.6
5th	- do -	52,015.5	64,039.6	99.9	24.6
6th	- do -	52,098.5	64,122.6	100.0	24.6
7th (M/P)	- do -	56,495.7	68,519.8	106.9	26.4
8th (M/P)	- do -	60,893.2	72,917.3	113.7	28.0

Note: Refer to Table G.3.10 and Table G.3.11

Table G.3.10 Anticipated Production and Their Shipment

Unit: ton

Crops	Without Project		Shipment With Project (After Completion of the Project)							
	Product	Shipment	1st	2nd	3rd	4th	5th	6th	7th (M/P)	8th (M/P)
Cotton	1,066	1,066	(1,237.5)							1,012.5
			1,237.5			do			1,260	270
Sugarcane	17,850	17,850	(37,500)							1,150
			37,500			do			41,875	35,000
Maize	426	142	(577.2)							
			192.4				do			
Poroto	216	72	(220)							
			73.3				do			
Mandioca	8,100	2,700	(5,400)							
			1,800				do			
Miscellaneous Crops	37.5	12.5	-							
			903	946	946	946	946	946		
Grape	860	860	-	141	352	563	634	1,650		
Plum	340.4	340.4	429	518	518	518	518	525		
			-	1.4	3.5	5.6	6.3			
Citrus	125	125	162.5	200	200	200	200	320		
			-	24	60	96	108			
Other Fruits	120	120	55	80						
			550	550						
Onion	550	550	375	875	1,800					
Tomato	500	500	500	500						
			390	910	1,800					
Water Melon	300	300	225	225						
			157.5	367.5	750					
Melon	72	72	72	72						
			29.4	68.6	170					
Green Pepper	140	140	140	140						
			93	217	450					
Other Vegetables	975	975	975	975						
			832.5	1,942.5	3,750					
Total	31,677.9	25,824.9	46,692.1	49,556.2	51,682.7	51,931.8	52,015.5	52,098.2	56,495.7	60,893.2

Note: Figures in Parenthesis show the weights of the Products

**Table G.3.11 In-Put Materials**

Crops	Cropping Area (ha)	In-Put Materials	
		Per ha(kg)	Total (ton)
Cotton	825	200	165
Sugarcane	500	614	307
Maize	481	-	-
Poroto	275	-	-
Mandioca	300	-	-
Grape	75	16,250	1,218.8
Plum	75	16,250	1,218.8
Citrus	40	7,650	306
Other Fruits	10	7,650	76.5
Onion	120	4,900	588
Tomato	60	51,000	3,060
Water Melon	30	22,400	672
Melon	10	22,400	224
Green Pepper	30	37,600	1,128
Other Vegetables	150	20,400	3,060
<b>Total</b>	<b>2,981</b>		<b>12,024.1</b>

**Table G.3.12 In-Put Materials and Products in the Surrounding Areas**

Crops	Products in Paraguari <sup>1</sup>		Shipping per Household (ton)	Yield (ton/ha)	Cropping Area (ha/household)	In-Put Materials	
	(1,000ton)	(ton/household)				(kg/ha)	(ton/Household)
Cotton	31.6	1.2	1.2	1.0	1.2	33	0.04
Sugarcane	316.8	12.2	12.2	50.0	0.3	430	0.13
Maize	52.6	2.0	1.0	1.3	1.5	-	-
Poroto	4.7	0.2	0.1	0.8	0.3	-	-
Mandioca	218.5	8.4	4.2	13.0	0.7	-	-
<b>Total</b>			<b>18.7</b>		<b>4.0</b>		<b>0.17</b>

Note: In-Put Materials and Products per Household: 19.0 ton, (18.7 + 0.17 = 18.87 ton)

<sup>1/</sup> Number of farmers in Dept. Paraguari : 26,000 Houses

Table G. 3. 13 Reduction of Bruise in Transportation

Crops	Products (1,000 G)	Remarks
Grape	191,420	(1,650-524ton)X 170,000G 524ton of grapes: for winery use
Plum	111,825	
Citrus	27,200	
Other Fruits	6,800	
Vegetables	803,560	Refer to Table G. 3. 3 (1)
Total	1,140,805	

Benefit by Reduction of Bruise in Transportation:  
57,040,000 G (1,140,805 X 0.05)

Table G. 3. 14 Freightage of Agricultural Products and Materials

Item	Carriage	Camioneta	Truck
Depreciation Per hour	1,850 G 7,400 G/8hr x 2 heads	3,125 G	6,250 G
Labor Cost	500 G 2,000G/8hr x 2 persons	325 G (2,600/8hr)	325 G
Total	2,350 G/hr	3,450 G/hr	6,575 G/hr
Carring Capacity	0.4 ton	1 ton	3 ton
Freightage	5,875g G/ton. hr	3,450 G/tm. hr	2,192 G/tm. hr

Table G. 3.15 Benefit of Water Service (Alternative)

(By Shallow Well)

