**TABLES** 

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

items	1990	1991	1992	1993	1994	Average
Imports (US\$ Million) Import Duty (US\$ Million)	527.7	1,000.1 224.2	1,235.0	1,429.4	1,306.8	1099.8
Total Rate of Import Duty (%)	661.1 25.3	1,224.3	1,534.2	1,750.4	1,690.0	1,372.0
Exports (USS Million) Export Duty (USS Million)	926.8	848.5	712.3	754.5	722.9	793.0
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	r Return E	erlod_																
	Water	B-000					Building	5							Agricult	eral Cro	ops (ha)		
No.	Depth	Res	idence		Shop	Restau-	School	Charch	Factory t	lospital	Health	Total	Soy-		Sugar			re 7	l'otal
	(m)	High M	cdium	Low		rant			_		Center		beans		cane	•		mproved	
1	0.0-0.25	2	20	14	2	0	0	0	0	0	0	38	254	52	348	2-1	12	27	717
2	0.25-0.5	2	28	19	2	0	1	0	0	0	Ó	52	358	73	491	3.3	17	37 1.	000
3	0.5-1.0	3	31	. 21	3	0	1	0	0	0	0	59	397	81	545	37	19	42 I.	
4	1.0-1.5	l	8	5	- 1	0	0	0	0	0	0	15	105	21	143	10	5		295
5_	1.5-2.0	0	0	0	0	. 0	0	0	0	0	Ó	0	0	0	0	0	ò		ň
	Total	8	87	59	8	0	2	0	Õ	ŏ	0	164	1.114	227	1,527	104	53	117 1	717

	(2) 5-Year	Return f	'erlod						:	1									
-	Water					Bu	ilding:	S							Agricult	lural Co	ops (ha)		
No.	Depth		dence		Shop	Restau- S	chool	Charch	Pactory	Hospital	Health	Total	Soy-		Sugar			ture	Total
	(m)	ligh M	coiបូកា	Low		rant					Center	:	beans	<u> </u>	CARC		Nutural	Improved	
-	0.0-0.25	2	20	13	2	0	. 0	0	Ú	0	Ú	37	250	51	342	23	12	20	704
_	0.25-0.5	2	20	13	2	0	0	0	. 0	0	0	37	250	51	342	23	2 2	26	704
3	0.5-1.0	5	51	35	5	0	· L	. 1	Q	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
<u> </u>	1.5-2.0	0	2	2	0	0	0	0	Ø	0	0	4	30	6	42	3	i	3	85
	Total		110	74		O		1	. 0	0	0	208	1,405	286	1,925	.130	68	147	3.961
																	<del></del>		

	(3) 10-Yes	ir Retorn	Period																
	Violet	<del></del> ,	-			1	uilding	\$		1	.10				\gricult	ural Cr	eps (ha)		
No.	Depth	Res	idence		Shop	Restau-	School	Charch	Factor	y Hospita	Health	Total	Soy-		Sugar			lore	Total
	(m)	High N	<u>lccium</u>	LOW.		rant			_		Center		beans	4.7	cane		Nutural	Improved	
	0.0-0.25	0	4	3	0	0	0	0		) (	0	7	50	10	68	5	2	5	140
	0.25-0.5	2	20	13	2	0	0	0	(	9 (	0	37	250	51	342	23	12	26	704
3	0.5-1.0	4	48	33	5	0	1	1	. (	) (	0	92	621	127	851	- 58	30	65	1.752
4	1.0-1.5	3	32	22	3	0	1	0	. (	) (	0	61	418	85	572	39	20		1.178
5_	1.5-2.0	1_	8	5		0	0	0	·	) 0	0	1.5	96	20	131	9	5	10	271
	<u>Total</u>	10	112	76	11	0	2		. (	) 0	0	212	1,435	293	1,964	134	69	150	1.045

*****	(4) 20-Yes	er Relora	Period									1				1		
	Water					. 1	luilding	*							Agricult	ural Co	ops (ha)	
No.			dence		Shop	Restau-	School	Charch	Pactor	llospital	Health	Total	Soy-				Pastu	re Total
	(m)	High M	cdibm	10w		Lant			<u> </u>		Center	tala d	bcans		cane		Nutural I	
į	0.0-0.25	O	0	0	0	- 0	0	Ō	- (	0	- 0	0	G	0	0	: 0	0	0 0
-	0.25-0.5	1	7	5	1	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	84	560	114	768	53	27	59 1.581
4	1.0-1.5	4	49	33	5	. 0		3	. (	) 0	ŏ	93	627	128	860	50	31	66 1.771
5	1.5-2.0	1	12	8	1.	. 0	0	. 0	. (	) 0	Ó	22	157	32	215	14	8	16 112
	Total	10	112	76	II	0	2	2	(	0	0	214	1.434	292	1.966	134	70	150 4.046
															- 10-0/-		···	1,0 4,040

	(5) 50-Ye	as Retorn	Fer lod														(		
	Waler	-				В	uilding	\$							Agricult	tural Cr	ops (ha)	<del></del>	****
No.	Depth		dence		Shop	Restau-	School	Charch	Factory	llospita	Health	Total	Sov-		Sugar			ure	fetal
	<u>(13)</u>	High M	cdium	102		rant					Center		beans		cane			Improved	
ı	0.0-0.25	0	0	0	0	0	0	0	0	G	0	0	0	0		0	G		~
2	0.25-0.5	0	0	0	0	Q	0	0	0	0	0	0	õ	. 0	ň	ň	ň	ň	ñ
3	0.5-1.0	2	24	16	2	0	: 1	0	Ó	O	· ŏ	45	310	61	424	29	13	. 33	873
4	1.0-1.5	5	55	37	5	0	1	1	Ö	. 0	0	104	704	144	965	66	34	7.1	1.987
5	1.5-2.0	3	33	22	. 3	. 0	1	0	- 0	. 0	. 0	62	421	86	576	30	21		1.187
	Tetal	10	112	75	10	0	3	1	O	C	0	211	1,435		1.965	134	70		4.047
																	<u></u>		., ,

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

	(1) 2-1 ea	r R	etatn F	'er lod_																	
	Water							Buildings									Agricul	toral Co	oos (ha)		
No.	Depth		Resi	oence		Shop	Restau-	School	Charch	Factory	Hospit	lai	Health	Total	Soy-	Rice	Sugar	Maize	F)	slore	Total
	(m)		ligh Me	edium	Low		rant			-	•		Center		beans		cane			Improved	
1	0.0-0.25		2	20	13	2	0	0	0	O		0	0	37	249	51	342	23	12	26	703
2	0.25-0.5		2	24	16	2	0	0	Ō	C		0	0	44	303	62	416	28	15		856
3	0510		2	17	11	2	. 0	0	0	0		0	0	32	218	41	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	ō	0	0	0	Ó	o	ó		100
	Total		7	72	48	7	0	0	0	0		0	0	131	914	186	1,251	85	45	96	2 580

	Water						1	duilgine	S							Agricu!	turai ('r	ops (ha)		
No.	Depth		Resi	cace		Shop	Restau-	School	Charch	Factory	Hospital	Health	3 otal	Soy-	Rice	Sugar	Maize	{`as	ture	Tota
	(m)	Hi,	eh Mo	dium	Low		rant				•	Center		beans		cano		Nutural	Improved	
1	0.0-0.25		2	20	13	2	0	0	0	ō	0	0	37	249	51	342	23	12	26	
2	0.25-0.5	;	2	20	13	2	0	0	0	0	0	0	37	249	51	342	23	12	26	
3	0.5-1.0		4	40	27	4	0		ı	0	. 0	0	77	513	105	701	48	25	5	
4	1.0-1.5		2	17.	11	2	. 0	0	0	0	Ó	0	32	218	44	299	20	Į,	) 2	613
_ 5	1.5-2.0		ı	9	6	1	0	0	0	0	0	0	18	113	23	155	- 11	6	17	320
	Total		11	106	70	11	0	1	1	0	0	0	201	1.312	271	1.842	125	66	141	

	Water					1	Building	s							Agricult	ural ('i	rops (ha)		
No.	Depth (m)	Res	idence ledium	Low	Shop	Restau-		Charch	Factory	Hospital	Health Center	Total	Soy-	Rice	Sugar	Maire	*	tare Improved	Tota
T	0.0-0.25	0	4	3	0	ő	0	ō	C	0	0	7	60	12	82	6	3	A	169
2	0.25-0.5	2	20	13	2	0	0	0	e	Ō	0	37	250	51	342	23	12	26	
3	0.5-1.0	4 .	42	29	4	0	I.	1	O	0	0	81	538	110	738	50	26	56	
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	503
	Total	10	112	76	10	Ó	2	<u>-</u>	0	0	0	211	1.435	292	1.966	134	70	150	1017

	(4) 20-Ye	ns Retos	p Period	1															
	Waler			-		1	Building	s	·						Agricu	ivral Co	cos (ha)		
No.	Depth		sidence		Shop	Restau-	School	Charch	Factory	Hospital	i lea!th	Total	Soy-	Rice	Sugar	Maize	F'a	-fyre	Total
	(m)	High!	dedium	Low		rant					Center		beans		cano		Nutural	Improved	
I	0.0-0.25	0	. 0	0	0,	0	0	0	Ö	0	0	0	0	0		0	0	0	0
2	0.25-0.5	1	8	. 5	- 1	0	0	0	Ō	1 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		1.408
4	1.0-1.5	. 4	43	29	4	. 0	1	1	0	0	0	82	547	112	7.50	51	27	57	
5	1.5-2.0	· : . 2	23	15	2	0	0	0	0	0	0	. 42	283	59	394	27	14	30	812
	Total	10	113	7.5	11	0	2	2	0	. 0	0	213	1 434	293	1.965	131	70	149	

		Water	·					Duiloing	5							A gricul	tural Cr	ops (ba)		
	No.	Depth		esidence		Shop	Restau-	School	Charch	Pactor	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	Past	ire	Tota
		(m)	High	Medium	LOW		rant	l				Center		beans		cane		Nutural	moroved	
:	. 1	0.0-0.25	0	0	0	0	G	0	Q	,	0	0	0	0	0	0	0	0	Δ	
	. 2	0.25-0.5	0	0	. 0	0	0	0	0	• 0	0	0	0	0	ō	Ō	ก	ň	ñ	ì
	3	0.5-1.0	3	30	21	3	. 0	1	G	0	Ō	0	58	389	79	534	36	19	41	1.099
	. 4	1.0-1.5	. 3	39	26	4	: 0	1	ŧ	0	Ó	0	74	499	102	681	47	24		1,408
	5	1.5-2.0	4	43	- 29	. 4	0	1	1	O	0	0	83	515	111	748	51	27	51	1.539
		Total	10	112	76	ΪĬ	0	3	2	C	0	0	215	1.433	292	1.966	134	70	150	1019

### TABLE K.2.2(1/2)

### NUMBER AND AREA OF INUNDATION ASSETS IN RIO PAILON AREA (WITHOUT)

	Water						Baildia	gs.							,	Agricul	tural Cr	ops (ha)		
No.	Depth	Res	idence		Shop	Restau-	Schoo	i Ci	barch Factor	Hospit	al F	lealth	Total	Soy-	Rice	Sugar	Maize	Pas	dure	Total
	(m)	High 3	cdium	Low		rant	<u>.</u>			-	(	cater		beans		cane		Nutural	Improved	
ī	0.0-0.25	12	36	42	5	1		1	0	i	0	)	97	2,223	453	474	208	249	531	4.(41
2	0.25-0.5	9	28	33	4	0		1	. 0		0	. 0	75	1,764	360	377	166	197	424	3,288
3	0.5-1.0	18	53	62	7	- 1		1	1		0	1	141	3,317	676	708	311	371	797	6,180
4	1.0-1.5	` O.	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	o	0	0	0	0	. 0	õ
	Tota!	39	117	137	15			3	l		ō -	1	316	7,301	1,489	1.559	685	817	1.755	13 609

	Walce		-				Building	<u> </u>							Agricul	nural C	cos (ba)		
No.	Depth	Res	dence		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy-		Sugar			lure	Total
	(ឆ)	High M	colum	LOW		rant					Center		beans		cane		Nutural	Improved	
ī	0.0-0 25	4	13	15	1	Ö	0	0	Ū.	0	0	33	771	157	165	72	86	185	1,436
2	0.25-0.5	9	27	32	4	. 0	ı	. 0	ι	0	0	74	1,693	345	361	158	190	407	-
3	0.5-1.0	18	57	67	. 8	1	1	1	. 1	0	. 1	. 153	3,528	719	7.53	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	411	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	<u>_</u>	ī	339	7.827	1.595	1,671	732	876	1.830	14 581

	(3) 10-Ye	ar Relves	Period	l													1	•	
	Water						Building	s	-						Agricul	tural Co	ups (ha)		
No.	Depth	Res	sidence		Shop	Restau-	School	Charch	Factory	Hospital	licalth	Total	Soy	Rice	Sugar	Maize	Pas	sture	Total
	(m)	High N	leðium	Low		rant				•	Center		beans		canè	1.1	Nutural	Improved	
ī	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	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	ì	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	i	3	1	<u>ī</u>	0	1	353	8,139	1,660	1,738	762	911	1.955	15.165
											<u>-</u>			*,030					13,100

	(4) 20-Yes	ır Refora	Period	;		•								100			12	:	
	Water						Building			····					Agricul	tural Cr	ops (ha)		
No.	Depth	Res	sidence		Shop	Restau-	School	Charch	Pactory	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	Pas	lurc	Total
	(m)	Ligh N	fedium	Low		rant					Center		beans		cane			Lagroved	
1	0.0-0.25	6	16	20	2	0	1	0	0	0	0	41	1,025	209	219	96	115	246	1.910
2	0.25-0.5	2	6	7	i	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	ŧ	- 0	1	95	2,187	416	467	205	245	52.5	4.075
4	1.0-1.5	18	57	67	8	- I	- 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		0	0	58	1,341	273	286	125	150	322	2,497
	Total	41	136	160	18	I	4		2	0	ī	367	8,470	1,726	1,808	792	918	2,033	15,777

	(S) 50-Ye	ar Retorn	Period	1											9-10-6	. •	100		
	Water						Building	s							Agricul	tural Cr	ops (ha)	<del></del>	
No.	Depth	Res	idence		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy			Maize		tute	Total
	(m)	High M	ledium	Low		taví					Center		beans		cane		Nutural	Improved	
_	0.0-0.25	6	16	20	2	0	1	0	. 0	0	0	44	1,025	209	219	96	115	246	1,910
_	0.25-0.5	4	12	. 14	1	0	0	0	0	0	0	32	755	151	161	71	85	181	1,407
3	0.5-1.0	2	. 6	8	1	0	0	0	0	. 0	0	17	413	81	88	39	46	99	769
4	1.0-1.5	18	57	67	8	1	1	1	Ŀ	0	1	153	3,528	719	7.0	330	395	847	6.572
5	1.5-2.0	17	52	. 61	7	. 1	1	1	- 1	0	5	141	3,246	662	693	304	363	779	6.047
	Total	47	143	169	19	1	4	i	i	0	1	386	8,967	1,828	1.914	840	1.004	2.152	

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

	(l) 2-Yes	r Retorn	l'er	lod			_													
	Water		,					Building	5							Agricult	tural Co	ops (ha)	<del></del>	
No.	Lepth	Ro	cside	nce		Shop	Restau	- School	Charcl	Factor	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	l'as	duce	Total
	(m)	ligh.	Medi	nw	Low		fan	4			-	Center		beans		cane		Neteral	Improved	
J	0.0-0.25	3		8	. 9	Ī		0 0		) (	) 0	0	21	497	101	106	47	56	119	926
2	0.25-0.5	0		0	0	0	•	0 0	٠ (	) (	) 0	0	0	0	0	0	Q	0	0	0
3	0.5-1.0	0	ś	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
5	1.5-2.0	0		0	0	0	(	0 0		• (	) 0	0	0	.0	0	0	0	0	0	0
	Total	3		8	9	1		0 0	C	• (	0	0	21	497	101	106	47	56	119	926

(2) S-Yea	Retorn P	'eriod														1		
Water						Building	s							Agricul	tural C'r	ops (ha)		
Depth	Resi	dence		Stop	Restau-	School	Charch	Factory	Hospital	licaith	Total	Soy-	Rice	Sugar	Maize	Pas	lure	Total
(m)	High Me	colum	Low		rant					Center		ocars		cane	•	Nutural	Improved	
0.0-0.25	8	23	27	3	0	ī	0	1	0	0	62	1.446	295	309	136	162	317	2,695
0.25-0.5	1.	2	3	0	0	. 0	. 0	0	. 0	0	6	130	27	28	12	15	31	243
0.5-1.0	0	0	0	0	0	. 0	0	0	. 0	0	0	0	0	0	0	. 0	0	0
1.0-1.5	. 0	0	0	0	0	0	0	0	. 0	0	0	0	0	0	Ó	Ó	Ô	Ô
1520	0	. 0	0	0	0	0	0	0	. 0	0	0	0	0	0	. 0	. 0	0	0
Total	8	25	30	3	0		0	i	0	0	68	1 576	372	337	148	177	378	2 938
	Water Depth (m) 0.0-0.25 0.25-0.5 0.5-1.0 1.0-1.5 1.5-2.0	Water   Depth   Resi	Depth   Residence	Water   Depth   Residence	Water           Depth (m)         Residence   Low         Stop           0.0-0.25         8         23         27         3           0.25-0.5         1         2         3         0           0.5-1.0         0         0         0         0           1.0-1.5         0         0         0         0           1.5-2.0         0         0         0         0	Water   Depth   Residence   Shop Restau-   (m)   High Medium   Low   rant       0.0-0.25   8   23   27   3   0       0.25-0.5   1   2   3   0   0   0   0   5-1.0   0   0   0   0   0   0   1.0-1.5   0   0   0   0   0   0   0   1.5-2.0   0   0   0   0   0   0   0   0   0	Water   Residence   Shop   Restau-School   Colored   Residence   Shop   Restau-School   Colored   Residence   Colored   Colo	Water   Residence   Shop   Restau- School Charch   (m)   High Medium   Low   rant	Water   Residence   Shop   Restau- School   Chareh Factory	Water   Residence   Shop   Restart School   Charch   Factory Hospital	Water   Residence   Shop   Restau- School   Charch   Factory Hospital   Health	Water   Residence   Shop   Restau- School   Charch Factory   Hospital   Health   Total	Water   Residence   Shop   Restau-School Charch Factory Hospital Health   Total   Soy-time   Shop   Sh	Water   Residence   Shop   Restau- School   Charen   Factory Hospital   Health   Total   Soy- Rice	Water   Buildings   Agricult   Center   Stop   Restau-School Charch Factory Hospital Health   Total   Soy-Rice Sugar   Center   Center	Water   Depth   Residence   Shop   Restau- School   Charen   Factory Hospital   Health   Total   Soy- Rice   Sugar Maize   National   Nationa	Water   Depth   Residence   Shop   Restau- School Charch Factory Hospital   Health   Total   Soy- Rice   Sugar Maize   Fait   Fait   Center   Seas   Cane   Nutural	Water   Depth   Residence   Shop   Restau- School Charch Factory Hospital   Health   Total   Soy- Rice   Sugar Maize   Fasture   Fasture   Nutural   Improved

	(3) 10-Ye	er Retara	Period	į .															
	Water						Building	.5							Agricul	tural Cr	rops (ha)		
No.	Depth	Resi	dence		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	Pas	ture	Total
	(ന)	High Me	coium	Low		rant			•		Center		beans		cane	•	Nutural	Improved	
}	0.0-0.25	. 14	43	50	6	1	1	0	l	0	1	116	2,675	545	571	250	299	612	4,982
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	1520	. 0	. 0	0	0	0	0	0	0	. 0	0	0	0	0	0	0	0	0	0
	Total	16	50	58	6	I	1	0	1	0	ī	133	3,093	630	660	289	346	742	5,760
							•												

	Water						Building	S.							ΛειίςυΙ	tural Cr	ops (ha)		
No.	Depth	Resi	dence		Shop	Resiau-	School	Charch	Factory I	tospital	Health	Total	Soy-	Rice	Sugar	Maize	l'as	ture	Tota
	(m)	High M	colona	Low		rant			_	-	Center		beans		cane		Nutural	Improved	
-	0.0-0.25	15	45	53	6	. 1	1	0	1	0	i	121	2,792	569	596	261	312	670	5,200
2	0.25-0.5	11	34	39	4	- 1	· 1	0	, i	0	- 1	91	2,0%	427	447	196	235	503	3.90
3	0.5-1.0	0	1	1	0	. 0	0	0	0	0	0	ŧ	43	9	9	4	5	10	80
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	Ó	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	Ċ
	Total	26	79	92	Ti.	1		Ú		. 0	1	214	4,931	1,005	1,052	161	552	1.183	9.18

	(5) 50-Ye	ar Retori	Period	} <u></u> .															
	Water						Building	5							Agricul	tural Ci	rops (ba)	· · · · · · · · · · · · · · · · · · ·	
No.	Depth	Res	idence		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	1 3	ture	Total
	(m)	High 3	edium	Low		rant					Conter		beans		cane			Improved	
-1	0.0-0.25	. 15	45	53	. 6	ŀ	L	0	1	0	<u> </u>	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	€01	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	ī	2	0	2	0	ĺ	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. CHANE AREA (WITHOUT)

	Water						Building											Agricu!	tural Cre	ops (ha)		
No.	Depth	Res	idenc <b>e</b>		Shop	Restau-	School	Cha	rch :	Fact	OLY.	Hospit	al I	lea!th	Total	Soy-	Rice	Sugar	Maize	Pas	ture	Tetal
	(m)	High M	edium	LOW		rant					-	•		Center		beans		cane		Notural	Improved	
1	0.0-0.25	6	30	90	10	1	3		0		ī		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	Q	1		0		0	:	ō	· ŏ	61	62	13	881	6	35	75	1.072
4	1.0-1.5	0	0	0	0	0	0		0	- 2	Û	-	0	0	0	: 0	0	0	Ō	- To	0	0.000
. 5	1520	0	Q	0	0	0	. 0		0		0	٠.	ō	Õ	ō	. 0	ŏ	ີດ	ň		ň	ŏ
	Total	13	64	193	20	1	2		Ô		Ť		ō-	<u>`</u>	291	281	<u>×</u>	4.019	26	158	<u></u>	4883

_	Water						Building									Agricul	tural Cr	ops (ha)		
No.	Depth		sidence	~~~~	Shop	Restau-	School	Chare	h Factor	y Hos	pital	Health	Total	Soy-	Rice	Sugar	Maize	Pas	ture	Total
	(m)	High!	Sedium	Low		. rant						Center		beans		cane			Improved	
į	0.0-0.25	8	38	112	12	1	. 1		0	1 .	Ö	0	172	161	33	2.347	16	92	198	2.850
2	0.25-0.5	6	27	79	8	0	- 1		0	ı	0	D	121	115	23	1,643	11	65	139	2.001
3	0.5-1.0	6	28	83	. 9	. 0	1		0	1	0	0	127	120	25	5.724	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	o	, ,	2.02.0
5	1.5-2.0	. 0	Ó	0	0	0	0		0	0	0	Ö	ō	ŏ	ŏ	ő	ō	ň	ň	
	Total	19	92	274	29	1	2		0	2	ō	0	419	399	81	5719	38	225	183	6015

	(3) 10-Ye	er Rétorn	Period													· · · .			
	Water						Buildings	5							Agricul	tural Cr	ops (ha)		
No.	Depth		idence		Shop	Restau-	School	Charch	Factory	lospital	Health	Total	Soy-			Maize		ture	Total
	(m)	High M	cdium	Low		lası					Center		beans		cane		Nutural	Improved	
1	0.0-0.25	9	43	126	13	1	1	0	1	0	0	151	184	38	2.637	17	104	223	3.203
2	0.25-0.5	7	32	94	10	- 1	ı	0	1	0	0	144	137	28	1957	13	77	165	2 377
3	0.5-1.0	8	41	120	13		1	0	1	0	Ö	183	175	36	2.500		98	211	3.036
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	O	0	- 0	0	0	. 6		0
5	1.5-20	0	0	0	0	0	0	. 0	0	6	0	ō	ō	Ŏ	ŏ	ň	ŏ	· ň	ň
	Total	25	115	310	36	2	3	0	2	0	0	522	496	102	7,024	46	279	599	8,616

	Water						Building								Agricul	tural Cr	rops (ha)		
No.	Depth		esidence		Shop	Restau-	School	Charch	Factory	Hospita	licaith	Total	Soy-					ture	Total
	(m)	High	Medium	Low		rant			•	•	Center		teans		cane			Improved	• • • • •
- 1	0.0-0.25	8	37	109	12	1	1	0	ī		0	168	159	32	2.282	15	90	193	2.77
2	0.25-0.5	8	35	104	31	- 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	3		0	1	Ò	ò	226	215	44	3.080	20	121	260	3,740
4	1.0-1.5	- 1	6	19	2	0	o	Đ	ō	ì	ŏ	29	28		396	1	16	33	482
5	1.5-2.0	0	0	0	0	0	0	Ō	ō		· ŏ	ő		Ô	3,0	0	,0	0	-402
	Total	27	128	379	41	2	3	0	2	0	0	582	553	113	7.920	52	312	669	9,619

	(5) 50-Yes	r Reture	Period	•														- 100		
	Water						Buildings							<del></del>		A ericul	lural Cr	oos (ha)		
No.	Depth	Res	vidence		Shop	Restau-	School	Charch	Factory	lospital	llea	th	Total	Soy-	Rice	Sugar	Maize	Pas	lure	Total
	(m)	High	fedium	.ow		เราเ		-			Ceat			beans		cane	•		Improved	
- 1	0.0-0.25	6	27	80	8	0	ī	0	$\overline{}$	0		0	123	117	2.3	1.670		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		4,327
4	1.0-1.5	4	18	53	6	0		0	0	0		ō	80	77	16	1.096	8	43	93	1.333
. 5	1.5-2.0	0	0	0	0	0	0	0	ō	ō		õ	ñ	΄,		1.070	Å	7,	. 23	1,333
	Total	29	141	417	41	1	4	<del></del> i	2	0		ň	638	608	125	8.695	- 59	342	215	10.561

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

	(1) 2- Year	Retern	Period		•														
	Water					•	Building	s ,							Agricul	tural Cr	ops (ha)		
No	Depth	Re	sidence		Shop	Restau-	School	Charch	Lactory	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	l'a	sture	Lotal
	(m)	High !	ledium	Low		rant					Center		beans		cane		Nutural	Improved	
i	0.0-0.25	. 4	16	48	5	0	i	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	Ō	Ō
	Total	4	16	48	5	0		. 0	C	0	0	74	71	14	1,015	6	40	86	1,232

	(2) 5-Yes	r R	cti	010	Pe	ric	xi																
	Water	-									Building	\$		·** ~~; · · · · ·			<u>-</u>		Λετίς υ	tural Cr	ops (ba)		
No.	Depth :			Re	sid	cox	ce .		Shop	Restau-	School	Charch	Factory	Hospital	Health	fotal	Soy-	Rice	Sugar	Maize	Pa:	sture	Total
	(m)		li <sub>2</sub>	gh I	Mes	địu	m	Low		rant					Center		beans		cane		Nutural	Improved	
- 1	0.0-0.25			6	•	2	17	78	8	0	i	0		Ö	0	120	114	23	1,638	- 11	65	138	1.989
_	0.25-0.5			1			6	17	3	. 0	0	0	O	0	0	25	24	5	344	. 2	14	29	418
3	0.5-1.0			0	-		0	0	: 0	0	0	0	· c	0	0	0	0	0	0	0	. 0	0	0
4	1.0-1.5			0			0	0	0	0	0	0	Œ	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		3	12	95	10	0		0	ŀ	0	0	146	138	28	1,982	13	79	167	2,407

	(3) 10-Ye	21	Reta	ra E	'er lod												•				
	Water	-							Building	•							Agricul	tural Cr	ops (ha)		
No.	Depth				ence		Shop	Kestau-	School	Charch	l actory	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	Pas	ture	Total
·	(m)		High	Mic	dium	Low		rant					Center		beans		cane	_	Nutoral	tmproved	
1	0.0 0.25		8		36	109	· 11	i	1	0	1	0	0	166	158	32	2,262	14	89	191	2,746
. 2	0.25-0.5	- 1	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
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		- 33		53	158	16	ī	1	ō	1	0	0	241	230	47	3,286	20	129	278	3.990

