

TABLES



TABLE K.1.1 ESTIMATE OF STANDARD CONVERSION RATE (SCR)

Items	1990	1991	1992	1993	1994	Average
Imports (US\$ Million)	527.7	1,000.1	1,235.0	1,429.4	1,306.8	1099.8
Import Duty (US\$ Million)	133.4	224.2	299.2	321.0	383.2	272.2
Total	661.1	1,224.3	1,534.2	1,750.4	1,690.0	1,372.0
Rate of Import Duty (%)	25.3	22.4	24.2	22.5	29.3	24.7
Exports (US\$ Million)	926.8	848.5	712.3	754.5	722.9	793.0
Export Duty (US\$ Million)	0.0	0.0	0.0	0.0	0.0	0.0
Total	926.8	848.5	712.3	754.5	722.9	793.0
SCR (%)	91.6	89.2	86.7	87.2	84.1	87.8

Average SCR of Bolivia : 88 %

TABLE K.2.1(1/2) NUMBER AND AREA OF INUNDATION ASSETS IN RIO CHANE AREA (WITHOUT)

(1) 2-Year Return Period

No.	Water Depth (m)	Residence			Buildings						Total	Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau-rant	School	Charch	Factory	Hospital		Health Center	Soy-beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	2	20	14	2	0	0	0	0	0	0	38	254	52	348	24	12	27	717
2	0.25-0.5	2	28	19	2	0	1	0	0	0	0	52	358	73	491	33	17	37	1,009
3	0.5-1.0	3	31	21	3	0	1	0	0	0	0	59	397	81	545	37	19	42	1,121
4	1.0-1.5	1	8	5	1	0	0	0	0	0	0	15	105	21	143	10	5	11	295
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		8	87	59	8	0	2	0	0	0	0	164	1,114	227	1,527	104	53	117	3,142

(2) 5-Year Return Period

No.	Water Depth (m)	Residence			Buildings						Total	Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau-rant	School	Charch	Factory	Hospital		Health Center	Soy-beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	2	20	13	2	0	0	0	0	0	0	37	250	51	342	23	12	26	704
2	0.25-0.5	2	20	13	2	0	0	0	0	0	0	37	250	51	342	23	12	26	704
3	0.5-1.0	5	51	35	5	0	1	1	0	0	0	98	657	134	900	61	32	69	1,853
4	1.0-1.5	2	17	11	2	0	0	0	0	0	0	32	218	44	299	20	11	23	615
5	1.5-2.0	0	2	2	0	0	0	0	0	0	0	4	30	6	42	3	1	3	85
Total		11	110	74	11	0	1	1	0	0	0	208	1,405	286	1,925	130	68	147	3,961

(3) 10-Year Return Period

No.	Water Depth (m)	Residence			Buildings						Total	Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau-rant	School	Charch	Factory	Hospital		Health Center	Soy-beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	0	4	3	0	0	0	0	0	0	0	7	50	10	68	5	2	5	140
2	0.25-0.5	2	20	13	2	0	0	0	0	0	0	37	250	51	342	23	12	26	704
3	0.5-1.0	4	48	33	5	0	1	1	0	0	0	92	621	127	851	58	30	65	1,752
4	1.0-1.5	3	32	22	3	0	1	0	0	0	0	61	418	85	572	39	20	44	1,178
5	1.5-2.0	1	8	5	1	0	0	0	0	0	0	15	96	20	131	9	5	10	271
Total		10	112	76	11	0	2	1	0	0	0	212	1,435	293	1,964	134	69	150	4,045

(4) 20-Year Return Period

No.	Water Depth (m)	Residence			Buildings						Total	Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau-rant	School	Charch	Factory	Hospital		Health Center	Soy-beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0.25-0.5	1	7	5	1	0	0	0	0	0	0	14	90	18	123	8	4	9	252
3	0.5-1.0	4	44	30	4	0	2	1	0	0	0	84	560	114	768	53	27	59	1,581
4	1.0-1.5	4	49	33	5	0	1	1	0	0	0	93	627	128	860	59	31	66	1,771
5	1.5-2.0	1	12	8	1	0	0	0	0	0	0	22	157	32	215	14	8	16	442
Total		10	112	76	11	0	2	2	0	0	0	214	1,434	292	1,966	134	70	150	4,046

(5) 50-Year Return Period

No.	Water Depth (m)	Residence			Buildings						Total	Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau-rant	School	Charch	Factory	Hospital		Health Center	Soy-beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0.25-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0.5-1.0	2	24	16	2	0	1	0	0	0	0	45	310	63	424	29	15	32	873
4	1.0-1.5	5	55	37	5	0	1	1	0	0	0	104	704	144	965	66	34	74	1,987
5	1.5-2.0	3	33	22	3	0	1	0	0	0	0	62	421	86	576	39	21	44	1,187
Total		10	112	75	10	0	3	1	0	0	0	211	1,435	293	1,965	134	70	150	4,047

TABLE K.2.1(2/2) NUMBER AND AREA OF INUNDATION ASSETS
IN RIO CHANE AREA (WITII)

(1) 2-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)					Total		
		High	Medium	Low	Shop	Restau- rant	School	Church	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
																		Natural	Improved
1	0.0-0.25	2	20	13	2	0	0	0	0	0	0	37	249	51	342	23	12	26	703
2	0.25-0.5	2	24	16	2	0	0	0	0	0	0	44	303	62	416	28	15	32	856
3	0.5-1.0	2	17	11	2	0	0	0	0	0	0	32	218	44	299	20	11	23	615
4	1.0-1.5	1	11	8	1	0	0	0	0	0	0	21	144	29	197	14	7	15	406
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		7	72	48	7	0	0	0	0	0	0	134	914	186	1,254	85	45	96	2,580

(2) 5-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)					Total		
		High	Medium	Low	Shop	Restau- rant	School	Church	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
																		Natural	Improved
1	0.0-0.25	2	20	13	2	0	0	0	0	0	0	37	249	51	342	23	12	26	703
2	0.25-0.5	2	20	13	2	0	0	0	0	0	0	37	249	51	342	23	12	26	703
3	0.5-1.0	4	40	27	4	0	1	1	0	0	0	77	513	105	704	48	25	51	1,449
4	1.0-1.5	2	17	11	2	0	0	0	0	0	0	32	218	44	299	20	11	23	615
5	1.5-2.0	1	9	6	1	0	0	0	0	0	0	18	113	23	155	11	6	12	320
Total		11	106	70	11	0	1	1	0	0	0	201	1,342	274	1,842	125	66	141	3,750

(3) 10-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)					Total		
		High	Medium	Low	Shop	Restau- rant	School	Church	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
																		Natural	Improved
1	0.0-0.25	0	4	3	0	0	0	0	0	0	0	7	60	12	82	6	3	6	169
2	0.25-0.5	2	20	13	2	0	0	0	0	0	0	37	250	51	342	23	12	26	704
3	0.5-1.0	4	42	29	4	0	1	1	0	0	0	81	538	110	738	50	26	56	1,518
4	1.0-1.5	3	32	22	3	0	1	0	0	0	0	61	408	83	559	38	20	43	1,151
5	1.5-2.0	1	14	9	1	0	0	0	0	0	0	25	179	36	245	17	9	19	505
Total		10	112	76	10	0	2	1	0	0	0	211	1,435	292	1,966	134	70	150	4,017

(4) 20-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)					Total		
		High	Medium	Low	Shop	Restau- rant	School	Church	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
																		Natural	Improved
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0.25-0.5	1	8	5	1	0	0	0	0	0	0	15	100	20	137	9	5	10	281
3	0.5-1.0	3	39	26	4	0	1	1	0	0	0	74	499	102	684	47	24	52	1,408
4	1.0-1.5	4	43	29	4	0	1	1	0	0	0	82	547	112	750	51	27	57	1,544
5	1.5-2.0	2	23	15	2	0	0	0	0	0	0	42	268	59	394	27	14	30	812
Total		10	113	75	11	0	2	2	0	0	0	213	1,434	293	1,965	134	70	149	4,015

(5) 50-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)					Total		
		High	Medium	Low	Shop	Restau- rant	School	Church	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
																		Natural	Improved
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0.25-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0.5-1.0	3	30	21	3	0	1	0	0	0	0	58	389	79	534	36	19	41	1,058
4	1.0-1.5	3	39	26	4	0	1	1	0	0	0	74	499	102	684	47	24	52	1,408
5	1.5-2.0	4	43	29	4	0	1	1	0	0	0	83	545	111	748	51	27	57	1,539
Total		10	112	76	11	0	3	2	0	0	0	215	1,433	292	1,966	134	70	150	4,015

**TABLE K.2.2(1/2) NUMBER AND AREA OF INUNDATION ASSETS
IN RIO PAILON AREA (WITHOUT)**

(1) 2-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	12	36	42	5	1	1	0	1	0	1	97	2,223	453	474	208	249	511	4,141
2	0.25-0.5	9	28	33	4	0	1	0	1	0	0	75	1,764	360	377	166	197	424	3,288
3	0.5-1.0	18	53	62	7	1	1	1	1	0	1	141	3,317	676	708	311	371	797	6,180
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		39	117	137	15	1	3	1	2	0	1	316	7,304	1,489	1,559	685	817	1,755	13,609

(2) 5-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	4	13	15	1	0	0	0	0	0	0	33	771	157	165	72	86	185	1,436
2	0.25-0.5	9	27	32	4	0	1	0	1	0	0	74	1,693	345	361	158	190	407	3,154
3	0.5-1.0	18	57	67	8	1	1	1	1	0	1	153	3,528	719	753	330	395	847	6,572
4	1.0-1.5	10	29	34	4	0	1	0	1	0	0	79	1,835	374	392	172	205	441	3,419
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		41	126	148	17	1	3	1	2	0	1	339	7,827	1,595	1,671	732	876	1,880	14,581

(3) 10-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	5	15	18	2	0	0	0	0	0	0	39	931	190	199	87	101	224	1,735
2	0.25-0.5	4	4	4	1	0	0	0	0	0	0	10	223	46	48	21	25	54	417
3	0.5-1.0	18	57	67	8	1	1	1	1	0	1	153	3,528	719	753	330	395	847	6,572
4	1.0-1.5	18	55	65	8	1	1	1	1	0	1	150	3,457	705	738	324	387	830	6,441
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		43	130	153	18	1	3	1	1	0	1	353	8,139	1,660	1,738	762	911	1,955	15,165

(4) 20-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	6	16	20	2	0	1	0	0	0	0	44	1,025	209	219	96	115	246	1,910
2	0.25-0.5	2	6	7	1	0	0	0	0	0	0	16	389	79	83	36	43	93	723
3	0.5-1.0	11	35	41	5	1	1	0	1	0	1	95	2,187	446	467	205	245	525	4,075
4	1.0-1.5	18	57	67	8	1	1	1	1	0	1	153	3,528	719	753	330	395	847	6,572
5	1.5-2.0	7	22	25	3	0	1	0	1	0	0	58	1,341	273	286	125	150	322	2,497
Total		44	136	160	18	1	4	1	2	0	1	367	8,470	1,726	1,808	792	948	2,033	15,777

(5) 50-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	6	16	20	2	0	1	0	0	0	0	44	1,025	209	219	96	115	246	1,910
2	0.25-0.5	4	12	14	1	0	0	0	0	0	0	32	755	154	161	71	85	181	1,407
3	0.5-1.0	2	6	8	1	0	0	0	0	0	0	17	413	84	88	39	46	99	769
4	1.0-1.5	18	57	67	8	1	1	1	1	0	1	153	3,528	719	753	330	395	847	6,572
5	1.5-2.0	17	52	61	7	1	1	1	1	0	1	141	3,246	662	693	304	363	779	6,047
Total		47	143	169	19	1	4	1	1	0	1	386	8,967	1,828	1,914	840	1,004	2,152	16,705

TABLE K.2.2 (2/2) NUMBER AND AREA OF INUNDATION ASSETS IN RIO PAILON AREA (WITH)

(1) 2-Year Return Period

No.	Water Depth (m)	Buildings										Agricultural Crops (ha)						Total	
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
		High	Medium	Low													Natural		Improved
1	0.0-0.25	3	8	9	1	0	0	0	0	0	0	21	497	101	106	47	56	119	926
2	0.25-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		3	8	9	1	0	0	0	0	0	0	21	497	101	106	47	56	119	926

(2) 5-Year Return Period

No.	Water Depth (m)	Buildings										Agricultural Crops (ha)						Total	
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
		High	Medium	Low													Natural		Improved
1	0.0-0.25	8	23	27	3	0	1	0	1	0	0	62	1,446	295	309	136	162	347	2,695
2	0.25-0.5	1	2	3	0	0	0	0	0	0	0	6	130	27	28	12	15	31	243
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		8	25	30	3	0	1	0	1	0	0	68	1,576	322	337	148	177	378	2,938

(3) 10-Year Return Period

No.	Water Depth (m)	Buildings										Agricultural Crops (ha)						Total	
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
		High	Medium	Low													Natural		Improved
1	0.0-0.25	14	43	50	6	1	1	0	1	0	1	116	2,675	545	571	250	299	612	4,983
2	0.25-0.5	2	7	8	1	0	0	0	0	0	0	18	418	85	89	39	47	100	778
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		16	50	58	6	1	1	0	1	0	1	133	3,093	630	660	289	346	742	5,760

(4) 20-Year Return Period

No.	Water Depth (m)	Buildings										Agricultural Crops (ha)						Total	
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
		High	Medium	Low													Natural		Improved
1	0.0-0.25	15	45	53	6	1	1	0	1	0	1	121	2,792	569	596	261	312	670	5,200
2	0.25-0.5	11	34	39	4	1	1	0	1	0	1	91	2,096	427	447	196	235	503	3,904
3	0.5-1.0	0	1	1	0	0	0	0	0	0	0	1	43	9	9	4	5	10	80
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		26	79	92	11	1	1	0	1	0	1	214	4,931	1,005	1,052	461	552	1,183	9,184

(5) 50-Year Return Period

No.	Water Depth (m)	Buildings										Agricultural Crops (ha)						Total	
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
		High	Medium	Low													Natural		Improved
1	0.0-0.25	15	45	53	6	1	1	0	1	0	1	121	2,792	569	596	261	312	670	5,200
2	0.25-0.5	13	40	47	6	1	1	0	1	0	1	109	2,502	510	534	235	280	601	4,662
3	0.5-1.0	8	27	32	4	0	1	0	1	0	0	71	1,672	341	357	156	187	402	3,115
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		36	111	131	15	1	2	0	2	0	1	301	6,966	1,420	1,487	652	779	1,673	12,977

TABLE K.2.3 (1/2) NUMBER AND AREA OF INUNDATION ASSETS IN QDA, CHIANE AREA (WITHOUT)

(1) 2-Year Return Period

No.	Water			Buildings							Agricultural Crops (ha)						Total		
	Depth (m)	Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	6	30	90	10	1	1	0	1	0	0	138	130	27	1,865	12	73	158	2,265
2	0.25-0.5	4	20	61	6	0	1	0	0	0	0	92	89	18	1,273	8	50	108	1,516
3	0.5-1.0	3	14	42	4	0	1	0	0	0	0	64	62	13	881	6	35	75	1,072
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		13	64	193	20	1	2	0	1	0	0	291	281	58	4,019	26	158	341	4,883

(2) 5-Year Return Period

No.	Water			Buildings							Agricultural Crops (ha)						Total		
	Depth (m)	Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	8	38	112	12	1	1	0	1	0	0	172	164	33	2,347	16	92	198	2,850
2	0.25-0.5	6	27	79	8	0	1	0	1	0	0	121	115	23	1,648	11	65	139	2,001
3	0.5-1.0	6	28	83	9	0	1	0	1	0	0	127	120	25	1,724	11	68	146	2,094
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		19	92	274	29	1	2	0	2	0	0	419	399	81	5,719	38	225	483	6,945

(3) 10-Year Return Period

No.	Water			Buildings							Agricultural Crops (ha)						Total		
	Depth (m)	Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	9	43	126	13	1	1	0	1	0	0	194	184	38	2,637	17	104	223	3,203
2	0.25-0.5	7	32	94	10	1	1	0	1	0	0	144	137	28	1,957	13	77	165	2,377
3	0.5-1.0	8	41	120	13	1	1	0	1	0	0	183	175	36	2,500	16	98	211	3,036
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		25	115	340	36	2	3	0	2	0	0	522	496	102	7,094	46	279	599	8,616

(4) 20-Year Return Period

No.	Water			Buildings							Agricultural Crops (ha)						Total		
	Depth (m)	Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	8	37	109	12	1	1	0	1	0	0	168	159	32	2,282	15	90	193	2,771
2	0.25-0.5	8	35	104	11	1	1	0	1	0	0	160	151	31	2,162	14	85	183	2,626
3	0.5-1.0	11	50	148	15	1	1	0	1	0	0	226	215	44	3,080	20	121	260	3,740
4	1.0-1.5	1	6	19	2	0	0	0	0	0	0	29	28	6	396	3	16	33	482
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		27	128	379	41	2	3	0	2	0	0	582	553	113	7,920	52	312	669	9,619

(5) 50-Year Return Period

No.	Water			Buildings							Agricultural Crops (ha)						Total		
	Depth (m)	Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	6	27	80	8	0	1	0	1	0	0	123	117	24	1,670	11	66	141	2,029
2	0.25-0.5	8	39	113	12	1	1	0	1	0	0	174	165	34	2,367	16	93	200	2,875
3	0.5-1.0	12	57	171	18	1	1	1	1	0	0	262	249	51	3,562	24	140	301	4,327
4	1.0-1.5	4	18	53	6	0	1	0	0	0	0	80	77	16	1,096	8	43	93	1,333
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		29	141	417	44	1	4	1	2	0	0	638	608	125	8,695	59	342	735	10,564

TABLE K.2.3 (2/2) NUMBER AND AREA OF INUNDATION ASSETS IN QDA. CHANE AREA (WITH)

(1) 2-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	4	16	48	5	0	1	0	0	0	0	74	71	14	1,015	6	40	86	1,232
2	0.25-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		4	16	48	5	0	1	0	0	0	0	74	71	14	1,015	6	40	86	1,232

(2) 5-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	6	27	78	8	0	1	0	1	0	0	120	114	23	1,638	11	65	138	1,989
2	0.25-0.5	1	6	17	1	0	0	0	0	0	0	25	24	5	344	2	14	29	418
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		7	32	95	10	0	1	0	1	0	0	146	138	28	1,982	13	79	167	2,407

(3) 10-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	8	36	109	11	1	1	0	1	0	0	166	158	32	2,262	14	89	191	2,746
2	0.25-0.5	4	17	49	5	0	1	0	0	0	0	75	72	15	1,024	6	40	87	1,244
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		11	53	158	16	1	1	0	1	0	0	241	230	47	3,286	20	129	278	3,990

(4) 20-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	9	42	125	13	1	1	0	1	0	0	192	182	37	2,608	17	103	221	3,168
2	0.25-0.5	5	22	67	7	0	1	0	0	0	0	102	97	20	1,383	9	54	117	1,680
3	0.5-1.0	1	4	11	1	0	0	0	0	0	0	16	15	3	212	2	8	18	258
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		15	68	202	22	1	2	0	1	0	0	309	294	60	4,203	28	165	356	5,106

(5) 50-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	9	44	131	14	1	1	0	1	0	0	201	191	39	2,728	18	107	231	3,314
2	0.25-0.5	6	29	86	9	1	1	0	1	0	0	132	125	26	1,793	11	71	152	2,178
3	0.5-1.0	3	13	40	4	0	0	0	0	0	0	60	58	12	832	5	33	70	1,010
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		18	86	257	27	1	2	0	1	0	0	393	374	77	5,353	31	211	453	6,502

TABLE K.24 (1/2) NUMBER AND AREA OF INUNDATION ASSETS IN CHANE CHACRAS AREA (WITHOUT)

(1) 2-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	5	42	74	8	0	1	0	0	0	0	131	31	7	2,896	3	150	321	3,407
2	0.25-0.5	5	42	74	8	0	1	0	0	0	0	131	31	7	2,896	3	150	321	3,407
3	0.5-1.0	5	39	69	7	0	1	0	0	0	0	121	29	6	2,675	3	138	296	3,146
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		14	124	218	22	1	3	1	0	0	0	384	91	19	8,467	9	437	937	9,959

(2) 5-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	5	42	74	8	0	1	0	0	0	0	131	31	7	2,896	3	149	320	3,398
2	0.25-0.5	5	42	74	8	0	1	0	0	0	0	131	31	7	2,896	3	150	321	3,407
3	0.5-1.0	8	73	128	13	1	2	1	0	0	0	227	54	11	4,992	5	258	553	5,871
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	1	1	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		18	158	277	29	1	4	2	1	0	0	489	116	24	10,784	11	557	1,194	12,681

(3) 10-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	3	30	53	6	0	1	0	0	0	0	94	22	5	2,068	2	107	229	2,432
2	0.25-0.5	5	42	74	8	0	1	0	0	0	0	131	31	7	2,896	3	150	319	3,393
3	0.5-1.0	10	85	149	15	1	2	1	0	0	0	263	62	13	5,792	6	299	641	6,813
4	1.0-1.5	1	12	21	2	0	0	0	0	0	0	38	9	2	828	1	43	92	974
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		20	169	297	31	1	4	2	1	0	0	525	124	26	11,583	12	598	1,282	13,625

(4) 20-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	1	12	21	2	0	0	0	0	0	0	36	9	2	801	1	42	89	942
2	0.25-0.5	5	42	74	8	0	1	0	0	0	0	131	31	7	2,894	3	149	319	3,393
3	0.5-1.0	10	85	149	15	1	2	1	0	0	0	263	62	13	5,792	6	299	641	6,813
4	1.0-1.5	4	31	54	6	0	1	0	0	0	0	95	23	5	2,107	2	109	233	2,477
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		20	169	297	31	1	4	2	1	0	0	525	124	26	11,583	12	598	1,282	13,624

(5) 50-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0.25-0.5	3	30	53	6	0	1	0	0	0	0	94	22	5	2,060	2	107	228	2,423
3	0.5-1.0	10	85	149	15	1	2	1	0	0	0	263	62	13	5,792	6	299	641	6,813
4	1.0-1.5	6	55	96	10	0	1	1	0	0	0	170	40	8	3,732	4	193	413	4,389
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		20	169	297	31	1	4	2	1	0	0	526	124	26	11,583	12	598	1,282	13,625

TABLE K.2.4 (2/2) NUMBER AND AREA OF INUNDATION ASSETS IN CHANE CHACRAS AREA (WITH)

(1) 2-Year Return Period

No.	Water Depth (m)	Buildings										Agricultural Crops (ha)					Total		
		Residence			Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center	Total	Soy-beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0.25-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(2) 5-Year Return Period

No.	Water Depth (m)	Buildings										Agricultural Crops (ha)					Total		
		Residence			Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center	Total	Soy-beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	4	31	53	5	0	1	0	0	0	0	95	22	5	2,085	2	108	231	2,453
2	0.25-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		4	31	53	5	0	1	0	0	0	0	95	22	5	2,085	2	108	231	2,453

(3) 10-Year Return Period

No.	Water Depth (m)	Buildings										Agricultural Crops (ha)					Total		
		Residence			Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center	Total	Soy-beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	10	85	149	15	1	2	1	0	0	0	263	62	13	5,793	6	299	641	6,814
2	0.25-0.5	2	14	24	2	0	0	0	0	0	0	42	10	2	927	1	48	103	1,091
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		11	98	173	18	1	2	1	0	0	0	305	72	15	6,720	7	347	744	7,965

(4) 20-Year Return Period

No.	Water Depth (m)	Buildings										Agricultural Crops (ha)					Total		
		Residence			Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center	Total	Soy-beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	10	85	149	15	1	2	1	0	0	0	263	62	13	5,793	6	299	641	6,814
2	0.25-0.5	9	78	137	14	1	2	1	0	0	0	242	57	12	5,329	5	275	590	6,268
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		19	163	286	29	1	4	2	1	0	1	505	119	25	11,122	11	574	1,231	13,082

(5) 50-Year Return Period

No.	Water Depth (m)	Buildings										Agricultural Crops (ha)					Total		
		Residence			Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center	Total	Soy-beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	10	85	149	15	1	2	1	0	0	0	263	62	13	5,791	6	299	641	6,812
2	0.25-0.5	10	85	149	15	1	2	1	0	0	0	263	62	13	5,791	6	299	641	6,812
3	0.5-1.0	5	44	77	8	0	1	1	0	0	0	137	32	7	3,011	3	155	333	3,541
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		25	213	374	39	2	5	2	1	0	1	662	156	33	14,893	15	753	1,615	17,165

TABLE K.2.5 (1/2) NUMBER AND AREA OF INUNDATION ASSETS IN OKINAWA DRAINAGE AREA (WITHOUT)

(1) 2-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	9	29	34	4	0	1	0	1	0	0	76	2,295	468	0	215	147	316	3,441
2	0.25-0.5	9	29	34	4	0	1	0	1	0	0	76	2,295	468	0	215	147	316	3,441
3	0.5-1.0	3	10	11	1	0	0	0	0	0	0	25	771	157	0	72	50	106	1,156
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		21	67	78	8	0	1	0	1	0	0	178	5,361	1,093	0	502	344	738	8,038

(2) 5-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	9	28	33	4	0	1	0	1	0	0	75	2,268	462	0	213	146	313	3,402
2	0.25-0.5	9	28	33	4	0	1	0	1	0	0	75	2,268	462	0	213	146	313	3,402
3	0.5-1.0	9	27	32	4	0	1	0	1	0	0	74	2,200	419	0	206	141	303	3,299
4	1.0-1.5	1	4	4	1	0	0	0	0	0	0	10	305	62	0	28	20	42	45
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		29	87	102	11	0	2	0	2	0	0	233	7,011	1,435	0	660	453	971	10,560

(3) 10-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	9	28	33	4	0	1	0	1	0	0	75	2,257	460	0	211	145	311	3,384
2	0.25-0.5	9	28	33	4	0	1	0	1	0	0	75	2,257	460	0	211	145	311	3,384
3	0.5-1.0	13	38	45	5	1	1	0	1	0	1	103	3,065	625	0	287	197	422	4,596
4	1.0-1.5	2	6	7	1	0	0	0	0	0	0	16	488	99	0	45	31	67	730
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		33	100	118	13	1	2	0	2	0	1	269	8,067	1,644	0	754	518	1,111	12,094

(4) 20-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	9	28	33	4	0	1	0	1	0	0	75	2,251	459	0	211	145	310	3,376
2	0.25-0.5	9	28	33	4	0	1	0	1	0	0	75	2,251	459	0	211	145	310	3,376
3	0.5-1.0	15	46	54	6	1	1	0	1	0	1	124	3,696	754	0	346	237	509	5,542
4	1.0-1.5	2	6	7	1	0	0	0	0	0	0	15	473	97	0	44	30	65	709
5	1.5-2.0	1	2	3	0	0	0	0	0	0	0	6	170	35	0	16	11	23	255
Total		36	110	130	14	1	2	0	2	0	1	295	8,841	1,804	0	828	568	1,217	13,258

(5) 50-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Agricultural Crops (ha)						Total	
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	9	27	32	4	0	1	0	1	0	0	72	2,167	442	0	203	139	299	3,250
2	0.25-0.5	9	27	32	4	0	1	0	1	0	0	72	2,167	442	0	203	139	299	3,250
3	0.5-1.0	18	54	63	7	1	1	1	1	0	1	146	4,334	884	0	405	278	597	6,498
4	1.0-1.5	3	10	11	1	0	0	0	0	0	0	25	771	157	0	72	49	106	1,155
5	1.5-2.0	1	5	6	1	0	0	0	0	0	0	13	369	75	0	34	24	51	553
Total		40	122	143	16	1	3	1	2	0	1	328	9,808	2,000	0	917	629	1,352	14,706

TABLE K.2.5 (2/2)

NUMBER AND AREA OF INUNDATION ASSETS
IN OKINAWA DRAINAGE AREA (WITII)

(1) 2-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Total	Agricultural Crops (ha)						Total										
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center		Soy- beans	Rice	Sugar cane	Maize		Pasture											
																Natural	Improved	Natural		Improved									
1	0.0-0.25	3	9	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	707	144	0	66	45	97	1,039
2	0.25-0.5	1	5	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	387	79	0	36	25	53	580
3	0.5-1.0	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	155	32	0	14	10	21	232
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		5	16	18	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	1,249	255	0	116	80	171	1,871

(2) 5-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Total	Agricultural Crops (ha)						Total										
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center		Soy- beans	Rice	Sugar cane	Maize		Pasture											
																Natural	Improved	Natural		Improved									
1	0.0-0.25	8	27	32	4	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	71	2,142	437	0	200	138	295	3,212
2	0.25-0.5	1	4	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	286	58	0	27	18	39	428
3	0.5-1.0	2	6	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	504	103	0	47	32	69	755	
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		12	36	43	5	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	98	2,932	598	0	274	188	403	4,395

(3) 10-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Total	Agricultural Crops (ha)						Total										
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center		Soy- beans	Rice	Sugar cane	Maize		Pasture											
																Natural	Improved	Natural		Improved									
1	0.0-0.25	9	28	34	4	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	76	2,278	465	0	213	156	314	3,416
2	0.25-0.5	5	14	17	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	1,151	235	0	108	74	159	1,727
3	0.5-1.0	2	6	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	530	108	0	50	34	73	795
4	1.0-1.5	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	138	28	0	13	9	19	207
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		17	50	60	6	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	134	4,097	836	0	384	263	565	6,145

(4) 20-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Total	Agricultural Crops (ha)						Total										
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center		Soy- beans	Rice	Sugar cane	Maize		Pasture											
																Natural	Improved	Natural		Improved									
1	0.0-0.25	9	28	33	4	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	75	2,267	462	0	213	156	312	3,400
2	0.25-0.5	8	25	29	4	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	66	1,945	396	0	182	125	268	2,916
3	0.5-1.0	2	6	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	506	103	0	47	32	70	758
4	1.0-1.5	1	4	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	314	64	0	30	20	43	471
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		20	63	74	8	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	169	5,042	1,025	0	472	323	693	7,545

(5) 50-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Total	Agricultural Crops (ha)						Total										
		High	Medium	Low	Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center		Soy- beans	Rice	Sugar cane	Maize		Pasture											
																Natural	Improved	Natural		Improved									
1	0.0-0.25	9	28	33	4	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	75	2,257	460	0	211	145	311	3,381
2	0.25-0.5	9	28	33	4	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	75	2,257	460	0	211	145	311	3,381
3	0.5-1.0	4	12	14	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	969	198	0	91	62	134	1,454
4	1.0-1.5	2	6	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	485	99	0	45	31	67	727
5	1.5-2.0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	29	6	0	3	2	4	41
Total		25	75	88	9	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	199	5,997	1,223	0	561	385	827	8,993

**TABLE K.2.6 (1/2) NUMBER AND AREA OF INUNDATION ASSETS
IN SAN JUAN AREA (WITHOUT)**

(1) 2-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	2	55	53	4	0	1	0	1	0	0	116	302	1,917	7	4	151	767	3,178
2	0.25-0.5	1	17	16	1	0	0	0	0	0	0	35	94	604	2	1	47	238	986
3	0.5-1.0	0	4	4	0	0	0	0	0	0	0	8	22	145	1	0	11	57	236
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		3	76	73	5	0	1	0	1	0	0	159	418	2,696	10	5	209	1,062	4,300

(2) 5-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	2	59	57	5	0	1	0	1	0	0	125	328	2,116	8	5	164	833	3,454
2	0.25-0.5	2	52	50	4	0	1	0	1	0	0	110	284	1,836	7	4	142	723	2,996
3	0.5-1.0	1	13	13	1	0	0	0	0	0	0	28	73	468	2	1	36	184	764
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		5	124	120	10	0	2	0	2	0	0	263	685	4,420	17	10	342	1,740	7,214