Item	Cost	Remarks
Construction Cost:		
- Well	300,000 G	
- Pump, Motor, Pipeline	1,000,000 G	
Depreciation		
- Well (1)	20,000 G	Equalification depreciation of 15 years
- Pump, Motor, Pipeline (2)	200,000 G	Equalification depreciation of 5 years
- Maintenance Cost (3)	50,000 G	1,000,000 G X 0.005
Sub-total	270,000 G	(1)+(2)(3)
Total Cost	89,910,000 G	270,000 X 333 houses
(In case of Dry up )		
Depreciation cost per hour	1,850 G	See Table G.1.14
Labor Cost per hour	500 G	
Micellaneous expenses	120 G	
Sub-total	2,470 G	
Traveling hour	1.7 hr	2 times per day (100 min)
Annual expenditure per household	378,000 G	2,470 x 1.7 hr x 90 days
Total expenditure	26,460,000 G	378,000 G x 70 houses
(Water Supply for the Urban Area)		
Equivalent to the water charge in the Urban Area	14,016,000 G	800 persons x 0.2 m <sup>3</sup> /day x 365 days x 240 G <sup>1/</sup>
Total	130,386,000 G	

Note : <sup>1/</sup> Water Charge in the Urban Area

1,400 G/month	202 Houses	282,800 G
1,700 G/month	38 Houses	64,600 G
1,447.5 (Average)	240 Houses	347,400 G
Present Condition :	6 m <sup>3</sup> /month/houses	
Water Charge :	240 G/m <sup>3</sup> , (1,447.5 ÷ 6)	

Number of benefited houses is 405 on M/P.  
 Increased benefit as compared with that of F/S, 378,000 G x (405 - 333) = 27,216,000 G.  
 Benefit in total; (130,386,000 + 27,216,000) = 157,602,000 G



Table G.3.16 Benefit of Winery

Item	Cost	Remarks
Rise of Valuation by Improvement in Quality	103,600 G	740,000 t X 140 G/t

Note : After completion of M/P, increased benefit is estimated as below;

$$740,000 \text{ t} \times 350 \text{ G} \times 0.2 = 51,800,000 \text{ G}$$

Table G.3.17 Benefit by Collecting & Shipping Facility

Item	Cost	Remarks
La Colmena ~ Asuncion Transporting cost per 1 ton (by Track)	10,000 G	
Camioneta	14,063 G	3,125 G X 270 km/60km/hr
Reduction of expense by Truck	4,063 G	140,063 G - 10,000 G
Dealing amount (to Asuncion)	10,771 t	Grape 1,126 ton <sup>1/</sup> , Amount of Plum, Citrus, Other Fruits, Onion, Water Melon, Melon, Green Pepper and other Vegetable is 9,645 ton <sup>2/</sup>
Reduction cost of expenditure	43,762,600 G	4,063 G x 10,771 ton

Note: <sup>1/</sup> Remaining 524 ton of Grapes Will be used as the materials for winery

<sup>2/</sup> See Table G.3.3(1)

After completion of M/P, increased benefit is estimated as below;

$$1,140,805,000 \text{ G} \times 0.1 = 114,080,500 \text{ G}$$

**Table G.3.18 Benefit by Drainage Improvement**

Item	Cost	Remarks
(F/S) Improvement of Poor Drainage Area	250 ha	
Increase of Breeding Number	250 heads	250 ha X 1.0 head/ha 1/
Shipment Number per Year	50 heads	250 heads X 0.2
Sales Amount	8,800,000 G	50 heads X 176,000 G/head
(M/P) Improvement of Poor Drainage Area	900 ha	
Increase of Breeding Number	900 heads	900 heads X 1.0 head/ha 1/
Shipment Number per Year	180 heads	900 head X 0.2
Sales Amount	31,680,000 G	180 heads X 176,000 G/head

Note : 1/ Pasture : 3,200 ha  
 Fallow Land : 2,000 ha  
 Poor Drainage Area :  $\Delta$  900 ha  
 Total : 4,300 ha  
 Breeding Number : 4,241 heads  
 Breeding Number per ha : 1.0 heads

**Table G.3.19 Increased Working Hours in Farming**

Crops	Cropping Area (ha)		Increased Area (ha)	Labor Cost	
	With Project	Whithout Project		(1000G/ha)	(1,000 G)
Cotton	825	820	5	140	700
Sugarcane	580	255	245	215	52,675
Maize	481	355	126	107	13,482
Poroto	275	270	5		
Mandioca	300	450	$\Delta$ 150	221	$\Delta$ 33,150
Micellaneous Crops	-	15	$\Delta$ 15	10.7	$\Delta$ 160.5
Grape	75	43	32	320	10,240
Plum	75	74	1	214	214
Citrus	40	25	15	107.5	1,612.5
Other Fruits	10	40	$\Delta$ 30	107.5	$\Delta$ 3,225
Onion	120	55	65	282	18,330
Tomato	60	25	35	720	25,200
Water Melon	30	15	15	233.4	3,501
Melon	10	6	4	233.4	933.6
Green Pepper	30	14	16	698.3	11,172.8
Other Vegetables	150	65	85	305	25,925
<b>Total</b>	<b>2,981</b>	<b>2,577</b>			<b>127,450.4</b>
Working Days					49,019 man·day 1/ 121day/house·hold