	(4) 20-Yes	r Retu	rn Perl	od																
	Water							Buildings	;							Agricul	tural Cr	ops (ha)	·	
No.	Depth	f	Residenc	c		Shop	Restau-	School	Charch Fa	clory	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	Fas	ture	Total
:	(m)	High	Media	<b>89</b>	V/O.		rant					Center		beans		cane		Nutural	Improved	
1	0.0-0.25	. 9	- 4	2	125	13	1	ī	0	1	0	ō	192	182	37	2,608	17	103	221	3.168
2	0.25-0.5	- 5	. 2	2	67	7	0	· I	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	2.58
4	1.0-1.5	0	ŀ	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	C	0	0
	Total	15	. 6	8	202	22	1	2	0	Ī	0	0	309	294	60	4,203	28	165	356	\$,106

	Water		Residence Shop Restau- School Church Factory Hospital Health Total														ops (ha)		
No.	Depth .	Res	dence		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	Pas	lure	Tota
	(m)	High M	edium	wal		rant					Center		beans		cane		Nutural	Improved	
1	0.0-0.25	9	44	131	14	1	Ī	0	1	0	Q	201	191	39	2,728	18	107	231	3,314
2	0.25 0.5	. 6	- 29	- 85	∹ 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	Ī	2	0	ī	0	0	393	374	77	5.353	31	211	453	6.502

#### TABLE K.2.4 (1/2)

## NUMBER AND AREA OF INUNDATION ASSETS IN CHANG CHACKAS AREA (WITHOUT)

	(1) 2-Year Water	111120	11100				Building	 S							Aericul	ltural Cr	oos (ha)		
No.	Depth	Res	sidence		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy-	Rice		Maize		sture	leta
	(m)	High N	ledium	Low		rant				•	Center		beans		cane		Nutural	Improved	
- 1	0.0-0.25	5	42	74	8	0	1	0	0	O	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	1.50	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	O	Ó	0	0	0	0	0	0	0	0	0	- 0	. 0	0	0
5	1.5-20	0	0	0	0	0	0	0	0	0	0	0	. 0	0	0	0	. 0	0	ō
	Total	14	124	218	22	ı	3	i	0	0	0	384	91	19	8 467	9	437	937	9.959

	(2) 5-Year	Retura	Period																
	Wales						Building	3							Agricul	lural Ci	ops (ha)		
No.	Depth	Res	idence		Shop	Restau-	School	Charch	Factory I	lospital	Health	Total	Soj	Rice	Sugar	Maize	Pas	ture	Total
	(m)	High M	cdium	Low		rant			-	-	Center		teans		cane		Nutural	Improved	
1	0.0-0.25	5	42	74	8	0	)	. 0	0	0	0	131	31	7	2,889	3	149	320	3,398
2	0.25-0.5	5	42	74	8	0	)	0	0	0	0	131	31	7	2,896	3	150	321	3,407
3	0510	8	73	128	13	. 1	2	ı	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	<b>3</b>
5	1.5-20	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

	Waler					I	Building	S							Agricul	tural Cr	ops (ha)		
No.	Depth		icace		Shop	Restau-	School	Charch	Factory	Hospital	l lealth	Total	Soy-	Rice	Sugar	Maire	Fa:	sture	Total
	(m)	High Me	dium	Low		lası					Ccaler		beans		cane		Notaral	Improved	
1	0.0-0.25	3	30	53	. 6	0	1	0	0	0	Õ	91	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	321	3,407
3	0.5-1.0	10	85	149	15	1	. 2	l I	. 0	. 0	0	263	62	13	5,792	6	299	611	6.813
4	1.0-1.5	1	12	21	2	. 0	0	0	0	. 0	. 0	- 38	9	2	828	: 1	43	92	971
5	1.5-2.0	0	0	0	0	0	0	0	. 0	0	0	. 0	0	0	. 0	, 0		0	0
	Total	20	169	297	31	ī	4	. 2	<u>1</u>	0	0	525	124	26	11.583	12	598	1 282	13 625

	(4) 20-Yes	I WELDIN	FEIKA													. :				
	Water		Buildings													Agricul	tural Cr	ups (ha)		
No.	Depth	Res	idence		Shop	Restau-	School	Charch	Factor	y Hosp	ia	Health	Total	Sos	Rice	Sugar	Maize	Pas	dure	Total
	(m)	High 8	lodium	Low		rant				•		Center		beans		cane		Noteral	Improved	
j	0.0-0.25	1	12	21	2	. 0	<u>ō</u>	C	)	0	0	Ó	36	9	2	801	T	42	89	9-12
2	0 25 0.5	5	42	74	· 8	0	1	C	) (	D-	0	0	131	31	7	2.834	3	149	319	3.393
3	0.5-1.0	10	85	149	15	1	2	. 1	1 . (	Φ.	0	0	263	62	- 13	5.792	6	299	- • -	6,813
4	1.0-1.5	- 4	31	51	6	0	. 1	C	) (	0	0	0	95	2.3	- 5	2.107	2	109	213	2 17 6
5	1.5-2.0	. 0	0	0	0	0	. 0	C	) (	D i	0	0	0	. 0	0	0	0	0	0	- (1
	Total	20	169	297	31	ī	4	2	?	i	0	0	525	124	26	11.583	12	598	1 283	13 624

	Water		<u> </u>				Building									Agricul	tural Cr	eos (ha)		
No.	Depth	Res	idence		Shop	Restau-	School	Charch	Factor	Hospi	al licait	Tel	ī s	oy-	Rice	Sugar	Maize	Pas	ture	Total
	(m)	High N	cdium	Los		rant				•	Cente	г	be	ans		cane		Nutural	Improved	
1	0.0-0.25	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 (	9 .9	4	22	5	2 060	. 7	107	228	2.423
3	0.5-1.0	10	8.5	149	15	ı	2	1	. (	•	0	26	3	62	13	5.792	6	299	611	6.813
4	1.0-1.5	6	55	96	10	0	1	1	. (	) :	0 (	) 17	ò	40	8	3.732	· Ã	193	413	4.389
5	1.5-2.0	0	0	0	0	0	0	0	(	) .	o (	)	n .	0	ñ	0	ň		٠,	7.302
	Total	20	169	297	31	ı	4	2			0 (	52	6	124	26	11.583	12	598	1 287	12 675

# TABLE K.2.4 (2/2) NUMBER AND AREA OF INUNDATION ASSETS IN CHANC CHACKAS AREA (WITH)

	(1) 2-Year	r Return I	Period																
	Water						Building	5							Agricu!	tural Cr	ops (ha)		
No.	Depth	Res	ideace		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	Pas	sture	Tetal
	(m)	High M	cdium	Low		rant				•	Center		beans		cane			Improved	
į į	0.0-0.25	0	Ō	0	0	0	0	0	0	0	0	0	0	O	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	Ö	0	0	0	Ó
	Total	. 0	0	Ó	Q	ō	0	0	0	0	0	0	. 0	0	0	0	ō	0	0

	Water						suilding										ups (ha)		
No.	Depth	Res	ioence		Shop	Restau-	School	Charch	Lactory	Hospital	Health	Total	Soy-	Rice	Sugar	Maire	Pas	dute	Tota
	(m)	High M	edium	Low		rant	_			-	Center		beans		canc	•	Nutural	Improved	
ŀ	0.0-0.25	4	31	53	5	0		0	0	ō	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	0510	0	0	. 0	0	0	0	0	0	0	0	. 0	0	0	0	0	0	0	O
4	1.0-1.5	0	0	0	0	0	. 0	0	0	0	0	0	0	. 0	0	0	. 0	0	C
5	1.5-2.0	0	0	0	0	0	. 0	- 0	0	. 0	0	. 0	0	0	0	o	0	0	O
	Total	4	31	53	- 5	0		0	0	0	0	95	22	5	2.085	2	108	231	2.453

	Water						Building	ls.									Agricul	lural Cr	vps (ha)		
No.	Depth	Resid	ence		Shop	Restau-	School	Charc	h I	actory	Hospit	1	Health	Total	Soy-	Rice	Sugar	Maize	Pas	ture	Teta
	(m)	High Me	dium	Low		sant					·		Center		beans		cane	. '	Nutural	Improved	
1	0/0-0.25	10	85	149	15	1	2		1	0		Ō	0	263	62	13	5,79.	6	299	611	6,81-
2	0.25-0.5	2	14	- 24	. 2	0	0		0	0		0	0	42	10	2	927	· t	48	103	1.09
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	7	0	0		0	0	. 0	0	0	Ó	0	0	Ō	Ċ
5	1.5-2.0	0	, 0	0	0	0	0		0	. 0		0	0	0	0	0	0	0	0	0	C
	Total	11	98	173	18		2		ī	0		<del>-</del> -	0	305	72	is	6.720	7	3.17	7.1.1	7.905

	Water						Bı	iileii	25				•						Agricul	tural Cr	ops (ha)		<del></del>
No.	Depth	Res	dence		Shop	Restau	- S	chec	× (	hard	h.	actory	lospi	Łą.	l lea th	Total	Soy-	Rice	Sugar	Maize	Fas	ture	Total
	(m)	High M	edium	low		ran	ıŧ					•	•		Center		beans		cane		Nutural	Improved	
- 1	0.0-0.25	10	85	149	15		1		2		1	0		ō	0	263	62	13	5,793	6	299	611	6.814
2	0.25-0.5	9	78	137	14	7	ŧ		2	į,	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	(	ß	-	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	ō
	Total	19	163	286	29		1		4		2	1		0	1	505	119	25	11.122	11	574	1.231	13.082

	Water						Building	S							Agricu	tural Cr	ups (ha)		
No.	Depth	Res	idence		Shop	Restau	- School	Charch	Factory	Hospital	Health	lotal	Soy-	Rice	Sugar	Maize	Pa	sture	Tota
	(m)	High N	cdium	Low		aeı	t		•	•	Center		beans		cane	:	Neteral	Improved	
1	0.0-0.25	10	85	149	15	. 1	. 2		0	0	0	263	62	13	5,791	6	299	611	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	41	71	8	G	) 1	1	٥	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	٥	- 0	. 0	0	Ō	0	0	0	0	0	C
5	1.5-2.0	0	0	0	0	0	0	0	- 0	- 0	0	0	0	0	0	0	0	0	e
	Total	25	213	374	39	2	5	2	1	0	1	662	156	33	14.593	15	753	1.615	17.165

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

	(1) 2-Yea	Return	Perlod														1. 7	1.		
	Water	•					Building						~~~			Agricult	ural Cr	ops (ha)		
No.	Depth	-	sidence		Shop	Restan-	School	Charch	Factory	Hosp	pital	licalth	Total	Sey-	Rice				sture	Total
	(m)	High A	ledium	Low		rahl			_	-		Center		beans		cand		Nutural	Improved	
)	0.0-0.25	9	. 29	34	4	0	I	0	<u>j</u>		Õ	0	76	2,295	468	<u>0</u>	215	147		3.411
2	0.25-0.5	9	29	34	4	0	1	0	1		0	0	76	2.295	468	0	215	147	316	3.411
3	0.5-1.0	3	10	, H	. 1	0	0	0	. 0		0	0	25	771	157	Ö	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	ō		0
5	1.5-2.0	0	. 0	0	0	0	0	0	0		0	. 0	0	0	ò	Ď	ň	ñ	ň	ň
	Total	21	67	78	8	0	1	0	1		0	<del></del>	178	5,361	1,093	ŏ	502	311	738	8.038

	(2) 5-Yes	r Return P	erlod																* :		
	Water						Building						<del></del> -				Agricult	oral Cr	rops (ba)		
No.	Depth	Resi	dence		Shop	Restau-	School	Charch	Fac	tory	lospi	lai	Health	Total	Soy-	Rice	Sugar			ure	Total
	(m)	High Me	dium	Low		rant				·	•		Center		beans		cane			Improved	, 0.04
1	0.0-0.25	9	28	33	4	0	1	C	)	1		0	0	75	2,268	462	Ó	213		313	3,402
2	0.25-0.5	9	28	, 33	4	0	1	C	1 .	1		0	0	75	2.268	462	0	213		313	3.402
3	0.5-1.0	9	27	32	4	0	1	: 0		ł		0	0	74	2,200	419	0	206	141	303	3,299
4	1.0-1.5	1	4	4	i	0	0	C	)	0		0	0	10	305	62	0	28	20	42	1.5-4
5	1.5-2.0	0	0	0	0	0	. 0	G	1 1	0		0	0	0	0	0	· O	0	0	0	45 40
	Total	29	87	102	- 11	Ó	2	G		.2		0	0	233	7,011	1,435	0	660	450	971	10.560

	Water						Building												Agricult	ural Cr	ops (ha)		
No.	Depth		dence		Shop	Restau-	School	C	barch	F	clo	xy Hos	pital	Hea	lth	Total	Soy-	Rice	Sugar	Maize	Pas	dere	Tota
	(m)	High M		Low		rant								Cen	ter		beans		cane	. •	Noteral	Imeroved	
_	0.0-0.25	9	28	33	4	0	1		Ç	<del>,                                    </del>	7	1	0	-	0	75	2.257	460	0	211	145	311	3.384
2	0.25-0.5	9	28	33	4	0			. 0	)		1	0		0	75	2.257	460	ō	211	145	311	3.38
3	0.5-1.0	13	38	45	5		L		. 0	)		ì	ō		ĭ	103	3.065	625	ő	287	197	422	4.5X
4	1.0-1.5	2	6	. 7	- 1	0	0	•	. 0	1		0	ō		ō	16	488	99	ň	45	31	67	730
_5	1.5-2.0	0	0	0	. 0	0	0	:	. 0	)		0	ō		ò	0	0	0	ň	. 0	0	,	7
	Total	33	100	118	13	1	2		. 0	-		2	<del></del>		ī	269	8.067	161	0	751	518	<del></del>	17 70

	Water	·					Building										Agricul	toral Cr	ogs (ha)		
No.	Depth	***	idence	<u> </u>	Shop	Restau-	School	Charch	Factor	yН	ospital	lic	aith	Total	Soy-	Rice	Sugar	Maize	f'as	ture	Total
	(m)	High M		LOW		rant						Cc	nter		beans		cane		Nutural	Improved	
ı	0.0-0.25	. 9	28	- 33	4	0	1	Ü	)	l	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		459	ŏ		145	310	3,376
	0.5-1.0	15	46	51	6	- 1	l.	. 0	<b>)</b>	1	ō		ī	124	3.696	754	ő	346	237	509	5,542
4	1.0-1.5	2	6	7	1	0	0	0	) : (	0	0		0	15	473	97	ō	44	30	65	709
<u>. 5</u>	1.5-2.0	1	2	3	Q	0	. 0	0	) (	0	0		0	6	170	35	ñ	16	11	23	255
	Total	36	110	130	14	• 1	2	0		2	Ò		<u> </u>	295	8.841	1.804	<u>ŏ</u>	8.8	568	1217	12 200

	Water		<u> </u>				Building								Agricul	tural Co	ops (ha)		
No.	Depth		dence		Shop	Restau-	School	Charch	Factor	Hospital	1 lealth	Total	Soy-	Rice	Sugar	Maize	Pas	ture	Teta
	(m)	High M		Low		rani					Center		beans		cane		Nutural	Improved	
	0.0-0.25	9	27	32	- 4	0	1	0		0	0	72	2.167	412	0	203	139	299	3.25
2	0.25-0.5	9	27	32	4	0	1	0	. 1	. 0	0	72	2.167	412	ň	203	139		3,250
3	0.5-1.0	18	54	63	7		1	1	i	Ō	i	146	4,334	884	ŏ	405	278	597	6,49
4	3.0-1.5	3	10	11	1	0	- 0	0	(	) o	0	25	771	157	ň	72	49	106	3,153
5	1.5-2.0		5	6	1	0	0	0	Ċ	0	ō	13	369	75		34	24	100	,
	Total	· <del>1</del> 0	122	143	16	j	3	1			<u>`</u>	328	9.808		<del></del>	917	629	1.352	553 14.200

### TABLE K.2.5 (2/2)

#### NUMBER AND AREA OF INUNDATION ASSETS IN OKINAWA DRAINAGE AREA (WITH)

		(f) 2-Yea	r Re	loti	ı Pei	rlodi																			
		Waler										Building									Agricult	ral Cr	ops (ha)		
	No.	Depth			esido				Sh	oр	Restau-	School	Charch	Pactory	Hospita	Healt	h '	Total	Soy-	Rice	Sugar !	Maize	Pas	ture	Total
		(m)	<u>Iti</u>	į, h	Ned	ium	يل_	W			rapt					Cente	•		beans		cane		Nutural	Improved	
	. 1	0.0-0.25		3		9		11		ł	0	0	0			) (	0	24	707	144	0	66	45	97	1.059
	_	0.25-0.5		ł		5	-	6		ι	0	0	0	•	• (	) (	0	13	387	79	0	36	25	53	580
	. 3	0.5-1.0		ı		2		2		0	0	. 0	0	•	• (	) 1	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
	5	1.5-2.0		0		0		0	Ξ.	0	0	0	0		) (	) (	0	0	0	0	0	0	0	0	0
		Total		5		16		18		2	0	0	0	- (		) (	0	41	1,249	255	0	116	80	171	1,871

	(2) 5-Yea:	Refora 1	'eriod																
	Water						Building	s					,		Agricult	ural Cr	ops (ha)		
No.	Depth	Res	dence		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	Fas	ture	Total
	(m)	High M	edium	Low		rant				-	Center		beans		cane			Improved	
ī	0.0-0.25	8	27	32	4	0	I	0	1	0	0	. 71	2,142	437	0	200	138	295	3.212
2	0.25-0.5	ı	4	4	1	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	17	504	103	. 0	47	32	69	755
4	1.0-1.5	0	. •	- O	0	0	0	Ò	0	. 0	0	0	Ø	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	ō
	Total	12	36	43	- 5	0	1	. 0	1	0	0	58	2,932	598	0	274	188	403	4.395

	(3) 10-Yes	ır Retur	n Period	l																
	Water						Buildiag	s	_							Agricult	ural (Y	ops (ha)		
No.	Depth	Re	sidence		Shop	Restau-	School	Charc	ከ	actory	Hospital	llealth	Total	Soy-	Rice	Sugar	Maire	F'a:	dure	Total
	(m)	High	Medium	LOW		rant				_		Center		ccans		cane		Nutural	Improved	
3	0.0-0.25	9	28	34	4	0	1		Ö	1	0	ō	76	2,278	455	0	213	146	314	3,416
2	0.25-0.5	5	14	17	. 2	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	17	530	108	0	50	34	73	795
4	1.0-1.5	1	1	2	0	0	0		0	0	0	0	4	138	28	Ó	13	9	19	207
5	1.5-2.0	0	. 0	0	0	. 0	0		0	0	0	0	0	0	0	0	0	Ó	0	0
	Total	17	50	60	6	0			0	3	0	0	134	4,097	836	0	381	263	54.5	6.145

	(4) 20-Yes	r Retur	Perlod	١.												•				
	Water						Bu	ildings								Agricult	ural Cr	ops (ha)		· · · · · · · · · · · · · · · · · · ·
No.	Depth	Re	idence		Shop	Restau	ı- S	chool	Charch	Factory	Hospital	Health	Total	Soy-	Rice	Sugar	Maize	Pas	ture	Total
	(m)	High N	edium	Low		rar	ıt					Center		teans		cane	•	Nutural	Improved	
1	0.0-0.25	9	28	33	4		Ō	· j	0	1	0	0	75	2,267	462	0	213	. 146	312	3,400
2	0.25-0.5	. 8	25	29	4		0	1	0	1	0	0	66	1,915	396	0	182	125	268	2.916
3	0.5-1.0	- 2	6	8	1		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	1)	314	61	0	30	20	43	471
	1.5-2.0	- 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	169	5.032	1.025	0	472	323	693	7.515

	Water						Buéldings								Agricult	ural (\	oos (ha)		
No.	Depth	Res	dence		Shop	Restau-	School	Charch I	actory	Hospital	lealte	Total	Soy-	Rice	Sugar	Maize	Pas	ture	Tota
	(m)	High M	muibo	Los		rant				-	Center		beans		cane	•	Nutural	Improved	
- i	0.0-0.25	. 9	28	33	4	. 0	1	0	1	0	0	75	2,257	460	0	211	145	311	3.38
2	0.25-0.5	9	28	33	4	. 0	1	0	1	0	0	75	2,257	460	0	211	145	311	3.38
3,	0.5-1.0	. 4	12	. 14	. 1	. 0	0	0	0	0	0	32	969	198	0	91	62	134	1.45
4	1.0-1.5	. 2	6	. 7	- E	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	1	29	6	0	3	2	4	4
	Total	25	75	88	9	Ô	ī	0	ï	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)

	Water				· .		Building	-								Agrico	Itural Ci	rops (ha)		
No.	Depth		dence		Shop	Restau	School	Charci	Lacto	ny Hosp	ital	Icalth	Total	Soy-	Rice	Sugar	Maire	l'as	sture	Total
	(m)	High M	edium	Low		rant						Center		beans	-	cano	, .	Nutural	Improved	• • • • •
- 1	0.0-0.25	2	55	53	4	0			)	7	0	0	116	302	1,947	7	4	151	767	3.178
2	0.25-0.5	1	17	16	- I	0	0	. 0	)	<b>0</b> .	0	0	35	94	601	. 2	: i	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	Ó	. 0	0		0 0	0	0	0
5	1.5-2.0	0	0	0	0	. 0	0	. 0	<b>)</b>	0	0	0	0	0	Ó	ď	ò	ŏ	ŏ	ň
	Total	3	76	73	5	0	1		<del>)</del>	1	0	0	159	418	2 626	10		202	1.062	4400

	Water					1	Building	\$								Agricult	toral Cr	rops (ha)		
No.	Depth	Re	siden <b>ce</b>		Shop	Restau-	School	Charch	Fact	ory I	lospital	Health	Total	Soy-	Rice	Sugar	Maire	Pas	ture	Tetal
	(m)	High N	ledium	Low		rant						Center		beans		cane		Nutural	Improved	
	0.0-0.25	2	59	57	5	0	1	G	)	1	0	. 0	125	328	2,116	8	5	161	833	3,454
2	0.25-0.5	. 2	52	- 50	4	0	1	0	)	Ł	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	1.	0	0	0	- 0	0	. 0	0	Ö	0	0	
5	1.5-20	0	0	0	0	0	. 0	0		0	0	. 0	. 0	0	0	. 0	Ô	ŏ	. 0	
	Total	5	124	20	10	0	2	0	1	2	0	0	263	685	4.420	17	10	342	1.740	7.214

	Water						Building								Agricult	urai Cr	ops (ha)		
No.	Depth	Res	idence		Shop	Restau-	School	Charch	actory	lospita	1 Healt	Total	Soy-	Rice	Sugar	Maize	Pag	stare	Tota
	(m)	High N	cdium	Low		rant				•	Cente	ī	beans		cane	•			• • • • •
1	0.0-0.25	2 -	59	57	5	0	1	0	î		)	125	327	2.113	8	5	163	832	3.448
2	0.25-0.5	2	58	55	5	. 0	È	0	1	(	) (	122	318	2.052	R	Š	159		3,350
3	0.5-1.0	ı	31	30	3	. 0	. 0	0	0	. (	) (	65	171	1.104	ă	2	85	435	1.801
4	1.0-1.5	0	0	•	0	0	0	6	0		) (	) 0	0	0	Ď	ō	· 6	ñ	1.001
5	1.5-2.0	. 0	0	0	0	0	0	0	0	(	) (	) 0	. 0	0	ŏ	Õ	່ ດ	ň	r
	Total	5	148	142	13	0	2	0	2		)	312	816	5.269	20	12	407	2 075	R 500

	Water						Building								Agricul	tural Cr	iops (ha)		
No.	Depth		ideace		Shop	Restau-	School	Charch	Factor	Hospita	Healt	Total	Soy.	Rice	Sugar	Maize	Pas	ture	Total
	(m)	High M	ledium	Low		rant				•	Cente		beans		cane			Improved	
1	0.0-0.25	2	\$9	57	. 5	0	i	0		(	)	125	327	2.111	8	5	163	831	3,415
2	0.25-0.5	2	59	57	5	. 0	. 1	0	. 1	•	) (	) 125	327	2.111	8	5	163	831	3,445
3	0.5-1.0	2	47	45	4	0	. 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 (	o o	- 0	0	ń			
5	1.5-2.0	0	0	0	0	0	0	0	(	) (		0	0	0.0	ň	ň	ň		9
	Total	6	165	159	14	0	2	0		) (	, ,	349	912	5.889	22	14	455	2 3 10	<del></del>

	(5) 50-Yes	er R	elorn.	Period													1 1 7	3			
	Water							Building								···	Agricult	ural Cn	ops (ha)	~	
No.	Depth			dence		Shop	Restay-	School	Charch	Factory	Hospital	Ilcal	b T	otal	Soy-	Rice	Sugar			slur¢	Teu
	<u>(m)</u>		igh Me		Low		rant	·				Cen1	er		ceans		cane		Nutural	Improved	
1	0.0-0.25		2	.59	57	5	0	1	. 0	ĺ	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	3,415
3	0.5-1.0		3	70	67	6	. 0	- 1	0	1	0		0	148	381	2.476	. 9	5	192	975	-
4	1.0-1.5		0	Ó	0	Q	0	. 0	0	0	0		0	0	0	. 0	0	ò	0	n.	
5	1.5-2.0		Ō	0	0	0	. 0	0	0	0	. 0		0	0	0	. 0	. 0	ŏ	ó		٥
	Total		7	188	181	16	0	3	ŏ	3	: 0		ō	398	1.038	6.698	25	15	518	2637	10.031

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

	(1) 2-Year	Return P	erlod																
	Water						Building			· · · · · · · · · · · · · · · · · · ·					Agricultu	ral Cr	rops (ha)	· · · · · · · · · · · · · · · · · · ·	
No.	Depth	Resi	dence		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy-	Rice	Sugar N	laize	Pa	sture	Total
-	(m)	High Mo	dium	Low		rant			•	•	Center		beans		cane		Nutural	Improved	
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<del></del>
2	0.25-0.5	0	Ó	. 0	. 0	0	0	0	0	0	0	0	0	0	0	0	ō	. 0	ò
3	0.5-1.0	0	0	0	0	0	0	0	0	. 0	0	0	Ó	0	ō	ō	. 0	ň	
4	1.0-1.5	0	0	0	0	0	Ó	0	0	. 0	0	Ó	0	ō	ò	Ô	Ŏ	ň	ň
. 5	1.5-20	0	0	0	0	. 0	0	Ó	ō	ō	0	ō	ō	0	ō	. 0	ñ	ň	ñ
	Total	0	0	0	. 0	Ô	0	0	0	0	0	0	0	0	0		0	0	

	(2) 5-Year	Retorn !	'er lod																
	Water						Building	2.5				<del></del>			Agricul	itural Ci	wps (ha)	·	
No.	Depth	Res	dence		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy-	Rice	Sugar	Maire	Pas	dure	Total
	(m)	High M	edium	Low		rant			•	•	Center		beans		cano	:	Nutural	Improved	•
1	0.0-0.25	1	25	24	2	0	0	0	0	0	0	52	139	897	3	2	69	353	1.463
	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	ō	ō
' 4	1.0-1.5	0	0	0	0	0	0	0	0	0	. 0	0	0	0	0	0	0	0	ō
5	1.5-2.0	0	0	0	0	. 0	. 0	0	0	0	0	0	Ô	0	ō	0	ŏ	. 0	ŏ
	Total	1	25	24	2	0	0	Ó	. 0	0	0	52	139	897	3	2	69	353	1,463

	Water						Building								Agricul	tural Cr	ups (ha)		
No,	Depth	Resi	dence		Shop	Restau-	School	Charch	Factory	lospital	Health	l'otal	Soy-	Rice	Sugar	Maize	Pas	duce	Total
	(m)	High Me	dium	Low		rant					Center		beans		cane		Notoral	Improved	
- 1	0.0-0.25	2	49	48	4	0	0	Ç	1	0	0	104	273	1.762	7	4	136	694	2.876
2	0.25-0.5	0	ì	Ŀ	0	0	0	0	0	0	. 0	2	6	- 37	0	0	3	15	61
3	0.5-1.0	0	. 0	0	0	0	0	0	0	0	0	0	Ó	0	0	ó	ŏ	Ô	0
4	1.0-1.5	0	. 0	0	0	0	. 0	. 0	0	0	0	0	ò	ò	0	ō	ō	ŏ	ถ
. 5	1.5-2.0	0	0	0	0	0	0	. 0	0	0	Ó	Ō	0	ó	. 0	ō	ō	Õ	n
	Total	2	50	. 49	4	Ŏ	0	0	ī	0	0	106	274	1.799	<u>~</u>		139	7()(1	7 917