(3) 10-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	2	59	57	5	0	1	0	1	0	0	125	327	2,113	8	5	163	832	3,448
2	0.25-0.5	2	58	55	5	0	1	0	1	0	0	122	318	2,052	8	5	159	808	3,350
3	0.5-1.0	1	31	30	3	0	0	0	0	0	0	65	171	1,104	4	2	85	435	1,801
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		5	148	142	13	0	2	0	2	0	0	312	816	5,269	20	12	407	2,075	8,597

(4) 20-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	2	59	57	5	0	1	0	1	0	0	125	327	2,111	8	5	163	831	3,445
2	0.25-0.5	2	59	57	5	0	1	0	1	0	0	125	327	2,111	8	5	163	831	3,445
3	0.5-1.0	2	47	45	4	0	0	0	1	0	0	99	258	1,667	6	4	129	657	2,721
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		6	165	159	14	0	2	0	3	0	0	349	912	5,889	22	14	455	2,319	9,611

(5) 50-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	2	59	57	5	0	1	0	1	0	0	125	327	2,111	8	5	163	831	3,445
2	0.25-0.5	2	59	57	5	0	1	0	1	0	0	125	327	2,111	8	5	163	831	3,445
3	0.5-1.0	3	70	67	6	0	1	0	1	0	0	148	384	2,476	9	5	192	975	4,041
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		7	188	181	16	0	3	0	3	0	0	398	1,038	6,698	25	15	518	2,637	10,931

**TABLE K.2.6 (2/2) NUMBER AND AREA OF INUNDATION ASSETS
IN SAN JUAN AREA (WITH)**

(1) 2-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar Maize			Pasture	
		High	Medium	Low											cane	Maize		Natural	Improved
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0.25-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

(2) 5-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar Maize			Pasture	
		High	Medium	Low											cane	Maize		Natural	Improved
1	0.0-0.25	1	25	24	2	0	0	0	0	0	0	52	139	897	3	2	69	353	
2	0.25-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total		1	25	24	2	0	0	0	0	0	0	52	139	897	3	2	69	353	

(3) 10-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar Maize			Pasture	
		High	Medium	Low											cane	Maize		Natural	Improved
1	0.0-0.25	2	49	48	4	0	0	0	1	0	0	104	273	1,762	7	4	136	694	
2	0.25-0.5	0	1	1	0	0	0	0	0	0	0	2	6	37	0	0	3	15	
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total		2	50	49	4	0	0	0	1	0	0	106	279	1,799	7	4	139	709	

(4) 20-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar Maize			Pasture	
		High	Medium	Low											cane	Maize		Natural	Improved
1	0.0-0.25	2	59	57	5	0	1	0	1	0	0	125	328	2,115	8	5	164	832	
2	0.25-0.5	1	15	15	1	0	0	0	0	0	0	32	81	541	2	1	42	213	
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total		3	74	72	6	0	1	0	1	0	0	157	412	2,656	10	6	206	1,046	

(5) 50-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau- rant	School	Charch	Factory	Hospital	Health Center	Total	Soy- beans	Rice	Sugar Maize			Pasture	
		High	Medium	Low											cane	Maize		Natural	Improved
1	0.0-0.25	2	59	57	5	0	1	0	1	0	0	125	327	2,114	8	5	164	832	
2	0.25-0.5	2	38	37	3	0	0	0	1	0	0	81	210	1,356	5	3	105	534	
3	0.5-1.0	0	5	5	0	0	0	0	0	0	0	10	29	190	1	0	15	75	
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total		4	102	99	8	0	1	0	2	0	0	216	566	3,660	14	8	284	1,411	

TABLE K.2.7 (1/2) NUMBER AND AREA OF INUNDATION ASSETS IN ANTOFAGASTA AREA (WITHOUT)

(1) 2-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center	Total	Soy-beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	4	88	81	7	0	1	0	1	0	0	185	611	3,946	0	9	112	572	5,250
2	0.25-0.5	3	64	62	5	0	1	0	1	0	0	136	448	2,894	0	7	82	419	3,850
3	0.5-1.0	0	8	8	1	0	0	0	0	0	0	17	55	358	0	1	10	52	476
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		7	160	154	13	0	2	0	2	0	0	338	1,114	7,198	0	17	204	1,043	9,576

(2) 5-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center	Total	Soy-beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	4	96	92	8	0	1	0	1	0	0	202	671	4,333	0	10	123	628	5,765
2	0.25-0.5	3	72	70	6	0	1	0	1	0	0	153	506	3,265	0	7	93	473	4,344
3	0.5-1.0	1	31	30	3	0	0	0	0	0	0	65	219	1,411	0	3	40	204	1,877
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		8	199	192	17	0	2	0	2	0	0	420	1,396	9,009	0	20	256	1,305	11,986

(3) 10-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center	Total	Soy-beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	4	96	92	8	0	1	0	1	0	0	202	670	4,328	0	10	123	627	5,758
2	0.25-0.5	3	79	76	6	0	1	0	1	0	0	166	551	3,559	0	8	101	516	4,735
3	0.5-1.0	2	50	48	4	0	1	0	1	0	0	106	352	2,274	0	5	65	329	3,025
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		9	225	216	18	0	3	0	3	0	0	474	1,573	10,161	0	23	289	1,472	13,518

(4) 20-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center	Total	Soy-beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	4	96	92	8	0	1	0	1	0	0	202	671	4,330	0	10	123	627	5,761
2	0.25-0.5	3	84	80	7	0	1	0	1	0	0	176	585	3,775	0	9	107	547	5,023
3	0.5-1.0	3	66	64	5	0	1	0	1	0	0	140	464	2,995	0	7	85	434	3,984
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		10	246	236	20	0	3	0	3	0	0	518	1,720	11,100	0	26	315	1,608	14,769

(5) 50-Year Return Period

No.	Water Depth (m)	Buildings									Agricultural Crops (ha)						Total		
		Residence			Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center	Total	Soy-beans	Rice	Sugar cane	Maize		Pasture	
		High	Medium	Low														Natural	Improved
1	0.0-0.25	4	96	92	8	0	1	0	1	0	0	202	671	4,330	0	10	123	627	5,761
2	0.25-0.5	4	88	84	7	0	1	0	1	0	0	185	611	3,945	0	9	112	572	5,249
3	0.5-1.0	4	88	84	7	0	1	0	1	0	0	185	614	3,961	0	9	113	574	5,271
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		12	272	260	22	0	3	0	3	0	0	572	1,896	12,236	0	28	348	1,773	16,281

TABLE K.2.7 (2/2) NUMBER AND AREA OF INUNDATION ASSETS IN ANTOFAGASTA AREA (WITH)

(1) 2-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Total	Agricultural Crops (ha)					Total	
		High	Medium	Low	Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center		Soy-beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	1	23	22	2	0	0	0	0	0	0	48	159	1,024	0	2	29	148	1,362
2	0.25-0.5	0	10	10	1	0	0	0	0	0	0	21	72	466	0	1	13	68	620
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		1	33	32	3	0	0	0	0	0	0	69	231	1,490	0	3	42	216	1,982

(2) 5-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Total	Agricultural Crops (ha)					Total	
		High	Medium	Low	Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center		Soy-beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	1	29	27	2	0	0	0	0	0	0	59	199	1,286	0	3	37	186	1,711
2	0.25-0.5	1	22	21	2	0	0	0	0	0	0	46	153	987	0	2	28	133	1,313
3	0.5-1.0	0	1	1	0	0	0	0	0	0	0	2	9	55	0	0	2	8	74
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		2	52	49	4	0	0	0	0	0	0	107	361	2,328	0	5	67	337	3,098

(3) 10-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Total	Agricultural Crops (ha)					Total	
		High	Medium	Low	Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center		Soy-beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	1	34	33	3	0	0	0	0	0	0	71	238	1,538	0	3	44	223	2,046
2	0.25-0.5	1	23	22	2	0	0	0	0	0	0	48	159	1,026	0	2	29	149	1,365
3	0.5-1.0	0	8	8	1	0	0	0	0	0	0	17	55	355	0	1	10	51	472
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		2	65	63	6	0	0	0	0	0	0	136	452	2,919	0	6	83	423	3,883

(4) 20-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Total	Agricultural Crops (ha)					Total	
		High	Medium	Low	Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center		Soy-beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	2	41	39	3	0	0	0	1	0	0	86	285	1,842	0	4	52	267	2,450
2	0.25-0.5	1	23	22	2	0	0	0	0	0	0	48	159	1,027	0	2	29	149	1,366
3	0.5-1.0	1	14	13	1	0	0	0	0	0	0	29	97	628	0	1	18	91	835
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		4	78	74	6	0	0	0	1	0	0	163	541	3,497	0	7	99	507	4,651

(5) 50-Year Return Period

No.	Water Depth (m)	Residence			Buildings							Total	Agricultural Crops (ha)					Total	
		High	Medium	Low	Shop	Restau-rant	School	Charch	Factory	Hospital	Health Center		Soy-beans	Rice	Sugar cane	Maize	Pasture		
																	Natural		Improved
1	0.0-0.25	2	51	49	4	0	1	0	1	0	0	108	351	2,285	0	5	65	331	3,040
2	0.25-0.5	1	23	22	2	0	0	0	0	0	0	48	159	1,026	0	2	29	149	1,365
3	0.5-1.0	1	21	21	2	0	0	0	0	0	0	45	150	969	0	2	28	140	1,289
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		4	95	92	8	0	1	0	1	0	0	201	663	4,280	0	9	122	620	5,691

TABLE K-2-8 AVERAGE APPRAISAL VALUES OF ASSETS IN THE FLOOD PRONE AREA
(AS OF THE END OF OCTOBER 1995)

1. Buildings and Household Effects			2. Agricultural Crops and Cattle				
No.	Kind of Assets	Buildings	Unit: Bs.		Production (Tons/ha)	Unit Price (Bs/ha)	Unit Price (Bs/ha)
			House- hold Effects*	livestock			
1	Residence						
	(A) High Class	579,600	1,426,190	55,750	2.00	777.60	1,555
	(B) Medium Class	115,250	333,860	6,040	3.36	687.72	2,309
	(C) Low Class	7,090	39,040	560	45.72	92.34	4,222
2	Shop**	19,600	86,860	-	4.60	388.80	1,788
3	Restaurant	23,000	17,080	-	(Head/ha)	(Bs/head)	(Bs/ha)
4	School	78,920	13,380	-	1.00	1,215.00	1,215
5	Church	170,500	29,590	-	-	-	-
6	Factory	119,700	369,930	-	-	-	-
7	Hospital	1,094,000	6,873,990	-	-	-	-
8	Health Center	23,400	6,940	-	-	-	-

Source: Interview survey by the JICA Study Team

Note: * Household effects include equipment and materials.

** Household effects of shop include commodities for sale together with equipment and materials.

*** Price of cattle is used in estimating the flood damage of pasture.

TABLE K.2.9 INUNDATION DAMAGE RATE OF ASSETS

No.	Inundation Depth (cm.)	Damage Rate							
		General Assets		Livestock	Agricultural Field Crops and Cattle				
		Buildings	Household Effects		Soybeans	Rice	Sugar cane	Maize	Cattle*
1	0 - 25	0.140	0.111	0.113	0.100	0.106	0.095	0.122	0.560
2	25 - 50	0.198	0.127	0.121	0.299	0.319	0.284	0.366	0.560
3	50 - 100	0.355	0.254	0.373	0.896	0.954	0.851	1.000	0.560
4	100 - 150	0.452	0.325	0.379	0.949	1.000	0.945	1.000	0.560
5	150 - 200	0.453	0.343	-	1.000	1.000	1.000	1.000	0.560

Source : Results of interview survey by the JICA Study Team

Note : *Damage rate of cattle is used for inundation of the pasture field.

TABLE K.2.10 FLOOD DAMAGE BY RETURN PERIOD

I. RIO CHANE

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	4,114	8,222	239	4,574	4,194	740	22,083
2	5	6,126	12,259	371	7,220	6,251	1,103	33,330
3	10	7,087	14,162	412	8,852	7,225	1,275	39,013

(2) With-Project (10-Year Flood Mitigation)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	3,329	6,721	189	3,498	3,417	603	17,757
2	5	6,109	12,240	362	6,887	6,239	1,101	32,938
3	10	7,127	14,329	412	8,876	7,295	1,287	39,326

(3) Reduction in Damage (Difference of Without- and With-Projects)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	785	1,501	50	1,076	777	137	4,326
2	5	17	19	9	333	12	2	392
3	10	-40	-167	0	-24	-70	-12	-313

TABLE K.2.11 FLOOD DAMAGE BY RETURN PERIOD

II. RIO PAILON

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	9,497	18,242	683	11,542	9,431	1,664	51,059
2	5	13,033	24,931	921	17,050	12,908	2,278	71,121
3	10	15,398	29,740	1,099	20,542	15,347	2,708	84,834

(2) With-Project (10-Year Flood Mitigation)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	364	782	23	154	390	69	1,782
2	5	1,184	2,480	72	571	1,246	220	5,773
3	10	2,329	4,826	140	1,220	2,433	429	11,377

(3) Reduction in Damage (Difference of Without- and With-Projects)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	9,133	17,460	660	11,388	9,041	1,595	49,277
2	5	11,849	22,451	849	16,479	11,662	2,058	65,348
3	10	13,069	24,914	959	19,322	12,914	2,279	73,457

TABLE K.2.12 FLOOD DAMAGE BY RETURN PERIOD

III. QUEBRADA CHANE

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	3,504	7,334	212	5,655	3,685	650	21,040
2	5	5,439	11,403	341	9,468	5,726	1,011	33,388
3	10	7,174	14,964	462	12,872	7,527	1,328	44,327

(2) With-Project (10-Year Flood Mitigation)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	613	1,408	36	423	687	121	3,288
2	5	1,321	2,913	73	1,111	1,440	254	7,112
3	10	2,356	4,822	119	2,219	2,406	425	12,347

(3) Reduction in Damage (Difference of Without- and With-Projects)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	2,891	5,926	176	5,232	2,998	529	17,752
2	5	4,118	8,490	268	8,357	4,286	757	26,276
3	10	4,818	10,142	343	10,653	5,121	903	31,980

TABLE K.2.13 FLOOD DAMAGE BY RETURN PERIOD

IV. CHANE CHACRAS

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	5,722	11,721	330	14,329	5,931	1,047	39,080
2	5	8,219	17,037	500	22,730	8,587	1,515	58,588
3	10	9,801	20,238	600	28,585	10,213	1,802	71,239

(2) With-Project (10-Year Flood Mitigation)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	0	0	0	0	0	0	0
2	5	873	2,002	47	841	978	173	4,914
3	10	2,948	6,504	151	3,456	3,214	567	16,840

(3) Reduction in Damage (Difference of Without- and With-Projects)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	5,722	11,721	330	14,329	5,931	1,047	39,080
2	5	7,346	15,035	453	21,889	7,609	1,342	53,674
3	10	6,853	13,734	449	25,129	6,999	1,235	54,399

TABLE K.2.14 FLOOD DAMAGE BY RETURN PERIOD

V. OKINAWA DRAINAGE

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household	Livestock	Agricultural	Public	Business	
		Effects	Effects		Crops	Facilities	Activities	
1	2	4,066	7,805	246	3,615	4,036	712	20,480
2	5	6,735	12,934	459	7,106	6,687	1,180	35,101

(2) With-Project (10-Year Flood Mitigation)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household	Livestock	Agricultural	Public	Business	
		Effects	Effects		Crops	Facilities	Activities	
1	2	907	1,789	58	732	916	162	4,564
2	5	2,134	4,333	145	1,688	2,199	388	10,887

(3) Reduction in Damage (Difference of Without- and With-Projects)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household	Livestock	Agricultural	Public	Business	
		Effects	Effects		Crops	Facilities	Activities	
1	2	3,159	6,016	188	2,883	3,120	550	15,916
2	5	4,601	8,601	314	5,418	4,488	792	24,214

TABLE K.2.15 FLOOD DAMAGE BY RETURN PERIOD

VI. SAN JUAN

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household	Livestock	Agricultural	Public	Business	
		Effects	Effects	Crops	Crops	Facilities	Activities	
1	2	1,844	4,037	84	1,371	1,999	353	9,688
2	5	3,531	7,364	164	3,207	3,704	654	18,624
3	10	4,472	9,394	213	4,928	4,714	832	24,553

(2) With-Project (10-Year Flood Mitigation)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household	Livestock	Agricultural	Public	Business	
		Effects	Effects	Crops	Crops	Facilities	Activities	
1	2	0	0	0	0	0	0	0
2	5	514	1,208	25	243	585	103	2,678
3	10	1,053	2,467	50	507	1,197	211	5,485

(3) Reduction in Damage (Difference of Without- and With-Projects)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household	Livestock	Agricultural	Public	Business	
		Effects	Effects	Crops	Crops	Facilities	Activities	
1	2	1,844	4,037	84	1,371	1,999	353	9,688
2	5	3,017	6,156	139	2,964	3,119	551	15,946
3	10	3,419	6,927	163	4,421	3,517	621	19,068

TABLE K.2.16 FLOOD DAMAGE BY RETURN PERIOD

VII. Antofagasta

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	4,180	8,816	181	4,270	4,419	780	22,646
2	5	5,733	12,122	271	7,224	6,071	1,071	32,492
3	10	7,007	14,720	344	9,549	7,387	1,304	40,311

(2) With-Project (10-Year Flood Mitigation)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	726	1,610	31	652	794	140	3,953
2	5	1,279	2,704	55	1,278	1,354	239	6,909
3	10	1,703	3,657	76	2,104	1,823	322	9,685

(3) Reduction in Damage (Difference of Without- and With-Projects)

No.	Return Period (Year)	Flood Damage (Bs. 1,000)						Total
		Building	Household Effects	Livestock	Agricultural Crops	Public Facilities	Business Activities	
1	2	3,454	7,206	150	3,618	3,625	640	18,693
2	5	4,454	9,418	216	5,946	4,717	832	25,583
3	10	5,304	11,063	268	7,445	5,564	982	30,626

**TABLE K.3.1 (1/2) ESTIMATE OF ECONOMIC COST FOR RIO CHANE PROJECT
(Alternative-1)**

(1) Financial Cost				(2) Economic Cost					
1 No.	Classification of Costs	Unit: Bs. 1,000			1 No.	Classification of Costs	Unit: Bs. 1,000		
		2000					2000		
		L.C.	F.C.	Total		L.C.	F.C.	Total	
1	Construction Cost	0	0	0	1	Construction Cost	0	0	0
2	Land Acquisition	64	0	64	2	Land Acquisition	35	0	35
3	Administration	3	0	3	3	Administration	3	0	3
4	Engineering Services	321	1,136	1,457	4	Engineering Services	284	1,136	1,420
5	Physical Contingency	58	170	229	5	Physical Contingency	48	170	219
	Sub-total	446	1,306	1,753		Sub-total	370	1,306	1,677
6	price Escalation	180	283	463	6	price Escalation	0	0	0
	Grand Total	626	1,589	2,216		Grand Total	370	1,306	1,677
				OM Cost 0					OM Cost 0
2				2					
1 No.	Classification of Costs	2001			1 No.	Classification of Costs	2001		
		2001					2001		
		L.C.	F.C.	Total		L.C.	F.C.	Total	
1	Construction Cost	12,422	14,310	26,732	1	Construction Cost	8,820	12,664	21,484
2	Land Acquisition	65	0	65	2	Land Acquisition	36	0	36
3	Administration	1,340	0	1,340	3	Administration	1,186	0	1,186
4	Engineering Services	535	1,893	2,428	4	Engineering Services	473	1,893	2,366
5	Physical Contingency	2,154	2,430	4,585	5	Physical Contingency	1,577	2,184	3,761
	Sub-total	16,516	18,633	35,150		Sub-total	12,092	16,740	28,832
6	price Escalation	8,270	4,944	13,214	6	price Escalation	0	0	0
	Grand Total	24,786	23,577	48,364		Grand Total	12,092	16,740	28,832
				OM Cost 0					OM Cost 0
3				3					
1 No.	Classification of Costs	2002			1 No.	Classification of Costs	2002		
		2002					2002		
		L.C.	F.C.	Total		L.C.	F.C.	Total	
1	Construction Cost	12,422	14,310	26,732	1	Construction Cost	8,820	12,664	21,484
2	Land Acquisition	65	0	65	2	Land Acquisition	36	0	36
3	Administration	1,340	0	1,340	3	Administration	1,186	0	1,186
4	Engineering Services	535	1,893	2,428	4	Engineering Services	473	1,893	2,366
5	Physical Contingency	2,154	2,430	4,585	5	Physical Contingency	1,577	2,184	3,761
	Sub-total	16,516	18,633	35,150		Sub-total	12,092	16,740	28,832
6	price Escalation	10,005	5,887	15,892	6	price Escalation	0	0	0
	Grand Total	26,521	24,520	51,042		Grand Total	12,092	16,740	28,832
				OM Cost 429					OM Cost 215
4				4					
1 No.	Classification of Costs	2003			1 No.	Classification of Costs	2003		
		2003					2003		
		L.C.	F.C.	Total		L.C.	F.C.	Total	
1	Construction Cost	12,422	14,310	26,732	1	Construction Cost	8,820	12,664	21,484
2	Land Acquisition	65	0	65	2	Land Acquisition	36	0	36
3	Administration	1,340	0	1,340	3	Administration	1,186	0	1,186
4	Engineering Services	535	1,893	2,428	4	Engineering Services	473	1,893	2,366
5	Physical Contingency	2,154	2,430	4,585	5	Physical Contingency	1,577	2,184	3,761
	Sub-total	16,516	18,633	35,150		Sub-total	12,092	16,740	28,832
6	price Escalation	11,861	6,868	18,729	6	price Escalation	0	0	0
	Grand Total	28,377	25,501	53,879		Grand Total	12,092	16,740	28,832
				OM Cost 918					OM Cost 430
5				5					
1 No.	Classification of Costs	2004			1 No.	Classification of Costs	2004		
		2004					2004		
		L.C.	F.C.	Total		L.C.	F.C.	Total	
1	Construction Cost	12,422	14,310	26,732	1	Construction Cost	8,820	12,664	21,484
2	Land Acquisition	65	0	65	2	Land Acquisition	36	0	36
3	Administration	1,340	0	1,340	3	Administration	1,186	0	1,186
4	Engineering Services	535	1,893	2,428	4	Engineering Services	473	1,893	2,366
5	Physical Contingency	2,154	2,430	4,585	5	Physical Contingency	1,577	2,184	3,761
	Sub-total	16,516	18,633	35,150		Sub-total	12,092	16,740	28,832
6	price Escalation	13,848	7,888	21,736	6	price Escalation	0	0	0
	Grand Total	30,364	26,521	56,886		Grand Total	12,092	16,740	28,832
				OM Cost 1,474					OM Cost 645

**TABLE K.3.1 (2/2) ESTIMATE OF ECONOMIC COST FOR RIO CHANE PROJECT
(Alternative-1)**

(1) Financial Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	12,423	14,309	26,732
2	Land Acquisition	0	0	0
3	Administration	1,337	0	1,337
4	Engineering Services	214	757	971
5	Physical Contingency	2,096	2,260	4,356
	Sub-total	16,070	17,326	33,396
6	price Escalation	15,542	8,320	23,862
	Grand Total	31,612	25,646	57,258

OMCost 2,103

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	62,111	71,549	133,660
2 Administration	324	0	324
3 Engineering Services	6,700	0	6,700
4 Land Acquisition	2,675	9,465	12,140
6 Physical Contingency	10,772	12,152	22,924
	82,582	93,166	175,748
7 price Escalation	59,706	34,190	93,896
	142,288	127,356	269,644

OMCost 2,813

(2) Economic Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	8,820	12,663	21,483
2	Land Acquisition	0	0	0
3	Administration	1,183	0	1,183
4	Engineering Services	189	757	946
5	Physical Contingency	1,529	2,013	3,542
	Sub-total	11,722	15,433	27,155
6	price Escalation	0	0	0
	Grand Total	11,722	15,433	27,155

OMCost 859

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	41,099	63,318	107,417
2 Administration	178	0	178
3 Engineering Services	5,929	0	5,929
4 Land Acquisition	2,367	9,465	11,832
6 Physical Contingency	7,886	10,917	18,803
	60,459	83,700	144,160
7 price Escalation	0	0	0
	60,459	83,700	144,160

OMCost 1,074

**TABLE K.3.2 (1/2) ESTIMATE OF ECONOMIC COST FOR RIO PAILON PROJECT
(Alternative-1&-2)**

(1) Financial Cost					(2) Economic Cost				
Unit: Bs. 1,000					Unit: Bs. 1,000				
1 No.	Classification of Costs	2000			1 No.	Classification of Costs	2000		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	0	0	0	1	Construction Cost	0	0	0
2	Land Acquisition	86	0	86	2	Land Acquisition	47	0	47
3	Administration	4	0	4	3	Administration	4	0	4
4	Engineering Services	479	1,695	2,174	4	Engineering Services	424	1,695	2,119
5	Physical Contingency	85	254	340	5	Physical Contingency	71	254	325
	Sub-total	654	1,949	2,604		Sub-total	546	1,949	2,495
6	price Escalation	263	422	685	6	price Escalation	0	0	0
	Grand Total	917	2,371	3,289		Grand Total	546	1,949	2,495
				OM Cost 0					OM Cost 0

2					2				
Unit: Bs. 1,000					Unit: Bs. 1,000				
2 No.	Classification of Costs	2001			2 No.	Classification of Costs	2001		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	19,786	20,100	39,886	1	Construction Cost	14,048	17,788	31,836
2	Land Acquisition	86	0	86	2	Land Acquisition	47	0	47
3	Administration	1,999	0	1,999	3	Administration	1,769	0	1,769
4	Engineering Services	798	2,824	3,622	4	Engineering Services	706	2,824	3,530
5	Physical Contingency	3,400	3,439	6,839	5	Physical Contingency	2,486	3,092	5,577
	Sub-total	26,069	26,363	52,432		Sub-total	19,056	23,703	42,760
6	price Escalation	13,053	6,994	20,047	6	price Escalation	0	0	0
	Grand Total	39,122	33,357	72,479		Grand Total	19,056	23,703	42,760
				OM Cost 0					OM Cost 0

3					3				
Unit: Bs. 1,000					Unit: Bs. 1,000				
3 No.	Classification of Costs	2002			3 No.	Classification of Costs	2002		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	19,786	20,100	39,886	1	Construction Cost	14,048	17,788	31,836
2	Land Acquisition	87	0	87	2	Land Acquisition	48	0	48
3	Administration	1,999	0	1,999	3	Administration	1,769	0	1,769
4	Engineering Services	798	2,824	3,622	4	Engineering Services	706	2,824	3,530
5	Physical Contingency	3,401	3,439	6,839	5	Physical Contingency	2,486	3,092	5,577
	Sub-total	26,071	26,363	52,433		Sub-total	19,057	23,703	42,760
6	price Escalation	15,793	8,329	24,122	6	price Escalation	0	0	0
	Grand Total	41,864	34,692	76,555		Grand Total	19,057	23,703	42,760
				OM Cost 640					OM Cost 318

4					4				
Unit: Bs. 1,000					Unit: Bs. 1,000				
4 No.	Classification of Costs	2003			4 No.	Classification of Costs	2003		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	19,786	20,100	39,886	1	Construction Cost	14,048	17,788	31,836
2	Land Acquisition	166	0	166	2	Land Acquisition	91	0	91
3	Administration	2,003	0	2,003	3	Administration	1,773	0	1,773
4	Engineering Services	918	3,250	4,168	4	Engineering Services	812	3,250	4,062
5	Physical Contingency	3,431	3,503	6,933	5	Physical Contingency	2,509	3,156	5,664
	Sub-total	26,304	26,853	53,156		Sub-total	19,233	24,193	43,426
6	price Escalation	18,891	9,897	28,788	6	price Escalation	0	0	0
	Grand Total	45,195	36,750	81,944		Grand Total	19,233	24,193	43,426
				OM Cost 1,371					OM Cost 637

5					5				
Unit: Bs. 1,000					Unit: Bs. 1,000				
5 No.	Classification of Costs	2004			5 No.	Classification of Costs	2004		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	24,760	25,152	49,912	1	Construction Cost	17,580	22,258	39,838
2	Land Acquisition	110	0	110	2	Land Acquisition	61	0	61
3	Administration	2,501	0	2,501	3	Administration	2,213	0	2,213
4	Engineering Services	1,015	3,592	4,607	4	Engineering Services	898	3,592	4,490
5	Physical Contingency	4,258	4,312	8,570	5	Physical Contingency	3,113	3,878	6,990
	Sub-total	32,644	33,056	65,700		Sub-total	23,864	29,728	53,592
6	price Escalation	27,370	13,993	41,363	6	price Escalation	0	0	0
	Grand Total	60,014	47,049	107,063		Grand Total	23,864	29,728	53,592
				OM Cost 2,200					OM Cost 955

**TABLE K.3.2 (2/2) ESTIMATE OF ECONOMIC COST FOR RIO PAILON PROJECT
(Alternative-1&-2)**

(1) Financial Cost
6

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	25,437	25,840	51,277
2	Land Acquisition	0	0	0
3	Administration	2,564	0	2,564
4	Engineering Services	410	1,451	1,861
5	Physical Contingency	4,262	4,094	8,355
	Sub-total	32,673	31,385	64,057
6	price Escalation	31,599	15,072	46,671
	Grand Total	64,272	46,457	110,728

OM Cost
3,336

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	109,555	111,292	220,847
2 Administration	535	0	535
3 Engineering Services	11,070	0	11,070
4 Land Acquisition	4,418	15,636	20,054
6 Physical Contingency	18,837	19,039	37,876
	Sub-total	141,415	145,967
7 price Escalation	106,969	54,707	161,676
	Grand Total	251,384	200,674

OM Cost
4,649

(2) Economic Cost
6

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	18,000	22,867	40,928
2	Land Acquisition	0	0	0
3	Administration	2,269	0	2,269
4	Engineering Services	363	1,451	1,814
5	Physical Contingency	3,104	3,648	6,752
	Sub-total	23,796	27,966	51,762
6	price Escalation	0	0	0
	Grand Total	23,796	27,966	51,762

OM Cost
1,353

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	77,784	98,488	176,273
2 Administration	294	0	294
3 Engineering Services	9,796	0	9,796
4 Land Acquisition	3,910	15,636	19,546
6 Physical Contingency	13,768	17,119	30,886
	Sub-total	105,552	131,243
7 price Escalation	0	0	0
	Grand Total	105,552	131,243