(Note) 1/ : 127,450,400 G/2,600 G/day

Table G.4. 1 Disbursement Schedule

Year	1	2	3	Total
1. Road	1,257,582	2,515,170	965,768	4,738,520
2. Irrigation	1,345,385	2,690,769		4,036,154
3. Drainage		46,540	56,882	103,422
4. Water Supply		988,454		988,455
5. Extension & Adm.		169,000		169,000
6. Agro. Processing Facility		231,000	192,000	423,000
7. Collectiong & Shipping Facility			462,000	462,000
8. Demo. Farm		23,000		23,000
9. O/M Machinery		500,000	77,000	577,000
10. Engineering Fee	432,000	432,000	216,000	1,080,000
11. Sub-Total	3,034,967	7,595,933	1,969,650	12,600,550
12. Others	0	0	2,255,000	2,255,000
13. Total	3,034,967	7,595,933	4,224,650	14,855,550

Note: Refer to Table G.1.1

Table G.4. 2 Replacement Costs

UNIT: 1000G

YEAR	Pavement	Pompus	O/M Machinery	Demonstration Farm	Gate	Pipeline	TOTAL
1							0
2							0
3							0
4							0
5							0
6							0
7							0
8							0
9							0
10							0
11							0
12							0
13				16,100			16,100
14							0
15			577,000				577,000
16							0
17							0
18							0
19							0
20							0
21							0
22							0
23	148,352	103,198		16,100		106,391	374,040
24	148,352	103,198				106,391	357,940
25	148,352					106,391	254,742
26						106,391	106,391
27			577,000			106,391	683,391
28						106,391	106,391
29						106,391	106,391
30						106,391	106,391
31						106,391	106,391
32						106,391	106,391
33				16,100	41,526	106,391	164,017
34							0
35							0
36							0
37							0
38							0
39			577,000				577,000
40							0
41							0
42							0
43							0
44							0
45							0
46							0
47							0
48							0
49							0
50							0
<b>TOTAL</b>	<b>445,055</b>	<b>206,396</b>	<b>1,731,000</b>	<b>48,300</b>	<b>41,526</b>	<b>1,170,298</b>	<b>3,642,576</b>

Table G.4. 3 Calculation of Economic Internal Rate of Return - Original -

(UNIT : 1,000 G)

YEAR	PROJECT COSTS				TOTAL	INCREMENTAL BENEFIT	PROJECT RETURN
	CONSTRUCT- ION COST	REPLACE- MENT COST	O & M COSTS	PRODUCTION COST			
1	3,034,967	0	0	0	3,034,967	0	-3,034,967
2	7,595,933	0	0	0	7,595,933	0	-7,595,933
3	1,969,650	0	42,070	427,032	2,438,752	1,476,922	-961,830
4	0	0	46,540	427,032	473,572	1,848,164	1,374,592
5	0	0	52,360	427,032	479,392	2,084,734	1,605,342
6	0	0	53,340	427,032	480,372	2,135,553	1,655,181
7	0	0	59,220	427,032	486,252	2,160,098	1,673,846
8	0	0	60,850	427,032	487,882	2,184,643	1,696,761
9	0	0	60,850	427,032	487,882	2,184,643	1,696,761
10	0	0	60,850	427,032	487,882	2,184,643	1,696,761
11	0	0	60,850	427,032	487,882	2,184,643	1,696,761
12	0	0	60,850	427,032	487,882	2,184,643	1,696,761
13	0	16,100	60,850	427,032	503,982	2,184,643	1,680,661
14	0	0	60,850	427,032	487,882	2,184,643	1,696,761
15	0	577,000	60,850	427,032	1,064,882	2,184,643	1,119,761
16	0	0	60,850	427,032	487,882	2,184,643	1,696,761
17	0	0	60,850	427,032	487,882	2,184,643	1,696,761
18	0	0	60,850	427,032	487,882	2,184,643	1,696,761
19	0	0	60,850	427,032	487,882	2,184,643	1,696,761
20	0	0	60,850	427,032	487,882	2,184,643	1,696,761
21	0	0	60,850	427,032	487,882	2,184,643	1,696,761
22	0	0	60,850	427,032	487,882	2,184,643	1,696,761
23	0	374,040	60,850	427,032	861,922	2,184,643	1,322,721
24	0	357,940	60,850	427,032	845,822	2,184,643	1,338,821
25	0	254,742	60,850	427,032	742,624	2,184,643	1,442,019
26	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
27	0	683,391	60,850	427,032	1,171,273	2,184,643	1,013,370
28	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
29	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
30	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
31	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
32	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
33	0	164,017	60,850	427,032	651,899	2,184,643	1,532,744
34	0	0	60,850	427,032	487,882	2,184,643	1,696,761
35	0	0	60,850	427,032	487,882	2,184,643	1,696,761
36	0	0	60,850	427,032	487,882	2,184,643	1,696,761
37	0	0	60,850	427,032	487,882	2,184,643	1,696,761
38	0	0	60,850	427,032	487,882	2,184,643	1,696,761
39	0	577,000	60,850	427,032	1,064,882	2,184,643	1,119,761
40	0	0	60,850	427,032	487,882	2,184,643	1,696,761
41	0	0	60,850	427,032	487,882	2,184,643	1,696,761
42	0	0	60,850	427,032	487,882	2,184,643	1,696,761
43	0	0	60,850	427,032	487,882	2,184,643	1,696,761
44	0	0	60,850	427,032	487,882	2,184,643	1,696,761
45	0	0	60,850	427,032	487,882	2,184,643	1,696,761
46	0	0	60,850	427,032	487,882	2,184,643	1,696,761
47	0	0	60,850	427,032	487,882	2,184,643	1,696,761
48	0	0	60,850	427,032	487,882	2,184,643	1,696,761
49	0	0	60,850	427,032	487,882	2,184,643	1,696,761
50	0	0	60,850	427,032	487,882	2,184,643	1,696,761
TOTAL	12,600,550	3,642,576	2,870,080	20,497,536	39,610,742	103,645,120	64,034,378