	(4) 20-Yes	ır Retu	rn Period	!										-	•				
	Water						Building	s		·					Agricul	tural Cro	ops (ba)		
No.	Depth		esidence		Shop	Restau-	School	Charch	Factory	Hospitz	Health	Total	Soy-	Rice	Sugar	Maire	Pas	store	Total
	(m)	High	Medium	Low		ranl			_		Contea		beans		cane	•	Nutural	Improved	
1	0.0-0.25	2	59	57	5	0	1	ō	1		0 0	125	328	2,115	8	5	161	813	3.453
2	0.25-0.5	ŧ	` 15	15	1	0	0	0	0		0 0	32	81	511	2	1	42	213	883
3	0.5-1.0	0	. 0	0	· 0	. 0	. 0	. 0	. 0		9 0	0	- 0	0	0	0	Ó	0	0
4	1.0-1.5	. 0	0	. 0	. 0	0	0	0	0		0 0	0	0	0	ō	Ô	.0	ñ	Ď
_ 5	1.5-2.0	. 0	0	0	0	0	0	0	. 0		0 0	0	Ó	0	ó	0	ō	ŏ	ō
	Total	3	74	72	6	0	<u>i</u>	0	1	. (	0	157	412	2,656	10	6	206	1.016	4.336

		Water							Building									Agricul	tural Cr	ops (ha)		
1	O.	Depth		Res	idence		Shop	Restau-	School	Charch	Factor	yΪ	lospital	ilcaith	Total	Soy-	Rice	Sugar	Maize	Pas	sture	Tota
		(a)	- 11	gh M	ledium	Low		rant						Center		beans		cane	-	Netural	Improved	
	. 1	0.0-0.25		2	59	57	5	0	i	0		ī	0	O	125	327	2,114	8	5	164	832	3,450
	2	0.25-0.5		2	38	37	3	0	. 0	0		3	. 0	0	81	210	1,356	5	3	105	534	2.213
	3	0.5-1.0		0	5	5	0	0	0	0		0	C	0	10	29	190	1	0	15	75	310
	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	О	0	0	0	0	0	0	ō	0	ō
		Total		4	102	99	8	0	1	0		2	C	. 0	216	566	3,660	14	- 8	284	1 111	5 971

#### TABLE K.2.7 (1/2)

### NUMBER AND AREA OF INUNDATION ASSETS IN ANTOFAGASTA AREA (WITHOUT)

_	Water						Inidiag								Agricultu	ral C	rops (ha)		
lo.	Depth	Res	idence		Shop	Restau-	School	Charch	Factors	Hospital	ileath	Total	Soy-	Rice	Sugar !	Maize	Past	are	Total
	(m)	High M		Low		rant				-	Center		beans		cane		Nutural	Improved	
3	0.0-0.25	4	88	81	7	0	1	0		0	Ō	185	611	3.946	0	9	112		5.250
2	0.25-0.5	3	64	62	5	. 0	1	0	j	0	0	136	418	2.894	Ô	. 7	82	419	3.850
3	0.5-1.0	0	8	8	1	0	0	0	ò	Ō	ő	17	55	358	ŏ	i	10	52	476
4	1.0-1.5	0	0	0	. 0	0	0	0	Ó	0	Ó	0	Õ	0	Ö.		ň		470
_5	1.5-2.0	. 0	0	0	. 0	0	0	o	ď	Ō	ō	ŏ	ŏ	ŏ	Õ		ň	0	0
	Total	7	160	154	13	0	2	0	2	õ		338	1.114	7.198	<u>0</u>	17	204	<u>v</u>	9 576

		Water						Building				···				Agricul	tural Cr	ops (ha)		
No	Э.	Depth		idence		Shop	Restau-	School	Charch I	ackery f	lospital	Health	Total	Soy-	Rice		Maize	Past	ure	Tetal
		(m)	Bigh M		Low		rant					Center		beans		cane			Improved	11.00
	•	0.0-0.25	4	96	. 92	. 8	0	- 1	0	1	Ö	0	202	671	4.333	0	01	123	628	5.765
	2	0.25-0.5	3	72	70	6	0	1	0	1	0	0	153	506	3.265	ō	7	93	473	4.344
	3	0.5-1.0	Lo	31	30	3	. 0	0	0	0	ó	ō	65	219	1.411	õ	3	40	204	
	4	1.0-1.5	0	0	0	. 0	. 0	0	0	0	0	0	0	0	0	ŏ	ő	0	204	1.87
	5	1.5-2.0	0	. 0	. 0	. 0	. 0	0	. 0	0	0	0	0	Ó	ō	ŏ	ň	. 0	7	
		Total	8	199	192	17	ō	2	0	2	Ó	0	420	1.396	9.009	<u> </u>	20	256	1.305	11.986

	Water						Building								Acocult	real ( h	ops (ha)		
No.	Depth		sicence		Shop	Restau-	School	Charch	Factory	Hospital		Total	Soy-	Rice				ture	Tota
··	(m)	theu :	ledium	Wal		ran(					Center		beans		cane		Nutural	Improved	
	0.0-0.25	. 4	96	92	8	0	. 1	0	Ī	0	0	202	670	4.328	0	10	123	627	5.75
2	0.25-0.5	3	79	76	6	0	1	0	1	Ð	ń	166			ň		101	516	
3	0.5-1.0	2	50	48	. 4	0	ī	Ō	i	. 0	ŏ	106	352		Ň	- 0	65		4.735
4	1.0-1.5	0	0	0	0	0	ó	ŏ	·		ň	100	3.72	4,474	, ,		63	329	3,025
5	1.5-20	0	0	Ó	0	. 0	ŏ	ň		, 0	~	, ×	٠, ٧	V	. 0	U	U	0	Ç
	Total	0	225	216	18		<del>-</del>		<del>-</del>					· ·	<u> </u>	U.	0	0	<u>c</u>
		<u>-</u> -		410							0	474	1,573	10,161	0	23	289	1,472	13.51

	Water						Building								Aericu	teral Cr	ops (ha)		
No.	Depth (m)	Res High N	idence fedium	Low	Shop	Restau-	School	Charch	Factory	Hospital	~	Total		Rice	Sugar	Maize	l'as	ture	Tola
	0.0-0.25		96	92	-	, u.n.					Center		beans		cano	:	Nutural	Improved	
		- :			. 0	v	,	U	1	0	0	202	671	4 330	0	10	123	627	5.76
	0 25-0.5	. 3	: 84	89	7	0	1	0	1	0	0	176	585	3,775	0	9	107	547	5.02
3	0.5-1.0	3	66	61	5	0	· I	0	1	, o	ō	140	461	2.995	ň	7	85	434	3,98
4	1.0-1.5	0	. 0	0	0	0	. 0	0	ብ	Ô	ñ			-,				404	3,70
5	1.5-2.0	0	0	Ó	0	ō	ŏ	ŏ	ñ	· 0	0	. 0	. 0	, 0			Ü	0	. 6
	Total	10	246	236	20	<del>-</del>	<u>-</u>		<del>-</del> <u>-</u> -	—— <u>Ÿ</u>	<u>_</u>	518		11.100	u	U		0	•

	(5) 50-Yes	ar Rete	ern Peck	od												4. :	35 37			
No.	Water						Building			·						Agricol	tural Cr	oos (ha)		
140.	Depth (m)		Residenc Medius	<u> </u>	Sho	Restau-		Charc	h Facto	ry Hos	pital		Total		Rice	Sugar	Maize		ture	Total
i	0.0-0.25	4	9			3 0			o .	<u> </u>	· 0	Center	202	bcans 671	4 220	cane	·		Improved	
	0.25-0.5	4	8	8	1	7 0	i		Õ	í	ŏ	ŏ	185	611	4,330 3,945	0	10	123	627 572	5,761
3	0510	4	1 8	8	1 :	7 0	1		0	1	Ö	ō	185	614	3.961	0	9	113	574	5,249 5,271
4	1.0-1.5 1.5-2.0	0		) (	) (	) 0	O,	1	0 "	0	0	0	0	0	0	ŏ	Ó	0	0	0
	Total		27	26	3	0	0		0	0	0	0	0	. 0	0	0	Ó	0	0	ō
	1 Coal			20		·	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)

	Mater						Building								Agricultu	cal Cr	ons (ha)		
No.	Depth	Res	idence		Shop	Restau-	School	Charch	Factory	Hospital	Health	Total	Soy-	Rice	Sugar N		Paste.	···	Total
	(ল)	High M	cdium	Wal		rant			•	•	Center		beans	<b>V</b>	cane	٠.	Nutural tr		I CCA
ì	0.0-0.25	1	23	22	2	0	0	0	0	0	0	48	159	1.024	Δ		29	148	12/3
2	0.25-0.5	0	10	10	- 1	0	0	0	0	0	0	21	72	466	ň	•	12		1,362
3	0.5-1.0	0	0	0	0	0	0	ō	ŏ	ŏ	ŏ	0	'n	700	ň	'n	13	68	620
4	1.0-1.5	0	0	0	0	0	0	0	0	Ō	ō	ŏ	ñ	ň	ŏ	, A	, n	0	v
. 5	1.5-2.0	. 0	0	0	0	0	0	0	ō	ō	ŏ	ŏ	Õ	ň	ň	٥	0	0	0
	Total	1	33	32	3	0	ō	0		<u>``</u>		(.9	211	1.490	<del></del>	<del></del> -		216	1.582

	Water						Building								Agricult	ural Cr	ops (ba)		
No.	Depth (m)	Res High M	idence edium	Low	Shop	Restau-		Charch	Factory	Hospital	Health Center		Soy-	Rice	Sugar	Maize		ture	Total
1	0.0-0.25	1	29	27	ž	0	0	0	0	0	Č CSIRCI	59	199	1.286	cane		NUTURAL	Improved	
2	0.25-0.5	1	22	21	2	0	Ó	ŏ	Ŏ	ň	ñ	46	153	987	0	3	28	186	1,711
3	0.5-1.0	0.	j	ι	0	Ó	0	ō	Õ	ŏ	ŏ	2	9	55	'n	ń	20	143	1,313
4	1.0-1.5	0	0	0	0	0	0	0	0	0	ŏ	ō	ő	6		ŏ	á	•	/4
5	1.5-2.0	0	0	0	0	0	0	0	0	0	ó	0	·ŏ	ŏ	. ŏ	ŏ	ŏ	0	0
	Total	2	52	49	4	. 0	0	0	0	0	0	107	361	2.328	<del>- 0</del>		67	337	3.008

	Water	·					Building								Agricult	ural Co	inne that		
VO.	Depth		idence		Shop	Restau-	School	Charch I	actory I	cspital	Health	Total	Soy-	Rice	Spear			lure	Tota
	(m)	ligh N	<b>co</b> ium	TOM.		rant					Center		beans		cane			Improved	1 (-6)
-	0.0-0.25	1:	34	33	3	0	0	0	0	0	0	71	238	1.538	0	3	41	223	2.0 K
2	0.25-0.5	1	23	22	2	0	0	0	0	0	. 0	48	159	1.026	ō	2	29	149	-
3	0.5-1.0	0	8	8	1	0	0	0	Ó	o o	Ö	17	55	355	ñ	,	10	143	1,365
4	1.0-1.5	0	0	0	0	0	0	. 0	Ó	Ö	ō	0	ő	0.0	ň	'n	10	31	472
5	1.5-2.0	0	0	0	0	0	0	0	0	ñ	ŏ	ň	ň	ñ	Ŏ	Ň		Ü	
	Total	2	65	63	6	0	0				<u>`</u>	136	452	2.919	·×		83		3 883

	Water							Building								Agricul	tural Co	ops (ha)		
vo.	Depth (m)	Reb		ence	Low	Shop		School	Charch	Factory I	lospitai						Maize	Pas	ture	Tota
	0.0-0.25						tauf					Center	-	beans		Canc		Nutural	Improved	
_		- 2		41	39	3	0	Q	0		0	0	86	28.5	1,842	0	4	52	267	2,150
_	0.25-0.5	, 1		23	22	2	0	0	0	0	0	0	48	159	1.027	0	,	29	149	1.36
	0.5-1.0	1		14	13	1	0	0	0	0	0	0	29	97	628	ŏ	ĵ	18	91	83
4	1.0-1.5	0		0	0	0	. 0	0	0	•	0	0	0	0	. 0	0	n.	0	,	
5	1.5-2.0	0	- 1	0	0	0	0	0	. 0	•	0	ถ	0	ō	, v	ň	Ň	ŏ		
	Total	4		78	74	6	0	0		<del>-</del> -	<u>, , , , , , , , , , , , , , , , , , , </u>	<del></del>	163	511	3.497	<del></del>		99	507	

	Water	<u></u>					Building									Agricul	tural Cr	ops (ha)		
No.	Depto		3e nce	<del></del>	Shop	Restau-	School	Charch	Fact.	ry Hos	pita	Health	Total	Soy-			Maize		ture	Total
	(m)	High Me	diam.	Low.		rant						Center		teans		canc		Nutural	Improved	
1	0.0-0.25	2	51	49	4	0	3	0		ı	0	Ó	108	351	2.285	0	ς.	65	331	3.010
2	0.25-0.5	,1	23	22	2	0	Ō	0		0	0	0	48	-159	1.026	ň	5	29	149	
3	0.5-1.0	1	21	21	2	0	0	0		0	10	ō	45		969	ň	5	28	140	1,365
4	1.0-1.5	; 0	. 0	0	0	0	0	. 0		0	0	. 0	0			ñ	â	70	1-0	1.289
5	1.5-2.0	. 0	0	0.	0	0	0	. 0		0	0	. 0	ň	ň	Ă	Ä	, A	Č	0	U
	Total	4	95	92	8	0	<del>-</del>	0		1	<u> </u>	<del>-</del>	201	663	4.280		<u>×</u>	122		5.694

AVERAGE APPRAISAL VALUES OF ASSETS IN THE FLOOD PRONE AREA (AS OF THE END OF OCTOBER 1995) TABLE X.28

2. Agricultural Crops and Cattle

1. Buildings and Household Effects

bold         livestock         No.         Crops         Trice           1.426,190         55.750         2         Rice (mechanical)         3.36         687.72           333,860         6,040         3         Sugar cane (mechanical)         45.72         92.34           39,040         560         4         Maize         4.60         388.80         1           17,080         -         5         Cartle***         1.00         1,215.00         1           29,590         -         -         5         Cartle***         1.00         1,215.00         1           6,873,990         -         -         -         -         -         -         -           6,940         - <th></th> <th></th> <th></th> <th>House</th> <th>Unit: Bs.</th> <th></th> <th></th> <th>Production</th> <th>CBI</th> <th>Chit</th>				House	Unit: Bs.			Production	CBI	Chit
1 Soybeans (summer) 2.00 777.60 55.750 2 Rice (mechanical) 3.36 687.72 6,040 3 Sugar cane (mechanical) 45.72 92.34 560 4 Maize 4.60 388.80	No. Kind of Assets Buildings	Buildi	1235	hold Effects*	livestock	ý.		(Tons/ha)	- 1	Price (Bs/ha)
55,750       2       Rice (mechanical)       3.36       687,72         6,040       3       Sugar cane (mechanical)       45,72       92,34         560       4       Maize       4,60       388,80         5       Cattle***       1,00       1,215,00         7       5       Cattle***       1,00       1,215,00	Residence						Soybeans (summer)	2.00	37.77	1,555
6,040 3 Sugar cane (mechanical) 45.72 92.34  560 4 Maize 4.60 388.80  (Head/ha) (Bs/head)  5 Cattle*** 1.00 1.215.00	(A) High Class 579	578	8	1,426,190		73	Rice (mechanical)	336	687.72	2,309
560 4 Maize 4.60 388.80 (Head/ha) (Bs/head) 5 Cattle*** 1.00 1.215.00	(B) Medium Class 115,		115,250		6,040	rris	Sugar cane (mechanical)		92.34	4,222
(Head/ha) (Bs/head) 5 Cattle*** 1.00 1,215.00	(C) Low Class 7.	7.	7.090			4	Maize	4.60	388.80	1.788
S Cattle***	Shop*** 19,	6	19,600		•		. •	(Head/ha)		(Bs/ha)
20 13.380	3 Restaurant 23.0	Ä	23,000		,	Ŋ	Cattle**	8:1	1,215.00	1215
00 29.590	School 78,5	285	78,920		,		ŀ	•	•	•
00 369,930 - 0.000 - 0	Church 170,500	170,	8	29.590				•		•
00 6,873,990 · · · · · · · · · · · · · · · · · ·	Factory 119,700	.611	8	369,930	•		•		•	•
	Hospital 1.094.	8	8	6,873,990	• .			•	i	•
	Health Center 23,	ន	23,400	959	•		•	•		. •

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.

<sup>\*\*\*</sup> Price of cattle is used in estimating the flood damage of pasture.

TABLE K.2.9 INUNDATION DAMAGE RATE OF ASSETS

			Damage Rate	စ	:		-	
No. Inundation	Genera	General Assets	Livestock		Agricultura	Agricultural Field Crops and Cattle	and Cattle	
Depth (cm.)	Buildings	Household Effects		Soybeans	Rice	Sugar cane Maize	Maize	Cattle*
0-25	0.140	0.111	0.113	0.100	0.106	0.095	0.122	0.560
. 25-50	0.198	0.127	0.121	0.299	0.319	0.284	0366	0.560
50 - 100	0.355	0.254	0.373	0.896	0.954	0.851	1.000	0.560
100 - 150	0.452	0.325	0.379	0.949	1.000	0.945	1.00	0.560
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 innundation of the pasture field.

### TABLE K.2.10 FLOOD DAMAGE BY RETURN PERIOD

### I. RIO CHANE

1	1	Without-Pr	roiect
		1111110000 4 1	V   L L L

	Return			Flood Dam	age (Bs. 1,0	00)	:	
No.	Period (Year)	Building	Household Effects	Livestock A	Agricultural Crops	3	Business Activities	Total
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)

	Return		Flood Damage (Bs. 1,000)											
No.	Period (Year)	Building	Household Effects	Livestock	Agricultural Crops		Business Activities	Total						
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						

	Return			Flood Dam	age (Bs. 1,0	)00)		
No.	Period	Building	Household	Livestock /	gricultural	Public	Business	Total
	(Year)	(Year)	ear) Effects		Crops	Facilities .	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-Proj	ect
-----	--------------	-----

	Return			Flood Da	mage (Bs. 1,0	)00)		
No.	Period	Building	Household	Livestock	Agricultural	Public	Business	Total
	(Year)	<u> </u>	Effects		Crops	Facilities	Activities	·
. 1	2	9,497	18,242	683	11,542	9,431	1,664	51,059
,2	<b>5</b> , .	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)

	Return	Flood Damage (Bs. 1,000)									
No.	Period (Year)	Building	Household Effects	Livestock A	Agricultural Crops		Business Activities	Total			
i	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			

	Return			Flood Dar	nage (Bs. 1,0	)00)		
No.	Period	Building	Household	Livestock	Agricultural	Public	Business	Total
	(Year)		Effects		Crops	Facilities	Activities	
1.	2	9,133	17,460	660	11,388	9,041	1,595	49,277
<b>2</b> ,	<b>5</b> ,	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	
	/ 1111111111111111111111111111111111111	

***************************************	Return			Flood Dan	age (Bs. 1,0	XXX)	1	
No.	Period	Building	Household	Livestock.	Agricultural	Public	Business	Total
	(Year)		Effects		Crops	Facilities	Activities	
I .	<b>2</b> , , , ,	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)

	Return		Flood Damage (Bs. 1,000)									
No.	Period (Year)	Building	Household Effects	Livestock	Agricultural Crops		Business Activities	Total				
<u>.</u> 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				

	Return	Flood Damage (Bs. 1,000)								
No.	Period	Building	Household L	vestock A	Agricultural	Public B	usiness	Total		
	(Year)		Effects	***	Crops	Facilities A	ctivities	· .		
1	2	2,891	5,926	176	5,232	2,998	529	17,752		
2	<b>5</b>	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
D.	Milen

	Return	Flood Damage (Bs. 1,000)								
No.	Period	Building	Household	Livestock	Agricultural	Public	Business	Total		
	(Ycar)		Effects		Crops	Facilities	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	Building	Household	Flood Dan Livestock	nage (Bs. 1,0 Agricultural	000) Public	Business	Total
	(Year)	·	Effects				Activities	
1	Ž	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

1	Return		Flood Damage (Bs. 1,000)							
No.	Period	Building	Household	Livestock	Agricultural	Public	Business	Total		
	(Year)		Effects		Crops	Facilities	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) 44 1811	out-Projec	t	
	Return			Floo
No.	Period	Building	Household	Live

	ACCOUNT	F1000 Damage (Bs. 1,000)								
No.	Period	Building	Household Livestock A		Agricultural	Public	Business	Total		
	(Year)		Effects		Crops	Facilities	Activities			
1	<b>2</b>	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)								
		Building	Household Effects	Livestock	Agricultural Crops		Business Activities	Total		
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		

	Return		Flood Damage (Bs. 1,000)								
No.	Period	Building	Household	Livestock	Agricultural	Public	Business	Total			
<del></del>	(Year)	- +	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) With	out-Projec	t ·			,				
	Return		Flood Damage (Bs. 1,000)							
No.	Period	Building	Household	Livestock	Agricultural	Public	Business	Total		
	(Year)		Effects		and the second second		Activities			
.1	2	1,844	4,037	84	1,371	1,999	353	9,68		

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

9,688

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

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

	Return				Flood Dat	mage (Bs. 1,	000)		
No.	. Period.		Building	Household	Livestock	Agricultura	l Public	Business	Total
	(Year)			Effects		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

10

	(1) With	out-Projec	et i					•
	Return			Flood Dan	nage (Bs. 1,0	00)		
No.	Period	Building	Household	Livestock	Agricultural	Public	Business	Total
	(Year)		Effects				Activities	
i	2	4,180	8,816	181	4,270	4,419	780	22,646
2	<b>5</b>	5,733	12,122	271	7,224	6,071	1,071	32,492

344

9,549

7,387

1,304

40,311

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

14,720

7,007

	Return			Flood Dat	mage (Bs. 1,0	000)		-:
No.	Period (Year)	Building	Household Effects	Livestock	Agricultural Crops		Business Activities	Total
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

	Return			Flood Dan	nage (Bs. 1,0	000)		
No.	Period	Building	Household	Livestock	Agricultural	Public	Business	Total
	(Year)		Effects		Crops	Facilities	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 (Atternative-1)