OM Cost
1,763

**TABLE K.3.3 (1/2) ESTIMATE OF ECONOMIC COST FOR QUEBRADA CHANE PROJECT
(Alternative-1&-2)**

(1) Financial Cost					(2) Economic Cost				
Unit: Bs. 1,000					Unit: Bs. 1,000				
2000					2000				
No.	Classification of Costs	L.C.	F.C.	Total	No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	0	0	0	1	Construction Cost	0	0	0
2	Land Acquisition	41	0	41	2	Land Acquisition	23	0	23
3	Administration	2	0	2	3	Administration	2	0	2
4	Engineering Services	65	230	295	4	Engineering Services	58	230	288
5	Physical Contingency	16	35	51	5	Physical Contingency	12	35	47
	Sub-total	124	265	389		Sub-total	94	265	359
6	price Escalation	50	57	107	6	price Escalation	0	0	0
	Grand Total	174	322	496 OM Cost		Grand Total	94	265	359 OM Cost
				0					0
2001					2001				
No.	Classification of Costs	L.C.	F.C.	Total	No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	2,880	2,539	5,419	1	Construction Cost	2,045	2,247	4,292
2	Land Acquisition	73	0	73	2	Land Acquisition	40	0	40
3	Administration	275	0	275	3	Administration	243	0	243
4	Engineering Services	318	1,127	1,445	4	Engineering Services	281	1,127	1,408
5	Physical Contingency	532	550	1,082	5	Physical Contingency	391	506	898
	Sub-total	4,078	4,216	8,294		Sub-total	3,001	3,880	6,881
6	price Escalation	2,042	1,119	3,161	6	price Escalation	0	0	0
	Grand Total	6,120	5,335	11,455 OM Cost		Grand Total	3,001	3,880	6,881 OM Cost
				0					0
2002					2002				
No.	Classification of Costs	L.C.	F.C.	Total	No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	12,181	10,739	22,920	1	Construction Cost	8,649	9,504	18,152
2	Land Acquisition	73	0	73	2	Land Acquisition	40	0	40
3	Administration	1,150	0	1,150	3	Administration	1,018	0	1,018
4	Engineering Services	458	1,623	2,081	4	Engineering Services	405	1,623	2,028
5	Physical Contingency	2,079	1,854	3,934	5	Physical Contingency	1,517	1,669	3,186
	Sub-total	15,941	14,216	30,158		Sub-total	11,628	12,796	24,424
6	price Escalation	9,657	4,491	14,148	6	price Escalation	0	0	0
	Grand Total	25,598	18,707	44,306 OM Cost		Grand Total	11,628	12,796	24,424 OM Cost
				87					43
2003					2003				
No.	Classification of Costs	L.C.	F.C.	Total	No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	12,181	10,739	22,920	1	Construction Cost	8,649	9,504	18,152
2	Land Acquisition	74	0	74	2	Land Acquisition	41	0	41
3	Administration	1,150	0	1,150	3	Administration	1,018	0	1,018
4	Engineering Services	458	1,623	2,081	4	Engineering Services	405	1,623	2,028
5	Physical Contingency	2,079	1,851	3,934	5	Physical Contingency	1,517	1,669	3,186
	Sub-total	15,942	14,216	30,159		Sub-total	11,629	12,796	24,425
6	price Escalation	11,450	5,240	16,690	6	price Escalation	0	0	0
	Grand Total	27,392	19,456	46,849 OM Cost		Grand Total	11,629	12,796	24,425 OM Cost
				487					224
2004					2004				
No.	Classification of Costs	L.C.	F.C.	Total	No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	12,181	10,739	22,920	1	Construction Cost	8,649	9,504	18,152
2	Land Acquisition	79	0	79	2	Land Acquisition	43	0	43
3	Administration	1,150	0	1,150	3	Administration	1,018	0	1,018
4	Engineering Services	445	1,574	2,019	4	Engineering Services	391	1,574	1,968
5	Physical Contingency	2,078	1,847	3,925	5	Physical Contingency	1,516	1,662	3,177
	Sub-total	15,933	14,160	30,093		Sub-total	11,619	12,739	24,358
6	price Escalation	13,360	5,991	19,351	6	price Escalation	0	0	0
	Grand Total	29,293	20,151	49,447 OM Cost		Grand Total	11,619	12,739	24,358 OM Cost
				942					406

**TABLE K.3.3 (2/2) ESTIMATE OF ECONOMIC COST FOR QUEBRADA CHANE PROJECT
(Alternative-1&-2)**

(1) Financial Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	11,566	10,197	21,763
2	Land Acquisition	0	0	0
3	Administration	1,088	0	1,088
4	Engineering Services	174	616	790
5	Physical Contingency	1,924	1,622	3,546
	Sub-total	14,752	12,435	27,187
6	price Escalation	14,268	5,972	20,240
	Grand Total	29,020	18,407	47,427

OM Cost
1,459

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	50,989	41,953	95,942
2 Administration	340	0	340
3 Engineering Services	4,815	0	4,815
4 Land Acquisition	1,918	6,793	8,711
6 Physical Contingency	8,709	7,762	16,471
	66,771	59,508	126,279
7 price Escalation	50,827	22,873	73,700
Grand Total	117,598	82,381	199,979

OM Cost
2,019

(2) Economic Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	8,212	9,024	17,236
2	Land Acquisition	0	0	0
3	Administration	963	0	963
4	Engineering Services	154	616	770
5	Physical Contingency	1,399	1,446	2,845
	Sub-total	10,728	11,086	21,814
6	price Escalation	0	0	0
	Grand Total	10,728	11,086	21,814

OM Cost
587

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	36,202	39,781	75,984
2 Administration	187	0	187
3 Engineering Services	4,261	0	4,261
4 Land Acquisition	1,697	6,793	8,490
6 Physical Contingency	6,352	6,986	13,338
	48,700	53,561	102,260
7 price Escalation	0	0	0
Grand Total	48,700	53,561	102,260

OM Cost
760

**TABLE K.3.4 (1/2) ESTIMATE OF ECONOMIC COST FOR CHANE CHACRAS PROJECT
(Alternative-1&-2)**

(1) Financial Cost					(2) Economic Cost				
Unit: Bs. 1,000					Unit: Bs. 1,000				
2000					2000				
No.	Classification of Costs	L.C.	F.C.	Total	No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	0	0	0	1	Construction Cost	0	0	0
2	Land Acquisition	73	0	73	2	Land Acquisition	40	0	40
3	Administration	4	0	4	3	Administration	4	0	4
4	Engineering Services	157	558	715	4	Engineering Services	139	558	697
5	Physical Contingency	35	84	119	5	Physical Contingency	27	84	111
	Sub-total	269	642	911		Sub-total	210	642	852
6	price Escalation	108	139	247	6	price Escalation	0	0	0
	Grand Total	377	781	1,158		Grand Total	210	642	852
				OM Cost 0					OM Cost 0
2001					2001				
No.	Classification of Costs	L.C.	F.C.	Total	No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	6,628	6,496	13,124	1	Construction Cost	4,706	5,749	10,455
2	Land Acquisition	73	0	73	2	Land Acquisition	40	0	40
3	Administration	660	0	660	3	Administration	584	0	584
4	Engineering Services	262	929	1,191	4	Engineering Services	232	929	1,161
5	Physical Contingency	1,143	1,114	2,257	5	Physical Contingency	834	1,002	1,836
	Sub-total	8,766	8,539	17,305		Sub-total	6,396	7,679	14,076
6	price Escalation	4,390	2,266	6,656	6	price Escalation	0	0	0
	Grand Total	13,156	10,805	23,961		Grand Total	6,396	7,679	14,076
				OM Cost 0					OM Cost 0
2002					2002				
No.	Classification of Costs	L.C.	F.C.	Total	No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	6,628	6,496	13,124	1	Construction Cost	4,706	5,749	10,455
2	Land Acquisition	73	0	73	2	Land Acquisition	40	0	40
3	Administration	660	0	660	3	Administration	584	0	584
4	Engineering Services	262	929	1,191	4	Engineering Services	232	929	1,161
5	Physical Contingency	1,143	1,114	2,257	5	Physical Contingency	834	1,002	1,836
	Sub-total	8,766	8,539	17,305		Sub-total	6,396	7,679	14,076
6	price Escalation	5,311	2,698	8,009	6	price Escalation	0	0	0
	Grand Total	14,077	11,237	25,314		Grand Total	6,396	7,679	14,076
				OM Cost 211					OM Cost 105
2003					2003				
No.	Classification of Costs	L.C.	F.C.	Total	No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	6,629	6,496	13,125	1	Construction Cost	4,707	5,749	10,455
2	Land Acquisition	215	0	215	2	Land Acquisition	118	0	118
3	Administration	667	0	667	3	Administration	590	0	590
4	Engineering Services	494	1,751	2,245	4	Engineering Services	437	1,751	2,188
5	Physical Contingency	1,201	1,237	2,438	5	Physical Contingency	878	1,125	2,003
	Sub-total	9,206	9,484	18,690		Sub-total	6,730	8,625	15,355
6	price Escalation	6,612	3,495	10,107	6	price Escalation	0	0	0
	Grand Total	15,818	12,979	28,797		Grand Total	6,730	8,625	15,355
				OM Cost 451					OM Cost 209
2004					2004				
No.	Classification of Costs	L.C.	F.C.	Total	No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	16,389	16,060	32,449	1	Construction Cost	11,636	14,212	25,849
2	Land Acquisition	246	0	246	2	Land Acquisition	135	0	135
3	Administration	1,635	0	1,635	3	Administration	1,447	0	1,447
4	Engineering Services	833	2,948	3,781	4	Engineering Services	737	2,948	3,685
5	Physical Contingency	2,865	2,851	5,717	5	Physical Contingency	2,093	2,574	4,667
	Sub-total	21,968	21,859	43,828		Sub-total	16,049	19,734	35,783
6	price Escalation	18,419	9,253	27,672	6	price Escalation	0	0	0
	Grand Total	40,387	31,112	71,500		Grand Total	16,049	19,734	35,783
				OM Cost 724					OM Cost 314

TABLE K.3.4 (2/2) ESTIMATE OF ECONOMIC COST FOR CHANE CHACRAS PROJECT (Alternative-1&-2)

(1) Financial Cost

6		2005		
		L.C.	F.C.	Total
No.	Classification of Costs			
1	Construction Cost	24,119	23,636	47,755
2	Land Acquisition	31	0	31
3	Administration	2,389	0	2,389
4	Engineering Services	566	2,002	2,568
5	Physical Contingency	4,066	3,846	7,911
	Sub-total	31,171	29,484	60,654
6	price Escalation	30,147	14,159	44,306
	Grand Total	61,318	43,643	104,960 OM Cost

1,413

(2) Economic Cost

6		2005		
		L.C.	F.C.	Total
No.	Classification of Costs			
1	Construction Cost	17,124	20,917	38,041
2	Land Acquisition	17	0	17
3	Administration	2,114	0	2,114
4	Engineering Services	501	2,002	2,503
5	Physical Contingency	2,963	3,438	6,401
	Sub-total	22,720	26,357	49,077
6	price Escalation	0	0	0
	Grand Total	22,720	26,357	49,077 OM Cost

572

7

7		2006		
		L.C.	F.C.	Total
No.	Classification of Costs			
1	Construction Cost	7,730	7,576	15,306
2	Land Acquisition	31	0	31
3	Administration	767	0	767
4	Engineering Services	306	1,084	1,390
5	Physical Contingency	1,325	1,299	2,624
	Sub-total	10,159	9,959	20,118
6	price Escalation	11,224	5,372	16,596
	Grand Total	21,383	15,331	36,714 OM Cost

2,517

7

7		2006		
		L.C.	F.C.	Total
No.	Classification of Costs			
1	Construction Cost	5,488	6,704	12,193
2	Land Acquisition	17	0	17
3	Administration	679	0	679
4	Engineering Services	271	1,084	1,355
5	Physical Contingency	968	1,168	2,136
	Sub-total	7,423	8,957	16,380
6	price Escalation	0	0	0
	Grand Total	7,423	8,957	16,380 OM Cost

953

8

8		2007		
		L.C.	F.C.	Total
No.	Classification of Costs			
1	Construction Cost	7,730	7,576	15,306
2	Land Acquisition	32	0	32
3	Administration	767	0	767
4	Engineering Services	306	1,084	1,390
5	Physical Contingency	1,325	1,299	2,624
	Sub-total	10,160	9,959	20,119
6	price Escalation	12,723	5,985	18,708
	Grand Total	22,883	15,944	38,827 OM Cost

3,038

8

8		2007		
		L.C.	F.C.	Total
No.	Classification of Costs			
1	Construction Cost	5,488	6,704	12,193
2	Land Acquisition	18	0	18
3	Administration	679	0	679
4	Engineering Services	271	1,084	1,355
5	Physical Contingency	968	1,168	2,137
	Sub-total	7,424	8,957	16,380
6	price Escalation	0	0	0
	Grand Total	7,424	8,957	16,380 OM Cost

1,074

9

9		2008		
		L.C.	F.C.	Total
No.	Classification of Costs			
1	Construction Cost	7,730	7,576	15,306
2	Land Acquisition	0	0	0
3	Administration	765	0	765
4	Engineering Services	122	433	555
5	Physical Contingency	1,293	1,201	2,494
	Sub-total	9,910	9,210	19,120
6	price Escalation	13,972	6,126	20,098
	Grand Total	23,882	15,336	39,218 OM Cost

3,619

9

9		2008		
		L.C.	F.C.	Total
No.	Classification of Costs			
1	Construction Cost	5,488	6,704	12,193
2	Land Acquisition	0	0	0
3	Administration	677	0	677
4	Engineering Services	108	433	541
5	Physical Contingency	941	1,071	2,012
	Sub-total	7,214	8,208	15,422
6	price Escalation	0	0	0
	Grand Total	7,214	8,208	15,422 OM Cost

1,196

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	83,583	81,912	165,495
2 Administration	774	0	774
3 Engineering Services	8,314	0	8,314
4 Land Acquisition	3,308	11,718	15,026
5 Physical Contingency	14,397	14,045	28,441
	110,376	107,675	218,050
6 price Escalation	102,906	49,493	152,399
	213,282	157,168	370,449 OM Cost

4,267

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	59,344	72,488	131,832
2 Administration	426	0	426
3 Engineering Services	7,358	0	7,358
4 Land Acquisition	2,927	11,718	14,645
5 Physical Contingency	10,508	12,631	23,139
	80,563	96,837	177,400
6 price Escalation	0	0	0
	80,563	96,837	177,400 OM Cost

1,318

TABLE K.3.5 (1/2) ESTIMATE OF ECONOMIC COST FOR OKINAWA DRAINAGE PROJECT (Alternative-1&-2)

(1) Financial Cost				(2) Economic Cost					
1				1					
No.	Classification of Costs	Unit: Bs. 1,000			No.	Classification of Costs	Unit: Bs. 1,000		
		2000	2000	Total			2000	2000	Total
		L.C.	F.C.	Total		L.C.	F.C.	Total	
1	Construction Cost	0	0	0	1	Construction Cost	0	0	0
2	Land Acquisition	119	0	119	2	Land Acquisition	65	0	65
3	Administration	6	0	6	3	Administration	5	0	5
4	Engineering Services	222	785	1,007	4	Engineering Services	196	785	981
5	Physical Contingency	52	118	170	5	Physical Contingency	40	118	158
	Sub-total	399	903	1,302		Sub-total	307	903	1,210
6	price Escalation	160	196	356	6	price Escalation	0	0	0
	Grand Total	559	1,099	1,658		Grand Total	307	903	1,210
				OMCost 0				OMCost 0	
2				2					
No.	Classification of Costs	2001			No.	Classification of Costs	2001		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	9,016	9,462	18,478	1	Construction Cost	6,401	8,373	14,775
2	Land Acquisition	120	0	120	2	Land Acquisition	66	0	66
3	Administration	930	0	930	3	Administration	823	0	823
4	Engineering Services	370	1,308	1,678	4	Engineering Services	327	1,308	1,635
5	Physical Contingency	1,565	1,616	3,181	5	Physical Contingency	1,143	1,452	2,595
	Sub-total	12,001	12,386	24,387		Sub-total	8,760	11,134	19,894
6	price Escalation	6,009	3,286	9,295	6	price Escalation	0	0	0
	Grand Total	18,010	15,672	33,682		Grand Total	8,760	11,134	19,894
				OMCost 0				OMCost 0	
3				3					
No.	Classification of Costs	2002			No.	Classification of Costs	2002		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	9,016	9,463	18,479	1	Construction Cost	6,401	8,374	14,776
2	Land Acquisition	22	0	22	2	Land Acquisition	12	0	12
3	Administration	925	0	925	3	Administration	819	0	819
4	Engineering Services	279	987	1,266	4	Engineering Services	247	987	1,234
5	Physical Contingency	1,536	1,568	3,104	5	Physical Contingency	1,122	1,404	2,526
	Sub-total	11,778	12,018	23,796		Sub-total	8,601	10,766	19,366
6	price Escalation	7,135	3,797	10,932	6	price Escalation	0	0	0
	Grand Total	18,913	15,815	34,728		Grand Total	8,601	10,766	19,366
				OMCost 297				OMCost 148	
4				4					
No.	Classification of Costs	2003			No.	Classification of Costs	2003		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	5,325	5,590	10,915	1	Construction Cost	3,781	4,947	8,728
2	Land Acquisition	22	0	22	2	Land Acquisition	12	0	12
3	Administration	547	0	547	3	Administration	484	0	484
4	Engineering Services	218	773	991	4	Engineering Services	193	773	966
5	Physical Contingency	917	954	1,871	5	Physical Contingency	670	858	1,528
	Sub-total	7,029	7,317	14,346		Sub-total	5,140	6,578	11,718
6	price Escalation	5,048	2,697	7,745	6	price Escalation	0	0	0
	Grand Total	12,077	10,014	22,091		Grand Total	5,140	6,578	11,718
				OMCost 635				OMCost 296	
5				5					
No.	Classification of Costs	2004			No.	Classification of Costs	2004		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	5,326	5,590	10,916	1	Construction Cost	3,781	4,947	8,728
2	Land Acquisition	23	0	23	2	Land Acquisition	13	0	13
3	Administration	547	0	547	3	Administration	484	0	484
4	Engineering Services	218	773	991	4	Engineering Services	193	773	966
5	Physical Contingency	917	954	1,872	5	Physical Contingency	671	858	1,529
	Sub-total	7,031	7,317	14,349		Sub-total	5,142	6,578	11,720
6	price Escalation	5,896	3,097	8,993	6	price Escalation	0	0	0
	Grand Total	12,927	10,414	23,342		Grand Total	5,142	6,578	11,720
				OMCost 880				OMCost 383	

**TABLE K.3.5 (2/2) ESTIMATE OF ECONOMIC COST FOR OKINAWA DRAINAGE PROJECT
(Alternative-1&-2)**

(1) Financial Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	5,326	5,590	10,916
2	Land Acquisition	0	0	0
3	Administration	546	0	546
4	Engineering Services	87	309	396
5	Physical Contingency	894	885	1,779
	Sub-total	6,853	6,784	13,637
6	price Escalation	6,628	3,258	9,886
	Grand Total	13,481	10,042	23,523

OM Cost 1,156

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	34,009	35,695	69,704
2 Administration	306	0	306
3 Engineering Services	3,501	0	3,501
4 Land Acquisition	1,394	4,935	6,329
6 Physical Contingency	5,882	6,025	11,907
	45,092	46,725	91,816
7 price Escalation	30,876	16,331	47,207
	75,968	63,056	139,024

OM Cost 1,467

(2) Economic Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	3,781	4,947	8,728
2	Land Acquisition	0	0	0
3	Administration	483	0	483
4	Engineering Services	77	309	386
5	Physical Contingency	651	788	1,439
	Sub-total	4,993	6,044	11,037
6	price Escalation	0	0	0
	Grand Total	4,993	6,044	11,037

OM Cost 470

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	24,146	31,588	55,735
2 Administration	168	0	168
3 Engineering Services	3,028	0	3,028
4 Land Acquisition	1,244	4,935	6,169
6 Physical Contingency	4,297	5,479	9,776
	32,944	42,002	74,946
7 price Escalation	0	0	0
	32,944	42,002	74,946

OM Cost 557

**TABLE K.3.6 (1/2) ESTIMATE OF ECONOMIC COST FOR SAN JUAN PROJECT
(Alternative-1)**

(1) Financial Cost					(2) Economic Cost						
No.	Classification of Costs	Unit: Bs. 1,000			OM Cost	No.	Classification of Costs	Unit: Bs. 1,000			OM Cost
		L.C.	F.C.	Total				L.C.	F.C.	Total	
1					1						
1	Construction Cost	0	0	0	0	Construction Cost	0	0	0	0	
2	Land Acquisition	77	0	77	0	2	Land Acquisition	42	0	42	0
3	Administration	4	0	4	0	3	Administration	4	0	4	0
4	Engineering Services	193	683	876	0	4	Engineering Services	171	683	854	0
5	Physical Contingency	41	102	144	0	5	Physical Contingency	33	102	135	0
	Sub-total	315	785	1,101	0		Sub-total	249	785	1,035	0
6	price Escalation	127	170	297	0	6	price Escalation	0	0	0	0
	Grand Total	442	955	1,398	0		Grand Total	249	785	1,035	0
2					2						
1	Construction Cost	7,721	8,357	16,078	0	1	Construction Cost	5,482	7,396	12,877	0
2	Land Acquisition	77	0	77	0	2	Land Acquisition	42	0	42	0
3	Administration	808	0	808	0	3	Administration	715	0	715	0
4	Engineering Services	322	1,138	1,460	0	4	Engineering Services	285	1,138	1,423	0
5	Physical Contingency	1,339	1,424	2,763	0	5	Physical Contingency	979	1,280	2,259	0
	Sub-total	10,267	10,919	21,186	0		Sub-total	7,503	9,814	17,317	0
6	price Escalation	5,141	2,897	8,038	0	6	price Escalation	0	0	0	0
	Grand Total	15,408	13,816	29,224	0		Grand Total	7,503	9,814	17,317	0
3					3						
1	Construction Cost	7,721	8,358	16,079	258	1	Construction Cost	5,482	7,396	12,878	129
2	Land Acquisition	70	0	70	0	2	Land Acquisition	39	0	39	0
3	Administration	807	0	807	0	3	Administration	714	0	714	0
4	Engineering Services	360	1,276	1,636	0	4	Engineering Services	319	1,276	1,595	0
5	Physical Contingency	1,344	1,445	2,789	0	5	Physical Contingency	983	1,301	2,284	0
	Sub-total	10,302	11,079	21,381	0		Sub-total	7,536	9,973	17,509	0
6	price Escalation	6,241	3,500	9,741	0	6	price Escalation	0	0	0	0
	Grand Total	16,543	14,579	31,122	258		Grand Total	7,536	9,973	17,509	129
4					4						
1	Construction Cost	9,273	10,037	19,310	553	1	Construction Cost	6,584	8,882	15,466	288
2	Land Acquisition	30	0	30	0	2	Land Acquisition	17	0	17	0
3	Administration	967	0	967	0	3	Administration	856	0	856	0
4	Engineering Services	328	1,162	1,490	0	4	Engineering Services	290	1,162	1,452	0
5	Physical Contingency	1,590	1,680	3,270	0	5	Physical Contingency	1,162	1,507	2,669	0
	Sub-total	12,188	12,879	25,067	0		Sub-total	8,908	11,551	20,459	0
6	price Escalation	8,753	4,747	13,500	0	6	price Escalation	0	0	0	0
	Grand Total	20,941	17,626	38,567	553		Grand Total	8,908	11,551	20,459	288
5					5						
1	Construction Cost	6,959	7,543	14,491	946	1	Construction Cost	4,941	6,665	11,606	412
2	Land Acquisition	0	0	0	0	2	Land Acquisition	0	0	0	0
3	Administration	725	0	725	0	3	Administration	642	0	642	0
4	Engineering Services	116	410	526	0	4	Engineering Services	103	410	513	0
5	Physical Contingency	1,170	1,191	2,361	0	5	Physical Contingency	853	1,061	1,914	0
	Sub-total	8,970	9,133	18,103	0		Sub-total	6,538	8,137	14,675	0
6	price Escalation	7,520	3,866	11,386	0	6	price Escalation	0	0	0	0
	Grand Total	16,490	12,999	29,489	946		Grand Total	6,538	8,137	14,675	412

**TABLE K.3.6 (2/2) ESTIMATE OF ECONOMIC COST FOR SAN JUAN PROJECT
(Alternative-1)**

(1) Financial Cost				(2) Economic Cost			
Classification of Costs	Total			Classification of Costs	Total		
	I.C.	F.C.	Total		I.C.	F.C.	Total
1 Construction Cost	31,674	34,284	65,958	1 Construction Cost	22,489	30,340	52,828
2 Administration	254	0	254	2 Administration	140	0	140
3 Engineering Services	3,311	0	3,311	3 Engineering Services	2,930	0	2,930
4 Land Acquisition	1,319	4,669	5,988	4 Land Acquisition	1,167	4,669	5,836
6 Physical Contingency	5,483	5,843	11,327	6 Physical Contingency	4,009	5,251	9,260
Sub-total	42,042	44,796	86,838	Sub-total	30,734	40,260	70,995
7 price Escalation	27,782	15,180	42,962	7 price Escalation	0	0	0
Grand Total	69,824	59,976	129,800	Grand Total	30,734	40,260	70,995
			OM Cost 1,297				OM Cost 528

**TABLE K.3.7 (1/2) ESTIMATE OF ECONOMIC COST FOR SAN JUAN PROJECT
(Alternative-2)**

(1) Financial Cost

1
No. Classification of Costs

Unit: Bs. 1,000
2000

	L.C.	F.C.	Total
1 Construction Cost	0	0	0
2 Land Acquisition	77	0	77
3 Administration	4	0	4
4 Engineering Services	247	876	1,123
5 Physical Contingency	49	131	181
Sub-total	377	1,007	1,385
6 price Escalation	152	218	370
Grand Total	529	1,225	1,755 OMCost

0

2
No. Classification of Costs

2001

	L.C.	F.C.	Total
1 Construction Cost	9,911	10,712	20,624
2 Land Acquisition	77	0	77
3 Administration	1,035	0	1,035
4 Engineering Services	412	1,460	1,872
5 Physical Contingency	1,715	1,826	3,541
Sub-total	13,150	13,998	27,148
6 price Escalation	6,585	3,714	10,299
Grand Total	19,735	17,712	37,447 OMCost

0

3
No. Classification of Costs

2002

	L.C.	F.C.	Total
1 Construction Cost	9,912	10,712	20,624
2 Land Acquisition	70	0	70
3 Administration	1,035	0	1,035
4 Engineering Services	393	1,391	1,784
5 Physical Contingency	1,712	1,815	3,527
Sub-total	13,122	13,918	27,040
6 price Escalation	7,949	4,397	12,346
Grand Total	21,071	18,315	39,386 OMCost

331

4
No. Classification of Costs

2003

	L.C.	F.C.	Total
1 Construction Cost	9,134	9,873	19,007
2 Land Acquisition	30	0	30
3 Administration	952	0	952
4 Engineering Services	326	1,154	1,480
5 Physical Contingency	1,566	1,654	3,220
Sub-total	12,008	12,681	24,689
6 price Escalation	8,624	4,674	13,298
Grand Total	20,632	17,355	37,987 OMCost

709

5
No. Classification of Costs

2004

	L.C.	F.C.	Total
1 Construction Cost	6,964	7,527	14,491
2 Land Acquisition	0	0	0
3 Administration	725	0	725
4 Engineering Services	116	410	526
5 Physical Contingency	1,171	1,191	2,361
Sub-total	8,976	9,128	18,103
6 price Escalation	7,525	3,864	11,389
Grand Total	16,501	12,992	29,492 OMCost

1,108

(2) Economic Cost

1
No. Classification of Costs

Unit: Bs. 1,000
2000

	L.C.	F.C.	Total
1 Construction Cost	0	0	0
2 Land Acquisition	42	0	42
3 Administration	4	0	4
4 Engineering Services	219	876	1,095
5 Physical Contingency	40	131	171
Sub-total	304	1,007	1,312
6 price Escalation	0	0	0
Grand Total	304	1,007	1,312 OMCost

0

2
No. Classification of Costs

2001

	L.C.	F.C.	Total
1 Construction Cost	7,037	9,480	16,516
2 Land Acquisition	42	0	42
3 Administration	916	0	916
4 Engineering Services	365	1,460	1,825
5 Physical Contingency	1,254	1,641	2,895
Sub-total	9,614	12,581	22,194
6 price Escalation	0	0	0
Grand Total	9,614	12,581	22,194 OMCost

0

3
No. Classification of Costs

2002

	L.C.	F.C.	Total
1 Construction Cost	7,038	9,480	16,516
2 Land Acquisition	39	0	39
3 Administration	916	0	916
4 Engineering Services	348	1,391	1,739
5 Physical Contingency	1,251	1,631	2,882
Sub-total	9,591	12,501	22,092
6 price Escalation	0	0	0
Grand Total	9,591	12,501	22,092 OMCost

165

4
No. Classification of Costs

2003

	L.C.	F.C.	Total
1 Construction Cost	6,485	8,737	15,222
2 Land Acquisition	17	0	17
3 Administration	842	0	842
4 Engineering Services	285	1,154	1,439
5 Physical Contingency	1,145	1,484	2,629
Sub-total	8,778	11,375	20,152
6 price Escalation	0	0	0
Grand Total	8,778	11,375	20,152 OMCost

330

5
No. Classification of Costs

2004

	L.C.	F.C.	Total
1 Construction Cost	4,944	6,661	11,606
2 Land Acquisition	0	0	0
3 Administration	642	0	642
4 Engineering Services	103	410	513
5 Physical Contingency	853	1,061	1,914
Sub-total	6,542	8,132	14,674
6 price Escalation	0	0	0
Grand Total	6,542	8,132	14,674 OMCost

483

**TABLE K.3.7 (2/2) ESTIMATE OF ECONOMIC COST FOR SAN JUAN PROJECT
(Alternative-2)**

(1) Financial Cost				(2) Economic Cost					
Total	Classification of Costs	Total		Total	Classification of Costs	Total			
		L.C.	F.C.			L.C.	F.C.		
1	Construction Cost	35,921	38,824	74,745	1	Construction Cost	25,504	34,388	59,861
2	Administration	254	0	254	2	Administration	140	0	140
3	Engineering Services	3,751	0	3,751	3	Engineering Services	3,319	0	3,319
4	Land Acquisition	1,494	5,291	6,785	4	Land Acquisition	1,322	5,291	6,613
6	Physical Contingency	6,213	6,617	12,830	6	Physical Contingency	4,543	5,947	10,490
	Sub-total	47,633	50,732	98,365		Sub-total	34,828	45,596	80,424
7	price Escalation	30,835	16,867	47,702	7	price Escalation	0	0	0
	Grand Total	78,468	67,599	146,067		Grand Total	34,828	45,596	80,424
				OM Cost 1,470					OM Cost 599

**TABLE K.3.8 (1/2) ESTIMATE OF ECONOMIC COST FOR ANTOFAGASTA PROJECT
(Alternative-1&-2)**

(1) Financial Cost

1 No.	Classification of Costs	Unit: Bs. 1,000		
		2000		
		L.C.	F.C.	Total
1	Construction Cost	0	0	0
2	Land Acquisition	239	0	239
3	Administration	12	0	12
4	Engineering Services	325	1,151	1,476
5	Physical Contingency	86	173	259
	Sub-total	662	1,324	1,986
6	price Escalation	267	287	554
	Grand Total	929	1,611	2,540 OM Cost

(2) Economic Cost

1 No.	Classification of Costs	Unit: Bs. 1,000		
		2000		
		L.C.	F.C.	Total
1	Construction Cost	0	0	0
2	Land Acquisition	131	0	131
3	Administration	11	0	11
4	Engineering Services	288	1,151	1,439
5	Physical Contingency	64	173	237
	Sub-total	494	1,324	1,818
6	price Escalation	0	0	0
	Grand Total	494	1,324	1,818 OM Cost

2 No.	Classification of Costs	2001		
		L.C.	F.C.	Total
		1	Construction Cost	13,551
2	Land Acquisition	188	0	188
3	Administration	1,364	0	1,364
4	Engineering Services	393	1,392	1,785
5	Physical Contingency	2,324	2,238	4,563
	Sub-total	17,820	17,161	34,982
6	price Escalation	8,923	4,553	13,476
	Grand Total	26,743	21,714	48,458 OM Cost

2 No.	Classification of Costs	2001		
		L.C.	F.C.	Total
		1	Construction Cost	9,621
2	Land Acquisition	103	0	103
3	Administration	1,207	0	1,207
4	Engineering Services	348	1,392	1,740
5	Physical Contingency	1,692	2,005	3,697
	Sub-total	12,971	15,371	28,343
6	price Escalation	0	0	0
	Grand Total	12,971	15,371	28,343 OM Cost