INTERNAL RATE OF RETURN (IRR) = 12.0%

(Note) Incremental Benefit = Increased Production Amount + Saving Amount, Refer to Table G 3.1

O & M Costs : Refer to Table G. 2.1

Production Cost: Increased Production Cost 0.1

Refer to Table G. 3.5

Table G.4. 4 Calculation of Economic Internal Rate of Return - Invested Exceeds the Estimated Cost by 10% -

(UNIT : 1,000 G)

YEAR	PROJECT COSTS					INCREMENTAL BENEFIT	PROJECT RETURN
	CONSTRUCTION COST	REPLACEMENT COST	O & M COSTS	PRODUCTION COST	TOTAL		
1	3,338,464	0	0	0	3,338,464	0	-3,338,464
2	8,355,526	0	0	0	8,355,526	0	-8,355,526
3	2,166,615	0	42,070	427,032	2,635,717	1,476,922	-1,158,795
4	0	0	46,540	427,032	473,572	1,848,164	1,374,592
5	0	0	52,360	427,032	479,392	2,084,734	1,605,342
6	0	0	53,340	427,032	480,372	2,135,553	1,655,181
7	0	0	59,220	427,032	486,252	2,160,098	1,673,846
8	0	0	60,850	427,032	487,882	2,184,643	1,696,761
9	0	0	60,850	427,032	487,882	2,184,643	1,696,761
10	0	0	60,850	427,032	487,882	2,184,643	1,696,761
11	0	0	60,850	427,032	487,882	2,184,643	1,696,761
12	0	0	60,850	427,032	487,882	2,184,643	1,696,761
13	0	16,100	60,850	427,032	503,982	2,184,643	1,680,661
14	0	0	60,850	427,032	487,882	2,184,643	1,696,761
15	0	577,000	60,850	427,032	1,064,882	2,184,643	1,119,761
16	0	0	60,850	427,032	487,882	2,184,643	1,696,761
17	0	0	60,850	427,032	487,882	2,184,643	1,696,761
18	0	0	60,850	427,032	487,882	2,184,643	1,696,761
19	0	0	60,850	427,032	487,882	2,184,643	1,696,761
20	0	0	60,850	427,032	487,882	2,184,643	1,696,761
21	0	0	60,850	427,032	487,882	2,184,643	1,696,761
22	0	0	60,850	427,032	487,882	2,184,643	1,696,761
23	0	374,040	60,850	427,032	861,922	2,184,643	1,322,721
24	0	357,940	60,850	427,032	845,822	2,184,643	1,338,821
25	0	254,742	60,850	427,032	742,624	2,184,643	1,442,019
26	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
27	0	683,391	60,850	427,032	1,171,273	2,184,643	1,013,370
28	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
29	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
30	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
31	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
32	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
33	0	164,017	60,850	427,032	651,899	2,184,643	1,532,744
34	0	0	60,850	427,032	487,882	2,184,643	1,696,761
35	0	0	60,850	427,032	487,882	2,184,643	1,696,761
36	0	0	60,850	427,032	487,882	2,184,643	1,696,761
37	0	0	60,850	427,032	487,882	2,184,643	1,696,761
38	0	0	60,850	427,032	487,882	2,184,643	1,696,761
39	0	577,000	60,850	427,032	1,064,882	2,184,643	1,119,761
40	0	0	60,850	427,032	487,882	2,184,643	1,696,761
41	0	0	60,850	427,032	487,882	2,184,643	1,696,761
42	0	0	60,850	427,032	487,882	2,184,643	1,696,761
43	0	0	60,850	427,032	487,882	2,184,643	1,696,761
44	0	0	60,850	427,032	487,882	2,184,643	1,696,761
45	0	0	60,850	427,032	487,882	2,184,643	1,696,761
46	0	0	60,850	427,032	487,882	2,184,643	1,696,761
47	0	0	60,850	427,032	487,882	2,184,643	1,696,761
48	0	0	60,850	427,032	487,882	2,184,643	1,696,761
49	0	0	60,850	427,032	487,882	2,184,643	1,696,761
50	0	0	60,850	427,032	487,882	2,184,643	1,696,761
TOTAL	13,860,605	3,642,576	2,870,080	20,497,536	40,870,797	103,645,120	62,774,323