TH.											
Ì	InancialCost		Unit: Bs	1 (9)()		{2,£c	onomicCost				
No.	Classification		2000	1,000	-	No.	Classification		Unit: Bi 	s. 1,000	_
	of Costs	I.C.	F.C.	folal	<del>-</del> -	210.	of Costs	T.C.	<del>1</del> 'C'-	ालक	-
	Construction Cost	U	· o	U	<b>}</b>	1	Construction Cost	(	) ()	) ii	-
2		61	_		•	2	Land Acquisition	33			
	Administration	3		•		3	Administration				
4	Engineering Services	321	1,136			4	<b>Engineering Services</b>	281			
_	I'nysical Contingency Sub-total	58	170			5	Physical Contingency	-18			
6	price Escalation	416 180	1,306			_	Sub-total	370			
~	Grand Total	626		463		6	price Escalation		U U		
	37070 1010	. 020	1,589	2,210	OM Cost 0		Grand Total	370	1,306	1,677	OMO
3					•	2				<del></del>	•
O.			2001			No.	Classification		<del>2001</del>		•
	ol Costs	1.C.	F.C.	Total	•		of Costs	LC.	F.C.	Total	•
1 2	Construction Cost Land Acquisition	12,422	14,310	26,732			Construction Cost	8,820	12,664	21,483	
3		65 1,340	. 0	65			Land Acquisition	36			
	Lingineering Services	535	0 1,893	1,340		3	Administration	1,186	U		
Š		2,154	2,430	2,428 4,585		4	Engineering Services	47.1	1,893	2,366	
	Sub-total	16.516	18,633	35,150		3	Physical Contingency	1,577	2.181		
6	price Escalation	8,270	4.914	13,214		L	Sub-total price Escalation	12,092	16,740		
	Grand Total	24,786	23,571		OMCost 1		Grand Total	0 12,092	0 16,740		OMO
3	<del></del>			*****	U		····	<del></del>			
<del>3</del>	Classification		2002			No.	Classification	<del></del>			
	of Costs	LC.	TC	Total		150.	of Costs	L.C.	2002 E.C.	1353	
	Constant						VI 2.4013	11.0.	F.A.s.	Total	
2		12,422	[4,310	26,732			Construction Cost	8,830	12,664	21.483	
ž 3	Land Acquisition Administration	65	Ü	65		2	Land Acquisition	36	0	36	
	Lagineering Services	1,340	0	1,340		3	Administration	1,186	ŭ	1.186	
	Physical Contingency	535	1,893	2,428		4	lingineering Services	473	1,893	2.366	
-	Sub-total	2,154 16,516	2,430	4,585		3	Physical Contingency	1,577	2,184	3.761	
6	price Escalation	10,005	18,633	35,150			Sub-total	12,092	16,740	28,832	
•	Grand Total	26,521	5,887 24,520	15.892	M. C. Cont		price Escalation	Ü	0	0	
		21,52,	2-4,-140	31,042 (	OM Cost 429		Grand Total	12,092	16,740	28,832 (	OMC 3
4	<u> </u>					4					
5.			2003								
•	Classification					No.	Classification		200		
	of Costs	LC.	F.C.	Total		No.	Classification of Costs	r.c.	200B F.C.	Iolai	
1	of Costs  Construction Cost	12,422	F.C. 14,310	26,732		1 (	el Costs Construction Cost	1.C. 8,830		10tal 21,483	
 1 2	of Costs  Construction Cost Land Acquisition	12,422 65	F.C. 14,310 0	26,732 65		1 0	el Costs Construction Cost and Acquisition	8.830 36	F.C. 12,661 0		
] 2 3	of Costs  Construction Cost Land Acquisition Administration	12,422 65 1,340	F.C. 14,310 0 0	26,732 65 1,340		1 9 2 1	ol Costs  Construction Cost and Acquisition Administration	8,820 36 1,186	F.C. 12,661	21,483	
1 2 3	of Costs  Construction Cost Land Acquisition Administration Engineering Services	12,422 65 1,340 535	F.C. 14,310 0 0 1,893	26,732 65 1,340 2,428		1 0 2 1 3 4	ol Costs  Construction Cost and Acquisition Administration ingineering Services	8,820 36 1,186 473	12,661 0 0 1,893	21,483 36	
1 2 3 4 5	of Costs  Construction Cost Land Acquisition Administration	12,422 65 1,340 535 2,154	F.C. 14,310 0 0 1,893 2,430	26,732 65 1,340 2,428 4,585		1 0 2 1 3 4 4 1 5 1	el Costs  Construction Cost and Acquisition Administration ingineering Services itysical Contingency	8,820 36 1,186 473 1,577	12,661 0 0 1,893 2,184	21,483 36 1,186 2,366 3,761	
1 2 3 4 5	of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	12,422 65 1,340 535 2,154 16,516	FC. 14,310 0 0 1,893 2,430 18,633	26,732 65 1,340 2,428 4,585 35,150		1 6 2 i 3 i 4 i 5 i	ol Costs " Construction Cost Land Acquisition Administration ingineering Services Thysical Contingency Sub-total	8,820 36 1,186 473 1,577 12,092	F.C. 12,661 0 0 1,893 2,184 16,740	21,483 36 1,186 2,366 3,761 28,832	
1 2 3 4 5 5	of Costs  Construction Cost Land Acquisition Administration Lingineering Services Physical Contingency Sub-total	12,422 65 1,340 535 2,154 16,516 11,861	F.C. 14,310 0 0 1,893 2,430	26,732 65 1,340 2,428 4,585		1 0 2 1 3 4 4 1 5 1	el Costs  Construction Cost and Acquisition Administration ingineering Services itysical Contingency	8,820 36 1,186 473 1,577	12,661 0 0 1,893 2,184 16,740 0	21,483 36 1,186 2,366 3,761 28,832 0	DMC.
1 2 3 4 5 5 5	of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation	12,422 65 1,340 535 2,154 16,516 11,861	FC. 14,310 0 0 1,893 2,430 18,633 6,868	26,732 65 1,340 2,428 4,585 35,150 18,729	DM Cost 918	1 0 2 1 3 4 4 1 5 1	ol Costs  Construction Cost Land Acquisition Administration Ingineering Services Thysical Contingency Sub-total Orice Escalation	8,820 36 1,186 473 1,577 12,092 0	12,661 0 0 1,893 2,184 16,740 0	21,483 36 1,186 2,366 3,761 28,832	
1 2 3 4 5 6	of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total	12,422 65 1,340 535 2,154 16,516 11,861	FC. 14,310 0 0 1,873 2,430 18,633 6,868 25,501	26,732 65 1,340 2,428 4,585 35,150 18,729		3 4 1 5 1 6 F	ol Costs  Construction Cost Land Acquisition Administration Ingineering Services Thysical Contingency Sub-total Price Escatation Trand Total	8,820 36 1,186 473 1,577 12,092 0	12,661 0 0 1,823 2,184 16,740 0 16,740	21,483 36 1,186 2,366 3,761 28,832 0	ЭМС 4
1 2 3 1 5 5	of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation	12,422 65 1,340 535 2,154 16,516 11,861 28,377	F.C. 14,310 0 0 1,873 2,430 18,633 6,868 25,501	26,732 65 1,340 2,428 4,585 35,150 18,729 53,879 (		1 6 2 5 4 1 5 1 5 1 6 F	el Costs Construction Cost Land Acquisition Administration ingineering Services hysical Contingency Sub-total rice Escalation Grand Total  Classification	8,820 36 1,186 473 1,577 12,092 0 12,092	12,661 0 0 1,833 2,184 16,740 0 16,740	21,483 36 1,186 2,366 3,761 28,832 0 28,832 (	
1 2 3 4 5 5 6	of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification	12,422 65 1,340 535 2,154 16,516 11,861	FC. 14,310 0 0 1,873 2,430 18,633 6,868 25,501	26,732 65 1,340 2,428 4,585 35,150 18,729		3 4 1 5 1 6 F	ol Costs  Construction Cost Land Acquisition Administration Ingineering Services Thysical Contingency Sub-total Price Escatation Trand Total	8,820 36 1,186 473 1,577 12,092 0	12,661 0 0 1,823 2,184 16,740 0 16,740	21,483 36 1,186 2,366 3,761 28,832 0	
1 2 3 4 5 6	of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost	12,422 65 1,340 535 2,154 16,516 11,861 28,377	F.C. 14,310 0 0 1,873 2,430 18,633 6,868 25,501	26,732 65 1,340 2,428 4,585 35,150 18,729 53,879 (		3 (4 1 5 1 5 1 5 No.	ol Costs  Construction Cost Land Acquisition Administration ingineering Services flysical Contingency sub-total  Classification of Costs	8,820 36 1,186 473 1,577 12,092 0 12,092	12,661 0 0 1,873 2,184 16,740 0 16,740	21,483 36 1,186 2,366 3,761 28,832 0 28,832 (	
1 2 3 4 5 6	of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition	12,422 65 1,340 535 2,154 16,516 11,861 28,377	FC. 14,310 0 0 1,873 2,430 18,633 6,868 25,501 2001 FC.	26,732 65 1,340 2,428 4,585 35,150 18,729 53,879 C		1 ( 2 ) 3 / 4 1 5 1 5 1 5 No.	ol Costs  Construction Cost Land Acquisition Administration ingineering Services hysical Contingency sub-total price Escatation frand Total  Classification of Costs  Construction Cost	8,820 36 1,186 473 1,577 12,092 0 12,092	12,661 0 0 1,833 2,184 16,740 0 16,740 2004 TC.	21,483 36 1,186 2,366 3,761 28,832 0 28,832 C	
1 2 3 4 5 6	ct Costs  Construction Cost Land Acquisition Administration Ingineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration	12,422 65 1,340 535 2,151 16,516 11,861 28,377 L.C. 12,422 65 1,340	FC. 14,310 0 0 1,873 2,430 18,633 6,868 25,501 2001 FC. 14,310	26,732 65 1,340 2,428 4,585 35,150 18,729 53,879 C		1 (2 2 3 4 4 1 5 1 5 1 5 1 6 1 6 1 6 1 6 1 6 1 6 1 6	ol Costs  Construction Cost and Acquisition Administration ingineering Services hysical Contingency Sub-total rice Escalation frand Total  Classification of Costs  Construction Cost and Acquisition	8,820 36 473 1,577 12,092 12,092	12,661 0 0 1,833 2,184 16,740 0 16,740 2004 FC: 12,664 0	21,483 36 1,186 2,366 3,761 28,832 0 28,832 Total	
1 2 3 4 5 6	ct Costs  Construction Cost Land Acquisition Administration Lingineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Lingineering Services	12,422 65 1,340 535 2,154 16,516 11,861 28,377 L.C. 12,422 65 1,340 535	FC. 14,310 0 0 1,873 2,430 18,633 6,868 25,501 FC. 14,310 0 0 1,893	26,732 65 1,440 2,428 4,585 31,500 18,729 53,879 (		1 ( 2 ) 3 / 4   1   5   1   6   6   6   6   6   6   6   6   6	ol Costs  Construction Cost Land Acquisition Administration ingineering Services Thysical Contingency Sub-total Classification of Costs  Construction Cost and Acquisition administration	8,820 36 1,186 473 1,577 12,092 0 12,092	12,661 0 0 1,873 2,184 16,740 0 16,740 2004 FC. 12,664 0	21,483 36 1,186 2,366 3,761 28,832 0 28,832 C T66f 21,483 36 1,186	
1 2 3 4 5 6 5 6	of Costs  Construction Cost Land Acquisition Administration Ingineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Lingineering Services Physical Contingency	12,422 65 1,340 535 2,154 16,516 11,861 28,377 L.C. 12,422 65 1,340 535 2,154	FC. 14,310 0 0 1,873 2,430 1,863 25,501 2001 FC. 14,310 0 1,893 2,430	26,732 65 1,440 2,428 4,585 35,150 18,729 53,879 ( 706al 26,732 65 1,340 2,428 4,585		1 ( 2 1 3 7 4 1 3 7 4 1 3 7 4 1 3 7 4 1 1 3 7 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ol Costs  Construction Cost Land Acquisition Administration Ingineering Services Trysical Contingency Sub-total  Classification of Costs  Construction Cost and Acquisition administration Ingineering Services	8,820 36 1,186 473 1,577 12,092 0 12,092 1,105 8,820 36 1,186 473	12,661 0 0 1,823 2,184 16,740 0 16,740 2004 FC. 12,664 0 0 1,893	21,483 36 1,186 2,366 3,761 28,832 0 28,832 C	
1 2 3 4 4 5 5 5	ct Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Lingineering Services Hysical Contingency Sub-total	12,422 65 1,340 535 2,154 16,516 11,861 28,377 1.C. 12,422 65 1,340 535 2,154 16,516	FC. 14310 0 0 1.873 2.430 18.633 6.868 25,501 14310 0 0 1.893 2.430 18.633	26,732 65 1,440 2,428 4,585 35,150 18,729 53,879 C Total 26,732 65 1,340 2,428 4,585 35,150		1 ( 2 1 3 / 4 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1	ol Costs  Construction Cost Land Acquisition Administration ingineering Services Thysical Contingency Sub-total Classification of Costs  Construction Cost and Acquisition administration	8,820 36 1,186 473 1,577 12,092 0 12,092 12,092 12,092	12,661 0 0 1,833 2,184 16,740 0 16,740 2004 FC. 12,664 0 0 1,893 2,184	21,483 36 1,186 2,366 3,761 28,832 0 28,832 C 1661 21,483 36 1,186 3,761	
1 2 3 4 5 5 6 5	of Costs  Construction Cost Land Acquisition Administration Ingineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Lingineering Services Physical Contingency	12,422 65 1,340 535 2,151 16,516 11,861 28,377 12,422 65 1,340 535 2,154 16,516 13,848	FC. 14,310 0 0 1,873 2,430 1,863 25,501 2001 FC. 14,310 0 1,893 2,430	26,732 65 1,440 2,428 4,585 35,150 18,729 53,879 ( 706al 26,732 65 1,340 2,428 4,585	918	1 ( 2 ) 3 , 4 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 1 5 1 1 1 5 1	el Costs  Construction Cost Land Acquisition Administration ingineering Services rhysical Contingency sub-total price Escalation brand Total  Classification of Costs  Construction Cost and Acquisition administration ingineering Services rhysical Contingency	8,820 36 1,186 473 1,577 12,092 0 12,092 1,105 8,820 36 1,186 473	12,661 0 0 1,833 2,184 16,740 0 16,740 2004 FC. 12,664 0 0 1,893 2,184	21,483 36 1,186 2,366 3,761 28,832 0 28,832 C	

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

VO.	Classification		2005	
	of Costs	L.C.	F.C.	lolal
	Construction Cost	12,423	14,309	26,732
2	Land Acquisition	Ù	U	6
3.	Administration	1.337	. 0	1.337
4 1	Engineering Services	214	757	971
5 1	Physical Contingency	2,0%	2,260	4356
	Sub-total	16.070	17.326	33.396
6	price Escatation	15.542	8,320	23,862
i	Grand Total	31.612	25,646	57,258 OMC

	Classification		Tolal.	*******
	of Costs	T.C.	F.C.	lotal
	Construction Cost	62,111	71.549	133.660
2	Administration	324	0	32.1
3	Engineering Services	6,700	Ü	6.700
4	Land Acquisition	2,675	9.465	12,140
	Physical Contingency	10.772		22,924
	Sub-total	82,582	93,166	175,748
7	price Escalation	59,706	34,190	93.8%
	Grand Total	142.288		269,644 OM Co.

٧ö.	Classification		2005	
<b></b> .,	of Costs	LC.	F.C.	Total
ı	Construction Cost	8,830	12 663	21,483
2	Land Acquisition	ě	0	. 44,-44
3	Administration	1,183	ň	1.183
4	Engineering Services	189	757	96
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 OMC

Classification		Total	~
of Costs	L.C.	T:C:	Total
Construction Cost	41,099	63.318	107,417
Administration	178	0.0	178
Engineering Services	5,929	ŏ	5,929
Land Acquisition	2367	9,465	
Physical Contingency		10.917	
Sub-total	60,459		144,160
price liscalation	()	ω,ιω	177,100
Grand Total	60.459	St 700	144,160 OM

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

(1) 	Financial Cost		Unit: R	s. 1,000	•	(2) E	conomic Cost		# 1_ ** **	1 6000
No			2(XX)			No.	Classification		2000	s. 1,000
_	of Costs	L.C.	F.C.	Total	<del>-</del>	1300	of Costs	LC	FC.	Total
Į	Construction Cost		) (	7. ) (		1	Construction Cost		) (	0
2	Land Acquisition	86					Land Acquisition	47		_
3	Administration	4	4 (				Administration	4	_	
4	Engineering Services	475	1,699	2,174	ļ		Engineering Services	424	-	-
5	Physical Contingency	8.	25				Physical Contingency	727		-
	Sub-total	65	1,949			_	Sub-total	546		
6	price Escalation	263				6	price Escalation			
	Grand Total	917			OM Cost	U	Grand Total	0 546		
					- 0					
2					_	2				
io.	Classification of Costs	I.C.	2001 F.C.	Total	•	No.	Classification		2001	
			1.12	117211	•		of Costs	<u>1.C</u>	EC.	Total
	Construction Cost	19,786				1	Construction Cost	14,048	17,788	31,836
	Land Acquisition	86					Land Acquisition	47	0	<b>-</b> 17
	Administration	1,992				3	Administration	1,769	0	1,769
	Engineering Services	798	-	-			Engineering Services	706	2,824	3,530
5	Physical Contingency	3,400				5	Physical Contingency	2,486	3,092	5,577
_	Sub-total:	26,069					Sub-total	19,056	-	-
Ó	price Escalation	13,053	-	-		6	price Escalation	0		0
	Grand Total	39,122	33,357	72,479	OM Cost 0		Grand Total	19,056	23,703	42,760 (
_		<del></del>	····		·					
3 0.	Classification	<del></del>	2002			No.	616		0/10.3	
	of Costs	L.C.	F.C.	Total		NO.	Classification of Costs	1.C.	2002 F.C.	Total
_	· · · · · · · · · · · · · · · · · · ·						VA CASIS		P.C.	rotai
	Construction Cost	19,786	-	39,886			Construction Cost	14,048	17,788	31,836
	Land Acquisition	87	0	87			Land Acquisition	48	0	48
	Administration	1,999		1,999		3	Administration	1,760	0	1,769
	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		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	OM Cost 640	ì	Grand Total	19,057		42,760 (
					040					<del></del>
- <del>1</del> O.	Classification		2003		-	4 No.	Classification		2002	
	of Costs	1.C.	F.C.	Total		110.	of Costs	J.C.	2003 E.C.	Total
	0				_		· · · · · · · · · · · · · · · · · · ·			7(43)
	Construction Cost	19,786	20,100	39,886			Construction Cost	14,048	17.788	31,836
_	Land Acquisition	166	0	166			Land Acquisition	91	0	91
-	Administration	2,003	0	2,003			Administration	1,773	0	1,773
	lingineering Services	918	3,250	4,168		4	ingineering Services	812	3.250	4,062
5	Physical Contingency	3,431	3,503	6,933		5 1	Physical Contingency	2,500	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 p	nice Escalation	0	0	0
	Grand Total	45,195	36,750	81,941	OM Cost 1,371		Grand Total			43,426 O
5										
Э D.	Classification		2004		-	5 No.	Classification		2004	
	of Costs	LC.	FC	Total		•••	of Costs	LC.	EC.	Total
							24 040045		F. C.	1001
	Construction Cost	24,760	25,152	49,912		1 (	Construction Cost	17,580	22,258	39,838
	Land Acquisition	110	0	110		2 1	and Acquisition	61	0	61
3	Administration	2,501	0	2,501	4		Administration	2,213	ő	2,213
4	Engineering Services	1.015	3,592	4,607			ingineering Services	828	3,592	4,490
	Physical Contingency	4.258	4,312	8,570	\$ 1		hysical Contingency	3,113	3,878	6,990
		32,644	33,056				lab-total	23,864	29,728	53,592
5	Sub-total	32.777								
5	Sub-total price Escalation	27,370	13,993	41,363				-		
; ;			13,993		OM Cost	6 p	rice Escalation Frand Total	0 23,864	0	0 53,592 O

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

(1)	Fla	300	la1	Cost
143	£ 111	4111	141	V-051

Va.	Classification		2005	
	of Costs	L,C,	I.C.	Total
				•
	Construction Cost	25,437	25,810	51,277
	Land Acquisition	0	. 0	0
3	Administration	2,564	Ö	2,564
4	Engineering Services	410	1,451	1,861
	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	61,272	46,457	110,728 OM Cost
			100	3 3 3 6

(2)	Economic	Cost
-----	----------	------

No	Classification		2005		
	of Costs	L.C.	F.C.	Total	
. 1	Construction Cost	18,060	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	
	Physical Contingency	3,104	3,648	6.752	
	Sub-total	23,736	27,966	51.762	
6	price Escalation	0	0	0	
	Grand Total	23,796	27,966	51,762 (	OM Cos
					1,35

Classification	_	Total	
of Costs	L.C.	F.C.	Total
1 Construction Cost	109,555	111,292	220,847
2 Administration	535		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	290,382
7 price discalation	106,969		161.676
Grand Total	•		452,058 OM
	-	-	4

	Classification		Total		
	of Costs	LC.	FC.	Total	
1	Construction Cost	77,784	98,488	176,273	:
2	Administration	294	. 0	294	
3	Engineering Services	9,796	Ó	9.796	
4	Land Acquisition	3.910	15.636	19.516	
6	Physical Contingency	13.768	17,119	30.886	
	Sub-total	-	131,243		
7	price Escalation	0	0	0	*
	Grand Total	105,552	131.243	236,795	OM Cox
					1,76

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

1	Flnancial Cost		Unit: Bs	1000		(2) E	conomic Cost		Halica D	. 1 000	
lo.	Classification		2000	1,00		No.	Classification		Unit : B: 2000	s. 1,000	-
	of Costs	1.C.	F.C.	Total		110.	of Costs	"I.C.	F.C.	Total	-
1	Construction Cost	0	0	0	•						-
2		41	0	41			Construction Cost	0	•	-	
	Administration	2	ŏ	2			Land Acquisition	23	•		
	Engineering Services	65					Administration	2	•	_	
			230	295			Engineering Services	.58		288	
.,	Physical Contingency		35	51		5	Physical Contingency	12	35	47	
_	Sub-total	124	265	389			Sub-total	91	265	359	
6	price Escalation	.50	57	107		6	price Escalation	0	0	0	
	Grand Total	174	322	496	OM Cost 0		Grand Total	બ	265		OM
2			·		Ū						•
<u>z</u> 0.	Classification	<del></del>	2001	· · · ·		No.	Classification		2001		
	of Costs	L.C.	F.C.	Total			of Costs	LC.	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			Land Acquisition	40		4,272	
	Administration	275	ō	275			Administration	243			
	Engineering Services	318	1,127	1,445					0	243	
	Physical Contingency	532	550				lingineering Services	281	1,127	1,408	
~	Sub-total			1,082		3	Physical Contingency	391	506	898	
z	price Escalation	4.078	4.216	8,294			Sub-total	3,001	3,880	6,881	
•		2,042	1,119	3,161	<b></b>	6	price Escalation	0	0	0	
	Grand Total	6,120	5,335	11,455	OM Cost 0		Grand Total	3,001	3,880	6,881	OM
~-·		<del></del>		<del></del>						·	
3 >.	Classification		2002			No.	Classification		2002		
	of Costs	LC.	F.C.	Total			of Costs	L.C.	F.C.	Total	
1	Construction Cost	12,181	10,739	22,920			Construction Cost	0.410	0.601	10.160	
	Land Acquisition	73	0	73				8,649	9,504	18,152	
	Administration	1,150	ŏ	1,150			Land Acquisition	40	0	40	
	Engineering Services		-				Administration	1,018	0	810,1	
		458	1,623	2,081			lingineering Services	405	1,623	2,028	
,	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	12,726	24,424	
5	price Escalation	9,657	4,491	14,148		6	price Escalation	0	0	0	
	Grand Total	25,598	18,707	44,306 0	OM Cost 87		Grand Total	11,628	12,796	24,424	QМ
_	<del></del>				67			<del></del>			
1	Classification		2003			-4 No.	Classification		2003		
	of Costs	L.C.	F.C.	Total		110.	of Costs	1.0		Total	
-							Or Costs	L.C.	F.C.	Total	
	Construction Cost	12,181	10,739	22,920			Construction Cost	8,649	9,504	18,152	
				24					0	-1]	
2	Land Acquisition	74	0	74		2	Land Acquisition	41			
è È	Land Acquisition Administration		0	1,150			Land Acquisition Administration	41 1.018	n	្រាម	
è È	Land Acquisition Administration	74 1,150	0	1,150		3	Administration	810,1	1.623	1,018	
) I	Land Acquisition Administration Engineering Services	74 1,150 458	0 1,623	1,150 2,081		3	Administration Lingineering Services	1,018 405	1,623	2,028	
}	Land Acquisition Administration Engineering Services Physical Contingency	74 1,150 458 2,079	0 1,623 1,851	1,150 2,081 3,934		3 4 5	Administration Engineering Services Physical Contingency	1,018 405 1,517	1,623 1,669	2,028 3,186	
} } \$	Land Acquisition Administration Engineering Services Physical Contingency Sub-total	74 1,150 458 2,079 15,942	0 1,623 1,851 14,216	1,150 2,081 3,934 30,159		3 4 5	Administration Ungineering Services Physical Contingency Sub-total	1,018 405 1,517 11,629	1,623 1,669 12,736	2,028 3,186 24,425	
} 1 5	Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escatation	74 1,150 458 2,079 15,942 11,450	0 1,623 1,851 14,216 5,240	1,150 2,081 3,934 30,159 16,690	M.Co.	3 4 5	Administration Engineering Services Physical Contingency Sub-total price Escatation	1,018 405 1,517 11,629 0	1,623 1,669 12,736 0	2,028 3,186 24,425 0	
} 1 5	Land Acquisition Administration Engineering Services Physical Contingency Sub-total	74 1,150 458 2,079 15,942	0 1,623 1,851 14,216	1,150 2,081 3,934 30,159	OM Cost 487	3 4 5	Administration Ungineering Services Physical Contingency Sub-total	1,018 405 1,517 11,629 0	1,623 1,669 12,736	2,028 3,186 24,425 0	ΟM
≥ 3 4 5	Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escatation	74 1,150 458 2,079 15,942 11,450	0 1,623 1,851 14,216 5,240	1,150 2,081 3,934 30,159 16,690		3 4 5	Administration Engineering Services Physical Contingency Sub-total price Escatation	1,018 405 1,517 11,629 0	1,623 1,669 12,736 0	2,028 3,186 24,425 0	OM
2 3 4 5 5 5	Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification	74 1,150 458 2,079 15,942 11,450 27,392	0 1,623 1,851 14,216 5,240 19,456	1,150 2,081 3,934 30,159 16,690		3 4 5	Administration Engineering Services Physical Contingency Sub-total price Escatation	1,018 405 1,517 11,629 0	1,623 1,669 12,736 0	2,028 3,186 24,425 0	OM
2 3 4 5 5 5	Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total	74 1,150 458 2,079 15,942 11,450	0 1,623 1,851 14,216 5,240 19,456	1,150 2,081 3,934 30,159 16,690		3 4 5 6	Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total	1,018 405 1,517 11,629 0	1,623 1,669 12,736 0 12,796	2,028 3,186 24,425 0	OM
2 3 4 5 5 5 - 1	Land Acquisition Administration Fingineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost	74 1,150 458 2,079 15,942 11,450 27,392	0 1,623 1,851 14,216 5,240 19,456	1,150 2,081 3,934 30,159 16,690 46,849 C		3 4 5 6 	Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification	1,018 405 1,517 11,629 0 11,629	1,623 1,669 12,736 0 12,736 2004 F.C.	2,028 3,186 24,425 0 24,425 0	OM
2 3 4 5 5 5 - 1	Land Acquisition Administration Fingineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost	74 1,150 458 2,079 15,942 11,450 27,392	0 1,623 1,854 14,216 5,240 19,456 2004 F.C.	1,150 2,081 3,934 30,159 16,690 46,849 C		3 4 5 6 No.	Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost	1,018 405 1,517 11,629 0 11,629	1,623 1,669 12,796 0 12,796 2004 E.C.	2,028 3,186 24,425 0 24,425 0 Total	OM
2 3 4 5 5 5	Land Acquisition Administration Fingineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition	74 1,150 488 2,079 15,942 11,450 27,392 L.C. 12,181 79	0 1,623 1,851 14,216 5,240 19,456 2004 E.C. 10,739 0	1,150 2,081 3,934 30,159 16,690 46,849 C		3 4 5 6 No.	Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition	1,018 405 1,517 11,629 0 11,629 L.C. 8,649	1,623 1,669 12,726 0 12,726 2004 F.C. 9,504 0	2,028 3,186 24,425 0 24,425 0 Total 18,152 43	OM
2 3 4 5 5 5 5	Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration	74 1,150 488 2,079 15,942 11,450 27,392 L.C. 12,181 79 1,150	0 1,623 1,851 14,216 5,240 19,456 2004 F.C. 10,739 0	1,150 2,081 3,934 30,159 16,690 46,849 C		3 4 5 6 No.	Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration	1,018 405 1,517 11,629 0 11,629 L.C. 8,649 43 1,018	1,623 1,669 12,7% 0 12,7% 2004 E.C. 9,504 0	2,028 3,186 24,425 0 24,425 Total 18,152 43 1,018	OM
2 3 4 5 5 5 5 5 5 1	Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services	74 1,150 488 2,079 15,942 11,450 27,392 L.C. 12,181 79 1,150 445	0 1,623 1,851 14,216 5,240 19,456 2004 E.C. 10,739 0 0 1,574	1,150 2,081 3,934 30,159 16,690 46,849 ( Total 22,920 79 1,150 2,019		3 4 5 6 8 No.	Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services	1,018 405 1,517 11,629 0 11,629 L.C. 8,649 43 1,018 394	1,623 1,669 12,7% 0 12,7% 2004 E.C. 9,504 0 0 1,574	2,028 3,186 24,425 0 24,425 Total 18,152 43 1,018 1,968	OM
2 3 4 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	74 1,150 488 2,079 15,942 11,450 27,392 L.C. 12,181 79 1,150 445 2,078	0 1,623 1,851 14,216 5,240 19,456 2004 F.C. 10,739 0 0 1,574 3,847	1,150 2,081 3,934 30,159 16,690 46,849 C Total 22,920 79 1,150 2,019 3,925		3 4 5 6 8 No.	Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	1,018 405 1,517 11,629 0 11,629 L.C. 8,649 43 1,018 394 1,516	1,623 1,669 12,7% 0 12,7% 12,7% 2004 E.C. 9,504 0 0 1,574 1,662	2,028 3,186 24,425 0 24,425 Total 18,152 43 1,018 1,968 3,177	OM
2 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total	74 1,150 458 2,079 15,942 11,450 27,392 L.C. 12,181 79 1,150 445 2,078 15,933	0 1,623 1,851 14,216 5,240 19,456 2004 E.C. 10,739 0 0 1,574 1,847 14,160	1,150 2,081 3,934 30,159 16,690 46,849 C Total 22,920 79 1,150 2,019 3,925 30,093		3 4 5 6 No.	Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total	1,018 405 1,517 11,629 0 11,629 L.C. 8,649 43 1,018 394 1,516 11,619	1,623 1,669 12,7% 0 12,7% 12,7% 2004 E.C. 9,504 0 0 1,574 1,662 12,739	2,028 3,186 24,425 0 24,425 Total 18,152 43 1,018 1,938 3,177 24,358	OM
2 3 4 5 5 5 5 5 5 5 5 5	Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	74 1,150 458 2,079 15,942 11,450 27,392 L.C. 12,181 79 1,150 445 2,078 15,933 13,360	0 1,623 1,851 14,216 5,240 19,456 2004 F.C. 10,739 0 0 1,574 3,847	1,150 2,081 3,934 30,159 16,690 46,849 C Total 22,920 79 1,150 2,019 3,925	487	3 4 5 6 No.	Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	1,018 405 1,517 11,629 0 11,629 L.C. 8,649 43 1,018 3,94 1,516 11,619 0	1,623 1,669 12,7% 0 12,7% 12,7% 2004 E.C. 9,504 0 0 1,574 1,662	2,028 3,186 24,425 0 24,425 Total 18,152 43 1,018 1,908 1,908 0 24,358	

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

4D	Etne	10100	Cost
115	1.185	DC 121	COST

No.	Classification		2005	<del></del>
	of Costs	LC.	F.C.	Total
				.1.
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
	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 Cos
				1.459

Classification	_		
of Costs	ľ.C.	F.C.	Total
1 Construction Cost	50,989	41,953	95,942
2 Administration	3-10	. 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
Sub-total	66,771	59,508	126.279
7 price Escalation	50.827	22.873	73,700
Grand Total	117,598	82.381	199,979 OM
	• • • •		2

#### (2) Economic Cost

Nα	Classification		2005	*************
	of Costs	LC.	F.C.	Total
	Construction Cost	8,212	9,024	17.236
2	Land Acquisition	0	0	0
3	Administration	963	0	963
4	Lingineering Services	154	616	770
	Physical Contingency	1,399	1.116	2.845
	Sub-total	10,728	11,086	
6	price Escalation	0	0	0
	Grand Total	10,728	11,086	21,814 OM Co.
			*	58

Classification		Total		
of Costs	I.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	
Sub-total	48,700	53,561	102,260	
7 price Escalation	0	0	0	
Grand Total	48,700	53.561	102,260	OMO
		.,	,	70