3 No.	Classification of Costs	2002		
		L.C.	F.C.	Total
		1	Construction Cost	7,365
2	Land Acquisition	62	0	62
3	Administration	739	0	739
4	Engineering Services	292	1,035	1,327
5	Physical Contingency	1,269	1,258	2,527
	Sub-total	9,727	9,646	19,373
6	price Escalation	5,893	3,048	8,941
	Grand Total	15,620	12,694	28,314 OM Cost

3 No.	Classification of Costs	2002		
		L.C.	F.C.	Total
		1	Construction Cost	5,229
2	Land Acquisition	34	0	34
3	Administration	654	0	654
4	Engineering Services	258	1,035	1,293
5	Physical Contingency	926	1,131	2,058
	Sub-total	7,102	8,673	15,775
6	price Escalation	0	0	0
	Grand Total	7,102	8,673	15,775 OM Cost

4 No.	Classification of Costs	2003		
		L.C.	F.C.	Total
		1	Construction Cost	7,285
2	Land Acquisition	22	0	22
3	Administration	729	0	729
4	Engineering Services	235	832	1,067
5	Physical Contingency	1,241	1,216	2,457
	Sub-total	9,512	9,323	18,835
6	price Escalation	6,831	3,436	10,267
	Grand Total	16,343	12,759	29,102 OM Cost

4 No.	Classification of Costs	2003		
		L.C.	F.C.	Total
		1	Construction Cost	5,172
2	Land Acquisition	12	0	12
3	Administration	645	0	645
4	Engineering Services	208	832	1,040
5	Physical Contingency	906	1,091	1,996
	Sub-total	6,943	8,361	15,304
6	price Escalation	0	0	0
	Grand Total	6,943	8,361	15,304 OM Cost

5 No.	Classification of Costs	2004		
		L.C.	F.C.	Total
		1	Construction Cost	4,942
2	Land Acquisition	23	0	23
3	Administration	495	0	495
4	Engineering Services	198	699	897
5	Physical Contingency	849	845	1,694
	Sub-total	6,507	6,479	12,986
6	price Escalation	5,455	2,743	8,198
	Grand Total	11,962	9,222	21,184 OM Cost

5 No.	Classification of Costs	2004		
		L.C.	F.C.	Total
		1	Construction Cost	3,509
2	Land Acquisition	13	0	13
3	Administration	438	0	438
4	Engineering Services	175	699	874
5	Physical Contingency	620	760	1,380
	Sub-total	4,755	5,826	10,581
6	price Escalation	0	0	0
	Grand Total	4,755	5,826	10,581 OM Cost

**TABLE K.3.8 (2/2) ESTIMATE OF ECONOMIC COST FOR ANTOFAGASTA PROJECT
(Alternative-1&-2)**

(1) Financial Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	4,943	4,935	9,878
2	Land Acquisition	0	0	0
3	Administration	494	0	494
4	Engineering Services	79	280	359
5	Physical Contingency	827	782	1,610
	Sub-total	6,343	5,997	12,341
6	price Escalation	6,135	2,880	9,015
	Grand Total	12,478	8,877	21,356

OM Cost
1,303

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	38,086	38,029	76,115
2 Administration	534	0	534
3 Engineering Services	3,833	0	3,833
4 Land Acquisition	1,522	5,389	6,911
6 Physical Contingency	6,596	6,513	13,109
	50,571	49,931	100,502
7 price Escalation	33,504	16,947	50,451
Grand Total	84,075	66,878	150,953

OM Cost
1,602

(2) Economic Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	3,510	4,367	7,877
2	Land Acquisition	0	0	0
3	Administration	437	0	437
4	Engineering Services	70	280	350
5	Physical Contingency	602	697	1,300
	Sub-total	4,619	5,344	9,963
6	price Escalation	0	0	0
	Grand Total	4,619	5,344	9,963

OM Cost
528

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	27,041	33,654	60,695
2 Administration	294	0	294
3 Engineering Services	3,392	0	3,392
4 Land Acquisition	1,347	5,389	6,736
6 Physical Contingency	4,811	5,856	10,668
	36,885	44,899	81,784
7 price Escalation	0	0	0
Grand Total	36,885	44,899	81,784

OM Cost
607

**TABLE K.3.9 (1/2) ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT
(Alternative-1)**

(1) Financial Cost

No.	Classification of Costs	Unit: Bs. 1,000		
		2000		
		L.C.	F.C.	Total
1	Construction Cost	0	0	0
2	Land Acquisition	699	0	699
3	Administration	35	0	35
4	Engineering Services	1,762	6,239	8,001
5	Physical Contingency	374	936	1,310
	Sub-total	2,870	7,175	10,045
6	price Escalation	1,155	1,554	2,709
	Grand Total	4,025	8,729	12,754 OM Cost

(2) Economic Cost

No.	Classification of Costs	Unit: Bs. 1,000		
		2000		
		L.C.	F.C.	Total
1	Construction Cost	0	0	0
2	Land Acquisition	384	0	384
3	Administration	31	0	31
4	Engineering Services	1,559	6,239	7,798
5	Physical Contingency	296	936	1,232
	Sub-total	2,271	7,175	9,446
6	price Escalation	0	0	0
	Grand Total	2,271	7,175	9,446 OM Cost

No.	Classification of Costs	2001		
		L.C.	F.C.	Total
1	Construction Cost	72,004	74,795	146,799
2	Land Acquisition	682	0	682
3	Administration	7,374	0	7,374
4	Engineering Services	2,998	10,612	13,610
5	Physical Contingency	12,459	12,811	25,270
	Sub-total	95,517	98,218	193,735
6	price Escalation	47,828	26,059	73,887
	Grand Total	143,345	124,277	267,622 OM Cost

No.	Classification of Costs	2001		
		L.C.	F.C.	Total
1	Construction Cost	51,123	66,190	117,313
2	Land Acquisition	375	0	375
3	Administration	6,526	0	6,526
4	Engineering Services	2,653	10,612	13,265
5	Physical Contingency	9,102	11,520	20,622
	Sub-total	69,778	88,323	158,101
6	price Escalation	0	0	0
	Grand Total	69,778	88,323	158,101 OM Cost

No.	Classification of Costs	2002		
		L.C.	F.C.	Total
1	Construction Cost	75,119	76,819	151,938
2	Land Acquisition	452	0	452
3	Administration	7,620	0	7,620
4	Engineering Services	2,985	10,566	13,551
5	Physical Contingency	12,926	13,108	26,034
	Sub-total	99,102	100,493	199,595
6	price Escalation	60,034	31,749	91,783
	Grand Total	159,136	132,242	291,378 OM Cost

No.	Classification of Costs	2002		
		L.C.	F.C.	Total
1	Construction Cost	53,334	67,981	121,316
2	Land Acquisition	249	0	249
3	Administration	6,743	0	6,743
4	Engineering Services	2,642	10,566	13,208
5	Physical Contingency	9,445	11,782	21,227
	Sub-total	72,413	90,330	162,743
6	price Escalation	0	0	0
	Grand Total	72,413	90,330	162,743 OM Cost

No.	Classification of Costs	2003		
		L.C.	F.C.	Total
1	Construction Cost	72,901	74,547	147,448
2	Land Acquisition	594	0	594
3	Administration	7,402	0	7,402
4	Engineering Services	3,187	11,283	14,470
5	Physical Contingency	12,613	12,875	25,487
	Sub-total	96,697	98,705	195,401
6	price Escalation	69,446	36,379	105,825
	Grand Total	166,143	135,084	301,226 OM Cost

No.	Classification of Costs	2003		
		L.C.	F.C.	Total
1	Construction Cost	51,760	65,971	117,731
2	Land Acquisition	327	0	327
3	Administration	6,550	0	6,550
4	Engineering Services	2,820	11,283	14,103
5	Physical Contingency	9,219	11,588	20,807
	Sub-total	70,676	88,842	159,518
6	price Escalation	0	0	0
	Grand Total	70,676	88,842	159,518 OM Cost

No.	Classification of Costs	2004		
		L.C.	F.C.	Total
1	Construction Cost	82,980	84,318	167,298
2	Land Acquisition	546	0	546
3	Administration	8,392	0	8,392
4	Engineering Services	3,358	11,888	15,246
5	Physical Contingency	14,291	14,431	28,722
	Sub-total	109,567	110,637	220,204
6	price Escalation	91,868	46,834	138,702
	Grand Total	201,435	157,471	358,906 OM Cost

No.	Classification of Costs	2004		
		L.C.	F.C.	Total
1	Construction Cost	58,916	74,618	133,533
2	Land Acquisition	300	0	300
3	Administration	7,427	0	7,427
4	Engineering Services	2,972	11,888	14,860
5	Physical Contingency	10,442	12,976	23,418
	Sub-total	80,056	99,482	179,538
6	price Escalation	0	0	0
	Grand Total	80,056	99,482	179,538 OM Cost

TABLE K.3.9 (2/2) ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT (Alternative-1)

(1) Financial Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	83,814	84,507	168,321
2	Land Acquisition	31	0	31
3	Administration	8,418	0	8,418
4	Engineering Services	1,530	5,414	6,944
5	Physical Contingency	14,069	13,488	27,557
	Sub-total	107,862	103,409	211,271
6	price Escalation	104,319	49,662	153,981
	Grand Total	212,181	153,071	365,252

OM Cost
12,068

7

No.	Classification of Costs	2006		
		L.C.	F.C.	Total
1	Construction Cost	7,730	7,576	15,306
2	Land Acquisition	31	0	31
3	Administration	767	0	767
4	Engineering Services	306	1,084	1,390
5	Physical Contingency	1,325	1,299	2,624
	Sub-total	10,159	9,959	20,118
6	price Escalation	11,224	5,372	16,596
	Grand Total	21,383	15,331	36,714

OM Cost
16,456

8

No.	Classification of Costs	2007		
		L.C.	F.C.	Total
1	Construction Cost	7,730	7,576	15,306
2	Land Acquisition	32	0	32
3	Administration	767	0	767
4	Engineering Services	306	1,084	1,390
5	Physical Contingency	1,325	1,299	2,624
	Sub-total	10,160	9,959	20,119
6	price Escalation	12,723	5,985	18,708
	Grand Total	22,883	15,944	38,827

OM Cost
17,952

9

No.	Classification of Costs	2008		
		L.C.	F.C.	Total
1	Construction Cost	7,730	7,576	15,306
2	Land Acquisition	0	0	0
3	Administration	765	0	765
4	Engineering Services	122	433	555
5	Physical Contingency	1,293	1,201	2,494
	Sub-total	9,910	9,210	19,120
6	price Escalation	13,972	6,126	20,098
	Grand Total	23,882	15,336	39,218

OM Cost
19,578

Total

Classification of Costs	Total			
	L.C.	F.C.	Total	
1 Construction Cost	410,008	417,714	827,722	
2 Administration	3,067	0	3,067	
3 Engineering Services	41,540	0	41,540	
4 Land Acquisition	16,554	58,603	75,157	
5 Physical Contingency	70,675	71,448	142,123	
	Sub-total	541,844	547,765	1,089,609
6 price Escalation	412,569	209,720	622,289	
	Grand Total	954,413	757,485	1,711,898

OM Cost
21,343

(2) Economic Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	59,508	74,785	134,293
2	Land Acquisition	17	0	17
3	Administration	7,450	0	7,450
4	Engineering Services	1,354	5,414	6,768
5	Physical Contingency	10,249	12,030	22,279
	Sub-total	78,578	92,229	170,807
6	price Escalation	0	0	0
	Grand Total	78,578	92,229	170,807

OM Cost
4,899

7

No.	Classification of Costs	2006		
		L.C.	F.C.	Total
1	Construction Cost	5,488	6,704	12,193
2	Land Acquisition	17	0	17
3	Administration	679	0	679
4	Engineering Services	271	1,084	1,355
5	Physical Contingency	968	1,168	2,136
	Sub-total	7,423	8,957	16,380
6	price Escalation	0	0	0
	Grand Total	7,423	8,957	16,380

OM Cost
6,242

8

No.	Classification of Costs	2007		
		L.C.	F.C.	Total
1	Construction Cost	5,488	6,704	12,193
2	Land Acquisition	18	0	18
3	Administration	679	0	679
4	Engineering Services	271	1,084	1,355
5	Physical Contingency	968	1,168	2,137
	Sub-total	7,424	8,957	16,380
6	price Escalation	0	0	0
	Grand Total	7,424	8,957	16,380

OM Cost
6,364

9

No.	Classification of Costs	2008		
		L.C.	F.C.	Total
1	Construction Cost	5,488	6,704	12,193
2	Land Acquisition	0	0	0
3	Administration	677	0	677
4	Engineering Services	108	433	541
5	Physical Contingency	941	1,071	2,012
	Sub-total	7,214	8,208	15,422
6	price Escalation	0	0	0
	Grand Total	7,214	8,208	15,422

OM Cost
6,486

Total

Classification of Costs	Total			
	L.C.	F.C.	Total	
1 Construction Cost	291,106	369,658	660,764	
2 Administration	1,687	0	1,687	
3 Engineering Services	36,761	0	36,761	
4 Land Acquisition	14,650	58,603	73,253	
5 Physical Contingency	51,630	64,239	115,870	
	Sub-total	395,834	492,501	888,334
6 price Escalation	0	0	0	
	Grand Total	395,834	492,501	888,334

OM Cost
6,608

TABLE K.3.10 (1/2) ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT (Alternative-2)

(1) Financial Cost				(2) Economic Cost					
Unit: Bs. 1,000				Unit: Bs. 1,000					
No.	Classification of Costs	2000		Total	No.	Classification of Costs	2000		Total
		L.C.	F.C.				L.C.	F.C.	
1	Construction Cost	0	0	0	1	Construction Cost	0	0	0
2	Land Acquisition	635	0	635	2	Land Acquisition	349	0	349
3	Administration	32	0	32	3	Administration	28	0	28
4	Engineering Services	1,495	5,296	6,791	4	Engineering Services	1,323	5,296	6,619
5	Physical Contingency	324	794	1,119	5	Physical Contingency	255	794	1,049
	Sub-total	2,486	6,090	8,577		Sub-total	1,956	6,090	8,046
6	price Escalation	1,001	1,320	2,321	6	price Escalation	0	0	0
	Grand Total	3,487	7,410	10,898		Grand Total	1,956	6,090	8,046
				OM Cost 0					OM Cost 0
2									
No.	Classification of Costs	2001		Total	No.	Classification of Costs	2001		Total
		L.C.	F.C.				L.C.	F.C.	
1	Construction Cost	61,772	62,840	124,612	1	Construction Cost	43,858	55,611	99,469
2	Land Acquisition	617	0	617	2	Land Acquisition	339	0	339
3	Administration	6,261	0	6,261	3	Administration	5,541	0	5,541
4	Engineering Services	2,554	9,041	11,595	4	Engineering Services	2,260	9,041	11,301
5	Physical Contingency	10,681	10,782	21,463	5	Physical Contingency	7,800	9,698	17,497
	Sub-total	81,885	82,663	164,548		Sub-total	59,798	74,349	134,147
6	price Escalation	41,002	21,932	62,934	6	price Escalation	0	0	0
	Grand Total	122,887	104,595	227,482		Grand Total	59,798	74,349	134,147
				OM Cost 0					OM Cost 0
3									
No.	Classification of Costs	2002		Total	No.	Classification of Costs	2002		Total
		L.C.	F.C.				L.C.	F.C.	
1	Construction Cost	64,888	64,863	129,751	1	Construction Cost	46,070	57,401	103,471
2	Land Acquisition	387	0	387	2	Land Acquisition	213	0	213
3	Administration	6,507	0	6,507	3	Administration	5,758	0	5,758
4	Engineering Services	2,483	8,790	11,273	4	Engineering Services	2,197	8,790	10,987
5	Physical Contingency	11,140	11,048	22,188	5	Physical Contingency	8,136	9,929	18,064
	Sub-total	85,405	84,701	170,106		Sub-total	62,375	76,120	138,494
6	price Escalation	51,737	26,760	78,497	6	price Escalation	0	0	0
	Grand Total	137,142	111,461	248,603		Grand Total	62,375	76,120	138,494
				OM Cost 2,001					OM Cost 995
4									
No.	Classification of Costs	2003		Total	No.	Classification of Costs	2003		Total
		L.C.	F.C.				L.C.	F.C.	
1	Construction Cost	60,340	60,073	120,413	1	Construction Cost	42,841	53,162	96,003
2	Land Acquisition	529	0	529	2	Land Acquisition	291	0	291
3	Administration	6,047	0	6,047	3	Administration	5,351	0	5,351
4	Engineering Services	2,650	9,382	12,032	4	Engineering Services	2,345	9,382	11,727
5	Physical Contingency	10,435	10,418	20,853	5	Physical Contingency	7,624	9,382	17,006
	Sub-total	80,001	79,873	159,874		Sub-total	58,453	71,926	130,379
6	price Escalation	57,456	29,439	86,895	6	price Escalation	0	0	0
	Grand Total	137,457	109,312	246,769		Grand Total	58,453	71,926	130,379
				OM Cost 4,370					OM Cost 2,029
5									
No.	Classification of Costs	2004		Total	No.	Classification of Costs	2004		Total
		L.C.	F.C.				L.C.	F.C.	
1	Construction Cost	70,563	70,003	140,566	1	Construction Cost	50,100	61,950	112,049
2	Land Acquisition	481	0	481	2	Land Acquisition	265	0	265
3	Administration	7,052	0	7,052	3	Administration	6,241	0	6,241
4	Engineering Services	2,824	9,996	12,820	4	Engineering Services	2,499	9,996	12,495
5	Physical Contingency	12,138	12,000	24,138	5	Physical Contingency	8,866	10,792	19,657
	Sub-total	93,058	91,999	185,057		Sub-total	67,970	82,737	150,707
6	price Escalation	78,025	38,944	116,969	6	price Escalation	0	0	0
	Grand Total	171,083	130,943	302,026		Grand Total	67,970	82,737	150,707
				OM Cost 6,890					OM Cost 2,989

TABLE K.3.10 (2/2) ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT (Alternative-2)

(1) Financial Cost

6		2005		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	71,391	70,198	141,589
2	Land Acquisition	31	0	31
3	Administration	7,081	0	7,081
4	Engineering Services	1,316	4,657	5,973
5	Physical Contingency	11,973	11,228	23,201
	Sub-total	91,792	86,083	177,875
6	price Escalation	88,777	41,341	130,118
	Grand Total	180,569	127,424	307,993

OM Cost
10,138

7		2006		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	7,730	7,576	15,306
2	Land Acquisition	31	0	31
3	Administration	767	0	767
4	Engineering Services	306	1,084	1,390
5	Physical Contingency	1,325	1,299	2,624
	Sub-total	10,159	9,959	20,118
6	price Escalation	11,224	5,372	16,596
	Grand Total	21,383	15,331	36,714

OM Cost
13,827

8		2007		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	7,730	7,576	15,306
2	Land Acquisition	32	0	32
3	Administration	767	0	767
4	Engineering Services	306	1,084	1,390
5	Physical Contingency	1,325	1,299	2,624
	Sub-total	10,160	9,959	20,119
6	price Escalation	12,723	5,985	18,708
	Grand Total	22,883	15,944	38,827

OM Cost
15,140

9		2008		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	7,730	7,576	15,306
2	Land Acquisition	0	0	0
3	Administration	765	0	765
4	Engineering Services	122	433	555
5	Physical Contingency	1,293	1,201	2,494
	Sub-total	9,910	9,210	19,120
6	price Escalation	13,972	6,126	20,098
	Grand Total	23,882	15,336	39,218

OM Cost
16,569

Total		Total		
Classification of Costs	L.C.	F.C.	Total	
1 Construction Cost	352,144	350,705	702,849	
2 Administration	2,743	0	2,743	
3 Engineering Services	35,279	0	35,279	
4 Land Acquisition	14,056	49,763	63,819	
5 Physical Contingency	60,633	60,070	120,704	
	464,855	460,538	925,394	
6 price Escalation	355,917	177,219	533,136	
Grand Total	820,772	637,757	1,458,530	OM Cost 18,123

(2) Economic Cost

6		2005		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	50,688	62,122	112,810
2	Land Acquisition	17	0	17
3	Administration	6,266	0	6,266
4	Engineering Services	1,165	4,657	5,822
5	Physical Contingency	8,720	10,017	18,737
	Sub-total	66,856	76,796	143,652
6	price Escalation	0	0	0
	Grand Total	66,856	76,796	143,652

OM Cost
4,110

7		2006		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	5,488	6,704	12,193
2	Land Acquisition	17	0	17
3	Administration	679	0	679
4	Engineering Services	271	1,084	1,355
5	Physical Contingency	968	1,168	2,136
	Sub-total	7,423	8,957	16,380
6	price Escalation	0	0	0
	Grand Total	7,423	8,957	16,380

OM Cost
5,238

8		2007		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	5,488	6,704	12,193
2	Land Acquisition	18	0	18
3	Administration	679	0	679
4	Engineering Services	271	1,084	1,355
5	Physical Contingency	968	1,168	2,137
	Sub-total	7,424	8,957	16,380
6	price Escalation	0	0	0
	Grand Total	7,424	8,957	16,380

OM Cost
5,300

9		2008		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	5,488	6,704	12,193
2	Land Acquisition	0	0	0
3	Administration	677	0	677
4	Engineering Services	108	433	541
5	Physical Contingency	941	1,071	2,012
	Sub-total	7,214	8,208	15,422
6	price Escalation	0	0	0
	Grand Total	7,214	8,208	15,422

OM Cost
5,482

Total		Total		
Classification of Costs	L.C.	F.C.	Total	
1 Construction Cost	250,022	310,358	560,381	
2 Administration	1,509	0	1,509	
3 Engineering Services	31,220	0	31,220	
4 Land Acquisition	12,439	49,763	62,202	
5 Physical Contingency	44,279	54,018	98,297	
	339,469	414,140	753,608	
6 price Escalation	0	0	0	
Grand Total	339,469	414,140	753,608	OM Cost 5,604

**TABLE K.3.11 (1/3) ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT
(Alternative-1, under Construction Schedule)**

(1) Financial Cost

Unit: Bs. 1,000

1 No.	Classification of Costs	2000		
		L.C.	F.C.	Total
1	Construction Cost	0	0	0
2	Land Acquisition	499	0	499
3	Administration	25	0	25
4	Engineering Services	1,060	3,756	4,816
5	Physical Contingency	238	563	801
	Sub-total	1,822	4,319	6,141
6	price Escalation	733	936	1,669
	Grand Total	2,555	5,255	7,810 OM Cost

(2) Economic Cost

Unit: Bs. 1,000

1 No.	Classification of Costs	2000		
		L.C.	F.C.	Total
1	Construction Cost	0	0	0
2	Land Acquisition	274	0	274
3	Administration	22	0	22
4	Engineering Services	938	3,756	4,694
5	Physical Contingency	185	563	749
	Sub-total	1,420	4,319	5,739
6	price Escalation	0	0	0
	Grand Total	1,420	4,319	5,739 OM Cost

2

No.	Classification of Costs	2001		
		L.C.	F.C.	Total
1	Construction Cost	42,710	45,660	88,370
2	Land Acquisition	450	0	450
3	Administration	4,441	0	4,441
4	Engineering Services	1,619	5,731	7,350
5	Physical Contingency	7,383	7,709	15,092
	Sub-total	56,603	59,100	115,703
6	price Escalation	28,343	15,680	44,023
	Grand Total	84,946	74,780	159,726 OM Cost

2

No.	Classification of Costs	2001		
		L.C.	F.C.	Total
1	Construction Cost	30,324	40,407	70,731
2	Land Acquisition	248	0	248
3	Administration	3,930	0	3,930
4	Engineering Services	1,433	5,731	7,164
5	Physical Contingency	5,390	6,921	12,311
	Sub-total	41,325	53,059	94,383
6	price Escalation	0	0	0
	Grand Total	41,325	53,059	94,383 OM Cost

3

No.	Classification of Costs	2002		
		L.C.	F.C.	Total
1	Construction Cost	36,524	39,484	76,008
2	Land Acquisition	292	0	292
3	Administration	3,815	0	3,815
4	Engineering Services	1,624	5,748	7,372
5	Physical Contingency	6,338	6,785	13,123
	Sub-total	48,593	52,017	100,610
6	price Escalation	29,437	16,434	45,871
	Grand Total	78,030	68,451	146,481 OM Cost

3

No.	Classification of Costs	2002		
		L.C.	F.C.	Total
1	Construction Cost	25,932	34,942	60,874
2	Land Acquisition	161	0	161
3	Administration	3,376	0	3,376
4	Engineering Services	1,437	5,748	7,185
5	Physical Contingency	4,636	6,103	10,739
	Sub-total	35,542	46,793	82,335
6	price Escalation	0	0	0
	Grand Total	35,542	46,793	82,335 OM Cost

4

No.	Classification of Costs	2003		
		L.C.	F.C.	Total
1	Construction Cost	40,933	43,708	84,641
2	Land Acquisition	212	0	212
3	Administration	4,243	0	4,243
4	Engineering Services	1,579	5,589	7,168
5	Physical Contingency	7,045	7,395	14,440
	Sub-total	54,012	56,692	110,704
6	price Escalation	38,790	20,895	59,685
	Grand Total	92,802	77,587	170,389 OM Cost

4

No.	Classification of Costs	2003		
		L.C.	F.C.	Total
1	Construction Cost	29,062	38,680	67,742
2	Land Acquisition	117	0	117
3	Administration	3,755	0	3,755
4	Engineering Services	1,397	5,589	6,986
5	Physical Contingency	5,150	6,640	11,790
	Sub-total	39,481	50,909	90,390
6	price Escalation	0	0	0
	Grand Total	39,481	50,909	90,390 OM Cost

5

No.	Classification of Costs	2004		
		L.C.	F.C.	Total
1	Construction Cost	36,277	38,863	75,140
2	Land Acquisition	181	0	181
3	Administration	3,766	0	3,766
4	Engineering Services	1,329	4,704	6,033
5	Physical Contingency	6,233	6,535	12,768
	Sub-total	47,789	50,102	97,891
6	price Escalation	40,070	21,209	61,279
	Grand Total	87,859	71,311	159,170 OM Cost

5

No.	Classification of Costs	2004		
		L.C.	F.C.	Total
1	Construction Cost	25,757	34,392	60,149
2	Land Acquisition	101	0	101
3	Administration	3,333	0	3,333
4	Engineering Services	1,176	4,704	5,880
5	Physical Contingency	4,555	5,864	10,419
	Sub-total	34,922	44,960	79,882
6	price Escalation	0	0	0
	Grand Total	34,922	44,960	79,882 OM Cost

**TABLE K.3.11 (2/3) ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT
(Alternative-1, under Construction Schedule)**

(1) Financial Cost

6		2005		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	29,321	31,330	60,651
2	Land Acquisition	342	0	342
3	Administration	3,050	0	3,050
4	Engineering Services	1,418	5,021	6,439
5	Physical Contingency	5,120	5,453	10,572
	Sub-total	39,251	41,804	81,054
6	price Escalation	37,961	20,076	58,037
	Grand Total	77,212	61,880	139,091

OM Cost
6,377

7		2006		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	39,055	38,699	77,754
2	Land Acquisition	405	0	405
3	Administration	3,908	0	3,908
4	Engineering Services	1,949	6,899	8,848
5	Physical Contingency	6,798	6,840	13,637
	Sub-total	52,115	52,438	104,552
6	price Escalation	57,578	28,288	85,866
	Grand Total	109,693	80,726	190,418

OM Cost
8,100

8		2007		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	56,086	54,475	110,561
2	Land Acquisition	191	0	191
3	Administration	5,538	0	5,538
4	Engineering Services	1,822	6,449	8,271
5	Physical Contingency	9,546	9,139	18,684
	Sub-total	73,183	70,063	143,245
6	price Escalation	91,638	42,110	133,748
	Grand Total	164,821	112,173	276,993

OM Cost
10,418

9		2008		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	39,697	38,415	78,112
2	Land Acquisition	271	0	271
3	Administration	3,919	0	3,919
4	Engineering Services	1,683	5,956	7,639
5	Physical Contingency	6,836	6,656	13,491
	Sub-total	52,406	51,027	103,432
6	price Escalation	73,883	33,937	107,820
	Grand Total	126,289	84,964	211,252

OM Cost
13,811

10		2009		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	44,672	43,467	88,139
2	Land Acquisition	221	0	221
3	Administration	4,418	0	4,418
4	Engineering Services	1,765	6,249	8,014
5	Physical Contingency	7,661	7,457	15,119
	Sub-total	58,737	57,173	115,911
6	price Escalation	92,719	41,832	134,551
	Grand Total	151,456	99,005	250,462

OM Cost
16,792

(2) Economic Cost

6		2005		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	20,818	27,726	48,544
2	Land Acquisition	188	0	188
3	Administration	2,699	0	2,699
4	Engineering Services	1,255	5,021	6,276
5	Physical Contingency	3,744	4,912	8,656
	Sub-total	28,704	37,659	66,363
6	price Escalation	0	0	0
	Grand Total	28,704	37,659	66,363

OM Cost
2,595

7		2006		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	27,729	34,247	61,976
2	Land Acquisition	223	0	223
3	Administration	3,458	0	3,458
4	Engineering Services	1,725	6,899	8,624
5	Physical Contingency	4,970	6,172	11,142
	Sub-total	38,105	47,318	85,423
6	price Escalation	0	0	0
	Grand Total	38,105	47,318	85,423

OM Cost
3,080

8		2007		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	39,821	48,208	88,029
2	Land Acquisition	105	0	105
3	Administration	4,901	0	4,901
4	Engineering Services	1,612	6,449	8,061
5	Physical Contingency	6,966	8,199	15,164
	Sub-total	53,405	62,856	116,261
6	price Escalation	0	0	0
	Grand Total	53,405	62,856	116,261

OM Cost
3,700

9		2008		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	28,185	33,996	62,180
2	Land Acquisition	149	0	149
3	Administration	3,468	0	3,468
4	Engineering Services	1,489	5,956	7,445
5	Physical Contingency	4,994	5,993	10,986
	Sub-total	38,285	45,944	84,229
6	price Escalation	0	0	0
	Grand Total	38,285	45,944	84,229

OM Cost
4,580

10		2009		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	31,717	38,466	70,183
2	Land Acquisition	122	0	122
3	Administration	3,910	0	3,910
4	Engineering Services	1,562	6,249	7,811
5	Physical Contingency	5,597	6,707	12,304
	Sub-total	42,907	51,423	94,330
6	price Escalation	0	0	0
	Grand Total	42,907	51,423	94,330

OM Cost
5,202

**TABLE K.3.11 (3/3) ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT
(Alternative-I, under Construction Schedule)**

(1) Financial Cost				
11				
No.	Classification of Costs	2010		
		L.C.	F.C.	Total
1	Construction Cost	44,733	43,613	88,346
2	Land Acquisition	0	0	0
3	Administration	4,417	0	4,417
4	Engineering Services	707	2,500	3,207
5	Physical Contingency	7,479	6,917	14,396
	Sub-total	57,336	53,030	110,366
6	price Escalation	100,855	42,474	143,329
	Grand Total	158,191	95,504	253,695

OM Cost
20,400

Total				
Classification of Costs	Total			
	L.C.	F.C.	Total	
1 Construction Cost	410,008	417,714	827,722	
2 Administration	3,067	0	3,067	
3 Engineering Services	41,540	0	41,540	
4 Land Acquisition	16,555	58,602	75,157	
5 Physical Contingency	70,676	71,447	142,123	
	Sub-total	541,846	547,763	1,089,609
6 price Escalation	592,007	283,871	875,878	
	Grand Total	1,133,853	831,634	1,965,487