INTERNAL RATE OF RETURN (IRR) = 11.0%  
 (Note) Same as the note in Table G.4.3

Table G.4. 5 Calculation of Economic Internal Rate of Return - Extended the Construction Period by one year -

(UNIT : 1,000 G)

YEAR	PROJECT COSTS					INCREMENTAL BENEFIT	PROJECT RETURN
	CONSTRUCTION COST	REPLACEMENT COST	O & M COSTS	PRODUCTION COST	TOTAL		
1	2,520,110	0	0	0	2,520,110	0	-2,520,110
2	7,595,933	0	0	0	7,595,933	0	-7,595,933
3	0	0	0	0	0	0	0
4	1,969,650	0	42,070	427,032	2,438,752	1,476,922	-961,830
5	0	0	46,540	427,032	473,572	1,848,164	1,374,592
6	0	0	52,360	427,032	479,392	2,084,734	1,605,342
7	0	0	53,340	427,032	480,372	2,135,553	1,655,181
8	0	0	59,220	427,032	486,252	2,160,098	1,673,846
9	0	0	60,850	427,032	487,882	2,184,643	1,696,761
10	0	0	60,850	427,032	487,882	2,184,643	1,696,761
11	0	0	60,850	427,032	487,882	2,184,643	1,696,761
12	0	0	60,850	427,032	487,882	2,184,643	1,696,761
13	0	0	60,850	427,032	487,882	2,184,643	1,696,761
14	0	16,100	60,850	427,032	503,982	2,184,643	1,680,661
15	0	0	60,850	427,032	487,882	2,184,643	1,696,761
16	0	577,000	60,850	427,032	1,064,882	2,184,643	1,119,761
17	0	0	60,850	427,032	487,882	2,184,643	1,696,761
18	0	0	60,850	427,032	487,882	2,184,643	1,696,761
19	0	0	60,850	427,032	487,882	2,184,643	1,696,761
20	0	0	60,850	427,032	487,882	2,184,643	1,696,761
21	0	0	60,850	427,032	487,882	2,184,643	1,696,761
22	0	0	60,850	427,032	487,882	2,184,643	1,696,761
23	0	0	60,850	427,032	487,882	2,184,643	1,696,761
24	0	374,040	60,850	427,032	861,922	2,184,643	1,322,721
25	0	357,940	60,850	427,032	845,822	2,184,643	1,338,821
26	0	254,742	60,850	427,032	742,624	2,184,643	1,442,019
27	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
28	0	683,391	60,850	427,032	1,171,273	2,184,643	1,013,370
29	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
30	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
31	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
32	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
33	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
34	0	164,017	60,850	427,032	651,899	2,184,643	1,532,744
35	0	0	60,850	427,032	487,882	2,184,643	1,696,761
36	0	0	60,850	427,032	487,882	2,184,643	1,696,761
37	0	0	60,850	427,032	487,882	2,184,643	1,696,761
38	0	0	60,850	427,032	487,882	2,184,643	1,696,761
39	0	0	60,850	427,032	487,882	2,184,643	1,696,761
40	0	577000	60,850	427,032	1,064,882	2,184,643	1,119,761
41	0	0	60,850	427,032	487,882	2,184,643	1,696,761
42	0	0	60,850	427,032	487,882	2,184,643	1,696,761
43	0	0	60,850	427,032	487,882	2,184,643	1,696,761
44	0	0	60,850	427,032	487,882	2,184,643	1,696,761
45	0	0	60,850	427,032	487,882	2,184,643	1,696,761
46	0	0	60,850	427,032	487,882	2,184,643	1,696,761
47	0	0	60,850	427,032	487,882	2,184,643	1,696,761
48	0	0	60,850	427,032	487,882	2,184,643	1,696,761
49	0	0	60,850	427,032	487,882	2,184,643	1,696,761
50	0	0	60,850	427,032	487,882	2,184,643	1,696,761
TOTAL	12,085,693	3,642,576	2,809,230	20,070,504	38,608,003	101,460,477	62,852,474