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

ıyr 1	inancial Cost		Unit: Bs	1.000		(2) E	conomic Cost		Unit: Bs	1 000	
No.	Classification	· · · · · · · · · · · · · · · · · · ·	2000	1,000	•	No.	Classification		2000	. 1,000	
	of Costs	LC.	F.C.	Total	•		of Costs	L.C.	EC.	Total	
1	Construction Cost	0	: 0	0		1	Construction Cost	0	0	0	
-	Land Acquisition	73	0	73			Land Acquisition	40	ő	40	
	Administration	4	0	4			Administration	4	Õ	4	
	Engineering Services	157	558	715			Engineering Services	139	558	697	
	Physical Contingency	35	84	119			Physical Contingency		84	111	
_	Sub-total	269	642	911		-	Sub-total	210	642	852	
	price Escalation	108	139	247							4
v	Grand Total		781		014.0	•	price Escalation	0	0		
	Grand Total	377	/61	1,130	OM Cost 0		Grand Total	210	642	852 (	O.
2			•			2	-				
No.	Classification		2001	<del></del>	• .	No.	Classification		2001		
	of Costs	L.C.	F.C.	Total			of Costs	L.C.	F.C.	Total	
		****								<del></del>	
	Construction Cost	6,628	6,496	13,124			Construction Cost	4,706	5,749	10,455	
	Land Acquisition	73	. 0	73		2	Land Acquisition	40	0	40	
	Administration	660	0	660			Administration	.584	0	.584	
	Engineering Services	262	929	1,191			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	OM Cost	* *:	Grand Total	6,3%	7,679	14,076	O.
	<del></del>	·• · · · · · · · · · · · · · · · · · ·			. •			···· - • · · · · · · · · · · · · · · · ·		·····	
3 Na	Classification		2002		•	3 No.	Classification		2002		
100		10		Total		140.		10		3'-1-1	
	of Costs	L.C.	F.C.	Total			of Costs	LC.	F.C.	Total	
Ł	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	
	Administration	660	0	660			Administration	584	ō	584	
	Engineering Services	262	929	1,191		4	Engineering Services	232	929	1,161	
	Physical Contingency	1,143	1,114	2,257			Physical Contingency		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	0.520	0	0,070	
•	Grand Total	14,077	11,237		OM Cost		Grand Total	6,396	_	14,076 (	O.
_		17,017	,		211		Cimio tom	(A:C)	K10,	,070	···
4						4					
No.	Classification		2003			No.	Classification		2003		
	of Costs	1.0	F.C.	Total			of Costs	T.C.	F.C.	Total	
ì	Construction Cost	6,629	6,496	13,125		1	Construction Cost	4,707	5,749	10,455	
	Land Acquisition	215	0	215			Land Acquisition	118	0	118	
	Administration	667	ō	667			Administration	590	ŏ	590	
	Fingineering Services	494	1,751	2,245		4	Engineering Services	437	1,751	2,188	
	Physical Contingency	1,201	1,237	2,438		-	Physical Contingency	878	1,125	2,003	
_	Sub-total	9,206	9,484	18,690		,	Sub-total	6,730		15,355	
ĸ	price Escalation	6,612	3,495	10,107			price Escalation	0,730	0,023	0	
O	Grand Total	15,818			OM Cost	J	Grand Total	6,730		15355 C	ጎዩ
:	Olaio tidal	12010	16,717	20,171	451		ORIN 1001	0,730	0,023	) دونها،	' کارس
5						5					
\ <u>0</u>	Classification		2004	<del>-</del>		No	Classification		2004		
	of Costs	L.C.	F.C.	Total			of Costs	LC	F.C.	Total	
	-	16,389	16,060	33.110		•	Construction Cost		14010	25010	
•	Constantion Carl	10.337	-	32,419					14,212		
	Construction Cost			246			Land Acquisition	135	0	135	
2	Land Acquisition	2-16	0				Administration	117			
2 3	Land Acquisition Administration	246 1,635	. 0	1,635			and the second s	1,447	0	1,447	
2 3 4	Land Acquisition Administration Engineering Services	246 1,635 833	2,948	3,781		4	Engineering Services	737	2,948	3,685	
2 3 4	Land Acquisition Administration Engineering Services Thysical Contingency	246 1,635 833 2,865	0 2,948 2,851	3,781 5,717	•	4	Engineering Services Physical Contingency	737 2,093	2,948 2,574	3,685 4,667	
2 3 4 5	Land Acquisition Administration Engineering Services Thysical Contingency Sub-total	246 1 635 833 2,865 21,968	0 2,948 2,851 21,859	3,781 5,717 43,828		4 5	Engineering Services Physical Contingency Sub-total	737	2,948	3,685	
2 3 4 5	Land Acquisition Administration Engineering Services Thysical Contingency	246 1,635 833 2,865	0 2,948 2,851	3,781 5,717 43,828 27,672	OM Cost	4 5	Engineering Services Physical Contingency	737 2,093	2,948 2,574	3,685 4,667	

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

(1) 6	Financial Cost			1000			conomic Cost		٠.		10
No.			2005		•	- <u>6</u> No.			2005		-
•••	of Costs	LC.	F.C.	Total	•	NO.	Classification	T.C.	2005 F.C	Total	-
	- C1 C-0314			100	-		of Costs	L.C.	r.c.	Total	-
1	Construction Cost	24,119	23,636	47,755		1	Construction Cost	17,124	20,917	38,041	
	Land Acquisition	3				2	Land Acquisition	17,124	_		
	Administration	2,389					•				
	Engineering Services	560				3		2,114			
						4	Engineering Services	501	2,002		
د	Physical Contingency	4,060	-			5	Physical Contingency	2,963			
_	Sub-total	31,17		-		1	Sub-total	22,720	26,357	49,077	
6	price Escalation	30,147				6	price Escalation	0	0	0	
	Grand Total	61,318	3 43,643	104,900	OM Cost	157	Grand Total	22,720	26.357	49,077	OMC
					1,413						
7					- ,	7			<del></del>		•
O.	Classification		2006		•	No.	Classification		2006	<del></del>	•
_	of Costs	LC.	E.C.	Total	-		of Costs	L.C.	F.C.	Total	•
_					-						•
1	Construction Cost	<b>7,7</b> .30	7,576	15,306		. 1	Construction Cost	5,488	6,701	12,193	
2	Land Acquisition	. 31	Ó	31		2	Land Acquisition	17	0		
3	Administration	767	7 . 0	767		3	Administration	679	Ŏ		
4	Lingingering Services	300				4	Engineering Services	271	1,084		
	Physical Contingency	1,325					Physical Contingency				
_	Sub-total	10,159				3		968	1,168		
6	price Escalation	11,224	-			_	Sub-total	7,423	8,957	-	
~	Grand Total					6	price Escalation	0	0		
	Greito (Od)	21,383	15,331	30,714	OM Cost -	:	Grand Total	7,423	8,957	16,380	
	W. L		<del></del>		2,517				<u> </u>		. !
8						8					
0.	Classification		2007			No.	Classification	·	2007		
	of Costs	I.C.	F.C.	Total			of Costs	I.C.	F.C.	Total	
							<del></del>				
	Construction Cost	7,730	7,576	15,306		1	Construction Cost	5,488	6,704	12,193	:
2	Land Acquisition	32	0	32			Land Acquisition	18	0		
	Administration	767		767			Administration ==	679	ő		
	Engineering Services	306	_	1,390							
-	Physical Contingency						Engineering Services	271	1,084	1,355	÷
		1,325	-	2,624		5	Physical Contingency	968	1,168	2,137	
_	Sub-total	10,160	-	20,119			Sub-total	7,424	8,957	16,380	
0	price Escalation	12,723	•	18,708		6	price Escalation	0	. 0	0	
	Grand Total	22,833	15,944	38,827	OM Cost		Grand Total	7,424	8,957	16,380	OMC
				<del></del>	3,038	•					1,0
9						. 9					:
0.	Classification		2008			No.	Classification		2008	<del></del>	
	of Costs	L.C.	F.C.	Total			of Costs	LC.	F.C.	Total	
	Construction Cost	7,730	7,576	15,306		3	Construction Cost	5,488	6.704	12,193	•
	Land Acquisition	0	0	0			Land Acquisition	0	0	0	
3	Administration	765	0				Administration	677	. 0		. :
	Engineering Services	122		555		_				677	
	Physical Contingency	1,293	and the second second	2,494			Engineering Services	108	433	541	
_	Sub-total			-		3	Physical Contingency	941:	1,071	2,012	
£	price Escalation	9,910		19,120		_	Sub-total	7,214	8,203	15,422	
v	•	13,972		20,098			price Escalation	0	0	0	. 2
	Grand Total	23,882	15,336	39,218	OM Cost 3,619		Grand Total	7,214	8,208	15,422	
		<del></del>			2,013		<u> </u>	<del></del>	· · · · · · · · · · · · · · · · · · ·		1,1
(a)	Classification		Total			Total	Classification				
	of Costs	- 17					Classification		Total		
	G COSS	LC.	F.C.	Total			of Costs	LC.	F.C.	Total	
ì	Construction Cost	83,583	81,912	165,495		ı	Construction Cost	59,344	72,488	131 232	
2	Administration	774		774			Administration	· ·			
	Lingineering Services	8314						426	0		- 1
				8,314			Engineering Services	7,358	0	7,358	
	Land Acquisition		11,718	15,026			Land Acquisition	2,927	11,718	14,645	
•	Physical Contingency		14,045	28,411		5	Physical Contingency	10,508	12,631	23,139	1 / 1
5		110376	107675	218,050			Sub-total	80,563			
_	Sub-total						oco iciai	· · · · · · · · · · · · · · · · · · ·	$v, \omega$	. / / NO	
_	price Escalation	102 906	49,493	152,399			price Escalation	0	<del>20,007</del>	0	*
_		102 906	49,493		OM Cost	6		. 0	0	_	

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

(I) I	Inancial Cost		Unit: Bs	1.000		(2) £	солотіс Cost		Cat: B	. 14793	
No.	Classification		2000			No.	Classification		3000	N. 1,17,02	•
	of Costs	1.C.	F.C.	Total	•		of Costs	T.C.	T.C.	Total	
1 2	Construction Cost Land Acquisition	0 119	0.0	0 119			Construction Cost	0		_	
3		6	Ü	6		2 3	Land Acquisition Administration	65 5	0		
	Lingineering Services	222	785	1,007		4	Engineering Services	ોંગ	785		
5	Physical Contingency Sub-total	53 399	118 903	170 1,302		- 5	Physical Contingency	40	118	158	
6		160	196	356		6	Sub-total price Escalation	307 0	903		
	Grand Total	559	1,099		OM Cost	_	Grand Total	307	903	-	OMCost 0
3	<del></del>					2				~	,
No.	Classification of Costs		2001	Total	•	No.	Classification		2001		
	(1 Costs	L.C.	F.C.	Total	•		ol Costs	I.C.	F.C.	Lotal	
	Construction Cost	9,016	9,462	18,478		ì	Construction Cost	6,401	8,373	14,775	
2 3		120 930	0	120		2		66	0		
4		37U	1,308	930 1,678		<u>3</u> 4	Administration	823	0	823	
5		1,565	1,516	3,181			Engineering Services Physical Contingency	327 1,143	1,308	1,635 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	U	U	Ū	
	Grand Total	18,010	15,672	33,682	OM Cost 0	-	Grand Total	8,760	11,134	19,894	OMCost 0
No.						3					
NO.	Classification el Costs	T.C.	2002 F.C.	Total		No.	Classification		2002	7.1.)	
	er costs	1.0.	1.0.	10(3)	•		of Costs	L.C.	F.C.	Total	
	Construction Cost	9,016	9,463	18,479		1	Construction Cost	6,401	8,374	14,776	
3	Land Acquisition Administration	22 925	Ü	22		2	Land Acquisition	12	Ü	12	
-	Lingmeering Services	279	987	925 1,266		4	Administration Engineering Services	819	0	819	
	Physical Contingency	1,536	1,568	3,104		3	Physical Contingency	247 1,122	1.404 1.404	1,234 2,536	
	Sub-total	11,778	12,018	21.7%		_	Sub-total	8,601	10,766		
6	price Escalation Grand Total	7,135 18,913	3,797 15,815	10,932	£ 14 £ £ 1= - 1	6	price Escalation	U	U	0	
	Orang Total	10,71.7	12,012	34,725	OM Cost 297		Grand Total	8,601	10,766	19,366	0M Cast 148
4						4					
No.	Classification of Costs		2003 F.C.	Total		No.	Classification		2003		
	(1100.0)	320.		100			of Costs	L.C.	F.C.	Total	
	Construction Cost	5,325	5,590	10,915		1	Construction Cost	3,781	4,947	8,728	
	Land Acquisition Administration	22 547	0	22 547		2		12	O O	12	
	Engineering Services	218	773	991		3 4	Administration Engineering Services	484 193	773	484	
	Physical Contingency	917	954	1,871			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 Grand Total	5,048 12,077	2,697 10,014	7,745 22,091	OM Cost	6	price Escalation Grand Total	0 5,140	6,578	0 11.718	OM Cost
	· · · · · · · · · · · · · · · · · · ·				635						296
<u> 5</u>	Towns to the	·····	<del></del>			5					
NO.	of Costs	L.C.	E.C.	Total		No.	Classification of Costs	LC.	2001 F.C.	Total	
. 1	Construction Cost	5,326	5,590	10,916		1	Construction Cost	3,781	4,947	8,738	
2	Land Acquisition	23	Ű	23			Land Acquisition	13	0	13	
	Administration	547	0	547		3	Administration	481	U	481	
	Engineering Services  Physical Continuous	218 917	773 usi	991			Engineering Services	193	7/3	966	
,	Physical Contingency Sub-total	7,031	951 7,317	1,872 14,349		5	Physical Contingency Sub-total	671 5,142	858 6,578	1,529 11,720	
6	price liscalation	5,896	3,097	8,993	-	6	price Escalation	3,142 0	0,5(0	0	
	Grand Total	12,927	10,414	23,342	OMCost		Grand Total	5,142		11,720	UM Cost

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

(I) I Inancial Cost 6						(2) E 6	conomic Cost	en artista en			
Sō.	Classification of Costs	LC	2005 E.C.	Total		No.	Classification of Costs	T.C.	7:005 7:C:	rotal	•
1	Construction Cost	5,326	5,590	10,916		1	Construction Cost	3,781	4,947	8,728	
3	Land Acquisition Administration Engineering Services	0 546 87	0 0 309	546 396		3	Land Acquisition Administration Engineering Services	0 483 77	0 () (309	0 483 386	
	Physical Contingency Sub-total	894 6,853	885 6,784	13,637		5	Inysical Contingency Sub-total	651 4,993	788 6,044	1,440 11,037	
6	price Escalation Grand Total	6,628 13,481	3,258 10,042	9,886 23,523	OM Cost 1,156	6	price Escalation Grand Total	0 4,993	6,011 0	0	ОМ Со 47
otal		· · · · · · · · · · · · · · · · · · ·			• •	Lotal	**************************************		<del></del>	<u> </u>	•
	Classification of Costs	LC.	Fotal F.C.	Total			Classification of Costs	LC.	Total F.C.	Total	•
Į	Construction Cost	34,009	35,695	69,704		ī,	Construction Cost	24,146	31,588	55,735	
3	Administration Engineering Services Land Acquisition	306° 3,501	0 0	306 3,501 4,333		3	Administration Engineering Services	3,098	0	168 3,038	:
	Physical Contingency Sub-total	1,394 5,882 45,092	4,935 6,095 46,725	6,329 31,976 91,816		4 6	Land Acquisition Thysical Contingency Sub-total	1,244	4 945 5 479	6,169 9,776	•
7	price Escalation Grand Total	30,876 75,968	16331 63,056	47,207	OM Cost	7	price Escalation Grand Total	32,944 () 32,944	42,002 0 42,002	74,946 ()	OMCo

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

(1) £	Inancial Cost					(2) L	konomic Cost				
1			Unit: Hs	1,000	_				Unit: Bs	1.000	
No.	Classification		2000		-	No.	Classification		2000		-
	of Costs	L.C.	1.C	otal		E-A-MARAN, MA	of Costs	L.C.	T.C.	Lotal	-
1	Construction Cost	U	. 0	a			Constantion Cost				
2		ň	ŏ	n Tr	•	1 2	Construction Cost	Ü	Ö	Ü	
3		4	ŭ	. 4		3	Land Acquisition Administration	42 4	0		
	Engineering Services	193	- 683	876		4	Engineering Services	171	683	4 854	
	Physical Contingency	41	102	141			Physical Contingency	33	102	135	
	Sub-total	315	785	1.101		-	Sub-total	219	785	1,035	
6	price Escalation	127	170	297		6	price Escalation	ΰ	νõ	1,055	
	Grand Total	442	955	1,398	OM Cost		Grand Total	249	785		OMCost
					Ü					-,	Ü
_					•						•
2	Classification		- 2000			2					
No.	***************************************		2001	7.51-1		No.	Classification		2001		
	ol Costs	LC.	F.C.	lotal			of Costs	L.C.	T.C	Total	•
	Construction Cost	7,721	8,357	16,078		ı	Construction Cost	5.103	7 20	17 (17)	
	Land Acquisition	77	U	77			Land Acquisition	5,482 42	7,396 ()	12,877 42	
	Administration	808	ű	808			Administration	715	Ü	715	
	Engineering Services	322	1,138	1,460		4	Lingineering Services	285	1,138	1,423	
	Physical Contingency	1,339	1,424	2,763			Physical Contingency	979	1,280	2,359	
	Sub-total	10,267	10,919	21,186			Sub-total	7,503	9.814	17,317	
6	price Escalation	5,141	2,897	8,038		6	price Escalation	Ū	0	Ü	
	Grand Total	15,408	13,816	29,224	OM Cost		Grand Total	7,503	9,814	17,317	OMCost
					O						. 0
3											
No.	Classification		2002			No.	Classification		77.00		•
•	of Costs	T.C.	EC	Total		189.	ol Cests		2002	Total -	
	337 337 327	120.	1.0	1000			Orcces	LC.	F.C.	િલ	
1	Construction Cost	7,721	8,358	16,079		ı	Construction Cost	5.482	7396	12,878	
2	Land Acquisition	70	O	70			Land Acquisition	39	0	39	
3	Administration	807	U	807			Administration	714	Ö	714	
4	Engineering Services	360	1,276	1,636		4	Engineering Services	319	1,276	1,595	
>	Physical Contingency	1,444	1,445	2,789		5	Physical Contingency	983	1,301	2,384	
	Sub total	10,302	11,079	21,381			Sub-total	7,536	9.9/3	17,509	
0	price Escalation Grand Total	6,241	3.500	9,741		6	price Escalation	- 0	0	0	
	Grand Total	16,513	14,579	31,122	OM Cost		Grand Total	7,536	9,973	17,509	OM Cost
				·	258						129
4						4					
No.	Classification		2003			No.	Classification		2003		
	of Costs	L.C.	F.C.	Total			of Costs	T.C.	F.C.	Total	
	Construction Cost	9,273	10,037	19,310			Construction Cost	6,584	8,882	15,466	
	Land Acquisition	30	Ü	30			Land Acquisition	17	Ü	17	
	Administration Engineering Services	967 228	1.162	967			Administration	856	0	8.6	
	Physical Contingency	328 1,590	1,162 1,680	1,490 3,270			Engineering Services	290	1,162	1,452	
,	Sub-total	12,188	12.879	25,067		3	Physical Contingency Sub-total	1,162	1,507	2,669	
6	price Escalation	8.753	4.747	13,500		6	price Escalation	8,908 ()	11,551 U	20,459	
_	Grand Total	20,941	17,626		OM Cost		Grand Total	8,908	11,551		OMCost
		•	•		553			0,700		20, 1.72	258
										<del></del>	
5						5					
No.	Classification		2004			No.	Classification		2004		
	of Costs	LC.	F.C.	Total			of Costs	L.C.	F.C.	Total	
1	Construction Cost	6,959	7,533	3.1.303		,	L'onclaintent aut	27512		11 454	
	Land Acquisition	0,539	0	14,491 0			Construction Cost	4,941		11.605	
	Administration	725	ŭ	725			Land Acquisition Administration	643	0	612	
	Engineering Services	116	410	526			Engineering Services	103	410	513	
	Physical Contingency	1,170	1,191	2,361			Physical Contingency	853	1,061	1.914	
	Sub-total	8,970	9,133	18,103			Sub-total	6,538	8.137	14,675	
G	price Escalation	7,520	3,866	11,386		6	price Escalation	Ü	Ü	Ü	
	Grand Total	16,490	12,999	29,489 (	JM Cost		Grand Total	6,538	8,137		OM Cost
					946						412

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

(1)	Financiai	Cost
***-		

	Classification		Total	
	of Costs	T.C.	F.C.	iolal
1	Construction Cost	31,674	34.281	65,958
2	Administration	254	Ù	254
3	Engineering Services	3311	U	3311
4	Land Acquisition	1,319	4,669	5,988
6	Inysical Cooungency	5,484	5,843	11.327
	Sub-total	42,042	41.796	86,838
7	price Escalation	27,782	15.180	42,962
	Grand Total	69,824	59,976	129,800 OM Cos
		•	-	1.29

### (2) Economic Cost

	Classification		Total	
	ol Costs	LC.	T.C.	Total
ì	Construction Cost	22,489	30,340	52,828
2	Administration	(40)	. 0	140
3	Engineering Services	2,930	. 0	2,930
4	Land Acquisition	1,167	4,669	5,836
6	Physical Conungency	4,009	5,251	9,260
	Sub-total	30,734	40,260	70.995
7	price Escalation	Ü	. 0	Ü
	Grand Total	30,734	40,260	70,995 OMCo
				52

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

(l) F	inancial Cost		Unit: Bs	14771			conomic Cost			- 4 LD-VI	
No.	Classification		2000	. 1,000		No.	Classification		Unit: Ba	. 1,000	
	of Costs	7.C.	Tit:	Lotal		10.	of Costs	L.C.	2000 1:C.	Total	
1	Construction Cost	Ú	. 0			ı	Construction Cost	Ü	0	U	
2	Land Acquisition	77	0	-n	•	2	Land Acquisition	42	ŭ	42	
3	Administration	4	0	4			Administration	4	Ũ	4	
4	Engineering Services	247	876	1,123		4	<b>Engineering Services</b>	219	876	1,095	
5	Physical Conungency	49	131	181		5	Physical Contingency	40	131	171	
	Sub-total	377	1,007	1,385			Sub-total	304	1,007	1,312	
. 6	price Escalation	152	218	370		6	price Escalation	0	0	Ü	
	Grand Total	529	1,225	1,755	OM Cost 0		Grand Total	304	1,007	1,312 (	OMCost 0
2			· · · · · · · · · · · · · · · · · · ·			2					v
No.	Classification		2001			No.	Classification	<del></del>	2001	<del></del> ,	
	of Costs	T.C.	T.C.	Total			ol Costs	T.C.	F.C.	Total	
		· · · · · · · · · · · · · · · · · · ·						11.0.	1.0.	I CIAI	
1	Construction Cost	9,911	10,712	20,624		1	Construction Cost	7,0.17	9,480	16,516	
2	Land Acquisition	T	U	77			Land Acquisition	42	Ü	42	
	Administration	1,035	U	1,035		3	Administration	916	Ü	916	
	lingineering Services	412	1,460	1,872		4	Engineering Services	365	1,460	1,835	
5	Physical Contingency	1,715	1,826	3,541			Physical Contingency	1,254	1,641	2,895	
	Sub total	13,150	13,928	27,148			Sub-total	9,614	12,581	22,194	
6	price discalation	6,585	3,714	10,299		6	price Escalation	U	U	U	
	Grand Total	19,735	17,712	37,447	OM Cost 0		Grand Total	9,614	12,581	22,194 (	OMCost 0
3						3		· · · · · · · · · · · · · · · · · · ·			Ū
No.	Classification		2002			No.	Classification	<del></del>	2002		
	el Costs	LC.	TC	Total			of Costs	1.C.	ŤČ	Total	
						•	4 000			1(40	
	Construction Cost	9,912	10,712	20,624		1	Construction Cost	7,038	9,480	16,517	
	Land Acquisition	70	Ü	70		2	Land Acquisition	39	Ü	39	
	Administration	1,035	U	1,035			Administration	916	0	916	
	Engineering Services	393	1,391	1,784			Engineering Services	348	1,391	1,739	
3	Physical Contingency	1,712	1,815	3,527		5	Physical Contingency	1,251	1,631	2,882	
	Sub-lotal	13,122	13,918	27,040			Sub-total	9,591		22,092	
O	price Escalation Grand Total	7,949	4,397	12,346	*** * * * * *	0	price Escalation	Ü	U	U	
	Giaixi Total	21,071	18,315	39,380 1	OM Cost 331		Grand Total	9,591	12,501	22,092 (	OM Cost 165
4						4					
No.	Classification		2007			No.	Classification		2003		
	of Costs	LC.	T.C.	Total			of Costs	_L.C	ŤĊ	<b>ाल</b> न	
		····		····							
	Construction Cost	9,134	9,873	19,007		L	Construction Cost	6,485	8,737	15,222	
2	Land Acquisition	30	0	30		2	Land Acquisition	17	0	17	
	Administration	952	0	952			Administration	842	Ü	842	
	Engineering Services	326	1,154	1,480		4	lingineering Services	283	1,154	1,442	
5	Physical Contingency	1,566	1,651	3,220		- 5	Physical Contingency	1,145	1,484	2,629	
4	Sub-total price Escalation	12,008 8,624	12,681	24,689		,	Sub-total	8,778	11,375		
U	Grand Total	20,632	4,674 17,355	13,298	IMC oct	O	price Escalation	0	U	0	
	Grand Total	20,032	17,3,00	37,987 (	709		Grand Total	8,778	11,375	20,152 (	OM Cost 330
5			·			5					550
No.	Classification		2004				Classification				
	of Costs	LC.	F.C.	Total		No.	classification of Costs	T.C.	F.C.	Total	
ı	Construction Cost	6,961	7,527	14,491			Construction Cost	4,944	6.541	11//	
	Land Acquisition	0,504	Ü	0			Land Acquisition	4,544 ()	0,001	200,11 0	
	Administration	725	ŏ	725			Administration	612	Ü	642	
	Engineering Services	116	41Ŭ	526			Engineering Services	103	410	513	
	Physical Contingency	1,171	1,191	2,361			Physical Contingency	853	1,061	1,914	
	Sub-total	8,976	9,128	18,103		_	Sub-total	6,542		14,674	
6	price Escalation	7,525	3,864	11,389			price Escalation	Ü	Ü	Ü	
	Grand Total	16,501	12,992	29,492 (	JM Cost		Grand Total	6,512		14,674 (	MCost

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

Financial Cost al				(2) Economic Cost Total			1
Classification		lotal		Classification		Total	
of Costs	I.C.	F.C.	Total	of Costs	1.C.	1.0.	िर्दर्श
L Construction Cost	35,921	38,824	74,745	1 Construction Cost	25.504	34,358	59.861
2 Administration	254	Ü	254	2 Administration	140	Ü	140
3 Empineering Services	3,751	. 0	3,751	3 Engineering Services	3,319	ũ	3319
1 Land Acquisition	1,494	5,291	6,785	4 Land Acquisition	1,322	5.291	6,613
5 Physical Contingency	6,213	6,617.	12.830	6 Physical Contingency	4,513	5.947	10.490
Sub-total	47,633	50,732	98,365	Sub-total	34.828		
7 price Escalation	30,815	16,867	47,702	7 price liscalation	ő	0	0
Grand Total	78,468	67,599	146,067 OM Cost 1,470	Grand Total	34,828	45,596	80,421 OMO