OM Cost
24,436

(2) Economic Cost				
11				
No.	Classification of Costs	2010		
		L.C.	F.C.	Total
1	Construction Cost	31,760	38,596	70,356
2	Land Acquisition	0	0	0
3	Administration	3,909	0	3,909
4	Engineering Services	626	2,500	3,126
5	Physical Contingency	5,444	6,164	11,609
	Sub-total	41,739	47,260	88,999
6	price Escalation	0	0	0
	Grand Total	41,739	47,260	88,999

OM Cost
5,904

Total				
Classification of Costs	Total			
	L.C.	F.C.	Total	
1 Construction Cost	291,106	369,658	660,764	
2 Administration	1,687	0	1,687	
3 Engineering Services	36,761	0	36,761	
4 Land Acquisition	14,650	58,602	73,252	
5 Physical Contingency	51,631	61,239	115,870	
	Sub-total	395,835	492,499	888,334
6 price Escalation	0	0	0	
	Grand Total	395,835	492,499	888,334

OM Cost
6,608

TABLE K.3.12 (1/3)

ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT
(Alternative-2, under Construction Schedule)

(1) Financial Cost					(2) Economic Cost				
Unit: Bts. 1,000					Unit: Bts. 1,000				
1					1				
No.	Classification of Costs	2000			No.	Classification of Costs	2000		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	0	0	0	1	Construction Cost	0	0	0
2	Land Acquisition	521	0	521	2	Land Acquisition	287	0	287
3	Administration	26	0	26	3	Administration	23	0	23
4	Engineering Services	1,273	4,508	5,781	4	Engineering Services	1,127	4,508	5,635
5	Physical Contingency	273	676	949	5	Physical Contingency	215	676	892
	Sub-total	2,093	5,184	7,277		Sub-total	1,652	5,184	6,836
6	price Escalation	842	1,123	1,965	6	price Escalation	0	0	0
	Grand Total	2,935	6,307	9,242		Grand Total	1,652	5,184	6,836
				OM Cost 0					OM Cost 0
2					2				
No.	Classification of Costs	2001			No.	Classification of Costs	2001		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	52,264	53,805	106,069	1	Construction Cost	37,107	47,615	84,722
2	Land Acquisition	471	0	471	2	Land Acquisition	259	0	259
3	Administration	5,327	0	5,327	3	Administration	4,714	0	4,714
4	Engineering Services	1,973	6,981	8,957	4	Engineering Services	1,746	6,981	8,730
5	Physical Contingency	9,005	9,118	18,124	5	Physical Contingency	6,574	8,190	14,764
	Sub-total	69,040	69,907	138,948		Sub-total	50,401	62,789	113,190
6	price Escalation	34,571	18,548	53,119	6	price Escalation	0	0	0
	Grand Total	103,611	88,455	192,067		Grand Total	50,401	62,789	113,190
				OM Cost 0					OM Cost 0
3					3				
No.	Classification of Costs	2002			No.	Classification of Costs	2002		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	46,079	47,628	93,707	1	Construction Cost	32,716	42,149	74,865
2	Land Acquisition	314	0	314	2	Land Acquisition	173	0	173
3	Administration	4,701	0	4,701	3	Administration	4,160	0	4,160
4	Engineering Services	1,920	6,795	8,715	4	Engineering Services	1,699	6,795	8,494
5	Physical Contingency	7,952	8,163	16,116	5	Physical Contingency	5,812	7,342	13,154
	Sub-total	60,966	62,586	123,553		Sub-total	41,560	56,285	100,846
6	price Escalation	36,932	19,773	56,705	6	price Escalation	0	0	0
	Grand Total	97,898	82,359	180,258		Grand Total	41,560	56,285	100,846
				OM Cost 1,703					OM Cost 847
4					4				
No.	Classification of Costs	2003			No.	Classification of Costs	2003		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	48,158	49,334	97,492	1	Construction Cost	34,192	43,658	77,851
2	Land Acquisition	313	0	313	2	Land Acquisition	172	0	172
3	Administration	4,890	0	4,890	3	Administration	4,327	0	4,327
4	Engineering Services	1,960	6,938	8,898	4	Engineering Services	1,735	6,938	8,673
5	Physical Contingency	8,298	8,441	16,739	5	Physical Contingency	6,064	7,589	13,653
	Sub-total	63,619	64,713	128,332		Sub-total	46,490	58,186	104,676
6	price Escalation	45,690	23,851	69,541	6	price Escalation	0	0	0
	Grand Total	109,309	88,564	197,873		Grand Total	46,490	58,186	104,676
				OM Cost 3,433					OM Cost 1,596
5					5				
No.	Classification of Costs	2004			No.	Classification of Costs	2004		
		L.C.	F.C.	Total			L.C.	F.C.	Total
1	Construction Cost	48,620	49,700	98,320	1	Construction Cost	34,520	43,982	78,503
2	Land Acquisition	229	0	229	2	Land Acquisition	126	0	126
3	Administration	4,927	0	4,927	3	Administration	4,360	0	4,360
4	Engineering Services	1,809	6,403	8,212	4	Engineering Services	1,601	6,403	8,004
5	Physical Contingency	8,338	8,415	16,753	5	Physical Contingency	6,091	7,558	13,649
	Sub-total	63,923	64,518	128,441		Sub-total	46,698	57,943	104,641
6	price Escalation	53,597	27,312	80,909	6	price Escalation	0	0	0
	Grand Total	117,520	91,830	209,350		Grand Total	46,698	57,943	104,641
				OM Cost 5,465					OM Cost 2,374

TABLE K.3.12 (2/3)

ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT
(Alternative-2, under Construction Schedule)

(1) Financial Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	42,335	42,861	85,196
2	Land Acquisition	256	0	256
3	Administration	4,273	0	4,273
4	Engineering Services	1,136	4,020	5,156
5	Physical Contingency	7,200	7,032	14,232
	Sub-total	55,200	53,913	109,113
6	price Escalation	53,386	25,892	79,278
	Grand Total	108,586	79,805	188,391

OM Cost
7,782

7

No.	Classification of Costs	2006		
		L.C.	F.C.	Total
1	Construction Cost	19,269	18,599	37,868
2	Land Acquisition	319	0	319
3	Administration	1,909	0	1,909
4	Engineering Services	1,151	4,075	5,226
5	Physical Contingency	3,397	3,401	6,798
	Sub-total	26,045	26,075	52,120
6	price Escalation	28,777	14,067	42,844
	Grand Total	54,822	40,142	94,964

OM Cost
10,120

8

No.	Classification of Costs	2007		
		L.C.	F.C.	Total
1	Construction Cost	36,300	34,375	70,675
2	Land Acquisition	104	0	104
3	Administration	3,539	0	3,539
4	Engineering Services	1,024	3,625	4,649
5	Physical Contingency	6,145	5,700	11,845
	Sub-total	47,112	43,700	90,812
6	price Escalation	58,994	26,265	85,259
	Grand Total	106,106	69,965	176,071

OM Cost
11,681

9

No.	Classification of Costs	2008		
		L.C.	F.C.	Total
1	Construction Cost	19,911	18,315	38,226
2	Land Acquisition	105	0	105
3	Administration	1,917	0	1,917
4	Engineering Services	765	2,705	3,471
5	Physical Contingency	3,405	3,153	6,558
	Sub-total	26,103	24,174	50,277
6	price Escalation	36,799	16,078	52,877
	Grand Total	62,902	40,252	103,154

OM Cost
14,202

10

No.	Classification of Costs	2009		
		L.C.	F.C.	Total
1	Construction Cost	19,912	18,315	38,227
2	Land Acquisition	111	0	111
3	Administration	1,917	0	1,917
4	Engineering Services	751	2,657	3,408
5	Physical Contingency	3,404	3,146	6,549
	Sub-total	26,095	24,118	50,212
6	price Escalation	41,190	17,647	58,837
	Grand Total	67,285	41,765	109,049

OM Cost
16,182

(2) Economic Cost

No.	Classification of Costs	2005		
		L.C.	F.C.	Total
1	Construction Cost	30,058	37,930	67,988
2	Land Acquisition	141	0	141
3	Administration	3,781	0	3,781
4	Engineering Services	1,005	4,020	5,025
5	Physical Contingency	5,248	6,293	11,540
	Sub-total	40,233	48,243	88,476
6	price Escalation	0	0	0
	Grand Total	40,233	48,243	88,476

OM Cost
3,159

7

No.	Classification of Costs	2006		
		L.C.	F.C.	Total
1	Construction Cost	13,681	16,459	30,140
2	Land Acquisition	175	0	175
3	Administration	1,689	0	1,689
4	Engineering Services	1,019	4,075	5,094
5	Physical Contingency	2,485	3,080	5,565
	Sub-total	19,049	23,614	42,664
6	price Escalation	0	0	0
	Grand Total	19,049	23,614	42,664

OM Cost
3,839

8

No.	Classification of Costs	2007		
		L.C.	F.C.	Total
1	Construction Cost	25,773	30,420	56,193
2	Land Acquisition	57	0	57
3	Administration	3,132	0	3,132
4	Engineering Services	906	3,625	4,531
5	Physical Contingency	4,480	5,107	9,587
	Sub-total	34,348	39,152	73,501
6	price Escalation	0	0	0
	Grand Total	34,348	39,152	73,501

OM Cost
4,141

9

No.	Classification of Costs	2008		
		L.C.	F.C.	Total
1	Construction Cost	14,137	16,208	30,345
2	Land Acquisition	58	0	58
3	Administration	1,696	0	1,696
4	Engineering Services	677	2,706	3,383
5	Physical Contingency	2,485	2,837	5,322
	Sub-total	19,053	21,751	40,804
6	price Escalation	0	0	0
	Grand Total	19,053	21,751	40,804

OM Cost
4,708

10

No.	Classification of Costs	2009		
		L.C.	F.C.	Total
1	Construction Cost	14,138	16,208	30,345
2	Land Acquisition	61	0	61
3	Administration	1,696	0	1,696
4	Engineering Services	665	2,657	3,322
5	Physical Contingency	2,484	2,830	5,314
	Sub-total	19,044	21,695	40,738
6	price Escalation	0	0	0
	Grand Total	19,044	21,695	40,738

OM Cost
5,006

**TABLE K.3.12 (3/3) ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT
(Alternative-2, under Construction Schedule)**

(1) Financial Cost

11		2010		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	19,296	17,773	37,069
2	Land Acquisition	0	0	0
3	Administration	1,853	0	1,853
4	Engineering Services	297	1,049	1,346
5	Physical Contingency	3,217	2,823	6,040
	Sub-total	24,663	21,645	46,308
6	price Escalation	43,383	17,337	60,720
	Grand Total	68,046	38,982	107,028

OM Cost
18,369

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	352,141	350,705	702,846
2 Administration	2,743	0	2,743
3 Engineering Services	35,279	0	35,279
4 Land Acquisition	14,059	49,760	63,819
5 Physical Contingency	60,634	60,070	120,704
	464,859	460,535	925,394
6 price Escalation	434,161	207,893	642,054
Grand Total	899,020	668,428	1,567,448

OM Cost
20,749

(2) Economic Cost

11		2010		
No.	Classification of Costs	L.C.	F.C.	Total
1	Construction Cost	13,700	15,728	29,428
2	Land Acquisition	0	0	0
3	Administration	1,640	0	1,640
4	Engineering Services	263	1,049	1,312
5	Physical Contingency	2,340	2,517	4,857
	Sub-total	17,943	19,294	37,237
6	price Escalation	0	0	0
	Grand Total	17,943	19,294	37,237

OM Cost
5,310

Total

Classification of Costs	Total		
	L.C.	F.C.	Total
1 Construction Cost	250,022	310,358	560,381
2 Administration	1,509	0	1,509
3 Engineering Services	31,220	0	31,220
4 Land Acquisition	12,442	49,760	62,202
5 Physical Contingency	44,279	54,018	98,297
	339,472	414,136	753,608
6 price Escalation	0	0	0
Grand Total	339,472	414,136	753,608

OM Cost
5,604

TABLE K.4.1 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN

I-1. Rio Chane						I-2. Rio Pailon					
Unit: Bs.1,000						Unit: Bs.1,000					
Year	Economic Cost			Economic Benefit (B)	(B)-(C)	Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)				Construction	OM	Total (C)		
1 2000	1,677	0	1,677	0	-1,677	1 2000	2,495	0	2,495	0	-2,495
2 2001	28,832	0	28,832	0	-28,832	2 2001	42,760	0	42,760	0	-42,760
3 2002	28,832	215	29,047	359	-28,688	3 2002	42,760	318	43,078	6,575	-36,503
4 2003	28,832	430	29,262	718	-28,544	4 2003	43,426	637	44,063	13,171	-30,892
5 2004	28,832	645	29,477	1,077	-28,400	5 2004	53,592	955	54,547	19,747	-34,800
6 2005	27,155	859	28,014	1,435	-26,579	6 2005	51,762	1,353	53,115	27,976	-25,139
7 2006	0	1,074	1,074	1,794	720	7 2006	0	1,763	1,763	36,454	34,691
8 2007	0	1,074	1,074	1,794	720	8 2007	0	1,763	1,763	36,454	34,691
9 2008	0	1,074	1,074	1,794	720	9 2008	0	1,763	1,763	36,454	34,691
10 2009	0	1,074	1,074	1,794	720	10 2009	0	1,763	1,763	36,454	34,691
11 2010	0	1,074	1,074	1,794	720	11 2010	0	1,763	1,763	36,454	34,691
12 2011	0	1,074	1,074	1,794	720	12 2011	0	1,763	1,763	36,454	34,691
13 2012	0	1,074	1,074	1,794	720	13 2012	0	1,763	1,763	36,454	34,691
14 2013	0	1,074	1,074	1,794	720	14 2013	0	1,763	1,763	36,454	34,691
15 2014	0	1,074	1,074	1,794	720	15 2014	0	1,763	1,763	36,454	34,691
16 2015	0	1,074	1,074	1,794	720	16 2015	0	1,763	1,763	36,454	34,691
17 2016	0	1,074	1,074	1,794	720	17 2016	0	1,763	1,763	36,454	34,691
18 2017	0	1,074	1,074	1,794	720	18 2017	0	1,763	1,763	36,454	34,691
19 2018	0	1,074	1,074	1,794	720	19 2018	0	1,763	1,763	36,454	34,691
20 2019	0	1,074	1,074	1,794	720	20 2019	0	1,763	1,763	36,454	34,691
21 2020	0	1,074	1,074	1,794	720	21 2020	0	1,763	1,763	36,454	34,691
22 2021	0	1,074	1,074	1,794	720	22 2021	0	1,763	1,763	36,454	34,691
23 2022	0	1,074	1,074	1,794	720	23 2022	0	1,763	1,763	36,454	34,691
24 2023	0	1,074	1,074	1,794	720	24 2023	0	1,763	1,763	36,454	34,691
25 2024	0	1,074	1,074	1,794	720	25 2024	0	1,763	1,763	36,454	34,691
26 2025	0	1,074	1,074	1,794	720	26 2025	0	1,763	1,763	36,454	34,691
27 2026	0	1,074	1,074	1,794	720	27 2026	0	1,763	1,763	36,454	34,691
28 2027	0	1,074	1,074	1,794	720	28 2027	0	1,763	1,763	36,454	34,691
29 2028	0	1,074	1,074	1,794	720	29 2028	0	1,763	1,763	36,454	34,691
30 2029	0	1,074	1,074	1,794	720	30 2029	0	1,763	1,763	36,454	34,691
31 2030	0	1,074	1,074	1,794	720	31 2030	0	1,763	1,763	36,454	34,691
32 2031	0	1,074	1,074	1,794	720	32 2031	0	1,763	1,763	36,454	34,691
33 2032	0	1,074	1,074	1,794	720	33 2032	0	1,763	1,763	36,454	34,691
34 2033	0	1,074	1,074	1,794	720	34 2033	0	1,763	1,763	36,454	34,691
35 2034	0	1,074	1,074	1,794	720	35 2034	0	1,763	1,763	36,454	34,691
36 2035	0	1,074	1,074	1,794	720	36 2035	0	1,763	1,763	36,454	34,691
37 2036	0	0	0	0	0	37 2036	0	0	0	0	0
38 2037	0	0	0	0	0	38 2037	0	0	0	0	0
39 2038	0	0	0	0	0	39 2038	0	0	0	0	0
Total	144,160	34,369	178,529	57,410	-121,119	Total	236,795	56,153	292,948	1,161,000	868,142

Discount Rate (%)	B/C	EIRR (%) #DIV/0!		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.08	88,904	6,895	-82,009
12	0.09	99,055	9,372	-89,684
10	0.11	106,994	11,786	-95,208
5	0.18	133,235	23,395	-109,840
3	0.22	147,904	32,547	-115,358

Discount Rate (%)	B/C	EIRR (%) #DIV/0!		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.96	143,107	137,247	-5,860
12	1.17	160,037	187,198	27,162
10	1.36	173,301	235,970	62,670
5	2.17	217,222	471,034	253,813
3	2.72	241,775	656,578	414,803

TABLE K.4.2 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN

I-3. Quebrada Chane

Unit: Bs.1,000

Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)		
1 2000	359	0	359	0	-359
2 2001	6,811	0	6,811	0	-6,811
3 2002	24,424	43	24,467	790	-23,677
4 2003	24,425	224	24,649	4,115	-20,534
5 2004	24,358	406	24,764	7,458	-17,306
6 2005	21,814	587	22,401	10,782	-11,619
7 2006	0	760	760	13,960	13,200
8 2007	0	760	760	13,960	13,200
9 2008	0	760	760	13,960	13,200
10 2009	0	760	760	13,960	13,200
11 2010	0	760	760	13,960	13,200
12 2011	0	760	760	13,960	13,200
13 2012	0	760	760	13,960	13,200
14 2013	0	760	760	13,960	13,200
15 2014	0	760	760	13,960	13,200
16 2015	0	760	760	13,960	13,200
17 2016	0	760	760	13,960	13,200
18 2017	0	760	760	13,960	13,200
19 2018	0	760	760	13,960	13,200
20 2019	0	760	760	13,960	13,200
21 2020	0	760	760	13,960	13,200
22 2021	0	760	760	13,960	13,200
23 2022	0	760	760	13,960	13,200
24 2023	0	760	760	13,960	13,200
25 2024	0	760	760	13,960	13,200
26 2025	0	760	760	13,960	13,200
27 2026	0	760	760	13,960	13,200
28 2027	0	760	760	13,960	13,200
29 2028	0	760	760	13,960	13,200
30 2029	0	760	760	13,960	13,200
31 2030	0	760	760	13,960	13,200
32 2031	0	760	760	13,960	13,200
33 2032	0	760	760	13,960	13,200
34 2033	0	760	760	13,960	13,200
35 2034	0	760	760	13,960	13,200
36 2035	0	760	760	13,960	13,200
37 2036	0	0	0	0	0
38 2037	0	0	0	0	0
39 2038	0	0	0	0	0
Total	102,191	24,060	126,251	441,944	315,693

Discount Rate (%)	B/C	EIRR (%) 12.52		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.85	59,797	50,869	-8,928
12	1.04	67,333	69,812	2,510
10	1.21	73,239	88,405	15,166
5	1.92	92,771	178,094	85,323
3	2.40	103,657	248,996	145,338

I-4. Chane Chacras

Unit: Bs.1,000

Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)		
1 2000	852	0	852	0	-852
2 2001	14,076	0	14,076	0	-14,076
3 2002	14,076	105	14,181	2,317	-11,864
4 2003	15,355	209	15,564	4,612	-10,952
5 2004	35,783	314	36,097	6,930	-29,167
6 2005	49,077	572	49,649	12,623	-37,026
7 2006	16,380	953	17,333	21,082	3,699
8 2007	16,380	1,074	17,454	23,702	6,248
9 2008	15,422	1,196	16,618	26,395	9,777
10 2009	0	1,318	1,318	29,087	27,769
11 2010	0	1,318	1,318	29,087	27,769
12 2011	0	1,318	1,318	29,087	27,769
13 2012	0	1,318	1,318	29,087	27,769
14 2013	0	1,318	1,318	29,087	27,769
15 2014	0	1,318	1,318	29,087	27,769
16 2015	0	1,318	1,318	29,087	27,769
17 2016	0	1,318	1,318	29,087	27,769
18 2017	0	1,318	1,318	29,087	27,769
19 2018	0	1,318	1,318	29,087	27,769
20 2019	0	1,318	1,318	29,087	27,769
21 2020	0	1,318	1,318	29,087	27,769
22 2021	0	1,318	1,318	29,087	27,769
23 2022	0	1,318	1,318	29,087	27,769
24 2023	0	1,318	1,318	29,087	27,769
25 2024	0	1,318	1,318	29,087	27,769
26 2025	0	1,318	1,318	29,087	27,769
27 2026	0	1,318	1,318	29,087	27,769
28 2027	0	1,318	1,318	29,087	27,769
29 2028	0	1,318	1,318	29,087	27,769
30 2029	0	1,318	1,318	29,087	27,769
31 2030	0	1,318	1,318	29,087	27,769
32 2031	0	1,318	1,318	29,087	27,769
33 2032	0	1,318	1,318	29,087	27,769
34 2033	0	1,318	1,318	29,087	27,769
35 2034	0	1,318	1,318	29,087	27,769
36 2035	0	1,318	1,318	29,087	27,769
37 2036	0	1,318	1,318	29,087	27,769
38 2037	0	1,318	1,318	29,087	27,769
39 2038	0	1,318	1,318	29,087	27,769
Total	177,401	43,963	221,364	970,221	748,857

Discount Rate (%)	B/C	EIRR (%) 15.38		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	1.02	88,424	90,511	2,087
12	1.25	102,314	128,004	25,690
10	1.46	113,485	165,651	52,166
5	2.35	151,869	356,879	205,009
3	2.96	174,026	515,757	341,731

TABLE K.4.3 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN

1-5. Okinawa Drainage						1-6. Total of The East Area Project					
Unit: Bs.1,000						Unit: Bs.1,000					
Year	Economic Cost			Economic Benefit (B)	(B)-(C)	Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)				Construction	OM	Total (C)		
1 2000	1,210	0	1,210	0	-1,210	1 2000	6,593	0	6,593	0	-6,593
2 2001	19,894	0	19,894	0	-19,894	2 2001	112,373	0	112,373	0	-112,373
3 2002	19,366	148	19,514	2,657	-16,857	3 2002	129,458	829	130,287	12,699	-117,588
4 2003	11,718	296	12,014	5,314	-6,700	4 2003	123,756	1,796	125,552	27,931	-97,621
5 2004	11,720	383	12,103	6,876	-5,227	5 2004	154,285	2,703	156,988	42,088	-114,900
6 2005	11,037	470	11,507	8,438	-3,069	6 2005	160,845	3,841	164,686	61,255	-103,431
7 2006	0	557	557	10,000	9,443	7 2006	16,380	5,107	21,487	83,240	61,753
8 2007	0	557	557	10,000	9,443	8 2007	16,380	5,228	21,608	85,910	64,302
9 2008	0	557	557	10,000	9,443	9 2008	15,422	5,350	20,772	88,603	67,831
10 2009	0	557	557	10,000	9,443	10 2009	0	5,472	5,472	91,295	85,823
11 2010	0	557	557	10,000	9,443	11 2010	0	5,472	5,472	91,295	85,823
12 2011	0	557	557	10,000	9,443	12 2011	0	5,472	5,472	91,295	85,823
13 2012	0	557	557	10,000	9,443	13 2012	0	5,472	5,472	91,295	85,823
14 2013	0	557	557	10,000	9,443	14 2013	0	5,472	5,472	91,295	85,823
15 2014	0	557	557	10,000	9,443	15 2014	0	5,472	5,472	91,295	85,823
16 2015	0	557	557	10,000	9,443	16 2015	0	5,472	5,472	91,295	85,823
17 2016	0	557	557	10,000	9,443	17 2016	0	5,472	5,472	91,295	85,823
18 2017	0	557	557	10,000	9,443	18 2017	0	5,472	5,472	91,295	85,823
19 2018	0	557	557	10,000	9,443	19 2018	0	5,472	5,472	91,295	85,823
20 2019	0	557	557	10,000	9,443	20 2019	0	5,472	5,472	91,295	85,823
21 2020	0	557	557	10,000	9,443	21 2020	0	5,472	5,472	91,295	85,823
22 2021	0	557	557	10,000	9,443	22 2021	0	5,472	5,472	91,295	85,823
23 2022	0	557	557	10,000	9,443	23 2022	0	5,472	5,472	91,295	85,823
24 2023	0	557	557	10,000	9,443	24 2023	0	5,472	5,472	91,295	85,823
25 2024	0	557	557	10,000	9,443	25 2024	0	5,472	5,472	91,295	85,823
26 2025	0	557	557	10,000	9,443	26 2025	0	5,472	5,472	91,295	85,823
27 2026	0	557	557	10,000	9,443	27 2026	0	5,472	5,472	91,295	85,823
28 2027	0	557	557	10,000	9,443	28 2027	0	5,472	5,472	91,295	85,823
29 2028	0	557	557	10,000	9,443	29 2028	0	5,472	5,472	91,295	85,823
30 2029	0	557	557	10,000	9,443	30 2029	0	5,472	5,472	91,295	85,823
31 2030	0	557	557	10,000	9,443	31 2030	0	5,472	5,472	91,295	85,823
32 2031	0	557	557	10,000	9,443	32 2031	0	5,472	5,472	91,295	85,823
33 2032	0	557	557	10,000	9,443	33 2032	0	5,472	5,472	91,295	85,823
34 2033	0	557	557	10,000	9,443	34 2033	0	5,472	5,472	91,295	85,823
35 2034	0	557	557	10,000	9,443	35 2034	0	5,472	5,472	91,295	85,823
36 2035	0	557	557	10,000	9,443	36 2035	0	5,472	5,472	91,295	85,823
37 2036	0	0	0	0	0	37 2036	0	1,318	1,318	29,087	27,769
38 2037	0	0	0	0	0	38 2037	0	1,318	1,318	29,087	27,769
39 2038	0	0	0	0	0	39 2038	0	1,318	1,318	29,087	27,769
Total	74,945	18,007	92,952	323,285	230,333	Total	735,492	176,552	912,044	2,953,951	2041906.6

EIRR (%) 12.21				
Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.83	48,368	40,219	-8,129
12	1.02	53,435	54,255	820
10	1.18	57,383	67,871	10,488
5	1.89	70,397	133,063	62,666
3	2.37	77,679	181,302	106,623

EIRR (%) 11.04				
Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.76	428,600	325,761	-102,839
12	0.93	482,174	448,672	-33,502
10	1.09	524,401	569,684	45,283
5	1.75	665,494	1,162,465	496,971
3	2.20	745,042	1,638,179	893,137

TABLE K.4.4 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN

II-1. San Juan						II-2. Antofagasta					
Unit: Bs 1,000						Unit: Bs 1,000					
Year	Economic Cost			Economic Benefit (B)	(B)-(C)	Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)				Construction	OM	Total (C)		
1 2000	1,035	0	1,035	0	-1,035	1 2000	1,818	0	1,818	0	-1,818
2 2001	17,317	0	17,317	0	-17,317	2 2001	28,343	0	28,343	0	-28,343
3 2002	17,509	129	17,638	1,959	-15,679	3 2002	15,775	216	15,991	5,026	-10,965
4 2003	20,459	258	20,717	3,918	-16,799	4 2003	15,304	333	15,637	7,749	-7,888
5 2004	14,675	412	15,087	6,256	-8,831	5 2004	10,581	449	11,030	10,448	-582
6 2005	0	528	528	8,018	7,490	6 2005	9,963	528	10,491	12,287	1,796
7 2006	0	528	528	8,018	7,490	7 2006	0	607	607	14,125	13,518
8 2007	0	528	528	8,018	7,490	8 2007	0	607	607	14,125	13,518
9 2008	0	528	528	8,018	7,490	9 2008	0	607	607	14,125	13,518
10 2009	0	528	528	8,018	7,490	10 2009	0	607	607	14,125	13,518
11 2010	0	528	528	8,018	7,490	11 2010	0	607	607	14,125	13,518
12 2011	0	528	528	8,018	7,490	12 2011	0	607	607	14,125	13,518
13 2012	0	528	528	8,018	7,490	13 2012	0	607	607	14,125	13,518
14 2013	0	528	528	8,018	7,490	14 2013	0	607	607	14,125	13,518
15 2014	0	528	528	8,018	7,490	15 2014	0	607	607	14,125	13,518
16 2015	0	528	528	8,018	7,490	16 2015	0	607	607	14,125	13,518
17 2016	0	528	528	8,018	7,490	17 2016	0	607	607	14,125	13,518
18 2017	0	528	528	8,018	7,490	18 2017	0	607	607	14,125	13,518
19 2018	0	528	528	8,018	7,490	19 2018	0	607	607	14,125	13,518
20 2019	0	528	528	8,018	7,490	20 2019	0	607	607	14,125	13,518
21 2020	0	528	528	8,018	7,490	21 2020	0	607	607	14,125	13,518
22 2021	0	528	528	8,018	7,490	22 2021	0	607	607	14,125	13,518
23 2022	0	528	528	8,018	7,490	23 2022	0	607	607	14,125	13,518
24 2023	0	528	528	8,018	7,490	24 2023	0	607	607	14,125	13,518
25 2024	0	528	528	8,018	7,490	25 2024	0	607	607	14,125	13,518
26 2025	0	528	528	8,018	7,490	26 2025	0	607	607	14,125	13,518
27 2026	0	528	528	8,018	7,490	27 2026	0	607	607	14,125	13,518
28 2027	0	528	528	8,018	7,490	28 2027	0	607	607	14,125	13,518
29 2028	0	528	528	8,018	7,490	29 2028	0	607	607	14,125	13,518
30 2029	0	528	528	8,018	7,490	30 2029	0	607	607	14,125	13,518
31 2030	0	528	528	8,018	7,490	31 2030	0	607	607	14,125	13,518
32 2031	0	528	528	8,018	7,490	32 2031	0	607	607	14,125	13,518
33 2032	0	528	528	8,018	7,490	33 2032	0	607	607	14,125	13,518
34 2033	0	528	528	8,018	7,490	34 2033	0	607	607	14,125	13,518
35 2034	0	528	528	8,018	7,490	35 2034	0	607	607	14,125	13,518
36 2035	0	0	0	0	0	36 2035	0	607	607	14,125	13,518
37 2036	0	0	0	0	0	37 2036	0	0	0	0	0
38 2037	0	0	0	0	0	38 2037	0	0	0	0	0
39 2038	0	0	0	0	0	39 2038	0	0	0	0	0
Total	70,995	16,639	87,634	252,673	165,039	Total	81,784	19,736	101,520	459,260	357,740

EIRR (%) 9.97					EIRR (%) 16.24				
Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV	Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV
		Cost	Benefit (Bs. 1,000)				Cost	Benefit (Bs. 1,000)	
15	0.70	46,661	32,813	-13,848	15	1.08	54,210	58,338	4,128
12	0.86	51,424	41,082	-7,341	12	1.31	59,589	78,300	18,711
10	1.00	55,113	54,965	-148	10	1.53	63,772	97,655	33,883
5	1.58	67,154	106,392	39,238	5	2.45	77,551	190,102	112,551
3	1.98	73,817	146,235	72,418	3	3.08	85,273	262,650	177,377