INTERNAL RATE OF RETURN (IRR) =

11.5%

(Note) Same as the note in Table G.4.3

Table G.4.6 Calculation of Economic Internal Rate of Return  
5 % Less than Anticipation in Produce

(UNIT : 1.000 G)

YEAR	PROJECT COSTS				TOTAL	INCREMENTAL BENEFIT	PROJECT RETURN
	CONSTRUCT- ION COST	REPLACE- MENT COST	O & M COSTS	PRODUCTION COST			
1	3,034,967	0	0	0	3,034,967	0	-3,034,967
2	7,595,933	0	0	0	7,595,933	0	-7,595,933
3	1,969,650	0	42,070	427,032	2,438,752	1,403,076	-1,035,676
4	0	0	46,540	427,032	473,572	1,755,755	1,282,183
5	0	0	52,360	427,032	479,392	1,980,497	1,501,105
6	0	0	53,340	427,032	480,372	2,028,775	1,548,403
7	0	0	59,220	427,032	486,252	2,052,093	1,565,841
8	0	0	60,850	427,032	487,882	2,075,410	1,587,528
9	0	0	60,850	427,032	487,882	2,075,410	1,587,528
10	0	0	60,850	427,032	487,882	2,075,410	1,587,528
11	0	0	60,850	427,032	487,882	2,075,410	1,587,528
12	0	0	60,850	427,032	487,882	2,075,410	1,587,528
13	0	16,100	60,850	427,032	503,982	2,075,410	1,571,428
14	0	0	60,850	427,032	487,882	2,075,410	1,587,528
15	0	577,000	60,850	427,032	1,064,882	2,075,410	1,010,528
16	0	0	60,850	427,032	487,882	2,075,410	1,587,528
17	0	0	60,850	427,032	487,882	2,075,410	1,587,528
18	0	0	60,850	427,032	487,882	2,075,410	1,587,528
19	0	0	60,850	427,032	487,882	2,075,410	1,587,528
20	0	0	60,850	427,032	487,882	2,075,410	1,587,528
21	0	0	60,850	427,032	487,882	2,075,410	1,587,528
22	0	0	60,850	427,032	487,882	2,075,410	1,587,528
23	0	374,040	60,850	427,032	861,922	2,075,410	1,213,488
24	0	357,940	60,850	427,032	845,822	2,075,410	1,229,588
25	0	254,742	60,850	427,032	742,624	2,075,410	1,332,786
26	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
27	0	683,391	60,850	427,032	1,171,273	2,075,410	904,137
28	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
29	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
30	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
31	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
32	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
33	0	164,017	60,850	427,032	651,899	2,075,410	1,423,511
34	0	0	60,850	427,032	487,882	2,075,410	1,587,528
35	0	0	60,850	427,032	487,882	2,075,410	1,587,528
36	0	0	60,850	427,032	487,882	2,075,410	1,587,528
37	0	0	60,850	427,032	487,882	2,075,410	1,587,528
38	0	0	60,850	427,032	487,882	2,075,410	1,587,528
39	0	577,000	60,850	427,032	1,064,882	2,075,410	1,010,528
40	0	0	60,850	427,032	487,882	2,075,410	1,587,528
41	0	0	60,850	427,032	487,882	2,075,410	1,587,528
42	0	0	60,850	427,032	487,882	2,075,410	1,587,528
43	0	0	60,850	427,032	487,882	2,075,410	1,587,528
44	0	0	60,850	427,032	487,882	2,075,410	1,587,528
45	0	0	60,850	427,032	487,882	2,075,410	1,587,528
46	0	0	60,850	427,032	487,882	2,075,410	1,587,528
47	0	0	60,850	427,032	487,882	2,075,410	1,587,528
48	0	0	60,850	427,032	487,882	2,075,410	1,587,528
49	0	0	60,850	427,032	487,882	2,075,410	1,587,528
50	0	0	60,850	427,032	487,882	2,075,410	1,587,528
TOTAL	12,600,550	3,642,576	2,870,080	20,497,536	39,610,742	101,519,062	58,852,084

INTERNAL RATE OF RETURN (IRR) =

11.3%

(Note) Same as the note in Table G.4.3



Table G.4.7 Calculation of Economic Internal Rate of Return - Investment Exceeds the Estimates cost by 10%, While 5% less than Anticipation in Produce - (UNIT : 1,000 G)