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

1	inancial Cost		Unit: Bs	1 000			conomic Cost		Halte De	. 1 000	
No.	Classification		2000	1,000		No.	Classification		Unit: B: 2000	. 1,000	
	of Costs	L.C.	F.C.	Total			of Costs	I.C.	i.c.	Total	
ŧ	Construction Cost	0	0	0	•	1	Construction Cost	. 0	0	0	
2	Land Acquisition	239	0	239		2	Land Acquisition	131	0		
	Administration	12	0	12		3	Administration	11	0	11	
	Engineering Services	325	1,151	1,476		4	Engineering Services	288	1,151	1,439	
5	Physical Contingency	86	173	259		5	Physical Contingency	64	173	237	
	Sub total	662	1,324	1,986			Sub-total	494	1,324	1,818	
6	price Escalation	267	287	554		6	price Escalation	0	0	0	
	Grand Total	. 929	L,611	2,510	OM Cost 0	-	Grand Total	494	1,324	1,818 (	OM
2						2					:
o.	Classification		2001			No.	Classification		2001		
	of Costs	L.C.	F.C.	Total			of Costs	LC.	F.C.	Total	
	Construction Cost	13,551	13,531	27,082		1	Construction Cost	9,621	11,974	21,5%	
	Land Acquisition	183	0	188			Land Acquisition	103	0	103	
	Administration	1,364	. 0	1,364			Administration	1,207	. 0	1,207	
	Engineering Services	393	1,392	1,785			Engineering Services	348	1,392	1,7-10	
5	Physical Contingency	2,324	2,238	4,563		5	Physical Contingency	1,692	2,005	3,697	
	Sub-total	17,820	17,161	34,982			Sub-total	12,971	15,371	28,343	
6	price Escalation	8,921	4.553	13,476		6	price Escalation	0	. 0	0	
	Grand Total	26,743	21,714	48,458	OM Cost 0		Grand Total	12,971	15,371	28,343 (	OM
3						3					
Vo.	Classification		2002	<del></del>		No.	Classification		2002		
	of Costs	I.C.	F.C.	Total			of Costs	LC.	F.C.	Total	
1	Construction Cost	7,365	7,353	14,718		1	Construction Cost	5,229	6,507	11,736	
2	Land Acquisition	62	0	62			Land Acquisition	34	Q	34	
3	Administration	739	0	739			Administration	651	Ó	654	
4	Engineering Services	292	1,035	1,327			Engineering Services	258	1,035	1,293	
5	Physical Contingency	1,269	1,258	2,527			Physical Contingency	926	1,131	2.058	
	Sub-total	9,727	9,646	19,373			Sub-total	7,102	8,673	15,775	
6	price Escalation	5,893	3,048	8,941		6	price Escalation	0	0	0	
	Grand Total	15,620	12,694	28,314	OM Cost 435		Grand Total	7,102		15,775 (	ЭМ
4			*			4				<del></del>	•
vo.	Classification		2003			No.	Classification	<del></del>	2003		
							of Costs	L.C.	F.C.	Total	
	of Costs	LC.	F.C.	Total			OI COSO	<u> </u>	•		
	Construction Cost	7,285	F.C. 7,275	14,560		1	Construction Cost	5,172	6,438	11,610	
2	Construction Cost Land Acquisition	7,285 22	7,275 0	14,560 22		2	Construction Cost Land Acquisition			·	
2 3	Construction Cost Land Acquisition Administration	7,285 22 729	7,275	14,560		2	Construction Cost	5,172	6,438	11,610	
2 3 4	Construction Cost Land Acquisition Administration Engineering Services	7,285 22 729 235	7,275 0 0 832	14,560 22 729 1,067		2 3 4	Construction Cost Land Acquisition Administration Engineering Services	5,172 12	6,438 0	11,610	
2 3 4	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	7,285 22 729 235 1,241	7,275 0 0 832 1,216	14,560 22 729 1,067 2,457		2 3 4	Construction Cost Land Acquisition Administration	5,172 12 645	6,438 0 0	11,610 12 645	
2 3 4 5	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total	7,285 22 729 235 1,241 9,512	7,275 0 0 832 1,216 9,323	14,560 22 729 1,067 2,457 18,835		2 3 4	Construction Cost Land Acquisition Administration Engineering Services	5,172 12 645 208	6,438 0 0 832	11,610 12 645 1,040	
2 3 4 5	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation	7,285 22 729 235 1,241 9,512 6,831	7,275 0 0 832 1,216 9,323 3,436	14,560 22 729 1,067 2,457		2 3 4 5	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	5,172 12 645 208 906	6,438 0 0 832 1,091	11,610 12 645 1,040 1,996	
2 3 4 5	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total	7,285 22 729 235 1,241 9,512	7,275 0 0 832 1,216 9,323	14,560 22 729 1,067 2,457 18,835 10,267	OM Cost 718	2 3 4 5	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total	5,172 12 645 208 906 6,943	6,438 0 0 832 1,091 8,361	11,610 12 645 1,040 1,996 15,304	
2 3 4 5	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation	7,285 22 729 235 1,241 9,512 6,831	7,275 0 0 832 1,216 9,323 3,436	14,560 22 729 1,067 2,457 18,835 10,267		2 3 4 5	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation	5,172 12 645 208 906 6,943 0	6,438 0 0 832 1,091 8,361 0	11,610 12 645 1,040 1,996 15,304 0	
2 3 4 5 6	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification	7,285 22 729 235 1,241 9,512 6,831 16,343	7,275 0 0 832 1,216 9,323 3,436 12,759	14,560 22 729 1,067 2,457 18,835 10,267 29,102 6		2 3 4 5	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification	5,172 12 645 208 906 6,943 0 6,943	6,438 0 0 832 1,091 8,361 0 8,361	11,610 12 645 1,040 1,996 15,304 0	
2 3 4 5 6	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total	7,285 22 729 235 1,241 9,512 6,831	7,275 0 0 832 1,216 9,323 3,436 12,759	14,560 22 729 1,067 2,457 18,835 10,267		2 3 4 5 6	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total	5,172 12 645 208 906 6,943 0	6,438 0 0 832 1,091 8,361 0 8,361	11,610 12 645 1,040 1,996 15,304 0	) (
2 3 4 5 6 5 \( \frac{5}{\lambda} \)	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost	7,285 22 729 235 1,241 9,512 6,831 16,343	7,275 0 0 832 1,216 9,323 3,436 12,759 2004 FC.	14,560 22 729 1,067 2,457 18,835 10,267 29,102 o		2 3 4 5 6 	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost	5,172 12 645 208 906 6,943 0 6,943 L.C.	6,438 0 0 832 1,091 8,361 0 8,361 2004 F.C.	11,610 12 645 1,040 1,996 15,304 0 15,304 C	
2 3 4 5 6 5 40.	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition	7,285 22 729 235 1,241 9,512 6,831 16,343 L.C. 4,942 23	7,275 0 0 832 1,216 9,323 3,436 12,759 2004 F.C. 4,935 0	14,500 22 729 1,067 2,457 18,835 10,267 29,102 o		2 3 4 5 6 	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition	5,172 12 645 208 906 6,943 0 6,943 L.C. 3,509	6,438 0 0 832 1,091 8,361 0 8,361	11,610 12 645 1,040 1,996 15,304 0 15,304 C	
2 3 4 5 6 5 1 2 3	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration	7,285 22 729 235 1,241 9,512 6,831 16,343 L.C. 4,942 23 495	7,275 0 0 832 1,216 9,323 3,436 12,759 2004 F.C. 4,935 0	14,500 22 729 1,067 2,457 18,835 10,267 29,102 0 Total 9,877 23 495		2 3 4 5 6 	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price liscalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration	5,172 12 645 208 906 6,943 0 6,943 1.C. 3,509 13 438	6,438 0 0 832 1,091 8,361 0 8,361 2004 F.C. 4,367 0	11,610 12 645 1,040 1,996 15,304 0 15,304 O	
2 3 4 5 6 5 1 2 3 4	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Liscalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services	7,285 22 729 235 1,241 9,512 6,831 16,343 L.C. 4,942 23 495 198	7,275 0 0 832 1,216 9,323 3,436 12,759 2004 FC. 4,935 0 0	14,540 22 729 1,067 2,457 18,835 10,267 29,102 0 Total 9,877 23 495 897		2 3 4 5 6 No.	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price liscalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services	5,172 12 645 208 906 6,943 0 6,943 L.C. 3,509 13 438 175	6,438 0 0 832 1,091 8,361 0 8,361 2004 F.C. 4,367 0 699	11,610 12 645 1,040 1,996 15,304 O 15,304 O Total 7,876 13 438 874	
2 3 4 5 6 5 1 2 3 4	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	7,285 22 729 235 1,241 9,512 6,831 16,343  L.C. 4,942 23 495 198 849	7,275 0 0 832 1,216 9,323 3,436 12,759 2004 FC. 4,935 0 0 699 845	14,550 22 729 1,067 2,457 18,835 10,267 29,102 0 Total 9,877 23 495 897 1,694		2 3 4 5 6 No.	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	5,172 12 645 208 906 6,943 0 6,943 1.C. 3,509 13 438	6,438 0 0 832 1,091 8,361 0 8,361 2004 F.C. 4,367 0	11,610 12 645 1,040 1,996 15,304 0 15,304 O	
2 3 4 5 6 5 1 2 3 4 5	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total	7,285 22 729 235 1,241 9,512 6,831 16,343 16,343	7,275 0 0 832 1,216 9,323 3,436 12,759 2004 F.C. 4,935 0 0 699 845 6,479	14,550 22 729 1,067 2,457 18,835 10,267 29,102 0 Total 9,877 23 495 897 1,694 12,986		2 3 4 5 6 No.	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total	5,172 12 645 208 906 6,943 0 6,943 1.C. 3,509 13 438 175 620 4,755	6,438 0 0 832 1,091 8,361 0 8,361 2004 F.C. 4,367 0 699	11,610 12 645 1,040 1,996 15,304 O 15,304 O Total 7,876 13 438 874	
2 3 4 5 6 5 70.	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	7,285 22 729 235 1,241 9,512 6,831 16,343  L.C. 4,942 23 495 198 849	7,275 0 0 832 1,216 9,323 3,436 12,759 2004 FC. 4,935 0 0 699 845	14,550 22 729 1,067 2,457 18,835 10,267 29,102 0 Total 9,877 23 495 897 1,694	718	2 3 4 5 6 No.	Construction Cost Land Acquisition Administration Engineering Services Physical Contingency Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Land Acquisition Administration Engineering Services Physical Contingency	5,172 12 645 208 906 6,943 0 6,943 L.C. 3,509 13 438 175 620	6,438 0 0 832 1,091 8,361 0 8,361 2004 EC: 4,367 0 699 760	11,610 12 645 1,040 1,996 15,304 0 15,304 C Total 7,876 13 438 874 1,380	

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

No.	Classification		2005	
	of Costs	LC.	F.C.	Total
		~		. % -
1	Construction Cost	4,943	4,935	9.878
	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 Cos
				1303

(2)	Economic	Cost

No.	Classification		2005	
	of Costs	LC.	F.C.	Total
. 1	Construction Cost	3,510	4,367	7,877
2	Land Acquisition	0	0	0
- 3	Administration	437	0	437
- 4	Lingineering Services	70	280	350
- 5	Physical Contingency	602	697	1.300
	Sub-total	4,619	5341	9.963
6	price Escalation	0	0	0
	Grand Total	4,619	5,341	9,963 OM Cos
	•			529

	Classification		Total	
	of Costs	i.ć.	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
	Land Acquisition	1,522	5,389	6.911
6	Physical Contingency	6,596	6.513	13.109
	Sub-total	50,571	49,931	100.502
7	price Escalation	33,504	16,947	50.451
	Grand Total	84,075	66,878	150,953 OM Co
				1.60

Classification		Total	
of Costs	I.C.	F.C.	Total
1 - Construction Cost	27,011	33,654	60,695
2 Administration	294	0	291
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
Sub-total	36,885	41.899	81.784
7 price Escalation	. 0	0	0
Grand Total	36,885	41,829	81.784 OM Cos
			£/Y

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

	Inancial Cost	,	Unit: Bs.	1,000	_	1	conornie Cost		Unit: B	s. 1,000	_
No.	Classification		2000	·	-	No.	Classification		2000		
	of Costs	L.C.	F.C.	Total	_		of Costs	L.C.	F.C.	Total	•
1	Construction Cost	0	0	0		1	Construction Cost	0	0	0	
2	Land Acquisition	699	: 0	699			Land Acquisition	384			
	Administration	35	0	35	-		Administration	31	. 0		
	Engineering Services	1,762	6,239	8,001			Engineering Services	1,559	6,239		
	Physical Contingency	374	936	1,310			Thysical Contingency	296	936	-	
~	Sub-total	2,870	7,175	10,045		,	Sub-total	2,271	7,175	_	
6	once Escalation	1,155	1,554	2,709		6	price Escalation	2,211	-	•	
	Grand Total	4,025	8,729		OM Cost	v	Grand Total	2,271	0 7,175		OM Co
	Gialo Itali	4,023	0,727	12,757	0		Crand toda	2,211	7,173	<b>9,+</b> ₩	UNICO
2						2					-
No.	Classification	- 10	2001	75.3.4	•	No.	Classification		2001	··	
	of Costs	L.C.	E.C.	Total	•		of Costs	L.C.	F.C.	Total	
	Construction Cost	72,004	74,795	146,799			Construction Cost		66,190	-	
2	•	682	0	682			Land Acquisition	375	. 0	375	
	Administration	7,374	0	7,374			Administration	6,526	0	6,526	
	Engineering Services		10,612	13,610			Engineering Services		10,612		
5	Physical Contingency	12,459	12,811	25,270		5	Physical Contingency	9,102		20,622	
_	Sub-total	95,517	98,218	193,735			Sub-total	69,778	88,323	1.58,101	
6	price Escalation	47,828	26,059	73,887		6	price Escalation	0	· 0	. 0	
	Grand Total	143,345	124,277	267,622	OM 5001		Grand Total	69,778	88,323	158,101	OMCe
2				:							
No.	Classification		2002			- 3 No.	Classification		2002		
	of Costs	L.C.	F.C.	Total			of Costs	L.C.	F.C.	Total	
1	Construction Cost	75,119	76.819	151,938		•	Construction Cost	23.337	67,981	121 316	
	Land Acquisition	4.52		4.52			Land Acquisition	249	0,,01	249	
	Administration	7,620		7,620			Administration	6,743	ő	6,743	
	Engineering Services	-	10,566	13,551			Engineering Services		10,566	13,208	
	Physical Contingency	12,926		26,034			Physical Contingency	9,445		21,227	
_	Sub-total	99,102		199,595		Ĭ	Sub-total	72,413		162,743	
6	price Escalation	60,034	-	91,783		6	price Escalation	0	70,300	0	
	Grand Total	159,136		-	OM Cost	. •	Grand Total	-	90,330	_	
					2,357			72,413	טכיקטע	102,740	1,1
4				•		4					
No.	Classification		2003	·		No.	Classification			····	
	of Costs	L.C.	T.C.	Total			of Costs	L.C.	F.C.	Total	
ı	Construction Cost	72,901	74,547	147,448		1	Construction Cost	51,760	65,971	117,731	
	Land Acquisition	594	. 0	594		. 5	Land Acquisition	327	0	327	
3	Administration	7,402	0	7,402		_	Administration	6,550	0	6,550	
4	Engineering Services		11,283	14,470			Engineering Services		11,283		
	Physical Contingency	12,613		25,437			Physical Contingency	9,219		20,807	
	Sub-total	96,697	98,705	195,401			Sub-total		88,842		
6	price Escalation	69,416		105,825		6	price liscalation	0	0	0	
:	Grand Total	166,143	135,084	301,226	OM Cost 5,133		Grand Total		88,812		
				<del></del>	2,133						2,38
5 No.	Classification		2004	<del></del>		<u>5</u> No.	Classification		2004		
	of Costs	LC.	F.C.	Total		-10	of Costs	LC.	F.C.	Total	
1	Construction Cost	82,980	84,318	167,298		1	Construction Cost	58 916	74,618	133 533	
	Land Acquisition	5-16	0	546			Land Acquisition	300	14,016	300	
	Administration	8,392	ŏ	8,392			Administration	7,427	0	7,427	
	Engineering Services		11,838	15,246			Engineering Services		11,888	14,860	
	Physical Contingency	14,291	14,431	28.722			Physical Contingency				
_	Sub-total	109,567		220,201			Sub-total		12,976		
6	price Escalation	91,868		138,702			price Escalation		99,432		
_	Grand Total	201,435		358,906	OM Cost		Grand Total	90.056	0.191	0	OMO
		2016-01			8,203		CHAIN LOW)	00,000	99,482	1.12/7/2	OM Co 3.50

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

1 (1) 6	Financial Cost					(2) E 6	conomic Cost				
Nα	Classification		2005		-	No.	Classification	- <del>-</del>	2005		
	of Costs	L.C.	F.C.	'l' otal	•		of Costs	I.C.	EC.	Total	
1	Construction Cost	83,814	84,507	168,321	•	1	Construction Cost	59,508	73.785	131,293	
	Land Acquisition	31	0			2	Land Acquisition	17			
	Administration	8,418	0				Administration	7,450			
-4	Engineering Services	1,530	5,414	•			Engineering Services		5,414		
5	Physical Contingency	14,069	13,488	27,557	٠.		Physical Contingency			22.279	
	Sub-total	107,862	103,409	211,271			Sub-total	78,578		170.807	
6	price Escalation	104,319	49,662	153,981		. 6	price Escalation	0	0	0	
:	Grand Total	212,181	153,071	365,252	OM Cost		Grand Total	78,578	92,229	170,807	
					12,068						4,8
7 Vo.	Classification		2006		_	7 No.	Classification		2006	<del></del>	
	of Costs	1.C.	F.C.	Total	•	•	of Costs	L.C.	F.C.	Total	
4	Constanting Cost	7 710	2.63/	15205	-						
	Construction Cost	7,730	7,576	•			Construction Cost	5,488		12,193	
	Land Acquisition	31	0				Land Acquisition	17	0		
	Administration Engineering Services	767 306	1001			_	Administration	679	0		
	Physical Contingency	1,325	1,081	•		4	Engineering Services	271	1,084	1,355	
	Sub-total	10,159	9,959	•		3	Physical Contingency	968	1,168		
6	price Escalation	11,224	5,372	•		£	Sub-total price Escalation	7,423	8,957		
•	Grand Total	21,383	15,331	-	OM Cost	. 0	Grand Total	0 7,423	0 8,957	0 16,380 (	ЭМС
	<del></del>			· · · · · · · · · · · · · · · · · · ·	16,456					<u> </u>	6.2
8						. 8	~ <del></del>				
O.	Classification		2007			No.	Classification		2007		
	of Costs	I.C.	F.C.	Total			of Costs	LC.	F.C.	Total	
	Construction Cost	7,730	7,576	15,306		. 1	Construction Cost	5,488	6,701	12,193	
	Land Acquisition	32	0	32		2	Land Acquisition	18	. 0	18	
	Administration	767	0	767		3	Administration	679	0	679	
	Lingincering Services	306	1,084	1,390		4	Engineering Services	271	1,084	1,355	
5	Physical Contingency	1,325	1,299	2,624		5	Physical Contingency	968	1,168	2,137	
_	Sub total	10,160	9,959	20,119			Sub-total	7,424	8,957	16,380	
6	price Escalation	12,723	5,985	18,708		, 6	price Escalation	0	0	0	
	Grand Total	22,883	15,944	38,827	OM Cost 17,952	*. *	Grand Total	7,424	8,957	· 16,380 C	M Co 6,3
9					_					<del></del>	0,5
0	Classification		2008			<u>9</u> No.	Classification		2008		: "
	of Costs	LC.	F.C.	Total			of Costs	LC.	F.C.	Total	
1	Construction Cost	7,730	7,576	15,306		•	Construction Cost	e 101		12.10	
	Land Acquisition	0	7.70	0			Construction Cost  Land Acquisition	2483	6,701	12,193	
	Administration	765	ő	765			Administration	0 173	0	677	
	Engineering Services	122	433	555			Engineering Services	677	0	677	
	Physical Contingency	1,293	1,201	2,494			Improceing Services  Imprical Contingency	108	433	511	
_	Sub-total	9,910	9,210	19,120			Sub-total	941 721.1	1,071 9,209	2.012	
6	price Escalation	13,972	6,126	20,028			price Escalation	7,214 0	8,208 0	15,422 0	
	Grand Total	23,882	15,336		OM Cost		Grand Total	7,214		15,422 C	
			<del></del>	<del></del>	19,578		<del></del>	ve-i			6,48
isk.	Classification	· · · · · · · · · · · · · · · · · · ·	Total			Total			· · · · · · · · · · · · · · · · · · ·		٠.
	of Costs	L.C.	Total F.C.	Total			Classification		Total		
	4 000	L.C.	1.0.	icial			of Costs	L.C.	F.C.	Total	
	Construction Cost	410,008	417,714	827,722		: 1	Construction Cost	291,106	369,658	660,764	
	Administration	3,067	. 0	3,067			Administration	1,687	0	1,687	,
	Engineering Services	41,540	0	41,540			Engineering Services	36,761		36,761	
	Land Acquisition	16,554	58,603	75,157		4	Land Acquisition		58,603		
	Physical Contingency	70,675	71,448	142,123			hysical Contingency		64,239		<i>i.</i>
	Sub-total			1,089,600			Sub-totat	395,834			
	price Escalation	J12 S/0	200730	622,289		_	adaa Paastada a				
	Grand Total			1,711,898 (		. 6	price Escalation	O	0	0	

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

t	financial Cost	*	Unit: Bs	. 1,000		(2) E	Conomic Cost		Unit: R	s. 1,000
No.	Classification		2000		-	No.	Classification		2()()()	
	of Costs	LC.	F.C.	Total	-		of Costs	L.C.	F.C.	Total
				3			(4 CO313	L.C.	1.0.	T (tal
1	Construction Cost	0	0		,	i	Construction Cost	0	0	0
	Land Acquisition	635	. ŏ							
	Administration	32	. 0	32			Land Acquisition	349	-	
			_				Administration	28		
	Engineering Services	1,495	5,296	-		4	Engineering Services	1,323	5,296	6,619
2	Physical Contingency	324	794	1,119		5	Physical Contingency	255	794	1.019
	Sub-total	2,486	6,020	8,577	,		Sub-total	1.956	6,090	8,016
6	price Escalation	1,001	1,320	2,321		6	price Escalation	0		
	Grand Total	3,487	7,410	10,898	OM Cost		Grand Total	1,956		-
2		· · · · · · · · · · · · · · · · · · ·	<del></del>		_	2			<del>~</del>	
No.	Classification		2001		-	No.	Classification	<del></del>	2001	
	of Costs	I.C.	E.C.	1 otal	-		of Costs	l'C	F.C.	Total
	Construction Con-	/1 mm	CA 0 **							
1		61,772	62,840	124,612			Construction Cost	43,858		
	Land Acquisition	617	0	617	•		Land Acquisition	339	0	339
	Administration	6,261	0	6,261		3	Administration	5,541	0	5,541
	lingineering 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		17,497
	Sub-total	81,885	82,663	164,548			Sub-total	59,798		134,147
6	price Escalation	41,002	21,932	62,934		6	price Escalation	0	0	0
	Grand Total	122,887	101,595		OM Cost 0		Grand Total			134,147 OM
3					. •		<del></del>	<del></del>		
No.	Classification					3				
١O.			2002			No.	Classification		2002	
	of Costs	L.C.	F.C.	Total			of Costs	LC,	E.C.	Total
	Constanting Cost	£4000							-	
	Construction Cost	64,888	64,863	129,751		. 1	Construction Cost	46,070	57,401	103,471
- '	Land Acquisition	387	O,	387		2	Land Acquisition	213	0	213
3	Administration	6,507	.0	6,507		3	Administration	5,758	0	5,758
-1	Engineering Services	2,483	8,790	11,273		- 4	Lingincering Services	2,197	8,790	10,987
5	Physical Contingency	11,140	11,048	. 22,188			Physical Contingency	8,136		18,061
	Sub-total .	85,405	84,701	170,106			Sub-total	62,375		138,494
-6	price Escalation	51,737	26,760	78,497		6	price Escalation	0	0	0
	Grand Total	137,142	111.461		OM Cost		Grand Total		_	138,494 OM
					2,001		C. II. O TODI	02,373	70,120	1.0,424 0.1
4			-			4				<del></del>
O.	Classification		2003			No.	Classification		2003	<del></del>
	of Costs	L.C.	F.C.	Total						77
				e (na)			of Costs	L.C.	F.C.	Total
1	Construction Cost	60,340	(4) (02)	120.112			Contract of	40		
		•	60,073	120,413			Construction Cost	12,841	53,162	96,003
	Land Acquisition	529	0	529			Land Acquisition	291	0	291
	Administration	6.047	0	6,047		_	Administration	5,351	0	5,351
	Engineering Services	2,650	9,382	12,032			Engineering Services	2,345	9,382	11,727
5	Physical Contingency	10,435	10,418	20,853		. 5	Physical Contingency	7,624		17,006
	Sub-total	100,08	79,873	159,874			Sub-total	58,453	71,926	
6	price Escalation	57,456	29,439	86,895		6	price Escalation	0	0	0
	Grand Total	137,457 1	09,312	246,769	OM Cost 4,370		Grand Total			130,379 OM
_			·		- 10 P					2
		<del></del>	2004	<del></del>		5	Classificati		2021	
<u>5</u>	Classification		EC.	T-/-1		No.	Classification		2004	
	Classification	1.0		Total			of Costs	L.C.	F.C.	Total
o.	of Costs	LC.	1.0.							
o.			70,003	140,506		. 1	Construction Cost	50,100	61.950 4	112 049
i.	of Costs		70,003	140,566			Construction Cost		61,950 f	
i 2	of Costs  Construction Cost	70,563 481	70,003 0	140,566 481		2	Land Acquisition	265	0	265
i 2 3	of Costs  Construction Cost  Land Acquisition  Administration	70,563 481 7,052	70,003 0 0	140,566 481 7,052		· 2	Land Acquisition Administration	265 6,241	0 0	265 6,241
i 2 3 4	of Costs  Construction Cost Land Acquisition Administration Progincering Services	70,563 481 7,052 2,824	70,003 0 0 9,9%	140,506 481 7,052 12,820		2 3 4	Land Acquisition Administration Engineering Services	265 6,241 2,499	0 0 9,996	265 6,241 12,495
i 2 3 4	of Costs  Construction Cost Land Acquisition Administration Fingineering Services Physical Contingency	70,563 481 7,052 2,824 12,138	70,003 0 0 9,996 12,000	140,506 481 7,052 12,820 24,138		2 3 4 5	Land Acquisition Administration Engineering Services Physical Contingency	265 6,241 2,499 8,866	0 0 9,996 10,792	265 6,241 12,495 19,657
0. 2 3 4 5	of Costs  Construction Cost Land Acquisition Administration Trigineering Services Physical Contingency Sub-total	70,563 481 7,052 2,824 12,138 93,058	70,003 0 0 9,9% 12,000 91,999	140,506 481 7,052 12,820 24,138 185,057		2 3 4 5	Land Acquisition Administration Engineering Services Physical Contingency Sub-total	265 6,241 2,499 8,866 67,970	0 0 9,996 10,792 82,737 1	265 6,241 12,495 19,657 150,707
i 2 3 4 5 .	of Costs  Construction Cost Land Acquisition Administration Fingineering Services Physical Contingency	70,563 481 7,052 2,824 12,138	70,003 0 0 9,9% 12,000 91,999 38,941	140,506 481 7,052 12,820 24,138		2 3 4 5	Land Acquisition Administration Engineering Services Physical Contingency	265 6,241 2,499 8,866 67,970 0	0 0 9,996 10,792 82,737 1	265 6,241 12,495 19,657