TABLE K.4.5 ECONOMIC ANALYSIS FOR ALTERNATIVE-I PLAN

II-3. Total of the West Area Project						III. Total of the Whole Project					
Unit: Bs.1,000						Unit: RM1,000					
Year	Economic Cost		Economic Benefit (B)	(B)-(C)		Year	Economic Cost		Economic Benefit (B)	(B)-(C)	
	Construction	OM					Total (C)	Construction			
1 2000	2,853	0	2,853	0	-2,853	1 2000	9,446	0	9,446	0	-9,446
2 2001	45,660	0	45,660	0	-45,660	2 2001	158,033	0	158,033	0	-158,033
3 2002	33,284	345	33,629	6,985	-26,644	3 2002	162,742	1,174	163,916	19,684	-144,232
4 2003	35,763	591	36,354	11,667	-24,687	4 2003	159,519	2,387	161,906	39,598	-122,308
5 2004	25,256	861	26,117	16,705	-9,412	5 2004	179,541	3,564	183,105	58,792	-124,313
6 2005	9,963	1,056	11,019	20,305	9,286	6 2005	170,808	4,897	175,705	81,560	-94,145
7 2006	0	1,135	1,135	22,143	21,008	7 2006	16,380	6,242	22,622	105,383	82,761
8 2007	0	1,135	1,135	22,143	21,008	8 2007	16,380	6,363	22,743	108,053	85,310
9 2008	0	1,135	1,135	22,143	21,008	9 2008	15,422	6,485	21,907	110,746	88,839
10 2009	0	1,135	1,135	22,143	21,008	10 2009	0	6,607	6,607	113,438	106,831
11 2010	0	1,135	1,135	22,143	21,008	11 2010	0	6,607	6,607	113,438	106,831
12 2011	0	1,135	1,135	22,143	21,008	12 2011	0	6,607	6,607	113,438	106,831
13 2012	0	1,135	1,135	22,143	21,008	13 2012	0	6,607	6,607	113,438	106,831
14 2013	0	1,135	1,135	22,143	21,008	14 2013	0	6,607	6,607	113,438	106,831
15 2014	0	1,135	1,135	22,143	21,008	15 2014	0	6,607	6,607	113,438	106,831
16 2015	0	1,135	1,135	22,143	21,008	16 2015	0	6,607	6,607	113,438	106,831
17 2016	0	1,135	1,135	22,143	21,008	17 2016	0	6,607	6,607	113,438	106,831
18 2017	0	1,135	1,135	22,143	21,008	18 2017	0	6,607	6,607	113,438	106,831
19 2018	0	1,135	1,135	22,143	21,008	19 2018	0	6,607	6,607	113,438	106,831
20 2019	0	1,135	1,135	22,143	21,008	20 2019	0	6,607	6,607	113,438	106,831
21 2020	0	1,135	1,135	22,143	21,008	21 2020	0	6,607	6,607	113,438	106,831
22 2021	0	1,135	1,135	22,143	21,008	22 2021	0	6,607	6,607	113,438	106,831
23 2022	0	1,135	1,135	22,143	21,008	23 2022	0	6,607	6,607	113,438	106,831
24 2023	0	1,135	1,135	22,143	21,008	24 2023	0	6,607	6,607	113,438	106,831
25 2024	0	1,135	1,135	22,143	21,008	25 2024	0	6,607	6,607	113,438	106,831
26 2025	0	1,135	1,135	22,143	21,008	26 2025	0	6,607	6,607	113,438	106,831
27 2026	0	1,135	1,135	22,143	21,008	27 2026	0	6,607	6,607	113,438	106,831
28 2027	0	1,135	1,135	22,143	21,008	28 2027	0	6,607	6,607	113,438	106,831
29 2028	0	1,135	1,135	22,143	21,008	29 2028	0	6,607	6,607	113,438	106,831
30 2029	0	1,135	1,135	22,143	21,008	30 2029	0	6,607	6,607	113,438	106,831
31 2030	0	1,135	1,135	22,143	21,008	31 2030	0	6,607	6,607	113,438	106,831
32 2031	0	1,135	1,135	22,143	21,008	32 2031	0	6,607	6,607	113,438	106,831
33 2032	0	1,135	1,135	22,143	21,008	33 2032	0	6,607	6,607	113,438	106,831
34 2033	0	1,135	1,135	22,143	21,008	34 2033	0	6,607	6,607	113,438	106,831
35 2034	0	1,135	1,135	22,143	21,008	35 2034	0	6,607	6,607	113,438	106,831
36 2035	0	607	607	14,125	13,518	36 2035	0	6,079	6,079	105,420	99,341
37 2036	0	0	0	0	0	37 2036	0	1,318	1,318	29,087	27,769
38 2037	0	0	0	0	0	38 2037	0	1,318	1,318	29,087	27,769
39 2038	0	0	0	0	0	39 2038	0	1,318	1,318	29,087	27,769
Total	152,779	36,375	189,154	711,934	522,780	Total	888,271	212,927	1,101,198	3,665,881	2,564,686

EIRR (%) 13.41					EIRR (%) 11.48				
Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)	Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit				Cost	Benefit	
15	0.90	100,871	91,151	-9,720	15	0.79	529,471	-416,912	-112,559
12	1.10	111,012	122,382	11,370	12	0.96	593,186	571,051	-22,132
10	1.28	118,884	152,620	33,735	10	1.12	643,285	722,303	79,018
5	2.05	144,705	296,494	151,789	5	1.80	810,199	1,458,960	648,760
3	2.57	159,090	408,885	249,795	3	2.26	904,132	2,047,064	1,142,932

TABLE K.4.6 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN

I-1. Rio Pailon						I-2. Quebrada Chane					
Unit: Bs.1,000						Unit: Bs.1,000					
Year	Economic Cost			Economic Benefit (B)	B/(C)	Year	Economic Cost			Economic Benefit (B)	B/(C)
	Construction	OM	Total (C)				Construction	OM	Total (C)		
1 2000	2,495	0	2,495	0	-2,495	1 2000	359	0	359	0	-359
2 2001	42,760	0	42,760	0	-42,760	2 2001	6,811	0	6,811	0	-6,811
3 2002	42,760	318	43,078	6,575	-36,503	3 2002	24,424	43	24,467	790	-23,677
4 2003	43,426	637	44,063	13,171	-30,892	4 2003	24,425	224	24,649	4,115	-20,534
5 2004	53,592	955	54,547	19,747	-34,800	5 2004	24,358	406	24,764	7,458	-17,306
6 2005	51,762	1,353	53,115	27,976	-25,139	6 2005	21,814	587	22,401	10,782	-11,619
7 2006	0	1,763	1,763	36,454	34,691	7 2006	0	760	760	13,960	13,200
8 2007	0	1,763	1,763	36,454	34,691	8 2007	0	760	760	13,960	13,200
9 2008	0	1,763	1,763	36,454	34,691	9 2008	0	760	760	13,960	13,200
10 2009	0	1,763	1,763	36,454	34,691	10 2009	0	760	760	13,960	13,200
11 2010	0	1,763	1,763	36,454	34,691	11 2010	0	760	760	13,960	13,200
12 2011	0	1,763	1,763	36,454	34,691	12 2011	0	760	760	13,960	13,200
13 2012	0	1,763	1,763	36,454	34,691	13 2012	0	760	760	13,960	13,200
14 2013	0	1,763	1,763	36,454	34,691	14 2013	0	760	760	13,960	13,200
15 2014	0	1,763	1,763	36,454	34,691	15 2014	0	760	760	13,960	13,200
16 2015	0	1,763	1,763	36,454	34,691	16 2015	0	760	760	13,960	13,200
17 2016	0	1,763	1,763	36,454	34,691	17 2016	0	760	760	13,960	13,200
18 2017	0	1,763	1,763	36,454	34,691	18 2017	0	760	760	13,960	13,200
19 2018	0	1,763	1,763	36,454	34,691	19 2018	0	760	760	13,960	13,200
20 2019	0	1,763	1,763	36,454	34,691	20 2019	0	760	760	13,960	13,200
21 2020	0	1,763	1,763	36,454	34,691	21 2020	0	760	760	13,960	13,200
22 2021	0	1,763	1,763	36,454	34,691	22 2021	0	760	760	13,960	13,200
23 2022	0	1,763	1,763	36,454	34,691	23 2022	0	760	760	13,960	13,200
24 2023	0	1,763	1,763	36,454	34,691	24 2023	0	760	760	13,960	13,200
25 2024	0	1,763	1,763	36,454	34,691	25 2024	0	760	760	13,960	13,200
26 2025	0	1,763	1,763	36,454	34,691	26 2025	0	760	760	13,960	13,200
27 2026	0	1,763	1,763	36,454	34,691	27 2026	0	760	760	13,960	13,200
28 2027	0	1,763	1,763	36,454	34,691	28 2027	0	760	760	13,960	13,200
29 2028	0	1,763	1,763	36,454	34,691	29 2028	0	760	760	13,960	13,200
30 2029	0	1,763	1,763	36,454	34,691	30 2029	0	760	760	13,960	13,200
31 2030	0	1,763	1,763	36,454	34,691	31 2030	0	760	760	13,960	13,200
32 2031	0	1,763	1,763	36,454	34,691	32 2031	0	760	760	13,960	13,200
33 2032	0	1,763	1,763	36,454	34,691	33 2032	0	760	760	13,960	13,200
34 2033	0	1,763	1,763	36,454	34,691	34 2033	0	760	760	13,960	13,200
35 2034	0	1,763	1,763	36,454	34,691	35 2034	0	760	760	13,960	13,200
36 2035	0	1,763	1,763	36,454	34,691	36 2035	0	760	760	13,960	13,200
37 2036	0	0	0	0	0	37 2036	0	0	0	0	0
38 2037	0	0	0	0	0	38 2037	0	0	0	0	0
39 2038	0	0	0	0	0	39 2038	0	0	0	0	0
Total	236,795	56,153	292,948	1,161,090	868,142	Total	102,191	24,060	126,251	441,944	315,693

EIRR (%) 14.33					EIRR (%) 12.52				
Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)	Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit				Cost	Benefit	
15	0.96	143,107	137,247	-5,860	15	0.85	59,797	50,869	-8,928
12	1.17	160,037	187,198	27,162	12	1.04	67,333	69,842	2,510
10	1.36	173,301	235,970	62,670	10	1.21	73,239	88,405	15,166
5	2.17	217,222	471,034	253,813	5	1.92	92,771	178,094	85,323
3	2.72	241,775	656,578	414,803	3	2.40	103,657	248,996	145,338

TABLE K.4.7 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN

I-3. Chane Chacras

Unit: Bs.1,000

Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)		
1 2000	852	0	852	0	-852
2 2001	14,076	0	14,076	0	-14,076
3 2002	14,076	105	14,181	2,317	-11,864
4 2003	15,355	209	15,564	4,612	-10,952
5 2004	35,783	314	36,097	6,930	-29,167
6 2005	49,077	572	49,649	12,623	-37,026
7 2006	16,380	953	17,333	21,032	3,699
8 2007	16,380	1,074	17,454	23,702	6,248
9 2008	15,422	1,196	16,618	26,395	9,777
10 2009	0	1,318	1,318	29,087	27,769
11 2010	0	1,318	1,318	29,087	27,769
12 2011	0	1,318	1,318	29,087	27,769
13 2012	0	1,318	1,318	29,087	27,769
14 2013	0	1,318	1,318	29,087	27,769
15 2014	0	1,318	1,318	29,087	27,769
16 2015	0	1,318	1,318	29,087	27,769
17 2016	0	1,318	1,318	29,087	27,769
18 2017	0	1,318	1,318	29,087	27,769
19 2018	0	1,318	1,318	29,087	27,769
20 2019	0	1,318	1,318	29,087	27,769
21 2020	0	1,318	1,318	29,087	27,769
22 2021	0	1,318	1,318	29,087	27,769
23 2022	0	1,318	1,318	29,087	27,769
24 2023	0	1,318	1,318	29,087	27,769
25 2024	0	1,318	1,318	29,087	27,769
26 2025	0	1,318	1,318	29,087	27,769
27 2026	0	1,318	1,318	29,087	27,769
28 2027	0	1,318	1,318	29,087	27,769
29 2028	0	1,318	1,318	29,087	27,769
30 2029	0	1,318	1,318	29,087	27,769
31 2030	0	1,318	1,318	29,087	27,769
32 2031	0	1,318	1,318	29,087	27,769
33 2032	0	1,318	1,318	29,087	27,769
34 2033	0	1,318	1,318	29,087	27,769
35 2034	0	1,318	1,318	29,087	27,769
36 2035	0	1,318	1,318	29,087	27,769
37 2036	0	1,318	1,318	29,087	27,769
38 2037	0	1,318	1,318	29,087	27,769
39 2038	0	1,318	1,318	29,087	27,769
Total	177,401	43,963	221,364	970,221	748,857

I-4. Okinawa Drainage

Unit: Bs.1,000

Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)		
1 2000	1,210	0	1,210	0	-1,210
2 2001	19,894	0	19,894	0	-19,894
3 2002	19,366	148	19,514	2,657	-16,857
4 2003	11,718	296	12,014	5,314	-6,700
5 2004	11,720	383	12,103	6,876	-5,227
6 2005	11,037	470	11,507	8,438	-3,069
7 2006	0	557	557	10,000	9,443
8 2007	0	557	557	10,000	9,443
9 2008	0	557	557	10,000	9,443
10 2009	0	557	557	10,000	9,443
11 2010	0	557	557	10,000	9,443
12 2011	0	557	557	10,000	9,443
13 2012	0	557	557	10,000	9,443
14 2013	0	557	557	10,000	9,443
15 2014	0	557	557	10,000	9,443
16 2015	0	557	557	10,000	9,443
17 2016	0	557	557	10,000	9,443
18 2017	0	557	557	10,000	9,443
19 2018	0	557	557	10,000	9,443
20 2019	0	557	557	10,000	9,443
21 2020	0	557	557	10,000	9,443
22 2021	0	557	557	10,000	9,443
23 2022	0	557	557	10,000	9,443
24 2023	0	557	557	10,000	9,443
25 2024	0	557	557	10,000	9,443
26 2025	0	557	557	10,000	9,443
27 2026	0	557	557	10,000	9,443
28 2027	0	557	557	10,000	9,443
29 2028	0	557	557	10,000	9,443
30 2029	0	557	557	10,000	9,443
31 2030	0	557	557	10,000	9,443
32 2031	0	557	557	10,000	9,443
33 2032	0	557	557	10,000	9,443
34 2033	0	557	557	10,000	9,443
35 2034	0	557	557	10,000	9,443
36 2035	0	557	557	10,000	9,443
37 2036	0	0	0	0	0
38 2037	0	0	0	0	0
39 2038	0	0	0	0	0
Total	74,945	18,007	92,952	323,285	230,333

EIRR (%) **15.38**

Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	1.02	88,424	90,511	2,087
12	1.25	102,314	128,004	25,690
10	1.46	113,485	165,651	52,166
5	2.35	151,869	356,879	205,009
3	2.96	174,026	515,757	341,731

EIRR (%) **12.21**

Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.83	48,368	40,239	-8,129
12	1.02	53,435	51,255	820
10	1.18	57,383	67,871	10,488
5	1.89	70,397	133,063	62,666
3	2.37	77,679	184,302	106,623

**TABLE K.4.8 ECONOMIC ANALYSIS FOR
ALTERNATIVE-2 PLAN**

1-5.Total of The East Area Project

Unit: Bs.1,000

Year	Economic Cost		Economic Benefit (B)		Net (B)-(C)
	Construction	OM Total (C)	Benefit (B)		
1 2000	4,916	0	4,916	0	-4,916
2 2001	83,541	0	83,541	0	-83,541
3 2002	100,626	614	101,240	12,340	-88,900
4 2003	94,924	1,366	96,290	27,213	-69,077
5 2004	125,453	2,058	127,511	41,010	-86,501
6 2005	133,690	2,982	136,672	59,820	-76,852
7 2006	16,380	4,033	20,413	81,446	61,033
8 2007	16,380	4,154	20,534	84,116	63,582
9 2008	15,422	4,276	19,698	86,809	67,111
10 2009	0	4,398	4,398	89,501	85,103
11 2010	0	4,398	4,398	89,501	85,103
12 2011	0	4,398	4,398	89,501	85,103
13 2012	0	4,398	4,398	89,501	85,103
14 2013	0	4,398	4,398	89,501	85,103
15 2014	0	4,398	4,398	89,501	85,103
16 2015	0	4,398	4,398	89,501	85,103
17 2016	0	4,398	4,398	89,501	85,103
18 2017	0	4,398	4,398	89,501	85,103
19 2018	0	4,398	4,398	89,501	85,103
20 2019	0	4,398	4,398	89,501	85,103
21 2020	0	4,398	4,398	89,501	85,103
22 2021	0	4,398	4,398	89,501	85,103
23 2022	0	4,398	4,398	89,501	85,103
24 2023	0	4,398	4,398	89,501	85,103
25 2024	0	4,398	4,398	89,501	85,103
26 2025	0	4,398	4,398	89,501	85,103
27 2026	0	4,398	4,398	89,501	85,103
28 2027	0	4,398	4,398	89,501	85,103
29 2028	0	4,398	4,398	89,501	85,103
30 2029	0	4,398	4,398	89,501	85,103
31 2030	0	4,398	4,398	89,501	85,103
32 2031	0	4,398	4,398	89,501	85,103
33 2032	0	4,398	4,398	89,501	85,103
34 2033	0	4,398	4,398	89,501	85,103
35 2034	0	4,398	4,398	89,501	85,103
36 2035	0	4,398	4,398	89,501	85,103
37 2036	0	1,318	1,318	29,087	27,769
38 2037	0	1,318	1,318	29,087	27,769
39 2038	0	1,318	1,318	29,087	27,769
Total	591,332	142,183	733,515	2,896,511	2,163,026

Discount Rate (%)	B/C	EIRR (%)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.94	339,696	318,876	-20,831
12	1.15	383,118	439,300	56,182
10	1.34	417,407	557,898	140,491
5	2.14	532,259	1,139,070	606,811
3	2.69	597,138	1,605,633	1,008,495

TABLE K.4.9 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN

II-1. San Juan						II-2. Antofagasta					
Unit: Bs.1,000						Unit: Bs.1,000					
Year	Economic Cost			Economic Benefit (B)	B-(C)	Year	Economic Cost			Economic Benefit (B)	B-(C)
	Construction	OM	Total (C)				Construction	OM	Total (C)		
1 2000	1,312	0	1,312	0	-1,312	1 2000	1,818	0	1,818	0	-1,818
2 2001	22,194	0	22,194	0	-22,194	2 2001	28,343	0	28,343	0	-28,343
3 2002	22,092	165	22,257	2,209	-20,048	3 2002	15,775	216	15,991	5,026	-10,965
4 2003	20,152	330	20,482	4,417	-16,065	4 2003	15,304	333	15,637	7,749	-7,888
5 2004	14,674	483	15,157	6,465	-8,692	5 2004	10,581	449	11,030	10,448	-582
6 2005	0	599	599	8,018	7,419	6 2005	9,963	528	10,491	12,287	1,796
7 2006	0	599	599	8,018	7,419	7 2006	0	607	607	14,125	13,518
8 2007	0	599	599	8,018	7,419	8 2007	0	607	607	14,125	13,518
9 2008	0	599	599	8,018	7,419	9 2008	0	607	607	14,125	13,518
10 2009	0	599	599	8,018	7,419	10 2009	0	607	607	14,125	13,518
11 2010	0	599	599	8,018	7,419	11 2010	0	607	607	14,125	13,518
12 2011	0	599	599	8,018	7,419	12 2011	0	607	607	14,125	13,518
13 2012	0	599	599	8,018	7,419	13 2012	0	607	607	14,125	13,518
14 2013	0	599	599	8,018	7,419	14 2013	0	607	607	14,125	13,518
15 2014	0	599	599	8,018	7,419	15 2014	0	607	607	14,125	13,518
16 2015	0	599	599	8,018	7,419	16 2015	0	607	607	14,125	13,518
17 2016	0	599	599	8,018	7,419	17 2016	0	607	607	14,125	13,518
18 2017	0	599	599	8,018	7,419	18 2017	0	607	607	14,125	13,518
19 2018	0	599	599	8,018	7,419	19 2018	0	607	607	14,125	13,518
20 2019	0	599	599	8,018	7,419	20 2019	0	607	607	14,125	13,518
21 2020	0	599	599	8,018	7,419	21 2020	0	607	607	14,125	13,518
22 2021	0	599	599	8,018	7,419	22 2021	0	607	607	14,125	13,518
23 2022	0	599	599	8,018	7,419	23 2022	0	607	607	14,125	13,518
24 2023	0	599	599	8,018	7,419	24 2023	0	607	607	14,125	13,518
25 2024	0	599	599	8,018	7,419	25 2024	0	607	607	14,125	13,518
26 2025	0	599	599	8,018	7,419	26 2025	0	607	607	14,125	13,518
27 2026	0	599	599	8,018	7,419	27 2026	0	607	607	14,125	13,518
28 2027	0	599	599	8,018	7,419	28 2027	0	607	607	14,125	13,518
29 2028	0	599	599	8,018	7,419	29 2028	0	607	607	14,125	13,518
30 2029	0	599	599	8,018	7,419	30 2029	0	607	607	14,125	13,518
31 2030	0	599	599	8,018	7,419	31 2030	0	607	607	14,125	13,518
32 2031	0	599	599	8,018	7,419	32 2031	0	607	607	14,125	13,518
33 2032	0	599	599	8,018	7,419	33 2032	0	607	607	14,125	13,518
34 2033	0	599	599	8,018	7,419	34 2033	0	607	607	14,125	13,518
35 2034	0	599	599	8,018	7,419	35 2034	0	607	607	14,125	13,518
36 2035	0	0	0	0	0	36 2035	0	607	607	14,125	13,518
37 2036	0	0	0	0	0	37 2036	0	0	0	0	0
38 2037	0	0	0	0	0	38 2037	0	0	0	0	0
39 2038	0	0	0	0	0	39 2038	0	0	0	0	0
Total	80,424	18,948	99,372	253,631	154,259	Total	81,784	19,736	101,520	459,260	357,740

EIRR (%) 8.48						EIRR (%) 16.24					
Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)		Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)	
		Cost	Benefit					Cost	Benefit		
15	0.62	53,759	33,367	-20,392		15	1.08	54,210	58,338	4,128	
12	0.76	59,061	41,696	-14,366		12	1.31	59,889	78,300	18,711	
10	0.88	63,164	55,623	-7,541		10	1.53	63,772	97,655	33,883	
5	1.40	76,548	107,182	30,634		5	2.45	77,551	190,102	112,551	
3	1.75	83,962	147,087	63,125		3	3.08	85,273	262,650	177,377	

TABLE K.4.10 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN

II-3. Total of the West Area Project

Unit: Bs.1,000

Year	Economic Cost		Economic Benefit (B)	(B)-(C)	
	Construction	OM Total (C)			
1 2000	3,130	0	3,130	0	-3,130
2 2001	50,537	0	50,537	0	-50,537
3 2002	37,867	381	38,248	7,235	-31,013
4 2003	35,456	663	36,119	12,166	-23,953
5 2004	25,255	932	26,187	16,914	-9,273
6 2005	9,963	1,127	11,090	20,305	9,215
7 2006	0	1,206	1,206	22,143	20,937
8 2007	0	1,206	1,206	22,143	20,937
9 2008	0	1,206	1,206	22,143	20,937
10 2009	0	1,206	1,206	22,143	20,937
11 2010	0	1,206	1,206	22,143	20,937
12 2011	0	1,206	1,206	22,143	20,937
13 2012	0	1,206	1,206	22,143	20,937
14 2013	0	1,206	1,206	22,143	20,937
15 2014	0	1,206	1,206	22,143	20,937
16 2015	0	1,206	1,206	22,143	20,937
17 2016	0	1,206	1,206	22,143	20,937
18 2017	0	1,206	1,206	22,143	20,937
19 2018	0	1,206	1,206	22,143	20,937
20 2019	0	1,206	1,206	22,143	20,937
21 2020	0	1,206	1,206	22,143	20,937
22 2021	0	1,206	1,206	22,143	20,937
23 2022	0	1,206	1,206	22,143	20,937
24 2023	0	1,206	1,206	22,143	20,937
25 2024	0	1,206	1,206	22,143	20,937
26 2025	0	1,206	1,206	22,143	20,937
27 2026	0	1,206	1,206	22,143	20,937
28 2027	0	1,206	1,206	22,143	20,937
29 2028	0	1,206	1,206	22,143	20,937
30 2029	0	1,206	1,206	22,143	20,937
31 2030	0	1,206	1,206	22,143	20,937
32 2031	0	1,206	1,206	22,143	20,937
33 2032	0	1,206	1,206	22,143	20,937
34 2033	0	1,206	1,206	22,143	20,937
35 2034	0	1,206	1,206	22,143	20,937
36 2035	0	607	607	14,125	13,518
37 2036	0	0	0	0	0
38 2037	0	0	0	0	0
39 2038	0	0	0	0	0
Total	162,208	38,684	200,892	712,891	511,999

III. Total of the Whole Project

Unit: RM1,000

Year	Economic Cost		Economic Benefit (B)	(B)-(C)	
	Construction	OM Total (C)			
1 2000	8,046	0	8,046	0	-8,046
2 2001	134,078	0	134,078	0	-134,078
3 2002	138,493	995	139,488	19,575	-119,913
4 2003	130,380	2,029	132,409	39,379	-93,030
5 2004	150,708	2,990	153,698	57,924	-95,774
6 2005	143,653	4,109	147,762	80,125	-67,637
7 2006	16,380	5,239	21,619	103,889	81,970
8 2007	16,380	5,360	21,740	106,259	84,519
9 2008	15,422	5,482	20,904	108,952	88,048
10 2009	0	5,604	5,604	111,644	106,040
11 2010	0	5,604	5,604	111,644	106,040
12 2011	0	5,604	5,604	111,644	106,040
13 2012	0	5,604	5,604	111,644	106,040
14 2013	0	5,604	5,604	111,644	106,040
15 2014	0	5,604	5,604	111,644	106,040
16 2015	0	5,604	5,604	111,644	106,040
17 2016	0	5,604	5,604	111,644	106,040
18 2017	0	5,604	5,604	111,644	106,040
19 2018	0	5,604	5,604	111,644	106,040
20 2019	0	5,604	5,604	111,644	106,040
21 2020	0	5,604	5,604	111,644	106,040
22 2021	0	5,604	5,604	111,644	106,040
23 2022	0	5,604	5,604	111,644	106,040
24 2023	0	5,604	5,604	111,644	106,040
25 2024	0	5,604	5,604	111,644	106,040
26 2025	0	5,604	5,604	111,644	106,040
27 2026	0	5,604	5,604	111,644	106,040
28 2027	0	5,604	5,604	111,644	106,040
29 2028	0	5,604	5,604	111,644	106,040
30 2029	0	5,604	5,604	111,644	106,040
31 2030	0	5,604	5,604	111,644	106,040
32 2031	0	5,604	5,604	111,644	106,040
33 2032	0	5,604	5,604	111,644	106,040
34 2033	0	5,604	5,604	111,644	106,040
35 2034	0	5,604	5,604	111,644	106,040
36 2035	0	5,005	5,005	103,626	98,621
37 2036	0	1,318	1,318	29,087	27,769
38 2037	0	1,318	1,318	29,087	27,769
39 2038	0	1,318	1,318	29,087	27,769
Total	753,540	180,867	934,407	3,609,432	2,675,025

EIRR (%) 12.51

Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.85	107,968	91,704	-16,264
12	1.04	118,650	122,996	4,346
10	1.21	126,936	153,278	26,342
5	1.93	154,099	297,284	143,185
3	2.42	169,235	409,737	240,502

EIRR (%) 13.64

Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.92	447,665	410,570	-37,095
12	1.12	501,769	562,296	60,528
10	1.31	544,343	711,176	166,833
5	2.09	686,359	1,436,355	749,996
3	2.63	766,373	2,015,370	1,248,997

TABLE K.4.11 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN
(under Construction Schedule)

I-1. Río Chane						I-2. Río Pallón					
Unit: Bs.1,000						Unit: Bs.1,000					
Year	Economic Cost			Economic Benefit (B)	(B)-(C)	Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)				Construction	OM	Total (C)		
1 2000	1,677	0	1,677	0	-1,677	1 2000	0	0	0	0	0
2 2001	28,832	0	28,832	0	-28,832	2 2001	0	0	0	0	0
3 2002	28,832	215	29,047	359	-28,688	3 2002	0	0	0	0	0
4 2003	28,832	430	29,262	718	-28,544	4 2003	0	0	0	0	0
5 2004	28,832	645	29,477	1,077	-28,400	5 2004	0	0	0	0	0
6 2005	27,155	859	28,014	1,435	-26,579	6 2005	2,495	0	2,495	0	-2,495
7 2006	0	1,074	1,074	1,791	720	7 2006	42,760	0	42,760	0	-42,760
8 2007	0	1,074	1,074	1,791	720	8 2007	42,760	318	43,078	6,575	-36,503
9 2008	0	1,074	1,074	1,791	720	9 2008	43,426	637	44,063	13,171	-30,892
10 2009	0	1,074	1,074	1,791	720	10 2009	53,592	955	54,547	19,747	-34,800
11 2010	0	1,074	1,074	1,791	720	11 2010	51,762	1,353	53,115	27,976	-25,139
12 2011	0	1,074	1,074	1,791	720	12 2011	0	1,763	1,763	36,454	34,691
13 2012	0	1,074	1,074	1,791	720	13 2012	0	1,763	1,763	36,454	34,691
14 2013	0	1,074	1,074	1,791	720	14 2013	0	1,763	1,763	36,454	34,691
15 2014	0	1,074	1,074	1,791	720	15 2014	0	1,763	1,763	36,454	34,691
16 2015	0	1,074	1,074	1,791	720	16 2015	0	1,763	1,763	36,454	34,691
17 2016	0	1,074	1,074	1,791	720	17 2016	0	1,763	1,763	36,454	34,691
18 2017	0	1,074	1,074	1,791	720	18 2017	0	1,763	1,763	36,454	34,691
19 2018	0	1,074	1,074	1,791	720	19 2018	0	1,763	1,763	36,454	34,691
20 2019	0	1,074	1,074	1,791	720	20 2019	0	1,763	1,763	36,454	34,691
21 2020	0	1,074	1,074	1,791	720	21 2020	0	1,763	1,763	36,454	34,691
22 2021	0	1,074	1,074	1,791	720	22 2021	0	1,763	1,763	36,454	34,691
23 2022	0	1,074	1,074	1,791	720	23 2022	0	1,763	1,763	36,454	34,691
24 2023	0	1,074	1,074	1,791	720	24 2023	0	1,763	1,763	36,454	34,691
25 2024	0	1,074	1,074	1,791	720	25 2024	0	1,763	1,763	36,454	34,691
26 2025	0	1,074	1,074	1,791	720	26 2025	0	1,763	1,763	36,454	34,691
27 2026	0	1,074	1,074	1,791	720	27 2026	0	1,763	1,763	36,454	34,691
28 2027	0	1,074	1,074	1,791	720	28 2027	0	1,763	1,763	36,454	34,691
29 2028	0	1,074	1,074	1,791	720	29 2028	0	1,763	1,763	36,454	34,691
30 2029	0	1,074	1,074	1,791	720	30 2029	0	1,763	1,763	36,454	34,691
31 2030	0	1,074	1,074	1,791	720	31 2030	0	1,763	1,763	36,454	34,691
32 2031	0	1,074	1,074	1,791	720	32 2031	0	1,763	1,763	36,454	34,691
33 2032	0	1,074	1,074	1,791	720	33 2032	0	1,763	1,763	36,454	34,691
34 2033	0	1,074	1,074	1,791	720	34 2033	0	1,763	1,763	36,454	34,691
35 2034	0	1,074	1,074	1,791	720	35 2034	0	1,763	1,763	36,454	34,691
36 2035	0	1,074	1,074	1,791	720	36 2035	0	1,763	1,763	36,454	34,691
37 2036	0	0	0	0	0	37 2036	0	1,763	1,763	36,454	34,691
38 2037	0	0	0	0	0	38 2037	0	1,763	1,763	36,454	34,691
39 2038	0	0	0	0	0	39 2038	0	1,763	1,763	36,454	34,691
40 2039	0	0	0	0	0	40 2039	0	1,763	1,763	36,454	34,691
41 2040	0	0	0	0	0	41 2040	0	1,763	1,763	36,454	34,691
Total	144,160	34,369	178,529	57,410	-121,119	Total	236,795	56,153	292,948	1,161,090	868,142