YEAR	PROJECT COSTS				TOTAL	INCREMENTAL BENEFIT	PROJECT RETURN
	CONSTRUCTION COST	REPLACEMENT COST	O & M COSTS	PRODUCTION COST			
1	3,338,464	0	0	0	3,338,464	0	-3,338,464
2	8,355,526	0	0	0	8,355,526	0	-8,355,526
3	2,166,615	0	42,070	427,032	2,635,717	1,403,076	-1,232,641
4	0	0	46,540	427,032	473,572	1,755,755	1,282,183
5	0	0	52,360	427,032	479,392	1,980,497	1,501,105
6	0	0	53,340	427,032	480,372	2,028,775	1,548,403
7	0	0	59,220	427,032	486,252	2,075,410	1,589,158
8	0	0	60,850	427,032	487,882	2,075,410	1,587,528
9	0	0	60,850	427,032	487,882	2,075,410	1,587,528
10	0	0	60,850	427,032	487,882	2,075,410	1,587,528
11	0	0	60,850	427,032	487,882	2,075,410	1,587,528
12	0	0	60,850	427,032	487,882	2,075,410	1,587,528
13	0	16,100	60,850	427,032	503,982	2,075,410	1,571,428
14	0	0	60,850	427,032	487,882	2,075,410	1,587,528
15	0	577,000	60,850	427,032	1,064,882	2,075,410	1,010,528
16	0	0	60,850	427,032	487,882	2,075,410	1,587,528
17	0	0	60,850	427,032	487,882	2,075,410	1,587,528
18	0	0	60,850	427,032	487,882	2,075,410	1,587,528
19	0	0	60,850	427,032	487,882	2,075,410	1,587,528
20	0	0	60,850	427,032	487,882	2,075,410	1,587,528
21	0	0	60,850	427,032	487,882	2,075,410	1,587,528
22	0	0	60,850	427,032	487,882	2,075,410	1,587,528
23	0	374,040	60,850	427,032	861,922	2,075,410	1,213,488
24	0	357,940	60,850	427,032	845,822	2,075,410	1,229,588
25	0	254,742	60,850	427,032	742,624	2,075,410	1,332,786
26	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
27	0	683,391	60,850	427,032	1,171,273	2,075,410	904,137
28	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
29	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
30	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
31	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
32	0	106,391	60,850	427,032	594,273	2,075,410	1,481,137
33	0	164,017	60,850	427,032	651,899	2,075,410	1,423,511
34	0	0	60,850	427,032	487,882	2,075,410	1,587,528
35	0	0	60,850	427,032	487,882	2,075,410	1,587,528
36	0	0	60,850	427,032	487,882	2,075,410	1,587,528
37	0	0	60,850	427,032	487,882	2,075,410	1,587,528
38	0	0	60,850	427,032	487,882	2,075,410	1,587,528
39	0	577,000	60,850	427,032	1,064,882	2,075,410	1,010,528
40	0	0	60,850	427,032	487,882	2,075,410	1,587,528
41	0	0	60,850	427,032	487,882	2,075,410	1,587,528
42	0	0	60,850	427,032	487,882	2,075,410	1,587,528
43	0	0	60,850	427,032	487,882	2,075,410	1,587,528
44	0	0	60,850	427,032	487,882	2,075,410	1,587,528
45	0	0	60,850	427,032	487,882	2,075,410	1,587,528
46	0	0	60,850	427,032	487,882	2,075,410	1,587,528
47	0	0	60,850	427,032	487,882	2,075,410	1,587,528
48	0	0	60,850	427,032	487,882	2,075,410	1,587,528
49	0	0	60,850	427,032	487,882	2,075,410	1,587,528
50	0	0	60,850	427,032	487,882	2,075,410	1,587,528
TOTAL	13,860,605	3,642,576	2,870,080	20,497,536	40,870,797	101,519,062	57,615,346

INTERNAL RATE OF RETURN (IRR) = 10.2%  
 (Note) Same as the note in Table G. 4.3

Table G.4. 8 Calculation of Economic Internal Rate of Return - Exchange Rate of US\$ is Equal to 550 G -

(UNIT : 1,000 G)