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

No.	Financial Cost	1-Dawn.ha			_	(Z) E	tonomic Cost				
			2005		•	No.	Classification		2005		•
	of Costs	L.C.	F.C.	Total			of Costs	LC.	FC.	Total	
1	Construction Cost	71,391	70,198	141,589	•	1	Construction Cost	50 (88	62 122	112,810	
2	Land Acquisition	31	0	-			Land Acquisition	17	02,112		
	Administration	7,081	. 0				Administration	6,266	ő		
4	Engineering Services	1,316	4,657	5,973			Engineering Services	1,165	4,657		
5	Physical Contingency	11,973	11,228	23,201			Physical Contingency			18,737	
	Sub-total	91,792	86,083	177,875		115 T	Sub-total	66,856		143,652	
6	price Escalation	88,777	-	130,118		6	price Escalation	0	•		
	Grand Total		127,424	-	OM Cost		Grand Total			143,652	
					10,138			00,000		10,000	4,1
7	•					7					•
No.	Classification		2006		•	No.	Classification		2006	<del></del>	
	of Costs	1.C.	E.C.	Total	•		of Costs	LC.	F.C.	Total	
1	Construction Cost	7,730	7,576	15,306			Construction Cost	5.488	6.201	12 193	
2	Land Acquisition	31	0	31			Land Acquisition	17	0,7,4		
	Administration	767	ő	767			Administration	679	: 0		
4	Lingineering Services	306	1,084	1,390			Engineering Services	271	1,084	1,355	
	Physical Contingency	1,325	1,299	2,624			Physical Contingency	968	1,163		
	Sub-total	10,159	9,959	20,118		.,	Filysical Contingency	7,423	8,957		
6	price Escalation	11,224	5372	16,596		٨.	price Escalation	7,425	0 16.879	10,380	
	Grand Total	21,383	15,331		OM Cost	٠	Grand Total	7,423		16,380	OM Co
		<del></del>	<del></del>		13,827						5.2
8						8					
۱o.	Classification		2007			No.	Classification		2007		
	of Costs	I.C.	F.C.	Total			of Costs	L.C.	F.C.	Total	
1	Construction Cost	7,730	7.576	15,306			Coortenation Cont	£ 400		12.00	
	Land Acquisition	32	0	32			Construction Cost  Land Acquisition	5,488	6,704		
	Administration	767	ŏ	767			•	18	. 0	18	
	Engineering Services	306	1,084	1,390			Administration	679	0	679	
	Physical Contingency	1,325	1,299	2,624			Engineering Services	271	1,081	1,355	
	Sub-total	10,160	9,959	20,119			Physical Contingency	9(8	1,168	2,137	
6	price Escalation	12,723	5,935	18,708		-	Sub-total	7,424	8,957	16,380	
•	Grand Total	22,883	15,944		OM Cost		price Escalation Grand Total	0 7,424	0 8,957	0 16,380	OMC~
	· · · · · · · · · · · · · · · · · · ·				15,140		cimo todi	1,424	0,757	10,360	5,36
9						9				:	
Vo.	Classification		2008	<del></del>		No.	Classification		2008		1
	of Costs	I.C.	F.C.	Total			of Costs	J.C.	F.C.	Total	
1	Construction Cost	7,730	7,576	15,306		. 1	Construction Cost	5,488	6,704	12,193	
	Land Acquisition	0	0	0			Land Acquisition	0	0	0	
	Administration	765	0	765			Administration	677	,ŏ	677	
	Engineering Services	122	433	555			ingineering Services	108	433	541	
	Physical Contingency	1,293	1,201	2,491			Physical Contingency	941	1,071	2.012	
			9,210	19,120			Sub-total	7,214	8,208	15,422	
5	Sub-total	9,910	,					- 1	-,	. 0	
5	Sub-total price Escalation	9,910 13,972	6,126	20,098		G	price Escalation	0	0	U	
5	Sub-total	9,910		20,098	OM Cost 16 569		price Escalation Grand Total	0 7,214	8,208	15,422	
5	Sub-total price Escalation Grand Total	9,910 13,972	6,126	20,098	OM Cost 16,569						
6	Sub-total price Escalation Grand Total	9,910 13,972	6,126 15,336	20,098			Grand Total		8,208		
6	Sub-total price Escalation Grand Total	9,910 13,972	6,126	20,098		·——		7,214	8,208 Total	15,422 (	OM Cos 5,48
5 6 otal	Sub-total price Escalation Grand Total  Classification of Costs	9,910 13,972 23,882	6,126 15,336 Total F.C.	20,098 39,218 d		Total	Classification of Costs	7,214	8,208 Total E.C.	15,422 (	
5 6 04al	Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost	9,910 13,972 23,882 L.C. 352,144	6,126 15,336 Total F.C. 350,705	20,098 39,218 d		Total	Classification of Costs  Construction Cost	7,214 L.C. 250,022 ;	8,208 Total F.C.	Total 560,381	
5 6 cotal 1 2	Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Administration	9,910 13,972 23,882 L.C. 352,141 2,743	6,126 15,336 Total F.C. 350,705 0	20,098 39,218 d Total 702,849 2,743		Total	Classification of Costs  Construction Cost Administration	7,214 L.C. 250,022 ; 1,509	8,208 Total F.C. 910,358	Total 560,381 1,509	
5 6 0ial 1 2 3	Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Administration Engineering Services	9,910 13,972 23,882 L.C. 352,144 2,743 35,279	6,126 15,336 Total F.C. 350,705 0	20,098 39,218 o Total 702,849 2,743 35,279		Total  1 2 3	Classification of Costs  Construction Cost Administration Engineering Services	7,214 L.C. 250,022 ; 1,509 31,220	8,208 Total E.C. 910,358 0	Total 560,381 1,509 31,220	
5 6 ctal 1 2 3 4	Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Administration Engineering Services Land Acquisition	9,910 13,972 23,882 1.C. 352,144 2,743 35,279 14,056	Total F.C. 350,705 0 49,763	702,849 2,743 35,279 63,819		Total	Classification of Costs  Construction Cost Administration ingineering Services and Acquisition	7,214 L.C. 250,022 : 1,509 31,220 12,439	8,208 Total E.C. 010,358 0 0 49,763	Total 560,381 1,509 31,220 62,202	
5 6 cotal 1 2 3 4	Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Administration Engineering Services Land Acquisition Physical Contingency	9,910 13,972 23,882 1C. 352,141 2,743 35,279 14,056 60,633	6,126 15,336 Total F.C. 350,705 0 49,763 60,070	702,849 2,743 35,279 63,819 120,764		Total  1 2 3 4 5 1 5 1	Classification of Costs  Construction Cost Administration Engineering Services and Acquisition Thysical Contingency	7,214 L.C. 250,022 : 1,509 31,220 12,439 44,279	8,208 Total F.C. 810,358 0 0 49,763 54,018	Total 560,381 1,509 31,220 62,202 98,297	
5 6 0tal 1 2 3 4 5	Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Administration Engineering Services Land Acquisition Physical Contingency Sub-total	9,910 13,972 23,882 1C. 352,141 2,743 35,279 14,056 60,633 464,855	6,126 15,336 Total F.C. 350,705 0 49,763 60,070 40,538	702,849 2,743 35,279 63,819 120,704 925,394		Total  1	Classification of Costs  Construction Cost Administration ingineering Services and Acquisition Thysical Contingency Sub-total	7,214 LC. 250,022 : 1,509 31,220 12,439 44,279 339,469 ·	Total F.C. 910,358 0 0,49,763 54,018	Total 560,381 1,509 31,220 62,202 98,297	
5 6 0tal 1 2 3 4 5	Sub-total price Escalation Grand Total  Classification of Costs  Construction Cost Administration Engineering Services Land Acquisition Physical Contingency	9,910 13,972 23,882 1.C. 352,141 2,743 35,279 14,056 60,633 461,835 355,917	6,126 15,336 Tetal E.C. 350,705 0 49,763 60,070 40,538 177,219	702,849 2,743 35,279 63,819 120,764	16,569	Total  1	Classification of Costs  Construction Cost Administration Engineering Services and Acquisition Thysical Contingency	7,214 L.C. 250,022 : 1,509 31,220 12,439 44,279	Total F.C. 310,358 0 0,49,763 54,018 114,140	Total 560,381 1,509 31,220 62,202 98,297 753,608 0	5,48

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

1	Inancial Cost		Unit: Bs	1,000		(2) E	conomic Cost		Unit: Bs	s. 1,000	
No.	Classification		2000		•	No.	Classification		2000		
	of Costs	I.C.	F.C.	Total	•		of Costs	L.C.	EC.	Total	
1	Construction Cost	0	. 0	• 0	•	,	Construction Cost	0	0	0	
	Land Acquisition	499	. 0	499			Land Acquisition	274	0	274	
	Administration	25	0	25			Administration	22	ŏ	22	
	Engineering Services	1,060	3,756	4.816							
	Physical Centingency	238	563	801			Engineering Services	938	3,756	4,694	
,	Sub-total	1,822				3	Physical Contingency	185	563	749	
		-	4,319	6,141			Sub-total	1,420	4,319	5,739	
. 0	price Escalation	733	936	1,669		6	price Escalation	0	. 0	0	
,	Grand Total	2,555	5,255	7,810	OM Cost 0		Grand Total	1,420	4,319	5,739 (	O١
2						2					
Na	Classification		2001		-	No.	Classification		2001		
	of Costs	I.C.	I.C.	Total	=	110.	of Costs	I.C.	F.C.	Total	
	C4 CC313	12/2	1.0.	1 (40)	•		Or COSIS	L.C.	r.c.	Total	
	Construction Cost	42,710	45,660	88,370		ì	Construction Cost	30,324	40,407	70,731	
	Land Acquisition	450	. 0	450		2	Land Acquisition	248	0	248	
3	Administration	4,441	0	4,441	1	3	Administration	3,930	0	3,930	
	Engineering Services	1,619	5,731	7,350			Engineering Services	1,433	5,731	7,164	
5	Physical Contingency	7,383	7,709	15,092			Physical Contingency	5,390	6,921	12,311	
	Sub-total	56,603	59,100	115,703			Sub-total		53,059		
6	price Escalation	28,343	15,680	44,023		6	price Escalation	0	0	0	
	Grand Total	84,946	74,780	159,726	OM Cost		Grand Total			94,383 (	0.\
<b>-</b>				· · · · · · · · · · · · · · · · · · ·	. 3					<del></del>	
No.	Classification	<del></del>	2002			No.	Classification		2002		
•••	of Costs	LC.	1.C.	Total	•	NO.		10		Tire to t	
	G COSIS	I.A.	r.c.	rotar			of Costs	L.C.	F.C.	Total	
1	Construction Cost	36,524	39,484	76,008		1	Construction Cost	25,932	34,942	60,874	
	Land Acquisition	292	0	292			Land Acquisition	161	0	161	
	Administration	3,815	ŏ	3,815			Administration	3,376	0	3,376	
	Engineering Services	1,624	5,748	7,372			Engineering Services	1,437	5,748	7,185	
	Physical Contingency	6,338	6,785	13,123			Physical Contingency	4,636	6,103	10,739	
_	Sub-total	48,593	52,017	100,610			Sub-total			•	
6	price Escalation	29,437	16,434	45,871		. 4	price Escalation	35,512 0	46,793	82,333	
Ÿ	Grand Total	78,030		-	OM Cost	0	Grand Total	_	_	82,335 C	n.
				1 +3, +01	1,419		- Crano Total	33,542	40,793	· · · · · · · · · · · · · · · · · · ·	۷.۱
4						4			_		
No.	Classification		2003			No.	Classification		2003		
	of Costs	L.C.	F.C.	Total		·	of Costs	L.C.	F.C.	Total	
1	Construction Cost	40,933	43,708	84,641		1	Construction Cost	20 063	38,680	67 747	
	Land Acquisition	212	0	212			Land Acquisition	117	0	117	
	Administration	4,243	ő	4,243			Administration	3,755	ő	3,755	
	Engineering Services	1,579	5,589	7,168			Engineering Services	1,397	5,589	6,986	
	Physical Contingency	7,015	7,395	14,410			Physical Contingency	5,150		11,790	
•	Sub-total	51012	56,692	110,701			Sub-total		50,909		
6	price Escalation	38,790		59,685			price Escalation	39,481		-	
J	Grand Total	92,802	77,587		OM Cost	Ų	Grand Total	20.191	50.000	0 200 0	<b>31</b> -
	Chart Foot	72,EV\$		KOC2011	2,824		GIAIG (OM)	39,481	.0,303	90,390 C 	JNI
5				· 		5					
No.	Classification		2004			No.	Classification		2004	·	
	of Costs	LC.	F.C.	Total			of Costs	I.C.	F.C.	Total	
1	Construction Cost	36,277	38,863	75,140	ι	1	Construction Cost	25,757	34,392	60,149	
	Land Acquisition	181	0	184			Land Acquisition	101	0	101	
	Administration	3.766	ŏ	3,766			Administration	3,333	ő		
	Engineering Services	1.329	4,704	6,033						3,333	
			1.10	0,000		-	Engineering Services	1,176	4,704	5,830	
4							Dhysical Costinger				
4	Physical Contingency	6,233	6.535	12,768			Physical Contingency	4,555	5,864	10,419	
<b>4</b> <b>5</b> ,	Physical Contingency Sub-total	6,233 47,789	6,535 50,102	12,768 97,891		5	Sub-total	4,555 34,922	5,864 44,960	10,419 79,882	
<b>4</b> <b>5</b> ,	Physical Contingency	6,233	6.535	12,768 97,891 61,279	OM Cost	5	,	4,555 34,922 0	5,861 41,960 0	10,419	

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

(l) I 3	Financial Cost					(2) E 6	conomic Cost		. *		
No.	Classification		2005		-	No.	Classification		2005		-
	of Costs	L.C.	F.C.	Total	<del>-</del>		of Costs	I.C.	F.C.	Total	- -
ł	Construction Cost	29,321	31,330	60,651	•	1	Construction Cost	20.818	27,726	48,514	
	Land Acquisition	342	0	3-12		-	Land Acquisition	188	27,720	-	
	Administration	3,050	ŏ	3,050			Administration	2,699	ő		
	Engineering Services	1,418	5,021	6,439			Engineering Services	1,255		6,276	
	Physical Contingency	5,120	5 450	10,572			Physical Contingency	3,741	4,912	-	
	Sub-total	39,251	41.804	81,054		•	Sub-total	28.704	-	66.363	
6	price Escalation	37,961	20,076	58,037		6	price Escalation	20,704	-		
	Grand Total		61.880		OM Cost 6,377		Grand Total	28,704	_	66,363	
7					•	7		· •••• •			
Vo.	.Classification		2006	·····	- -	No.	Classification		2006		<u>.</u>
	of Costs	L.C.	E.C.	Total	<del>.</del>	· <del></del>	of Costs	LC.	FC.	Total	-
1	Construction Cost	39,055	38,699	77,754		1	Construction Cost	27,729	34.247	61,976	i
2	Land Acquisition	405	0	405	i		Land Acquisition	223	0		
3	Administration	3,908	. 0	3,908		3		3,458	ő		
4	Engineering Services	1,949	6,899	8,843			Engineering Services	1,725	6,899		
5	Physical Contingency	6,798	6,840	13,637			Physical Contingency	4,970	-	11,142	
	Sub-total	52,115	52,438	104,552		_	Sub-total		47.318		
6	price Escalation	57,578	28,288	85,866		6	once liscalation	0	0	0,423	
	Grand Total	109,693	80,726	-	OM Cost 8,100		Grand Total	-	47,318	-	
8						8					•
No.	Classification	<del></del>	2007		•	No.	Classification		3003		
	of Costs	rc.	F.C.	Total	•	No.	of Costs	í.c.	2007 F.C.	Total	
1	Construction Cost	56,086	54,475	110,561		. 1	Construction Cost	39,821	48,208	88,029	
2	Land Acquisition	191	0	191		2	Land Acquisition	105	0	105	
3	Administration :	5,538	0	5,538			Administration	4,901	. 0	4,901	
4	Engineering Services	1,822	6,419	8,271		4	Engineering Services	1,612	6,419	8.061	
5	Physical Contingency	9,546	9,139	18,684			Physical Contingency	6,966		15,161	
	Sub-total	73,183	70,063	143,245			Sub-total	53,405		116,261	
6	price Escalation	91,638	42,110	133,748	-	6	price Escalation	0	0	0	
	Grand Total	164,821	112,173	276,993	OM Cost = 10,418		Grand Total		62,856		OM Co 3,70
9						9					,,,,
Vo.	Classification		2008		•	No.	Classification	***	2008	<del></del>	
	of Costs	L.C.	F.C.	Total	•		of Costs	I.C.	F.C.	Total	
	Construction Cost	39,697	38,415	78,112		1	Construction Cost	28,185	33,9%	62,180	
	Land Acquisition	271	0	. 271		. 2	Land Acquisition	149	0	149	
	Administration	3,919	0	3,919		_	Administration	3,4(8	0	3,4(8	
	Lingineering Services	1,683	5,956	7,639			Lingingering Services	1,489	5,956	7,145	
5	Physical Contingency	6,836	6,656	13,491			Physical Contingency	4,994		10,986	
	Sub-total	52,406	51,027	103,432			Sub-total	38,285	45,911	84,229	
6	price Escalation Grand Total	73,883 126,289	33,937 84,964	107,820 211,252	OM Cost		price Escalation Grand Total	0	0 45,944	. 0	OM Co
10				····	13,811					•	4,58
lo.	Classification		2009			10 No.	Classification	<del></del>	2009		
	of Costs	L.C.	F.C.	Total			of Costs	LC.	F.C.	Total	
•	Constantion Cost										
	Construction Cost	44,672	43,467	88,139			Construction Cost	31,717	38,466	70,183	
	Land Acquisition	221	0	221			Land Acquisition	122	0	122	
	Administration	4,418	6210	4,418		_	Administration	3,910	0	3,910	
	Engineering Services  Physical Continuous	1,765	6,249	8,014			lingineering Services	1,562	6,249	7,811	
3	Physical Contingency	7,661	7,457	15119			Physical Contingency	5,597		12,304	
c	Sub-total	58,737		115,911			Sub-total	42,907	51,423	94,330	
O	price Escalation	92,719	41,832	134,551			price Escalation	0	. 0	. 0	
	Grand Total	151,456	99,005	250,462	OM Cost		Grand Total	42,907	51,423	24,330	
					16,792	4					5,20.

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

### (i) Financial Cost

O.	Classification		2010	
	of Costs	I.C	TEC	Total
				1
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 Cos
				20,400

#### (2) Economic Cost

- 31				
No.	Classification		2010	
	of Costs	1.C.	F.C.	Total
1	Construction Cost	31,700	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	5,411	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 Cos
				5,904

Classification		Total	
of Costs	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	511,846	517,763	1.082.609
6 price Escalation	592,007	283,871	875.878
Grand Total			1.965.487 OM C
	-		24

of Costs         L.C.         F.C.         Total           Construction Cost Administration         291,106 369,658 660,76- 1,687 0 1,687         0 1,687           Engineering Services         36,761 0 36,761         0 36,761           Land Acquisition         14,650 58,602 73,252           Physical Contingency         51,631 64,239 115,870           Sub-total         395,835 492,499 888,334
Administration         1,687         0         1,687           Engineering Services         36,761         0         36,761           Land Acquisition         14,650         58,602         73,252           Physical Contingency         51,631         64,239         115,870
Engineering Services 36,761 0 36,761 Land Acquisition 14,650 58,602 73,252 Physical Contingency 51,631 64,239 115,870
Land Acquisition     14,650     58,602     73,252       Physical Contingency     51,631     64,239     115,870
Physical Contingency 51,631 64,239 115,870
Sub-total 395.835.493.499.888.331
575,000 172,175 CCC551
price Escalation 0 0 0
Grand Total 395,835 492,499 888,334

# TABLE K.3.12 (1/3) ESTIMATE OF ECONOMIC COST FOR THE WHOLE PROJECT (Alternative-2, under Construction Schedule)

1	Inancial Cost		Unit: Bs	. 1,000	-	1	Conomic Cost		Unit: B	1,000	
No.			2000		_	No.	Classification		2000		•
	of Costs	I.C.	F.C.	Total	<b>.</b> .		of Costs	L.C.	F.C.	Total	
ı	Construction Cost	0	0		,	i	Construction Cost	0	0	0	
2	Land Acquisition	521	Ō			2	The second secon	287	o		
3	Administration	26	0			3		23	ŏ		
4	Engineering Services	1,273	4,508	5,781		4		1,127	4,508		
5	Physical Contingency	273	676	949			Physical Contingency				
	Sub-total	2,093	5,184	7,277		-	Sub-total	1,652	5 184		
6	price Escalation	842	_	1,965		` 6	price Escalation	0		•	
	Grand Total	2,935	6,307		OM Cost		Grand Total			. 0	
		-,			0		Of and Toda	1,652	5,184	0.830	OM C
_2					-	2					•
No.	Classification		2001			No.	Classification		2001	<u> </u>	
	of Costs	I.C.	F.C.	Total	-	<del>,</del>	of Costs	l.C.	F.C.	Total	
1	Construction Cost	52,264	53,805	106,069	,	1	Construction Cost	37,107	47,615	84,722	
	Land Acquisition	471	0	471	•	. 2	Land Acquisition	250	0	259	
	Administration	5,327	- O	5,327			Administration	4.714	. 0	4.714	
	Engineering Services	1,973	6,981	8,957		4		1,746	6.981	8,730	
5	Physical Contingency	9,005	9,118	18,124		5	Physical Contingency	6,574	8,190		
_	Sub-total	69,040	-	138,948			Sub-total	50,401		113,190	
6	price liscalation	34,571	18,548	53,119		6	price Escalation	0	0	. 0	
	Grand Total	103'611	88,455	192,067	OM Cost		Grand Total	50,401	62,789	113,190	OM C
	···				. •		<del></del>				
3 No.	Classification		2002			3					
110.	of Costs	16		T 1		No.	Classification		2002		
	0 000	LC.	F.C.	Total	•		of Costs	L.C.	F.C.	Total	
	Construction Cost	46,079	47,628	93,707		}	Construction Cost	32,716	42,149	74,865	
_	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	
	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			Physical Contingency	5,812	-	13,154	
	Sub-total	60,966	62,586	123,553			Sub-total	44,560	56,285	_	
6	price Escalation	36,932	19,773	56,705		6	price Escalation	0	0	0	
	Grand Total	97,898	82,359	180,258	OM Cost		Grand Total	44.560	56,285		OM Co
		<del></del>		<u>.</u>	1,703						8
4						4					
No.	Classification		2003			No.	Classification		2003		
	of Costs	L.C.	EC.	Total			of Costs	LC.	F.C.	Total	
	Construction Cost	48,158	49,334	97,492		1	Construction Cost	34,192	43,658	77.851	
	Land Acquisition	313	0	313			Land Acquisition	172	0	172	
	Administration	4,820	0	4,820			Administration	4,327	ŏ	4,327	
	Engineering Services	1,960	6,938	8,898			Engineering Services	1,735	6,933	8,673	
5	Physical Contingency	8,298	8,441	16,739			Physical Contingency	6,061		13,653	
	Sub-total	63,619	64,713	128,332			Sub-total	46,490	58,186		
6	price Escalation	45,690	23,851	69,541		6	price Escalation	0	0	0.0.0	
	Grand Total	109,309	88,564	197,873	OM Cost		Grand Total		58,186		
					3,433						1,59
<u>5</u> 30.	Classification		2004			5	Close Control		- <u>-</u>	<u>_</u>	
	of Costs	L.C.	F.C.	Total		No.	Classification		2004		
	· · · · · · · · · · · · · · · · · · ·	L.C.	F.C.	Total			of Costs	LC.	F.C.	Total	
	Construction Cost	48,620	49,700	98,320		1	Construction Cost	34,520	43,982	78,503	
	Land Acquisition	229	0	229		2	Land Acquisition	126	0	126	
	Administration	4,927	0	1,927		3	Administration	4,300	ő	1,360	
	Engineering Services	1,809	6,403	8,212			Engineering Services	1,601	6,403	8,001	
5	Thysical Contingency	8,338	8,415	16,753		5	Physical Contingency	6,091	7,558		
_	Sub-total	63,923	64,518	128,441	1.7		Sub-total		57,943 1		
	price Escalation	53,597	27,312	80,902			price Escalation	0	0	9	
	Grand Total	117,520	91,830	209,350 (	OM Cost		Grand Total		57,943		2/1 <i>C</i> ~
					5,465		-		1- 1- 1	,	237

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

6	inancial Cost					(2) E 6	conomic Cost				:
No.	Classification		2005		-	No.	Classification		2005		
•••	of Costs	I.C.	F.C.	Total	<del>.</del>		of Costs	L.C.	FC	Total	
1	Construction Cost	42,335	42,861	85,196	•	1	Construction Cost	30.058	37,930	67.988	
	Land Acquisition	2.56	0	256			Land Acquisition	141	37,230	141	
	Administration	4,273	ő	4,273			Administration	3,781	ő	3,781	
	Engineering Services	1,136	4,020	5,156			Engineering Services	1,005	4,020	5,025	
	Physical Contingency	7,200	7,032	14,232			Physical Contingency	5,248			
_	Sub-total	55,200	53,913	109,113		3	Sub-total			11.540	
κ.	price Escalation	53,386	25,892	79,278				40,233		88,476	
·	•	108,586				•	price Escalation	0	0	0	
	Grand Total	108,500	79,803	188,391	7.782		Grand Total	40,233	48.243	88,476 (	OM C 1,8
7					-	7					- •
, O.	Classification		2006		•	No.	Classification	<del></del>	2006	<del></del>	
	of Costs	LC.	F.C.	Total	•		of Costs	LC.	F.C.	Total	
	Construction Cost	19,269	18,599	37,868			Construction Cost	13,681	16,459	30,140	
	Land Acquisition	319	. 0	319		. 2	Land Acquisition	175	0	175	
_	Administration	1,909	0	1,909		3	Administration	1,689	. 0	1,689	
	Engineering Services	1,151	4,075	5,226		4	Engineering Services	1,019	4,075	5.094	
5	Physical Contingency	3,397	3,401	6,798	•		Physical Contingency	2,485	3,080	5,565	
	Sub-total	26,045	26,075	52,120			Sub-total	19,049	23.614	42,664	
6	price Escalation	28,777	14,067	42,844		6	price Escalation	0	0	0	
	Grand Total	54,822	40,142	94,964	OM Cost 10,120		Grand Total	19,049	_	42,664 (	0 140 1,8
8				-1						<del></del>	
o.	Classification		2007	<del></del>		8 No.	Classification		2007		
	of Costs	I.C.	F.C.	Total			of Costs	LC.	F.C.	Total	
1	Construction Cost	36,300	34,375	70,675		1	Construction Cost	25,773	30,420	56,193	
2	Land Acquisition	104	0	104			Land Acquisition	57	0	57	
	Administration	3,539	o	3,539			Administration	3,132	ő	3,132	
	Engineering Services	1,024	3,625	4,649			Engineering Services	906	3,625	4,531	
	Physical Contingency	6,145	5,700	11,845			Physical Contingency	4,480	5,107	9,587	
•	Sub-total	47,112	43,700	90,812		•	Sub-total	34,348	39,152	73,501	
6	price Escalation	58,994	26,265	85,259		6	price Escalation	0	35,132	0.504	
•	Grand Total	106,106	69,965		OM Cost	U	Grand Total			73,501 (	OM C
					11,681		· · · · · · · · · · · · · · · · · · ·				4,
9 lo.	Charles and a		<b>A</b> (V)(2)			9					
iO.	Classification of Costs	L.C.	2008 F.C.	T-1-1		No.	Classification		2008		
	(A Ctots	<u> </u>	F.C.	Total			of Costs	LC.	F.C.	Total	
	Construction Cost	19,911	18,315	38,226	-		Construction Cost	14,137	16,208	30,345	
	Land Acquisition	105	0	105			Land Acquisition	.58	0	.58	
3		1,917	0	1,917			Administration	1,696	0	1,696	
	Engineering Services	765	2,706	3,471			Engineering Services	677	2,706	3,383	
5	Physical Contingency	3,405	3,153	6,558		5	Physical Contingency	2,485	2,837	5,322	
	Sub-total	26,103	24,174	50,277			Sub-total	19,053	21,751	40,804	
6	price Escalation Grand Total	36,799 62,902	16,078 40,252	52,877 103,154	OM Cost	6	price Escalation Grand Total	0 19,053	0 21,751	0 40,804 C	<b>31.4</b> 4*
					14,202				* 5,124		4,7
	·					_10					
			2009			No.	Classification		2009		
	Classification		F.C.	Total			of Costs	i.C.	F.C.	Total	
	Classification of Costs	I.C.									
-	of Costs  Construction Cost	I.C. 19,912	18,315	38,227		ı	Construction Cost	14,138	16,208	30,345	
o. 1	of Costs						Construction Cost  Land Acquisition	14,138 61	16,208 0	30,345 61	
1 2	of Costs  Construction Cost	19,912	18,315	38,227		2		-		61	
0. 1 2 3	of Costs  Construction Cost Land Acquisition	19,912 [11	18,315 0	38,227 111		2 3	Land Acquisition Administration	61 1,696	0 0	61 1,626	
0. 1 2 3 4	of Costs  Construction Cost Land Acquisition Administration	19,912 111 1,917	18,315 0 0	38,227 111 1,917		2 3 4	Land Acquisition Administration Lingincoring Services	61 1,696 665	0 0 2,657	61 1,696 3,322	
0. 1 2 3 4	of Costs  Construction Cost Land Acquisition Administration Lingineering Services	19,912 111 1,917 751 3,404	18,315 0 0 2,657 3,146	38,227 111 1,917 3,408 6,549	* :	2 3 4	Land Acquisition Administration Engineering Services Physical Contingency	61 1,696 665 2,481	0 0 2,657 2,830	61 1,696 3,322 5,314	
0. 1 2 3 4 5	ef Costs  Construction Cost Land Acquisition Administration Engineering Services Thysical Contingency Sub-total	19,912 111 1,917 751 3,404 26,095	18,315 0 0 2,657 3,146 24,118	38,227 111 1,917 3,408 6,549 50,212	11	2 3 4 5	Land Acquisition Administration Engineering Services Physical Contingency Sub-total	61 1,696 665 2,481 19,044	0 0 2,657 2,830 21,695	61 1,6% 3,322 5,314 40,738	
0. 1 2 3 4 5	of Costs  Construction Cost Land Acquisition Administration Lingineering Services Thysical Contingency	19,912 111 1,917 751 3,404	18,315 0 0 2,657 3,146 24,118 17,647	38,227 111 1,917 3,408 6,549 50,212 58,837	OM Cost	2 3 4 5	Land Acquisition Administration Engineering Services Physical Contingency	61 1,696 665 2,481	0 0 2,657 2,830 21,695 0	61 1,696 3,322 5,314	)(1 C

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

(1)	Fina	ne	al	Cost
- 1	1			

_ 11				.*
No.	Classification		2010	
	of Costs	I.C.	F.C.	Total
ı	Construction Cost	19,296	17,773	37,009
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 Co
				103/

#### (2) Economic Cost

11				
No.	Classification		2010	
	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
	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	19,291	37,237 OM Cost
				5,310

Classification		Total	,	
of Costs	L.C.	F.C.	Total	
L Construction Cost	352,141	350,705	702,849	
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	
Sub-total	464,859	460,535	925 394	
6 price Escalation	434.161	207,893	642.051	
Grand Total	899,020	668,428	1,567,448	O١
				2