Discount Rate (%)	B/C	EIRR (%) #DIV/0!		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.08	88,904	6,895	-82,009
12	0.09	99,055	9,372	-89,684
10	0.11	106,994	11,786	-95,208
5	0.18	133,235	23,395	-109,840
3	0.22	147,904	32,547	-115,358

Discount Rate (%)	B/C	EIRR (%) 14.33		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.96	71,149	68,236	-2,913
12	1.17	90,809	106,221	15,412
10	1.36	107,606	146,519	38,913
5	2.17	170,199	369,068	198,869
3	2.72	208,557	566,370	357,813

TABLE K.4.12 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN
(under Construction Schedule)

I-3. Quebrada Chane

I-4. Chane Chacras

Unit: Bs.1,000						Unit: Bs.1,000					
Year	Economic Cost			Economic Benefit (B)	(B)-(C)	Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)				Construction	OM	Total (C)		
1 2000	0	0	0	0	0	1 2000	0	0	0	0	0
2 2001	0	0	0	0	0	2 2001	0	0	0	0	0
3 2002	0	0	0	0	0	3 2002	852	0	852	0	-852
4 2003	0	0	0	0	0	4 2003	14,076	0	14,076	0	-14,076
5 2004	0	0	0	0	0	5 2004	14,076	105	14,181	2,317	-11,864
6 2005	359	0	359	0	-359	6 2005	15,355	209	15,564	4,612	-10,952
7 2006	6,811	0	6,811	0	-6,811	7 2006	35,783	314	36,097	6,930	-29,167
8 2007	24,424	43	24,467	790	-23,677	8 2007	49,077	572	49,649	12,623	-37,026
9 2008	24,425	224	24,649	4,115	-20,534	9 2008	16,380	953	17,333	21,032	3,699
10 2009	24,358	406	24,764	7,458	-17,306	10 2009	16,380	1,074	17,454	23,702	6,248
11 2010	21,814	587	22,401	10,782	-11,619	11 2010	15,422	1,196	16,618	26,395	9,777
12 2011	0	760	760	13,960	13,200	12 2011	0	1,318	1,318	29,087	27,769
13 2012	0	760	760	13,960	13,200	13 2012	0	1,318	1,318	29,087	27,769
14 2013	0	760	760	13,960	13,200	14 2013	0	1,318	1,318	29,087	27,769
15 2014	0	760	760	13,960	13,200	15 2014	0	1,318	1,318	29,087	27,769
16 2015	0	760	760	13,960	13,200	16 2015	0	1,318	1,318	29,087	27,769
17 2016	0	760	760	13,960	13,200	17 2016	0	1,318	1,318	29,087	27,769
18 2017	0	760	760	13,960	13,200	18 2017	0	1,318	1,318	29,087	27,769
19 2018	0	760	760	13,960	13,200	19 2018	0	1,318	1,318	29,087	27,769
20 2019	0	760	760	13,960	13,200	20 2019	0	1,318	1,318	29,087	27,769
21 2020	0	760	760	13,960	13,200	21 2020	0	1,318	1,318	29,087	27,769
22 2021	0	760	760	13,960	13,200	22 2021	0	1,318	1,318	29,087	27,769
23 2022	0	760	760	13,960	13,200	23 2022	0	1,318	1,318	29,087	27,769
24 2023	0	760	760	13,960	13,200	24 2023	0	1,318	1,318	29,087	27,769
25 2024	0	760	760	13,960	13,200	25 2024	0	1,318	1,318	29,087	27,769
26 2025	0	760	760	13,960	13,200	26 2025	0	1,318	1,318	29,087	27,769
27 2026	0	760	760	13,960	13,200	27 2026	0	1,318	1,318	29,087	27,769
28 2027	0	760	760	13,960	13,200	28 2027	0	1,318	1,318	29,087	27,769
29 2028	0	760	760	13,960	13,200	29 2028	0	1,318	1,318	29,087	27,769
30 2029	0	760	760	13,960	13,200	30 2029	0	1,318	1,318	29,087	27,769
31 2030	0	760	760	13,960	13,200	31 2030	0	1,318	1,318	29,087	27,769
32 2031	0	760	760	13,960	13,200	32 2031	0	1,318	1,318	29,087	27,769
33 2032	0	760	760	13,960	13,200	33 2032	0	1,318	1,318	29,087	27,769
34 2033	0	760	760	13,960	13,200	34 2033	0	1,318	1,318	29,087	27,769
35 2034	0	760	760	13,960	13,200	35 2034	0	1,318	1,318	29,087	27,769
36 2035	0	760	760	13,960	13,200	36 2035	0	1,318	1,318	29,087	27,769
37 2036	0	760	760	13,960	13,200	37 2036	0	1,318	1,318	29,087	27,769
38 2037	0	760	760	13,960	13,200	38 2037	0	1,318	1,318	29,087	27,769
39 2038	0	760	760	13,960	13,200	39 2038	0	1,318	1,318	29,087	27,769
40 2039	0	760	760	13,960	13,200	40 2039	0	1,318	1,318	29,087	27,769
41 2040	0	760	760	13,960	13,200	41 2040	0	1,318	1,318	29,087	27,769
Total	102,191	24,060	126,251	441,944	315,693	Total	177,401	43,963	221,364	970,221	748,857

Discount Rate (%)	B/C	EIRR (%) 12.52		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.85	29,730	25,291	-4,439
12	1.04	38,206	39,630	1,424
10	1.21	45,475	54,893	9,417
5	1.92	72,689	139,541	66,852
3	2.40	89,416	214,786	125,370

Discount Rate (%)	B/C	EIRR (%) 15.38		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	1.02	66,861	68,439	1,578
12	1.25	81,564	102,044	20,480
10	1.46	93,790	136,902	43,112
5	2.35	137,750	323,700	185,950
3	2.96	164,036	486,150	322,114

TABLE K.4.13 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN
(under Construction Schedule)

1-5. Okinawa Drainage

Unit: Bs.1,000

Year	Economic Cost		Economic Benefit (B)	(B)-(C)
	Construction	OM Total (C)		
1 2000	1,210	0	1,210	0
2 2001	19,894	0	19,894	0
3 2002	19,366	148	19,514	2,657
4 2003	11,718	296	12,014	5,314
5 2004	11,720	383	12,103	6,876
6 2005	11,037	470	11,507	8,438
7 2006	0	557	557	10,000
8 2007	0	557	557	10,000
9 2008	0	557	557	10,000
10 2009	0	557	557	10,000
11 2010	0	557	557	10,000
12 2011	0	557	557	10,000
13 2012	0	557	557	10,000
14 2013	0	557	557	10,000
15 2014	0	557	557	10,000
16 2015	0	557	557	10,000
17 2016	0	557	557	10,000
18 2017	0	557	557	10,000
19 2018	0	557	557	10,000
20 2019	0	557	557	10,000
21 2020	0	557	557	10,000
22 2021	0	557	557	10,000
23 2022	0	557	557	10,000
24 2023	0	557	557	10,000
25 2024	0	557	557	10,000
26 2025	0	557	557	10,000
27 2026	0	557	557	10,000
28 2027	0	557	557	10,000
29 2028	0	557	557	10,000
30 2029	0	557	557	10,000
31 2030	0	557	557	10,000
32 2031	0	557	557	10,000
33 2032	0	557	557	10,000
34 2033	0	557	557	10,000
35 2034	0	557	557	10,000
36 2035	0	557	557	10,000
37 2036	0	0	0	0
38 2037	0	0	0	0
39 2038	0	0	0	0
40 2039	0	0	0	0
41 2040	0	0	0	0
Total	74,945	18,007	92,952	323,285

Discount Rate (%)	B/C	EIRR (%)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.83	-48,368	40,239	-8,129
12	1.02	53,435	54,255	820
10	1.18	57,383	67,871	10,488
5	1.89	70,397	131,063	62,666
3	2.37	77,679	184,302	106,623

1-6. Total of The East Area Project

Unit: Bs.1,000

Year	Economic Cost		Economic Benefit (B)	(B)-(C)
	Construction	OM Total (C)		
1 2000	2,887	0	2,887	0
2 2001	48,726	0	48,726	0
3 2002	49,050	363	49,413	3,016
4 2003	54,626	726	55,352	6,032
5 2004	54,628	1,133	55,761	10,271
6 2005	56,401	1,538	57,939	14,485
7 2006	85,354	1,945	87,299	18,724
8 2007	116,261	2,564	118,825	31,783
9 2008	84,231	3,445	87,676	50,112
10 2009	94,330	4,066	98,396	62,701
11 2010	88,998	4,767	93,765	76,947
12 2011	0	5,472	5,472	91,295
13 2012	0	5,472	5,472	91,295
14 2013	0	5,472	5,472	91,295
15 2014	0	5,472	5,472	91,295
16 2015	0	5,472	5,472	91,295
17 2016	0	5,472	5,472	91,295
18 2017	0	5,472	5,472	91,295
19 2018	0	5,472	5,472	91,295
20 2019	0	5,472	5,472	91,295
21 2020	0	5,472	5,472	91,295
22 2021	0	5,472	5,472	91,295
23 2022	0	5,472	5,472	91,295
24 2023	0	5,472	5,472	91,295
25 2024	0	5,472	5,472	91,295
26 2025	0	5,472	5,472	91,295
27 2026	0	5,472	5,472	91,295
28 2027	0	5,472	5,472	91,295
29 2028	0	5,472	5,472	91,295
30 2029	0	5,472	5,472	91,295
31 2030	0	5,472	5,472	91,295
32 2031	0	5,472	5,472	91,295
33 2032	0	5,472	5,472	91,295
34 2033	0	5,472	5,472	91,295
35 2034	0	5,472	5,472	91,295
36 2035	0	5,472	5,472	91,295
37 2036	0	3,841	3,841	79,501
38 2037	0	3,841	3,841	79,501
39 2038	0	3,841	3,841	79,501
40 2039	0	3,841	3,841	79,501
41 2040	0	3,841	3,841	79,501
Total	735,492	176,552	912,044	2,953,951

Discount Rate (%)	B/C	EIRR (%)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.69	305,013	209,100	-95,912
12	0.86	363,070	311,523	-51,547
10	1.02	411,247	417,970	6,723
5	1.69	584,270	988,767	404,497
3	2.16	687,503	1,484,155	796,562

TABLE K.4.14 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN
(under Construction Schedule)

II-1. San Juan

Unit: Bs.1,000

Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)		
1 2000	1,035	0	1,035	0	-1,035
2 2001	17,317	0	17,317	0	-17,317
3 2002	17,509	129	17,638	1,989	-15,679
4 2003	20,459	258	20,717	3,918	-16,799
5 2004	14,675	412	15,087	6,256	-8,831
6 2005	0	528	528	8,018	7,490
7 2006	0	528	528	8,018	7,490
8 2007	0	528	528	8,018	7,490
9 2008	0	528	528	8,018	7,490
10 2009	0	528	528	8,018	7,490
11 2010	0	528	528	8,018	7,490
12 2011	0	528	528	8,018	7,490
13 2012	0	528	528	8,018	7,490
14 2013	0	528	528	8,018	7,490
15 2014	0	528	528	8,018	7,490
16 2015	0	528	528	8,018	7,490
17 2016	0	528	528	8,018	7,490
18 2017	0	528	528	8,018	7,490
19 2018	0	528	528	8,018	7,490
20 2019	0	528	528	8,018	7,490
21 2020	0	528	528	8,018	7,490
22 2021	0	528	528	8,018	7,490
23 2022	0	528	528	8,018	7,490
24 2023	0	528	528	8,018	7,490
25 2024	0	528	528	8,018	7,490
26 2025	0	528	528	8,018	7,490
27 2026	0	528	528	8,018	7,490
28 2027	0	528	528	8,018	7,490
29 2028	0	528	528	8,018	7,490
30 2029	0	528	528	8,018	7,490
31 2030	0	528	528	8,018	7,490
32 2031	0	528	528	8,018	7,490
33 2032	0	528	528	8,018	7,490
34 2033	0	528	528	8,018	7,490
35 2034	0	528	528	8,018	7,490
36 2035	0	0	0	0	0
37 2036	0	0	0	0	0
38 2037	0	0	0	0	0
39 2038	0	0	0	0	0
40 2039	0	0	0	0	0
41 2040	0	0	0	0	0
Total	70,995	16,639	87,634	252,673	165,039

II-2. Antofagasta

Unit: Bs.1,000

Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)		
1 2000	1,818	0	1,818	0	-1,818
2 2001	28,343	0	28,343	0	-28,343
3 2002	15,775	216	15,991	5,026	-10,965
4 2003	15,304	333	15,637	7,749	-7,888
5 2004	10,581	449	11,030	10,448	-582
6 2005	9,963	528	10,491	12,287	1,796
7 2006	0	607	607	14,125	13,518
8 2007	0	607	607	14,125	13,518
9 2008	0	607	607	14,125	13,518
10 2009	0	607	607	14,125	13,518
11 2010	0	607	607	14,125	13,518
12 2011	0	607	607	14,125	13,518
13 2012	0	607	607	14,125	13,518
14 2013	0	607	607	14,125	13,518
15 2014	0	607	607	14,125	13,518
16 2015	0	607	607	14,125	13,518
17 2016	0	607	607	14,125	13,518
18 2017	0	607	607	14,125	13,518
19 2018	0	607	607	14,125	13,518
20 2019	0	607	607	14,125	13,518
21 2020	0	607	607	14,125	13,518
22 2021	0	607	607	14,125	13,518
23 2022	0	607	607	14,125	13,518
24 2023	0	607	607	14,125	13,518
25 2024	0	607	607	14,125	13,518
26 2025	0	607	607	14,125	13,518
27 2026	0	607	607	14,125	13,518
28 2027	0	607	607	14,125	13,518
29 2028	0	607	607	14,125	13,518
30 2029	0	607	607	14,125	13,518
31 2030	0	607	607	14,125	13,518
32 2031	0	607	607	14,125	13,518
33 2032	0	607	607	14,125	13,518
34 2033	0	607	607	14,125	13,518
35 2034	0	607	607	14,125	13,518
36 2035	0	607	607	14,125	13,518
37 2036	0	0	0	0	0
38 2037	0	0	0	0	0
39 2038	0	0	0	0	0
40 2039	0	0	0	0	0
41 2040	0	0	0	0	0
Total	81,784	19,736	101,520	459,200	357,740

Discount Rate (%)	B/C	EIRR (%)		NPV (Bs. 1,000)
		9.97		
		Cost	Benefit	
15	0.70	46,661	32,813	-13,848
12	0.86	51,424	44,082	-7,341
10	1.00	55,113	54,965	-148
5	1.58	67,154	106,392	39,238
3	1.98	73,817	146,235	72,418

Discount Rate (%)	B/C	EIRR (%)		NPV (Bs. 1,000)
		16.24		
		Cost	Benefit	
15	1.08	54,210	58,338	-4,128
12	1.31	59,589	78,300	18,711
10	1.53	63,772	97,655	33,883
5	2.45	77,551	190,102	112,551
3	3.08	85,273	262,650	177,377

TABLE K.4.15 ECONOMIC ANALYSIS FOR ALTERNATIVE-I PLAN
(under Construction Schedule)

II-3. Total of the West Area Project

Unit: Bs.1,000

Year	Economic Cost		Economic Benefit (B)	(B)-(C)	
	Construction	OM Total (C)			
1 2000	2,853	0	2,853	0	-2,853
2 2001	45,660	0	45,660	0	-45,660
3 2002	33,284	345	33,629	6,985	-26,644
4 2003	35,763	591	36,354	11,667	-24,687
5 2004	25,256	861	26,117	16,705	-9,412
6 2005	9,963	1,056	11,019	20,305	9,286
7 2006	0	1,135	1,135	22,143	21,008
8 2007	0	1,135	1,135	22,143	21,008
9 2008	0	1,135	1,135	22,143	21,008
10 2009	0	1,135	1,135	22,143	21,008
11 2010	0	1,135	1,135	22,143	21,008
12 2011	0	1,135	1,135	22,143	21,008
13 2012	0	1,135	1,135	22,143	21,008
14 2013	0	1,135	1,135	22,143	21,008
15 2014	0	1,135	1,135	22,143	21,008
16 2015	0	1,135	1,135	22,143	21,008
17 2016	0	1,135	1,135	22,143	21,008
18 2017	0	1,135	1,135	22,143	21,008
19 2018	0	1,135	1,135	22,143	21,008
20 2019	0	1,135	1,135	22,143	21,008
21 2020	0	1,135	1,135	22,143	21,008
22 2021	0	1,135	1,135	22,143	21,008
23 2022	0	1,135	1,135	22,143	21,008
24 2023	0	1,135	1,135	22,143	21,008
25 2024	0	1,135	1,135	22,143	21,008
26 2025	0	1,135	1,135	22,143	21,008
27 2026	0	1,135	1,135	22,143	21,008
28 2027	0	1,135	1,135	22,143	21,008
29 2028	0	1,135	1,135	22,143	21,008
30 2029	0	1,135	1,135	22,143	21,008
31 2030	0	1,135	1,135	22,143	21,008
32 2031	0	1,135	1,135	22,143	21,008
33 2032	0	1,135	1,135	22,143	21,008
34 2033	0	1,135	1,135	22,143	21,008
35 2034	0	1,135	1,135	22,143	21,008
36 2035	0	607	607	14,125	13,518
37 2036	0	0	0	0	0
38 2037	0	0	0	0	0
39 2038	0	0	0	0	0
40 2039	0	0	0	0	0
41 2040	0	0	0	0	0
Total	152,779	36,375	189,154	711,934	522,780

III. Total of the Whole Project

Unit: RM1,000

Year	Economic Cost		Economic Benefit (B)	(B)-(C)	
	Construction	OM Total (C)			
1 2000	5,740	0	5,740	0	-5,740
2 2001	94,386	0	94,386	0	-94,386
3 2002	82,334	708	83,042	10,002	-73,040
4 2003	90,389	1,317	91,706	17,699	-74,007
5 2004	79,884	1,994	81,878	26,976	-54,902
6 2005	66,364	2,594	68,958	34,790	-34,168
7 2006	85,354	3,080	88,434	40,867	-47,567
8 2007	116,261	3,699	119,960	53,926	-66,034
9 2008	84,231	4,580	88,811	72,255	-16,556
10 2009	94,330	5,201	99,531	84,844	-14,687
11 2010	88,998	5,902	94,900	99,090	4,190
12 2011	0	6,607	6,607	113,438	106,831
13 2012	0	6,607	6,607	113,438	106,831
14 2013	0	6,607	6,607	113,438	106,831
15 2014	0	6,607	6,607	113,438	106,831
16 2015	0	6,607	6,607	113,438	106,831
17 2016	0	6,607	6,607	113,438	106,831
18 2017	0	6,607	6,607	113,438	106,831
19 2018	0	6,607	6,607	113,438	106,831
20 2019	0	6,607	6,607	113,438	106,831
21 2020	0	6,607	6,607	113,438	106,831
22 2021	0	6,607	6,607	113,438	106,831
23 2022	0	6,607	6,607	113,438	106,831
24 2023	0	6,607	6,607	113,438	106,831
25 2024	0	6,607	6,607	113,438	106,831
26 2025	0	6,607	6,607	113,438	106,831
27 2026	0	6,607	6,607	113,438	106,831
28 2027	0	6,607	6,607	113,438	106,831
29 2028	0	6,607	6,607	113,438	106,831
30 2029	0	6,607	6,607	113,438	106,831
31 2030	0	6,607	6,607	113,438	106,831
32 2031	0	6,607	6,607	113,438	106,831
33 2032	0	6,607	6,607	113,438	106,831
34 2033	0	6,607	6,607	113,438	106,831
35 2034	0	6,607	6,607	113,438	106,831
36 2035	0	6,079	6,079	105,420	99,341
37 2036	0	3,841	3,841	79,501	75,660
38 2037	0	3,841	3,841	79,501	75,660
39 2038	0	3,841	3,841	79,501	75,660
40 2039	0	3,841	3,841	79,501	75,660
41 2040	0	3,841	3,841	79,501	75,660
Total	888,271	212,927	1,101,198	3,665,884	2,564,686

EIRR (%) 13.41

Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.90	100,871	91,151	-9,720
12	1.10	111,012	122,382	11,370
10	1.28	118,884	152,620	33,735
5	2.05	144,705	296,494	151,789
3	2.57	159,090	408,885	249,795

EIRR (%) 10.88

Discount Rate (%)	B/C	PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.74	405,883	300,251	-105,632
12	0.92	474,082	433,905	-40,177
10	1.08	530,132	570,590	40,458
5	1.76	728,975	1,285,261	556,287
3	2.24	846,683	1,893,040	1,046,357

TABLE K.4.16 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN
(under Construction Schedule)

I-1. Rio Pailon

Year	Unit: Bs.1,000				(B)-(C)
	Economic Cost		Economic Benefit (B)	(B)-(C)	
	Construction	OM Total (C)			
1 2000	2,495	0	2,495	0	-2,495
2 2001	42,760	0	42,760	0	-42,760
3 2002	42,760	318	43,078	6,575	-36,503
4 2003	43,426	637	44,063	13,171	-30,892
5 2004	53,992	955	54,947	19,747	-34,800
6 2005	51,762	1,353	53,115	27,976	-25,139
7 2006	0	1,763	1,763	36,454	34,691
8 2007	0	1,763	1,763	36,454	34,691
9 2008	0	1,763	1,763	36,454	34,691
10 2009	0	1,763	1,763	36,454	34,691
11 2010	0	1,763	1,763	36,454	34,691
12 2011	0	1,763	1,763	36,454	34,691
13 2012	0	1,763	1,763	36,454	34,691
14 2013	0	1,763	1,763	36,454	34,691
15 2014	0	1,763	1,763	36,454	34,691
16 2015	0	1,763	1,763	36,454	34,691
17 2016	0	1,763	1,763	36,454	34,691
18 2017	0	1,763	1,763	36,454	34,691
19 2018	0	1,763	1,763	36,454	34,691
20 2019	0	1,763	1,763	36,454	34,691
21 2020	0	1,763	1,763	36,454	34,691
22 2021	0	1,763	1,763	36,454	34,691
23 2022	0	1,763	1,763	36,454	34,691
24 2023	0	1,763	1,763	36,454	34,691
25 2024	0	1,763	1,763	36,454	34,691
26 2025	0	1,763	1,763	36,454	34,691
27 2026	0	1,763	1,763	36,454	34,691
28 2027	0	1,763	1,763	36,454	34,691
29 2028	0	1,763	1,763	36,454	34,691
30 2029	0	1,763	1,763	36,454	34,691
31 2030	0	1,763	1,763	36,454	34,691
32 2031	0	1,763	1,763	36,454	34,691
33 2032	0	1,763	1,763	36,454	34,691
34 2033	0	1,763	1,763	36,454	34,691
35 2034	0	1,763	1,763	36,454	34,691
36 2035	0	1,763	1,763	36,454	34,691
37 2036	0	0	0	0	0
38 2037	0	0	0	0	0
39 2038	0	0	0	0	0
40 2039	0	0	0	0	0
41 2040	0	0	0	0	0
Total	236,795	56,153	292,948	1,161,090	868,142

I-2. Quebrada Chane

Year	Unit: Bs.1,000				(B)-(C)
	Economic Cost		Economic Benefit (B)	(B)-(C)	
	Construction	OM Total (C)			
1 2000	0	0	0	0	0
2 2001	0	0	0	0	0
3 2002	0	0	0	0	0
4 2003	0	0	0	0	0
5 2004	0	0	0	0	0
6 2005	359	0	359	0	-359
7 2006	6,811	0	6,811	0	-6,811
8 2007	24,424	43	24,467	790	-23,677
9 2008	24,425	224	24,649	4,115	-20,534
10 2009	24,358	406	24,764	7,458	-17,306
11 2010	21,814	587	22,401	10,782	-11,619
12 2011	0	760	760	13,960	13,200
13 2012	0	760	760	13,960	13,200
14 2013	0	760	760	13,960	13,200
15 2014	0	760	760	13,960	13,200
16 2015	0	760	760	13,960	13,200
17 2016	0	760	760	13,960	13,200
18 2017	0	760	760	13,960	13,200
19 2018	0	760	760	13,960	13,200
20 2019	0	760	760	13,960	13,200
21 2020	0	760	760	13,960	13,200
22 2021	0	760	760	13,960	13,200
23 2022	0	760	760	13,960	13,200
24 2023	0	760	760	13,960	13,200
25 2024	0	760	760	13,960	13,200
26 2025	0	760	760	13,960	13,200
27 2026	0	760	760	13,960	13,200
28 2027	0	760	760	13,960	13,200
29 2028	0	760	760	13,960	13,200
30 2029	0	760	760	13,960	13,200
31 2030	0	760	760	13,960	13,200
32 2031	0	760	760	13,960	13,200
33 2032	0	760	760	13,960	13,200
34 2033	0	760	760	13,960	13,200
35 2034	0	760	760	13,960	13,200
36 2035	0	760	760	13,960	13,200
37 2036	0	760	760	13,960	13,200
38 2037	0	760	760	13,960	13,200
39 2038	0	760	760	13,960	13,200
40 2039	0	760	760	13,960	13,200
41 2040	0	760	760	13,960	13,200
Total	102,191	24,060	126,251	441,944	315,693

Discount Rate (%)	B/C	EIRR (%) 14.33		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.96	143,107	137,247	-5,860
12	1.17	160,037	187,198	27,162
10	1.36	173,301	235,970	62,670
5	2.17	217,222	471,034	253,813
3	3	241,775	656,578	414,803

Discount Rate (%)	B/C	EIRR (%) 12.52		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.85	29,730	25,291	-4,439
12	1.04	38,206	39,630	1,424
10	1.21	45,475	54,893	9,417
5	1.92	72,689	139,541	66,852
3	2	89,416	214,786	125,370

TABLE K.4.17 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN
(under Construction Schedule)

I-3. Chane Chacras

Unit: Bs.1,000

Year	Economic Cost		Economic Benefit (B)	(B)-(C)	
	Construction	OM Total (C)			
1 2000	0	0	0	0	
2 2001	0	0	0	0	
3 2002	852	0	852	-852	
4 2003	14,076	0	14,076	-14,076	
5 2004	14,076	105	14,181	-11,864	
6 2005	15,355	209	15,564	-10,952	
7 2006	35,783	314	36,097	-29,167	
8 2007	49,077	572	49,649	-37,026	
9 2008	16,380	953	17,333	-3,699	
10 2009	16,380	1,074	17,454	-6,248	
11 2010	15,422	1,196	16,618	-9,777	
12 2011	0	1,318	1,318	29,087	
13 2012	0	1,318	1,318	29,087	
14 2013	0	1,318	1,318	29,087	
15 2014	0	1,318	1,318	29,087	
16 2015	0	1,318	1,318	29,087	
17 2016	0	1,318	1,318	29,087	
18 2017	0	1,318	1,318	29,087	
19 2018	0	1,318	1,318	29,087	
20 2019	0	1,318	1,318	29,087	
21 2020	0	1,318	1,318	29,087	
22 2021	0	1,318	1,318	29,087	
23 2022	0	1,318	1,318	29,087	
24 2023	0	1,318	1,318	29,087	
25 2024	0	1,318	1,318	29,087	
26 2025	0	1,318	1,318	29,087	
27 2026	0	1,318	1,318	29,087	
28 2027	0	1,318	1,318	29,087	
29 2028	0	1,318	1,318	29,087	
30 2029	0	1,318	1,318	29,087	
31 2030	0	1,318	1,318	29,087	
32 2031	0	1,318	1,318	29,087	
33 2032	0	1,318	1,318	29,087	
34 2033	0	1,318	1,318	29,087	
35 2034	0	1,318	1,318	29,087	
36 2035	0	1,318	1,318	29,087	
37 2036	0	1,318	1,318	29,087	
38 2037	0	1,318	1,318	29,087	
39 2038	0	1,318	1,318	29,087	
40 2039	0	1,318	1,318	29,087	
41 2040	0	1,318	1,318	29,087	
Total	177,401	43,963	221,364	970,221	748,857

I-4. Okinawa Drainage

Unit: Bs.1,000

Year	Economic Cost		Economic Benefit (B)	(B)-(C)	
	Construction	OM Total (C)			
1 2000	1,210	0	1,210	0	
2 2001	19,894	0	19,894	0	
3 2002	19,366	148	19,514	2,657	
4 2003	11,718	296	12,014	5,314	
5 2004	11,720	383	12,103	6,876	
6 2005	11,037	470	11,507	8,438	
7 2006	0	557	557	10,000	
8 2007	0	557	557	10,000	
9 2008	0	557	557	10,000	
10 2009	0	557	557	10,000	
11 2010	0	557	557	10,000	
12 2011	0	557	557	10,000	
13 2012	0	557	557	10,000	
14 2013	0	557	557	10,000	
15 2014	0	557	557	10,000	
16 2015	0	557	557	10,000	
17 2016	0	557	557	10,000	
18 2017	0	557	557	10,000	
19 2018	0	557	557	10,000	
20 2019	0	557	557	10,000	
21 2020	0	557	557	10,000	
22 2021	0	557	557	10,000	
23 2022	0	557	557	10,000	
24 2023	0	557	557	10,000	
25 2024	0	557	557	10,000	
26 2025	0	557	557	10,000	
27 2026	0	557	557	10,000	
28 2027	0	557	557	10,000	
29 2028	0	557	557	10,000	
30 2029	0	557	557	10,000	
31 2030	0	557	557	10,000	
32 2031	0	557	557	10,000	
33 2032	0	557	557	10,000	
34 2033	0	557	557	10,000	
35 2034	0	557	557	10,000	
36 2035	0	557	557	10,000	
37 2036	0	0	0	0	
38 2037	0	0	0	0	
39 2038	0	0	0	0	
40 2039	0	0	0	0	
41 2040	0	0	0	0	
Total	74,945	18,007	92,952	323,285	230,333

Discount Rate (%)	B/C	EIRR (%) 15.38		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	1.02	66,861	68,439	1,578
12	1.25	81,564	102,044	20,480
10	1.46	93,790	136,902	43,112
5	2.35	137,750	323,700	185,950
3	3	164,036	486,150	322,114

Discount Rate (%)	B/C	EIRR (%) 12.21		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.83	48,368	40,239	-8,129
12	1.02	53,435	54,255	820
10	1.18	57,383	67,871	10,488
5	1.89	70,397	133,063	62,666
3	2	77,679	184,302	106,623