YEAR	PROJECT COSTS					INCREMENTAL BENEFIT	PROJECT RETURN
	CONSTRUCTION COST	REPLACEMENT COST	O & M COSTS	PRODUCTION COST	TOTAL		
1	2,316,127	0	0	0	2,316,127	0	-2,316,127
2	5,796,819	0	0	0	5,796,819	0	-5,796,819
3	1,503,134	0	42,070	427,032	1,972,236	1,476,922	-495,314
4	0	0	46,540	427,032	473,572	1,848,164	1,374,592
5	0	0	52,360	427,032	479,392	2,084,734	1,605,342
6	0	0	53,340	427,032	480,372	2,135,553	1,655,181
7	0	0	59,220	427,032	486,252	2,160,098	1,673,846
8	0	0	60,850	427,032	487,882	2,184,643	1,696,761
9	0	0	60,850	427,032	487,882	2,184,643	1,696,761
10	0	0	60,850	427,032	487,882	2,184,643	1,696,761
11	0	0	60,850	427,032	487,882	2,184,643	1,696,761
12	0	0	60,850	427,032	487,882	2,184,643	1,696,761
13	0	16,100	60,850	427,032	503,982	2,184,643	1,680,661
14	0	0	60,850	427,032	487,882	2,184,643	1,696,761
15	0	577,000	60,850	427,032	1,064,882	2,184,643	1,119,761
16	0	0	60,850	427,032	487,882	2,184,643	1,696,761
17	0	0	60,850	427,032	487,882	2,184,643	1,696,761
18	0	0	60,850	427,032	487,882	2,184,643	1,696,761
19	0	0	60,850	427,032	487,882	2,184,643	1,696,761
20	0	0	60,850	427,032	487,882	2,184,643	1,696,761
21	0	0	60,850	427,032	487,882	2,184,643	1,696,761
22	0	0	60,850	427,032	487,882	2,184,643	1,696,761
23	0	374,040	60,850	427,032	861,922	2,184,643	1,322,721
24	0	357,940	60,850	427,032	845,822	2,184,643	1,338,821
25	0	254,742	60,850	427,032	742,624	2,184,643	1,442,019
26	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
27	0	683,391	60,850	427,032	1,171,273	2,184,643	1,013,370
28	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
29	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
30	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
31	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
32	0	106,391	60,850	427,032	594,273	2,184,643	1,590,370
33	0	164,017	60,850	427,032	651,899	2,184,643	1,532,744
34	0	0	60,850	427,032	487,882	2,184,643	1,696,761
35	0	0	60,850	427,032	487,882	2,184,643	1,696,761
36	0	0	60,850	427,032	487,882	2,184,643	1,696,761
37	0	0	60,850	427,032	487,882	2,184,643	1,696,761
38	0	0	60,850	427,032	487,882	2,184,643	1,696,761
39	0	577,000	60,850	427,032	1,064,882	2,184,643	1,119,761
40	0	0	60,850	427,032	487,882	2,184,643	1,696,761
41	0	0	60,850	427,032	487,882	2,184,643	1,696,761
42	0	0	60,850	427,032	487,882	2,184,643	1,696,761
43	0	0	60,850	427,032	487,882	2,184,643	1,696,761
44	0	0	60,850	427,032	487,882	2,184,643	1,696,761
45	0	0	60,850	427,032	487,882	2,184,643	1,696,761
46	0	0	60,850	427,032	487,882	2,184,643	1,696,761
47	0	0	60,850	427,032	487,882	2,184,643	1,696,761
48	0	0	60,850	427,032	487,882	2,184,643	1,696,761
49	0	0	60,850	427,032	487,882	2,184,643	1,696,761
50	0	0	60,850	427,032	487,882	2,184,643	1,696,761
TOTAL	9,616,080	3,642,576	2,870,080	20,497,536	36,626,272	103,645,120	67,018,848

INTERNAL RATE OF RETURN (IRR) = 15.6%  
 (Note) Same as the note in Table G.4.3

Table G.5. 1 Repayment Schedule for Investment

Unit : 1,000

	1st	2nd	3rd	4th	5th	6th	7th	8th	25th	26th	27th
Debt	3,034,967	7,596,933	4,224,650								
(Case 1)											
Repayment	106,214	106,214	106,241	106,241	106,241	213,524	213,524	213,524	213,524	-	-
$i = 2.035$	-	265,658	265,658	265,658	265,658	265,658	534,457	534,457	534,457	534,457	-
Grace Period: 5years	-	-	147,872	147,872	147,872	147,872	147,872	287,270	287,270	287,270	287,270
Total	106,214	372,072	519,971	519,971	519,971	627,254	681,329	1,045,251	1,045,251	831,727	287,270
(Case II)											
	-	-	-	-	-	253,693	253,693	253,693	- do -	253,693	-
	-	-	-	-	-	-	634,775	634,775	- do -	634,775	634,775
	-	-	-	-	-	-	-	353,063	- do -	353,063	353,063
Total	-	-	-	-	-	253,693	888,378	1,241,441	- do -	1,241,441	987,838

Note: Refer to Table G.4.1 Disbursement Schedule

Table G.5.2 Repayment Schedule on Irrigation Terminal Facilities

Unit : 1,000

	1st	2nd	3rd	4th	5th	6th	25th
Debt	924,000 <sup>1/</sup>						
	[Case I]						
Repayment	32,340	----- do	do	-----	32,340	65,014	55,014
i = 3.5%	(80.9)				(80.9)	(162.5)	(162.5)
Grace Period: 5years	[Case II]					77,217	77,217
	-					(193)	(193)

Note : Figures in parenthesis are repayment per ha (In case the irrigation area is 400 ha)

<sup>1/</sup> Refer to Table G.1.1

Table G.5.3 Repayment Schedule on Water Supply Terminal Facilities

Unit : 1,000

	1st	2nd	3rd	4th	5th	6th	25th
Debt	77,000 <sup>1/</sup>						
	[Case I]						
Repayment	2,695	----- do	do	-----	2,695	5,418	5,418
i = 3.5%	(8.1)				(8.1)	(16.3)	(16.3)
Grace Period: 5years	[Case II]						
	-					6,435	6,435
						(19.3)	(19.3)

Note : Figures in parenthesis are repayment per house holds (In case the number of beneficiaries is 333 houses)

<sup>1/</sup> Refer to Table G.1.1

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