**TABLE K.4.18 ECONOMIC ANALYSIS FOR
ALTERNATIVE-2 PLAN
I-5.Total of The East Area Project**

Unit: Bs 1,000

Year	Economic Cost		Economic Benefit (B)	B-(C)	
	Construction	OM Total (C)			
1 2000	3,705	0	3,705	0	-3,705
2 2001	62,654	0	62,654	0	-62,654
3 2002	62,978	466	63,444	9,232	-54,212
4 2003	69,220	933	70,153	18,486	-51,667
5 2004	79,388	1,443	80,831	28,940	-51,891
6 2005	78,513	2,032	80,545	41,027	-39,518
7 2006	42,594	2,634	45,228	53,384	8,156
8 2007	73,501	2,935	76,436	59,867	-16,569
9 2008	40,805	3,497	44,302	71,600	27,298
10 2009	40,738	3,800	44,538	77,614	33,076
11 2010	37,236	4,103	41,339	83,631	42,292
12 2011	0	4,398	4,398	89,501	85,103
13 2012	0	4,398	4,398	89,501	85,103
14 2013	0	4,398	4,398	89,501	85,103
15 2014	0	4,398	4,398	89,501	85,103
16 2015	0	4,398	4,398	89,501	85,103
17 2016	0	4,398	4,398	89,501	85,103
18 2017	0	4,398	4,398	89,501	85,103
19 2018	0	4,398	4,398	89,501	85,103
20 2019	0	4,398	4,398	89,501	85,103
21 2020	0	4,398	4,398	89,501	85,103
22 2021	0	4,398	4,398	89,501	85,103
23 2022	0	4,398	4,398	89,501	85,103
24 2023	0	4,398	4,398	89,501	85,103
25 2024	0	4,398	4,398	89,501	85,103
26 2025	0	4,398	4,398	89,501	85,103
27 2026	0	4,398	4,398	89,501	85,103
28 2027	0	4,398	4,398	89,501	85,103
29 2028	0	4,398	4,398	89,501	85,103
30 2029	0	4,398	4,398	89,501	85,103
31 2030	0	4,398	4,398	89,501	85,103
32 2031	0	4,398	4,398	89,501	85,103
33 2032	0	4,398	4,398	89,501	85,103
34 2033	0	4,398	4,398	89,501	85,103
35 2034	0	4,398	4,398	89,501	85,103
36 2035	0	4,398	4,398	89,501	85,103
37 2036	0	2,078	2,078	43,047	-40,969
38 2037	0	2,078	2,078	43,047	-40,969
39 2038	0	2,078	2,078	43,047	-40,969
40 2039	0	2,078	2,078	43,047	-40,969
41 2040	0	2,078	2,078	43,047	-40,969
Total	591,332	142,183	733,515	2,896,541	2,163,026

Discount Rate (%)	B:C	EIRR (%)		NPV (Bs. 1,000)
		14.04		
		PV(Bs. 1,000)		
		Cost	Benefit	
15	0.94	288,066	271,216	-16,850
12	1.15	333,242	383,128	49,886
10	1.34	369,948	495,636	125,688
5	2.14	498,057	1,067,338	569,281
3	3	572,906	1,541,816	968,910

TABLE K.4.19 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN
(under Construction Schedule)

II-1. San Juan						II-2. Antofagasta					
Unit: Bs.1,000						Unit: Bs.1,000					
Year	Economic Cost			Economic Benefit (B)	(B)-(C)	Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)				Construction	OM	Total (C)		
1 2000	1,312	0	1,312	0	-1,312	1 2000	1,818	0	1,818	0	-1,818
2 2001	22,194	0	22,194	0	-22,194	2 2001	28,343	0	28,343	0	-28,343
3 2002	22,092	165	22,257	2,209	-20,048	3 2002	15,775	216	15,991	5,026	-10,965
4 2003	20,152	330	20,482	4,417	-16,065	4 2003	15,304	333	15,637	7,749	-7,888
5 2004	14,674	483	15,157	6,465	-8,692	5 2004	10,581	449	11,030	10,448	-882
6 2005	0	599	599	8,018	7,419	6 2005	9,963	528	10,491	12,287	1,796
7 2006	0	599	599	8,018	7,419	7 2006	0	607	607	14,125	13,518
8 2007	0	599	599	8,018	7,419	8 2007	0	607	607	14,125	13,518
9 2008	0	599	599	8,018	7,419	9 2008	0	607	607	14,125	13,518
10 2009	0	599	599	8,018	7,419	10 2009	0	607	607	14,125	13,518
11 2010	0	599	599	8,018	7,419	11 2010	0	607	607	14,125	13,518
12 2011	0	599	599	8,018	7,419	12 2011	0	607	607	14,125	13,518
13 2012	0	599	599	8,018	7,419	13 2012	0	607	607	14,125	13,518
14 2013	0	599	599	8,018	7,419	14 2013	0	607	607	14,125	13,518
15 2014	0	599	599	8,018	7,419	15 2014	0	607	607	14,125	13,518
16 2015	0	599	599	8,018	7,419	16 2015	0	607	607	14,125	13,518
17 2016	0	599	599	8,018	7,419	17 2016	0	607	607	14,125	13,518
18 2017	0	599	599	8,018	7,419	18 2017	0	607	607	14,125	13,518
19 2018	0	599	599	8,018	7,419	19 2018	0	607	607	14,125	13,518
20 2019	0	599	599	8,018	7,419	20 2019	0	607	607	14,125	13,518
21 2020	0	599	599	8,018	7,419	21 2020	0	607	607	14,125	13,518
22 2021	0	599	599	8,018	7,419	22 2021	0	607	607	14,125	13,518
23 2022	0	599	599	8,018	7,419	23 2022	0	607	607	14,125	13,518
24 2023	0	599	599	8,018	7,419	24 2023	0	607	607	14,125	13,518
25 2024	0	599	599	8,018	7,419	25 2024	0	607	607	14,125	13,518
26 2025	0	599	599	8,018	7,419	26 2025	0	607	607	14,125	13,518
27 2026	0	599	599	8,018	7,419	27 2026	0	607	607	14,125	13,518
28 2027	0	599	599	8,018	7,419	28 2027	0	607	607	14,125	13,518
29 2028	0	599	599	8,018	7,419	29 2028	0	607	607	14,125	13,518
30 2029	0	599	599	8,018	7,419	30 2029	0	607	607	14,125	13,518
31 2030	0	599	599	8,018	7,419	31 2030	0	607	607	14,125	13,518
32 2031	0	599	599	8,018	7,419	32 2031	0	607	607	14,125	13,518
33 2032	0	599	599	8,018	7,419	33 2032	0	607	607	14,125	13,518
34 2033	0	599	599	8,018	7,419	34 2033	0	607	607	14,125	13,518
35 2034	0	599	599	8,018	7,419	35 2034	0	607	607	14,125	13,518
36 2035	0	0	0	0	0	36 2035	0	607	607	14,125	13,518
37 2036	0	0	0	0	0	37 2036	0	0	0	0	0
38 2037	0	0	0	0	0	38 2037	0	0	0	0	0
39 2038	0	0	0	0	0	39 2038	0	0	0	0	0
40 2039	0	0	0	0	0	40 2039	0	0	0	0	0
41 2040	0	0	0	0	0	41 2040	0	0	0	0	0
Total	80,424	18,948	99,372	253,631	154,259	Total	81,784	19,736	101,520	-459,260	357,740

Discount Rate (%)	B:C	EIRR (%) 8.48		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.62	53,759	33,367	-20,392
12	0.76	59,061	44,096	-14,366
10	0.88	63,164	55,623	-7,541
5	1.40	76,548	107,182	30,634
3	2	83,962	147,087	63,125

Discount Rate (%)	B:C	EIRR (%) 16.24		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	1.08	54,210	58,338	-4,128
12	1.31	59,589	78,300	18,711
10	1.53	63,772	97,655	33,883
5	2.45	77,551	190,102	112,551
3	3	85,273	262,650	177,377

TABLE K.4.20 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN
(under Construction Schedule)

II-3. Total of the West Area Project

Unit: Bs 1,000					
Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)		
1 2000	3,130	0	3,130	0	-3,130
2 2001	50,537	0	50,537	0	-50,537
3 2002	37,867	381	38,248	7,235	-31,013
4 2003	35,456	663	36,119	12,166	-23,953
5 2004	25,255	932	26,187	16,914	-9,273
6 2005	9,963	1,127	11,090	20,305	9,215
7 2006	0	1,206	1,206	22,143	20,937
8 2007	0	1,206	1,206	22,143	20,937
9 2008	0	1,206	1,206	22,143	20,937
10 2009	0	1,206	1,206	22,143	20,937
11 2010	0	1,206	1,206	22,143	20,937
12 2011	0	1,206	1,206	22,143	20,937
13 2012	0	1,206	1,206	22,143	20,937
14 2013	0	1,206	1,206	22,143	20,937
15 2014	0	1,206	1,206	22,143	20,937
16 2015	0	1,206	1,206	22,143	20,937
17 2016	0	1,206	1,206	22,143	20,937
18 2017	0	1,206	1,206	22,143	20,937
19 2018	0	1,206	1,206	22,143	20,937
20 2019	0	1,206	1,206	22,143	20,937
21 2020	0	1,206	1,206	22,143	20,937
22 2021	0	1,206	1,206	22,143	20,937
23 2022	0	1,206	1,206	22,143	20,937
24 2023	0	1,206	1,206	22,143	20,937
25 2024	0	1,206	1,206	22,143	20,937
26 2025	0	1,206	1,206	22,143	20,937
27 2026	0	1,206	1,206	22,143	20,937
28 2027	0	1,206	1,206	22,143	20,937
29 2028	0	1,206	1,206	22,143	20,937
30 2029	0	1,206	1,206	22,143	20,937
31 2030	0	1,206	1,206	22,143	20,937
32 2031	0	1,206	1,206	22,143	20,937
33 2032	0	1,206	1,206	22,143	20,937
34 2033	0	1,206	1,206	22,143	20,937
35 2034	0	1,206	1,206	22,143	20,937
36 2035	0	607	607	14,125	13,518
37 2036	0	0	0	0	0
38 2037	0	0	0	0	0
39 2038	0	0	0	0	0
40 2039	0	0	0	0	0
41 2040	0	0	0	0	0
Total	162,208	38,684	200,892	712,891	511,999

Discount Rate (%)	B/C	EIRR (%) 12.51		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.85	107,968	91,704	-16,264
12	1.04	118,650	122,996	4,346
10	1.21	126,936	153,278	26,342
5	1.93	154,099	297,284	143,185
3	2	169,235	409,737	240,502

III. Total of the Whole Project

Unit: RM 1,000					
Year	Economic Cost			Economic Benefit (B)	(B)-(C)
	Construction	OM	Total (C)		
1 2000	6,835	0	6,835	0	-6,835
2 2001	113,191	0	113,191	0	-113,191
3 2002	100,845	847	101,692	16,467	-85,225
4 2003	104,676	1,596	106,272	30,652	-75,620
5 2004	104,643	2,375	107,018	45,854	-61,164
6 2005	88,476	3,159	91,635	61,331	-30,304
7 2006	42,594	3,840	46,434	75,527	29,093
8 2007	73,501	4,141	77,642	82,010	4,368
9 2008	40,805	4,703	45,508	93,743	48,235
10 2009	40,738	5,006	45,744	99,757	54,013
11 2010	37,236	5,309	42,545	105,774	63,229
12 2011	0	5,604	5,604	111,644	106,040
13 2012	0	5,604	5,604	111,644	106,040
14 2013	0	5,604	5,604	111,644	106,040
15 2014	0	5,604	5,604	111,644	106,040
16 2015	0	5,604	5,604	111,644	106,040
17 2016	0	5,604	5,604	111,644	106,040
18 2017	0	5,604	5,604	111,644	106,040
19 2018	0	5,604	5,604	111,644	106,040
20 2019	0	5,604	5,604	111,644	106,040
21 2020	0	5,604	5,604	111,644	106,040
22 2021	0	5,604	5,604	111,644	106,040
23 2022	0	5,604	5,604	111,644	106,040
24 2023	0	5,604	5,604	111,644	106,040
25 2024	0	5,604	5,604	111,644	106,040
26 2025	0	5,604	5,604	111,644	106,040
27 2026	0	5,604	5,604	111,644	106,040
28 2027	0	5,604	5,604	111,644	106,040
29 2028	0	5,604	5,604	111,644	106,040
30 2029	0	5,604	5,604	111,644	106,040
31 2030	0	5,604	5,604	111,644	106,040
32 2031	0	5,604	5,604	111,644	106,040
33 2032	0	5,604	5,604	111,644	106,040
34 2033	0	5,604	5,604	111,644	106,040
35 2034	0	5,604	5,604	111,644	106,040
36 2035	0	5,005	5,005	103,626	98,621
37 2036	0	2,078	2,078	43,047	40,969
38 2037	0	2,078	2,078	43,047	40,969
39 2038	0	2,078	2,078	43,047	40,969
40 2039	0	2,078	2,078	43,047	40,969
41 2040	0	2,078	2,078	43,047	40,969
Total	753,547	180,867	934,417	3,609,432	2,675,025

Discount Rate (%)	B/C	EIRR (%) 13.63		
		PV(Bs. 1,000)		NPV (Bs. 1,000)
		Cost	Benefit	
15	0.92	396,035	362,920	-33,114
12	1.12	451,892	506,124	54,232
10	1.31	496,884	648,914	152,030
5	2.09	652,157	1,364,623	712,466
3	3	742,142	1,951,554	1,209,412

APPENDIX

TERMS OF REFERENCE OF SURVEY WORKS

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2.1	Phase 1.....	L - 5
2.2	Phase 2.....	L - 8
3.	Term of Reference for Water Quality Analysis.....	L - 11
3.1	Phase 1.....	L - 11
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1. TERMS OF REFERENCE FOR AERIAL PHOTOGRAPHY

Chapter 1 *General*

Section 1 *Background*

In compliance with the Scope of Work for the The Master Plan Study on Flood Control in the Northern Rural Region of Santa Cruz in the Republic of Bolivia, which was agreed upon between the Santa Cruz Regional Development Corporation and the Japan International Cooperation Agency (JICA) on December 14th 1994, JICA has decided to carry out the Aerial Photography Works and assigned JICA Study Team for execution of the works.

The aerial photography shall be carried out in the Republic of Bolivia by (Agency) under supervision of the Study Team's Supervisor.

Section 2 *Specifications*

The flight for aerial photography shall be conducted by the photogrammetric method in accordance with the Specifications written hereunder.

Section 3 *Scope of Work*

The work to be done is to carry out flight for aerial photography in the proposed site of the Northern Rural Region of Santa Cruz in the Republic of Bolivia.

The quantity of the work is estimated as follows:

Aerial photography at a scale of 1/60,000 (see attached map) ; approx. 8,500 km²

Section 4 *Unit to be Used*

Unit of measurement provided for by Japanese Law of Measurement (Metric System) shall be used.

Section 5 Language

Language to be used shall be English.

Chapter 2 Detail Specification

Section 1 Method of Work

All the work to be done shall be executed in accordance with this Specification or where not specified therein, in accordance with such instruction and orders as the Supervisor of the Study Team may give.

Section 2 Flight for Photo-taking.

Flight for photo-taking shall be carried out based on the following items.

(Airplane)

Aerial photographing aircraft shall meet the following requirements:

- 1. to be stable with full load while in flight to required height**
- 2. to have unobstructed vision in all directions**
- 3. to be able to install aerial camera at a position where exhaust fumes will not effect the aerial photography**
- 4. to have a navigation system suitable for local conditions**
- 5. to have an undistorted and calibrated view-finder window glass if necessary**

(Flight Direction and Altitude)

Flight direction : East - West
Flight altitude : approx. 9,400m
Focal length : 153mm

(Flight Course)

6. Flight shall be carried out in accordance with the flight plan map attached hereto.

Total : 12 courses

7. There shall be adequate stereoscopic coverage in the photo-taking area.

The average overlap is 60% and sidelap 30%.

8. Overlap, sidelap, crab, tip and tilt shall be within the following tolerances:

Overlap : more than 55% and less than 65%

Sidelap : more than 10%

Crab : less than 10 degrees

Tip and tilt : less than 5 degrees

9. When a flight line is broken, that part shall be covered by an overlap of more than 2 models.

10. Photo images shall not be spoiled by cloud or mist. However, this may be permissible to the extent of 5% if they are covered by the photographs of adjacent strips.

(Re-flight)

11. Re-flight shall be carried out immediately in accordance with the guidance of supervisor, when film is rejected.

Chapter 3 Work Schedule

Completion date shall be by the ____th of July, 1995.

Priority area for aerial photography shall be the mapping area.

Chapter 4 Final Products to be delivered

The Agency shall deliver the following final products and flight record to the Study Team :

1. Aerial Photography

- (1) Negative film (8,500 km²) : 1 set
- (2) Positive film (8,500 km²) : 1 set
- (3) Contact print (8,500 km²) : 3 sets
- (4) Photo index map : 1 set

2. Flight Record

- (1) name of contract
- (2) name of photographing organization
- (3) beginning and end times of flight
- (4) date of flight
- (5) type of aircraft
- (6) flight altitude
- (7) calibration report of camera

2. TERMS OF REFERENCE FOR THE RIVER SURVEY

2.1 Phase 1

Chapter 1 General

Section 1 Background

In compliance with the Scope of Work for the Master Plan Study on Flood Control in the Northern Rural Region of Santa Cruz in the Republic of Bolivia, which was agreed upon between the Santa Cruz Regional Development Corporation and the Japan International Cooperation Agency (JICA) on December 14, 1994, JICA has decided to carry out the Topographic Survey Work and assigned JICA Study Team for execution of the works.

The Topographic Survey shall be carried out in the Republic of Bolivia, by the Agriconsult Santa Cruz Ltda.(Agency) under supervision of the Study Team's Supervisor.

Section 2 Specifications

The survey works shall be conducted by the topographic mapping method in accordance with the Specifications written hereunder.

Section 3 Scope of Work

The work to be done is to carry out the Longitudinal Profile and the Cross Section Survey in the proposed site of the Northern Rural Region of Santa Cruz in the Republic of Bolivia.

The quantity of the work is estimated as follows:

- Smaller rivers; Chane, Pailon, Jochie etc. : approx. 115 km & 60 sections.
- Larger rivers; Grande and Yapakani : approx. 150 km & 12 sections.

Section 4 Unit to be Used

Unit of measurement provided for by Japanese Law of Measurement (Metric System) shall be used.

Section 5 Language

Language to be used shall be English.

Chapter 2 Detail Specification

Section 1 Method of Work

All the work to be done shall be executed in accordance with this Specification or where not specified therein, in accordance with such instruction and orders as the Supervisor of the Study Team may give.

Section 2 Quantity and Location of Work

1. Pailón river (35km, 18 sections)

From confluence of Chané river to Colonia Okinawa No.2

2. Chané river (40km, 21 sections)

Downstream stretch from Estancia La Reohela (near National Road No.9)

3. Around the Colonia San Juan (40km, 21 sections)

Yapacanicito river; (15km, 8 sections)

Jochi river; (15km, 8 sections)

Tejeria river; (10km, 5 sections)

4. Grande and Yapacani Rivers (150 km, 12 sections)

Grande river; 100 km, 8 sections

Yapacani river; 50km, 4 sections

Section 3 Longitudinal Profile and Cross Section Survey

(Preparation)

The timber piles shall be established on one side of river in advance, located perpendicular to the river center line, as instructed by the Study Team and/or on the location maps.

(Leveling for the timber piles)

Elevation of the each timber pile shall be determined by direct leveling or GPS surveying from existing bench marks established on the national highway by IGM.

Accuracy : $6\text{cm} \sqrt{S}$, where "S" in kilometer

(Cross section survey)

Cross section survey shall be carried out by direct leveling, echo sounding or trigonometric leveling.

The cross sections shall be approximately 100m to 2,500m in width, and surveyed at approximately 2km intervals along the river center line.

Accuracy : $5\text{cm} + 3\text{cm} \sqrt{s}$, where "s" in meter

Drawing : $H = 1 / 100 \sim 1 / 4,000$

(Scale) $V = 1 / 100 \sim 1 / 200$

(Longitudinal profile survey)

Longitudinal profile shall be drawn according to the results of elevations, measured during the cross section survey of the river center.

Drawing : $H = 1 / 50,000 \sim 1 / 100,000$

(Scale) $V = 1 / 100 \sim 1 / 1,000$

Chapter 3 *Work Schedule*

The works shall be completed within 2.5 months from commencement date, by the ___th of July 1995.

Chapter 4 *Final Products to be delivered*

The Agency shall deliver the following final result and products to the Study Team :

- | | |
|--|----------|
| (1) Drawn sheets of Cross sections (72 sections) | : 1 set |
| (2) Copy of Cross sections | : 2 sets |
| (3) Drawn sheets of Longitudinal profile | : 1 set |
| (4) Copy of Longitudinal profile | : 2 sets |
| (5) Index map | : 1 set |
| (6) Observation and Computation results | : 1 set |

2.2 Phase 2

Chapter 1 *General*

Section 1 *Background*

In compliance with the Scope of Work for the Master Plan Study on Flood Control in the Northern Rural Region of Santa Cruz in the Republic of Bolivia, which was agreed upon between the Santa Cruz Regional Development Corporation and the Japan International Cooperation Agency (JICA) on December 14, 1994, JICA has decided to carry out the Topographic Survey Work (Second Stage) and assigned JICA Study Team for execution of the works.

The Topographic Survey (Second Stage) shall be carried out in the Republic of Bolivia, by the Agriconsult Santa Cruz Ltda.(Agency) under supervision of the Study Team's Supervisor.

Section 2 *Specifications*

The survey works shall be conducted by the topographic mapping method in accordance with the Specifications written hereunder.

Section 3 *Scope of Work*

The work to be done is to carry out the Longitudinal Profile and the Cross Section Survey in the proposed site of the Northern Rural Region of Santa Cruz in the Republic of Bolivia.

The quantity of the work is estimated as follows:

- Longitudinal Profile : approx. 60 km
- Cross Section : 30 sections

Section 4 *Unit to be Used*

Unit of measurement provided for by Japanese Law of Measurement (Metric System) shall be used.

Section 5 *Language*

Language to be used shall be English.

Chapter 2 *Detail Specification*

Section 1 *Method of Work*

All the work to be done shall be executed in accordance with this Specification or where not specified therein, in accordance with such instruction and orders as the Supervisor of the Study Team may give.

Section 2 *Quantity and Location of Work*

A. Pailon River & Tributaries

1. Okinawa Drainage (5 km): 3 sections

B. Chane River & Tributaries

2. Chané river (7 km): 3 sections

3. El Toro river (16 km): 6 sections

4. Maras river (6 km): 3 sections

5. Chacras river (11 km): 3 sections

C. San Juan Rivers

6. Jochi river (9 km): 4 section

7. Tacuaral river (6 km): 3 section

8. Palacios river: 1 section

9. Quimori river : 1 section

10. Lupe rivers (2 km): 1 section

11. Asuquito river (2 km): 1 section

D. Large River

12. Grande river (3 km): 1 section

(including Okinawa Drainage)

Total (73 km) 30 sections

Section 3 *Longitudinal Profile and Cross Section Survey*

(Preparation)

The timber piles shall be established on one side of river in advance, located perpendicular to the river center line, as instructed by the Study Team and/or on the location maps.

(Leveling for the timber piles)

Elevation of the each timber pile shall be determined by direct leveling or GPS surveying from existing bench marks established on the national highway by IGM.

Accuracy : $6\text{cm} \times \sqrt{S}$, where "S" in kilometer

(Cross section survey)

Cross section survey shall be carried out by direct leveling, echo sounding or trigonometric leveling. The cross sections shall be approximately 100m to 3,000m in width, and surveyed at approximately 2 km intervals along the river center line.

Accuracy : $5\text{cm} + 3\text{cm} \times \sqrt{s}$, where "s" in meter

Drawing : H = 1 / 100 ~ 1 / 4,000

(Scale) V = 1 / 100 ~ 1 / 200

(Longitudinal profile survey)

Longitudinal profile shall be drawn according to the results of elevations, measured during the cross section survey of the river center.

Drawing : H = 1 / 50,000 ~ 1 / 100,000

(Scale) V = 1 / 100 ~ 1 / 1,000

Chapter 3 *Work Schedule*

The works shall be completed within one (1) month from commencement date, by the ____ of _____, 1995.

Chapter 4 *Final Products to be delivered*

The Agency shall deliver the following final result and products to the Study Team :

- | | |
|--|----------|
| (1) Drawn sheets of Cross sections (30 sections) | : 1 set |
| (2) Copy of Cross sections | : 2 sets |
| (3) Drawn sheets of Longitudinal profile | : 1 set |
| (4) Copy of Longitudinal profile | : 2 sets |
| (5) Index map | : 1 set |
| (6) Observation and Computation results | : 1 set |

3. TERMS OF REFERENCE FOR WATER QUALITY ANALYSIS

3.1 Phase 1

1. GENERAL

1.1 The Consultant shall conduct the Water Quality Survey Works to find out the environmental conditions of river water in the rainy season within the objective area for the Master Plan Study on Flood Control in the Northern Rural Region of Santa Cruz in the Republic of Bolivia, with a view of studying the possibility of multipurpose use of the flood control project, such as river water for cultivation, retarding pond for sewage treatment, water surface for fish culture and so on. JICA Study Team shall examine all outcome of the survey before accepting final reports.

1.2 All measurement in the survey shall be recorded in metric units.

1.3 The Consultant is responsible for providing all required manpower and equipment relating to the survey works.

1.4 If there are any other Terms of Reference required for execution of the survey, they shall be discussed for consensus by JICA Study Team and the Consultant.

1.5 The Consultant shall submit an Inception Report, including following items, in English and Spanish before the commencement of the works.

- Methodology
- Work Schedule
- Staff Schedule

1.6 The size of reports and documents shall be A-4 size principally.

2. DESCRIPTION

2.1 Survey Area

The Survey Area shall be within the Northern Rural Region of Santa Cruz.

2.2 Description of Works

The aim of the works is to conduct a water quality survey as follows:

- Sampling locations : 5 locations in the survey area
 - 3 locations : at the outlet of the sewage of the Santa Cruz city and settlement areas
 - 2 locations : at the rivers polluted in the study area
- Sampling : 24 samplings in total at 5 locations
 - at 3 locations : 2-samplings/day during 3 selected days
 - at 2 locations : 1-samplings/day during 3 selected days
- Measurement and analysis items
 - Water temperature
 - Electric conductivity
 - pH
 - BOD
 - DO
 - SS
 - Number of coliform groups

The sampling locations and days are to be selected by the JICA Study Team, and the consultant shall prepare all staff and instruments required for sampling and laboratory analysis.

2.3 Work Schedule

The Survey works shall be completed within 3 weeks from commencement date, by the _____ of May 1995.

2.3 Submission of Documents

The Consultant shall submit the following documents in English and Spanish as follows:

- The Final Report (English) 5 copies
- The Final Report (Spanish) 5 copies

3.2 Phase 2

1. GENERAL

1.1 The Consultant shall conduct the Water Quality Survey Works to find out the environmental conditions of river water in the dry season within the objective area for the Master Plan Study on Flood Control in the Northern Rural Region of Santa Cruz in the Republic of Bolivia, with a view of studying the possibility of multipurpose use of the flood control project, such as river water for cultivation, retarding pond for sewage treatment, water surface for fish culture and so on. JICA Study Team shall examine all outcome of the survey before accepting final reports.

1.2 All measurement in the survey shall be recorded in metric units.

1.3 The Consultant is responsible for providing all required manpower and equipment relating to the survey works.

1.4 If there are any other Terms of Reference required for execution of the survey, they shall be discussed for consensus by JICA Study Team and the Consultant.

1.5 The Consultant shall submit an Inception Report, including following items, in English and Spanish before the commencement of the works.

- Methodology
- Work Schedule
- Staff Schedule

1.6 The size of reports and documents shall be A-4 size principally.

2. DESCRIPTION

2.1 Survey Area

The Survey Area shall be within the Northern Rural Region of Santa Cruz.

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The aim of the works is to conduct a water quality survey as follows:

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-Sampling : 24 samplings in total at 5 locations

-at 3 locations : 2-samplings/day during 3 selected days

-at 2 locations : 1-samplings/day during 3 selected days

-Measurement and analysis items

-Water temperature

-Electric conductivity

-pH

-BOD

-DO

-SS

-Number of coliform groups

The sampling locations and days are to be selected by the JICA Study Team, and the consultant shall prepare all staff and instruments required for sampling and laboratory analysis.

2.3 Work Schedule

The Survey works shall be completed within 3 weeks from commencement date, by the _____ of _____, 1995.

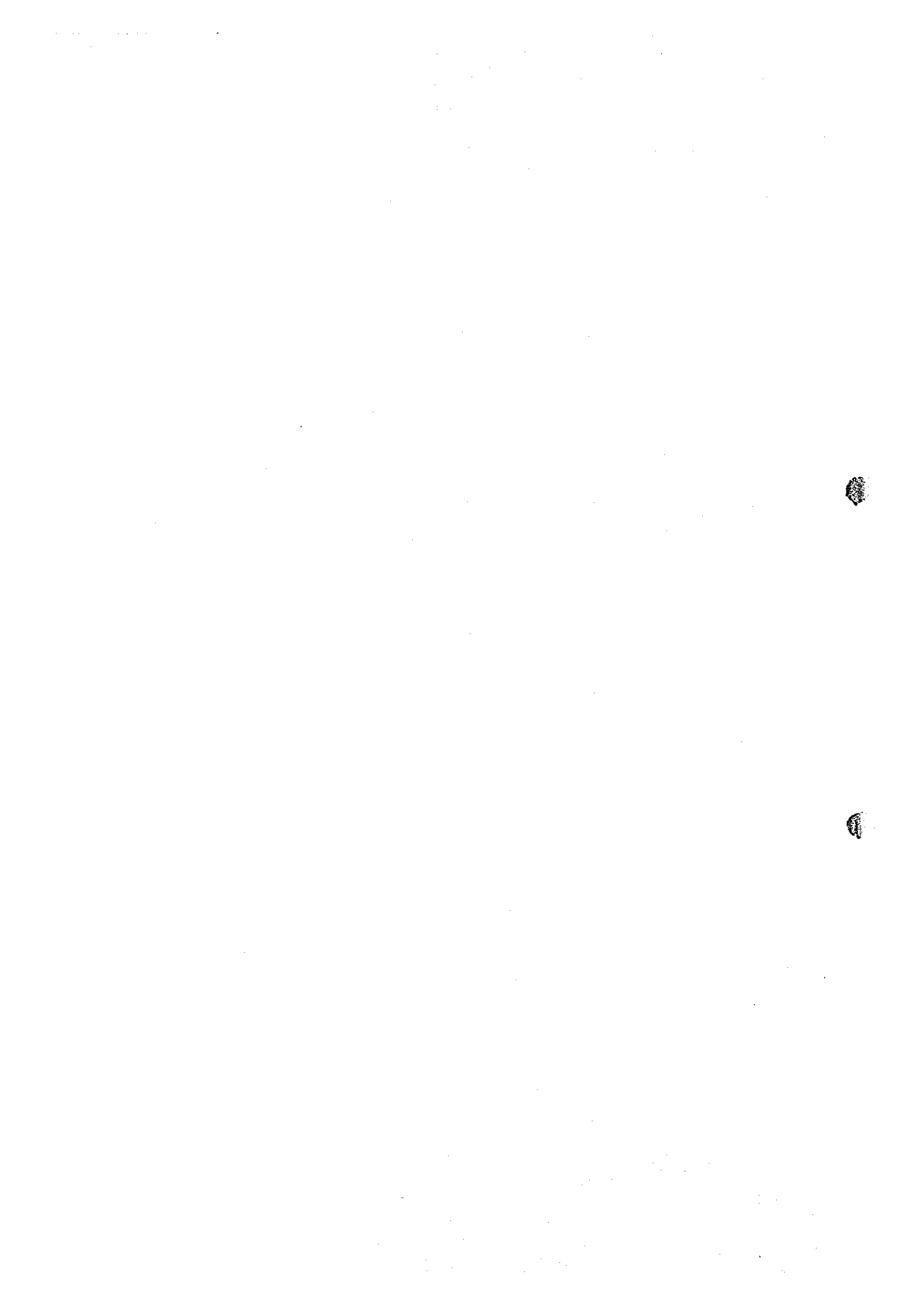
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JICA