	Classification		Total	
	of Costs	I.C.	F.C.	Total
ı	Construction Cost	250,022	310,358	\$(0,381
2	Administration	1,509	0	1,500
3	Engineering Services	31,220	. 0	31,220
4	Land Acquisition	12,442	49,760	62,202
5	Physical Contingency	41,279	54,018	98,297
	Sub-total	339,472	414,136	753,608
6	price Escalation	0	0	0
	Grand Total	339,472	414,136	753,608
			-	-

TABLE K.4.1 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN

I-I. Rio Chane

I-2. Rio Pailon

					Unit: Bs.1,	000						Unit: Bs.1	,000,
	Year	Ecc	onomic (	Cost	Economic	, (B)-(C)		Year	i k	onomic (	Cost	Economic	(B)-(C)
		Construction	OM	Total (C)	Benefit (B)				Construction	OM	Total (C)	Benefit (B)	
						· <del></del>				• •			
3					0	-1,677	1	2000	2,495	0		0	-2,495
2		28,832			0	28.832	2	2001	42,760	0	42,760	0	
3					359	-28 (88	3	2002	42,760	318	43,078	6,575	
4		28,832			718	-28,514		200		637	44,063	13,171	-30,892
5		-			1,077	-28,400	:	2004		955	51,517	19,747	-34,800
6					1,435	-26,579	•	2003	51,762	1,353	53,115	27,976	-25,139
7					1,791	720	7			1,763	1,763	36,454	34,691
8		0			1,794	720				1,763	1,763	36,454	34,691
9		0			1,791	720	. 9			1,763		36,454	34,691
10		0			1,794	720	10			1,763		36,454	34,691
11	2010	0			1,791	720	11					36,454	34,691
12		0		1,074	1,794	720		2011		1,763		36,454	34,691
13 14		0		1,074	1,794	720	13			1,763		36,454	34,691
15		0	•		1,794	720	14			1,763		36,454	34,691
16				1,074	1,794	720	15			1,763		36,454	34,691
17		0		1,074	1,794	720	16			1,763		36,454	34,691
18		. 0		1,074	1,794	720	17			1,763	1,763	36,454	34,691
19				1,074	1,794	720	18		0	1,763	1,763	36,454	34,691
20		. 0		1,074	1,794	720	19			1,763	1,763	36,454	34,691
21	2020			1,074	1,794	720	20			1,763	•	36,454	34,691
22	2020	0	1,074	1,074	1,794	720	21			1,763	1,763	36,454	34,691
23	2021	Ö	1,074	1,074	1,794	720	22	-	0	1,763		36,454	34,691
24	2022	. 0	1,074	1,074	1,794	720	23		: 0	1,763	1,763	36,454	34,691
25	2024	0	1,074	1,074	1,794	720	24		. 0	1,763	1,763	36,454	34,691
26	2025	0	1,074 1,074	1,074	1,794	720	25		0	1,763	1,763	36,454	34,691
27	2025	0	1,074	1,074	1,794	720	26		0	1,763	1,763	36,454	34,691
28	2027	0	1,074	1,074 1,074	1,794 1,794	720	27		0	1,763	1,763	36,454	34(69)
29	2028	ő	1,074	1,074	1,794	720	28		0	1,763	1,763	36,454	34,691
30	2029	0	1,074	1,074	1,794 1,794	720	29		. 0	1,763	1,763	36,454	34,691
31	2030	. 0	1,074	1,074	1,794	720	30			1,763	1,763	36,454	34,691
32	2031	Ö	1,074	1,074	1,794	720	31	,	0	1,763	1,763	36,451	34,691
33	2032	0	1,074	1,074	1,794	720	32		0	1,763	1,763	36,454	34,691
34	2033	. 0	1,074	1,074	1,794	720	33			1,763	1,763	36,454	34,691
35	2034	. 0	1,074	1,074	1,791	720	34		. 0	1,763	1,763	36,454	34,691
36	2035	0	1,074	1,074	1,794	720 720	35		. 0	1,763	1,763	36,454	34,691
37	2036	0	0	0	1,794	0	36 37	2035 2036	0	1,763	1,763	36,454	34,691
38	2037	0	· ŏ	0	ŏ	. 0	38		. 0	0	0	0	0
39	2038	ő	o.	ŏ	. 0	0	39		_	0	0	0	0
-			v			Ū	33	2006	0	0	0	0	0
	Total	144,160	34,369	178,529	57,410	-121,119		Total	236,795	56,153	292,948	1,161,020	8(8,142
					EIRR (%)	#D[V/0!						EIRR (%)	14.33
$S_{i,j}^{(i)} = 0$		Discount	BC	PV(Bs.	1,000)	NPV		•	Discount	B/C	PV(Bs.		Nev
		Rate (%)		Cost		(Bs. 1,000)			Rate (%)	•	Cost		(Bs. 1,000)
•		15	0.08	88,904	6,895	-82,009			15	0.96	143,107	137,247	-5,860
		12	0.02	99,055	9,372	-89,684			12	1.17	160,037	187,198	27,162
		10		106,994	11,786	-95,208			10	1.36	173,301	235,970	62,670
		5		133,235	23,395	102,840			5	2.17	217,222	471,034	253,813
	-	3	0.22	147,904	32,547	115,358			3	2.72	241,775	656,578	414,803

TABLE K.4.2 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN

1.	3. (	)ue	bra	ต่อ	Cha	ne

I-4. Chane Chaeras

					Unit: Bs. L.	000						Unit: Bs.	1,000
	Year	1:	conomic	Cost	Economic	(B)-(C)	. 7	Year	Ex	onomic (	Cost	Economi	
		Constructio	n OM	Total (C)	Benefit (B)				Construction			- ') Benefit (B	
1	2000	35	0 4	0 359		212						:	
2	2001	6.81			0	-359	1						9 -852
3	2002	24,42			0	-6,811	2				- ••••		-14,076
4		24.42			720	-23,677	- 3		•				
5		2135			4,115	-20,534	4		-		•		
6	2005	21.81			7,458	17,306				. 31-	•		
7	2006				10,782	-11,619	6						
8	2007		0 760 0 760		13,960		7			953			3,699
9	2008				13,960	13,200	8			1,07		23,707	6,248
_			0 76		13,960	13,200	9			1,190		26,393	9,777
10	2009		D 760		13,960	13,200	10			1,318	1,318	29,083	7 27,769
11	2010		0 760		13,900	13,200	11	2010		1,318	1,318	29,087	7. 27,769
12	2011		D 760		13,900	13,200	12	2011	0	1,318	1,318	29,087	
13	2012		760		13,960	13,200	13	2012	0	1,318	1,318	29,087	
14	2013		760		13,960	13,200	14	2013	0	1,318	1,318		
15	2014		760		13,960	13,200	15	2014	. 0	1,318			
16	2015		7(0		13,960	13,200	16	2015	0	1,318			
. 17	2016		760		13,960	13,200	17	2016	. 0	1,318			
18	2017		760		13,960	13,200	18	2017	0	1,318			
19			760	760	13,960	13,200	19		0	1,318			
20	2019	: (	760	760	13,960	13,200	20	2019	ŏ	1,318			
21	2020		760	760	13,960	13,200	21	2020	Ŏ	1,318			
22	2021	11:	760	760	13,960	13.200	22	2021	. 0		1,318		•
24	2022		760	760	13,960	13,200	23	2022	. 0	1,318			
24	2023	٠. (	760		13,960	13.200	24	2023	ő				
25	2024	(			13,960	13,200	25	2024	. 0		1,318		
	2025	Ċ	_		13,960	13,200	26	2025		1,318			
	2026	. (			13,960	13,200			0	1,318			•
	2027.	ò			13,960		27	2026	0	1,318			
	2028				13,960	13 200	28	2027	. 0	1,318			
	2029					13,200	29	2028	0	1,318			
_	2030	Ò			13,960	13,200	30	2029	0	1,318			27,769
	2031				13,960	13,200	31	2030	0	1,318		29,087	
	2032				13,960	13,200	32	2031	. 0	1,318	1,318	29,087	27,769
	2033	-			13,960	13,200	33	2032	0	1,318	1,318	29,087	27,769
		. (			13,960	13,200	34	2033	0	1,318	1,318	29,087	27,769
	2034	C		-	13,960	13,200	3.5	2034	0	1,318	1,318	29,087	27,769
	2035				13,960	13,200	36	2035	0	1,318	1.318	29,087	
	2036	Q	_	_	O	0	37	2036	0	1,318	1,318	29,087	
	2037	C			Ç	0	38	2037	0	1,318		29,087	27,769
39	2038	C	0	. 0	0	0	39	2038	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
		:			EIDD (A)	12.53							110,000
		Discount	BC	PV(Bs.	EIRR (%)	12.52						EIRR (%)	15.33
		Rate (%)	D. C.	Cost		NPV			Discount	B/C		1,000}	NPV
	_	15	0.85		Benefit (	258. J,UU(3)		_	Rate (%)	<u> </u>	Cost	Benefit	(Bs. 1,000)
		12		59,797	50,869	-8.928			15	1.02	88,424	90,511	2,087
			1.04	67,333	69,812	2,510			12	1.25	102,314	128,004	25,690
		10	1.21	73,239	88,405	15,166			10	1.46	113,485	165,651	52,166
		. 5	1.92	92,771	178,094	85,323	-		5	2.35	151,869	356,879	205,009
		3	2.40	103,657	248,996	145,338			-		1.1,000	3.0.017	200.00

TABLE K.4.3 ECONOMIC ANALYSIS FOR ALTERNATIVE-I PLAN

I-S. Okinawa Drainage

1-6. Total of The East Area Project

			Okinawa Di	i aimog	•				1.0.	TOTAL OF TH	C EXIST A	ei ca fi	ojeci	
		·	1			Unit: Bs.1.0	000			·			Unit: Bs.1	,000
		Year	Lice	onomic (	Cost	Economic	(B)-(C)		Year	<u> Ec</u>	onomic C	lost	Economie	(B) (C
		<u> </u>	Construction	<u>OM</u>	Total (C)	Benefit (B)				Construction	OM	Total (C	Benefit (B)	
	į	2000		. 0	1,210	. 0	-1,210	1	2000	6,593	. 0	6,593	0	-6,593
	2	2001	19,894	0		0	-19,894	2	2001	112,373	0	112,373		
	3	2002			19,514	2,657	-16,857	3	2002	129,458	829	130,287	12,699	-117,588
	4	2003			12,014	5,314	-6,700	4	2003	123,756	1,796	125,552	27,931	-97,621
	5	2004			12,103	6,876	-5,227	5	2004	1.54,285	2,703	156,988	42,088	-114,900
	6	2005			11,507	8,438	-3,069	6	2005	160,845	3,841	164,686	61,255	-103,431
	7	2006		557	557	10,000	9,443	7	2006	16,380	5,107	21,437	83,240	61,753
	8	2007	C	557	557	10,000	9,413	8	2007	16,380	5,228	21,608	85,910	64,302
	9	2008	-	557	557	10,000	9,413	9	2008	15,422	5,350	20,772	88,603	67,831
-	0	2009	0	557	557	10,000	9,413	10	2009	0	5,472	5,472	91,295	85,823
-	11	2010	0	557	557	10,000	9,413	- 11	2010	0	5,472	5,472	91,295	85,823
1	12	2011	0	557	557	10,000	9,413	12	2011	0	5,472	5,472	91,295	85,823
- 1	13	2012	0	557	557	10,000	9,413	. 13	2012	0	5,472	5,472	91,295	85,823
	4	2013	0	557	557	10,000	9,443	14	2013	0	5,472	5,472	91,295	85,823
1	15	2014	. 0	557	557	10,000	9,443	15	2014	0	5,472	5,472	91,295	85,823
- 1	16	2015	0	557	557	10,000	9,43		2015		5,472	5,472	91,295	85,823
1	17	2016	0	557	557	10,000	9,43		2016		5,472	5,472	91,295	85,823
: [	8	2017	0	557	557	10,000	9.413	18	2017		5,472	5,472	91,295	
ı	9	2018	0	557	557	10,000	9,413	19	2018	Ō	5,472	5,472	91,295	85,823
2	20	2019	. 0	557	557	10,000	9,413		2019		5.472	5,472	91,295	85,823
2	1	2020	0	557	557	10,000	9,443		2020	ő	5,472	5,472	91,295	85,823
2	22	2021	0	557	557	10,000	9,443		2021	ŏ	5,472	5,472	91,295	85,823
2	23	2022	. 0	557	557	10,000	9,413	23	2022	ŏ	5,472	5,472	91,295	85,823
- 2	14	2023	. 0	557	557	10,000	9,443		2023	ő	5,472	5,472	91,295	85,823
2	5	2024	. 0	557	557	10,000	9,413		2024	ŏ	5,472	5,472	91,295	85,823
2	6	2025	0	557	557	10,000	9,413		2025	ŏ	5,472	5,472	91,295	85,823
2	7	2026	0	557	557	10,000	9.443	27		ŏ	5,472	5,472	91,295	85,823
2	8	2027	0	557	557	10,000	9.48	28	2027	. ŏ	5,472	5,472	91,295	85,823
2	9	2028	0	557	557	10,000	9,443	29		0	5,172	5,472	91,295	85,823
. 3	0	2029	. •	557	557	10,000	9.43	30	2029	ŏ	5,472	5,172	91,295	85,823
3	1	2030	0	557	557	10,000	9,413	31	2030	Ü.	5,472	5,472	91,295	85,823
3	2	2031	. 0	557	557	10,000	9,48		2031	0	5.472	5.472	91,295	85,823
	3	2032	Ö	557	557	10,000	9,413	33	2032	Ô	5.472	5,472	91,295	85,823
	-1	2033	Õ	557	557	10,000	9,443		2033	0	5,472	5,472	-	
	5	2034	ō	557	557	10,000	9,413		2034	0	5.472	5.472	91,295 91,295	85,823 85,823
	6		· · · ŏ	557	557	10.000	9,413		2035	0	5,472	5,472		
	7	2036	ŏ	0	0	0	0		2036	0			91,295	85,823
	8	2037	0	Ö	0	0	0		2037	0	1.318	1,318 1,318	29,087	27,769
		2038	ŏ	ő	0	Ö	Ö		2038	0			29,087	27,769
,	•		·	v	v	v	U	37	2008	U	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	B'C	PV(Bs	1,000)	NPV
	Rate (%)		Cost	Benefit	(Bs. 1,000)
_	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

			EIRR (%)	11.04
Discount	B/C	PV(Bs	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
15	0.76	428,600	325,761	-102,839
12	0.93	482,174	448,672	-33,502
10	1.09	521,401	569,684	45,283
5	1.75	665,491	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

		Sau Juan			1000			11.2,	Antolagas	વસ .		er en la fille	
		·		· · · ·	Unit: Bs.1.	000						Unit: Bs.1,	000
	Year	<u>lie</u>	onomic C	ìost	Economie	(B)-(C)		Year	l x	onomie C	'ost	Economic	(B)-(C)
		Construction	OM	Total (C)	Benefit (B)		·		Construction	OM	Total (C)	Benefit (B)	
1	2000	1,035	0	1,035	0	-1,035		2000	1,818	0	818,1	. 0	-1,818
2		17,317	0	17,317	0	-17,317	. 2	2001	28,343			e ŏ	-28,343
3	2002	17,509	129		1,959	-15,679	3						-10,965
-1	2003	20,459	258	20,717	3,918	-16,799	4						-7,883
. 5	2004	14,675	412	15,087	6,256	-8,831	5			449			-582
G	2005	0	528	528	8.018	7,490	. 6					12,287	1,796
.7	2006	0	528	528	8,018	7,420	7					14,125	13,518
8	2007	. 0	528	528	8,018	7,190	. 8				607	14,125	13,518
9	2008	0			8,018	7,490	9				607	14,125	13,518
10	2009	0	528		8,018	7,490	10				607	14,125	13,518
- 11	2010	0			8,018	7,490	11				607	14,125	13,518
12	2011	0	528		8,018	7,490	12		0		607	14,125	
13	2012	0	528		8,018	7,490	13		ŏ		607	14,125	13,518
14		0	528		8,018	7,490	14						13,518
15	2014	0	528		8.018	7,420	15				607	14,125	
16		0	528		8,018	7,490	16				607	14,125	13,518
17		៉ាំ	528		8,018	7,490	17	2015			607	14,125	13,518
18		Ŏ	528		8,018						607	14,125	13,518
19	2018	.0	528		8,018	7,490	18				607	14,125	13,518
20	2019	. 0	528		8,018	7,490	19		0		607	14,125	,
21	2020	ŏ	528			7,490	20			607	607	14,125	13,518
22	2021	0	528	528	8,018	7,490	21	2020	Ex 1 0		607	14,125	13,518
23	2022	_			8,018	7,490	22	2021	0	607	607	14,125	13,518
2-1	2023	0	528	528	8,018	7,490	23	2022	. 0	607	G07	14,125	13,518
25	2023	0	528	528	8,018	7,490	24		0	607	€07	14,125	13,518
	2024	0	528	528	8,018	7,190	25	2024	0	607	607	14,125	13,518
26		. 0	528	528	8,018	7,490	26	2025	. 0	607	607	14,125	13,518
27	2026	0	528	528	810,8	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	810.8	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
3-1	2033	0	528	528	8.018	7,490	34	2033	0	607	607	14,125	13,518
35	2034	0	528	528	8,018	7,420	35	2034	0	607	607	14.125	13,518
36	2035	0	0	0	0	0	36	2035	G	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	U	38	2037	0	Ô	· ō	Ŏ.	ő
39	2038	. 0	. 0	О.,	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	159,260	357,740

			EIRR (%)	9.97
Discount	B/C	PV(Bs.	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
15	0.70	46,661	32,813	-13,813
12	0.86	51,424	41,082	-7.341
10	1.00	55,113	51,965	-148
5	1.58	67,154	106,392	39.238
3	1.98	73,817	146,235	72,418

				EIRR (%)	16.24
ij	Discount	B/C	PV(Bs.	1,000)	NPV
_!	Rate (%)		Cost	Benefit	(Bs. 1,000)
-	15	1.08	51,210	58,338	1,128
	12	1.31	59,589	78,300	18,711
	10	1.53	63,772	97,655	33.83
	5	2.45	77,551	190,102	112,551
3	3	3.08	85,273	262,650	177,377

TABLE K.4.5 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN

II-3. Total of the West Area Project

III. Total of the Whole Project

					Unit: Bs.1	,000		-				Unit: RM	1,000
	Year	Ex	conomic C			(B)-(C)		Year	Fic	onomic C	òst	Economic	(B)-(C
		Construction	OM	Total (C)	Benefit (B)	-			Construction	0)/1	Total (C)	Benefit (B)	
1	2000	2,853	0	2,853	0	-2,853	. 1	2000	9.416	•	9.116	. 0	-9.44
- 2	2 2001	45,660	. 0	45,660	0	-45,660	. 2	2001	158,033	0			
. 3	3 2002	33,284	345	33,629	6,985	-26,644	3	2002	162,742				
•	1 2003	35,763	591	36,354	11,667	-24,(87	4	2003	159,519	2,387	161,906		
- 4	2004			26,117	16,705	-9,412	5	2004	179,511	3.564	183,105	58,792	-124313
. (	5 2005	9,963	1,056	11,019	20,305	9,286	6	2005	170,808	4,897	175,705	81,500	-94,145
7	7 200G	• • •	1,135	1,135	22,143	21,008	7	2006	16,380	6.242	22,622	105,383	82,76
8			1,135	1,135	22,143	21,008	. 8	2007	16,380	6,363	22,743	108,053	85,310
	2008		1,135	1,135	22,143	21,008	9	2008	15,422	6,485	21,907	110,746	88.83
10			1.135	1,135	22,143	21,008	10	2009	0	6,607	6,607	113,438	
11		. 0			22,143	21,008	- 11	2010	0	6,607	6,607	113,438	106,83
12	2011	. 0	1,135	1,135	22,143	21,008	12	2011	0	6,607	6,607	113,438	
13			1,135	1,135	22,143	21,008	13	2012	. 0	6,607	6,607	113,438	
14	2013	· 0	1,135	1,135	22,143	21,008	14	2013	0	6,607	6,607	113,438	106,83
1.	5 2014	0	1,135	1,135	22,143	21,008	15	2014	0	6,607	6,607	113,438	
. 10	2015	0	1,135	1,135	22,143	21,008	16	2015	0	6,607	6,607	113,438	106,83
17	2016	0	1,135	1,135	22,143	21,008	17	2016	. 0	6,607	6,607	113,438	106,83
ł	3 2017	. 0	1,135	1,135	22,143	21,008	18	2017	0	6,607	6,607	113,438	106,83
19	2018	. 0	1,135	1,135	22,143	21,008	: 19	2018	0	6,607	6,607	113,438	106,83
20	2019	O	1,135	1,135	22,143	21,008	20	2019	0	6,607	6,607	113,438	106,83
21	2020	0	1,135	. 1,135	22,143	21,008	21	2020	0	6,607	6,607	113.438	106,83
24	2021	0	1,135	1,135	22,143	21,008	- 22	2021	Ó	6,607	6,607	113,438	106.83
2.	2022	0	1,135	1,135	22,143	21,008	23	2022	0	6,607	6,607	113,438	106,831
2-	2023	· · O	1,135	1,135	22,143	21,008	2-1	2023	0	6,607	6,607	113,438	106,83
2.	2024	0	1,135	1,135	22,143	21,008	25	2024	0	6,607	6,607	113,438	106,83
. 20	2025	. 0	1,135	1,135	22,143	21,008	26	2025	0	6.607	6,607	113,438	106,831
2	2026	0	1,135	1,135	22,143	21,008	27	2026	0	6.607	6,607	113,438	106.83
28	2027	. 0	1,135	1,135	22,143	21,008	28	2027	0	6,607	6,607	113 438	106,83
29	2028	0	1,135	1,135	22,143	21,008	29	2028	0	6,607	6,607	113,438	106,83
	2029		- 1,135	1,135	22,143	21,008	30	2029	0	6,607	6,607	113,438	106,831
31		0	1,135	1,135	22,143	21,008	31	2030	0	6,607	6,607	113,438	106,831
	2001	0	1,135	1,135	22,143	21,008	32	2031	.0	6,607	6,607	113,438	106,833
33		0	1,135	1,135	22,143	21,008	33	2032	0	6,607	6,607	113,438	106,831
34		. 0	1,135	1,135	22,143	21,008	34	2033	0	6,607	6,607	113,438	106,831
3.		0		1,135	22,143	21,008	3.5	2034	.0	6,607	6,607	113,438	106,83
36			607	607	14,125	13,518	36	2035	• 0	6,079	6,079	105,420	99,341
37			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	2,564,68
					EIRR (%)	13.41		-				EIRR (%)	11.4
		Discount	B/C	PV(Bs.		NPV		•	Discount	ВC	PV(Bs.		NPV
	7	Rate (%)		Cost		(Bs. 1,000)			Rate (%)		Cost		(Bs. 1,000)
		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	13,370			12	0.96	593,186	571,054	-22,132
		10	1.28	118,834	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		1,458,960	648,760
		3	2.57	159,090	408,885	249,795			3	2 26	904.132		1.142.932

TABLE K.4.6 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN

I-1. Rio Pailon

					Unit: Bs.1.	000					rada C			Unit: Bs.1,0	m
	Year	Ec	onomic C	ost	<u>-</u>	:+·(B)-(C)		•	Year		Eo	onomic (	ost	Economic	(B)-(C
	<u> </u>	onstruction	0/1	Total (C)	Benefit (B)					Con	struction			Benefit (B)	(0)-(0
1		2,495	0	2,495	. 0	-2,495		1	2000		359	ŗ	359	0	-359
2	2001	42,760	. 0	42,760	0	-12,760		2	2001		6,811	0		ő	6.81
3	2002	42,760	318	43,078	6,575	-36,503	5	3	2002		24,424	43		790	-23,67
4	2003	43,426	637	44,063	13,171	-30.892		4	2003		24,425	224		4,115	-20,53
5	2004	53,592	9.55	54,547	19,747	-34,800	٠.	5	2004		24,358	406		7,458	-17.30
6	2005	51,762	1,353	53,115	27,976	-25,139		6	2005	1.	21,814	587	22,401	10,782	-11,619
7	2006	0	1,763	1,763	36,454	34,691		7			0	760	760	13,960	13,200
8	2007	, 0	1,763	1,763	36,454	34,691		. 8	2007		Ö	760	760	13,960	13,200
9	2008	Q	1,763	1,763	36,454	34,691		. 9	2008		ŏ	760	760	13,960	13,200
10	2009	0	1,763	1,763	36,454	34,691		10	2009		ŏ	760	760	13,960	13,200
11	2010	0	1,763	1,763	36,454	34,691		11	2010		ő	760	760	13,960	13,200
12	2011	0	1,763	1,763	36,454	34,691		12	2011	:	ŏ	760	760	13,960	13,200
13	2012	Ō	1,763	1,763	36,454	34,691		13	2012		ő	760	760	13,960	13,200
14	2013	O	1.763		36,454	34,691		14			ő	760	760	13,960	13,200
15	2014	0	1,763		36,454	34,691		15	2014		. 0	760	760		
16	2015	0	1,763		36,454	34,691		16			0	760	760	13,960	13,200
17	2016	Ò	1,763	1,763	36,454	34,691		17	2016		. 0			13,960	13,200
18	2017	0	1,763	1,763	36,454	34,691		18	2017		-		760	13,960	13,200
19	2018	Ŏ	1.763	1,763	36,454	34,691		19			0	760	760	13,960	13,200
20	2019	ő	1,763	1,763	36,454	31,691					0	760	760	13,960	13,200
21	2020	ŏ	1.763	1.763	36,454	34,691			2019		0	760	760	13,960	13,200
22	2021	ŏ	1,763	1,763	36,454		:		2020		0	760	760	13,960	13,200
23	2022	. 0	1,763	1,763	36,454	34,691			2021		0	760	760	13,960	13,200
	2023	ŏ	1,763	1,763		34,691	•	23	2022		0	760	760	13,960	13,200
	2024	0	1.763	-	36,454	34,691		2.4			. 0	760	760	13,960	13,200
	2025	. 0		1,763	36,454	34,691		25	2024		0	760	760	13,960	13,200
27 27	2026	_	1,763	1,763	36,451	34,691			2025		0	760	760	13,960	13,200
	2027	0	1,763	1,763	36,454	34,691		27	2026		0	760	760	13,960	13,200
-	2028	_	1,763	1,763	36,454	34,691		28	2027		0	760	760	13,960	13,200
		0	1,763	1,763	36,454	34,691		29	2028		0	760	760	13,960	13,200
	2029	0	1,763	1,763	36,454	34,691		30	2029		0	- 760	760	13,960	13,200
	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	34,69)		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
	2033	0	1,763	1,763	36,454	34,691		34	2033		0	760	760	13,960	13,200
	2034	0	1,763	1,763	36,454	. 34,691		- 35	2034		0	760	760	13,960	13,200
	2035	0	1,763	1,763	36,454	34,691		36	2035	: 1	0	760	760	13,960	13,200
	2036	. 0	0	0	Ó	. 0		37	2036		0	0	0	0	(
38	2037	0	0	0	0	. 0		38	2037		0	0	0	o	Č
39	2038	0	0	0	0	• 0		39	2038		0	0	0	0,	ં તે
	Total	236,795	56,153	292,948	1,161,020	868.142			Total		102,191	21060	126.251	441,944	315,693

			EIRR (%)	14.33
Discount	BC	PV(Bs	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
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

			EIRR (%)	12.52
Discou	nt B'C	PV(Bs.	1,000)	NPV
Rate (9	<b>t</b> )	Cost	Benefit	(Bs. 1,000)
15	0.85	59,797	50,869	-8,928
12	1.04	67,333	69,842	2,510
10	1.21	73,239	88,405	15,166
	1.92	92,771	178,094	85,323
3	2.40	103,657	248,996	145,338

TABLE K.4.7 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN

I-3. Chane Chacras

1-4. Okinawa Drainage

								1-40		Tamag	·		
					Poit: Bs.1,							Unit: Bs.1,000	
	) ear		conomic (		Economic	(B)-(C)	•	Year	F.c	onomic (	Cost	Economic	(B)-(C
		Construction	OM	Total (C)	Benefit (B)				Construction	0.1	Total (C	Benefit (B)	·—
ı	2000	852	. (	852	0	-852	- 1	2000	1,210	) 0	1,210	0	-1,21
2	2001		•	14,076	. 0	-14,076		2001	19,894				-19.89
3	2002			5 14,181	2,317	-11,86-1		2002					-16.85
4	2003	15,355	209	15,564	4,612	-10,952		2003					-6,70
5	2004	35,783	31-	36,097	6,930	-29,167		2004					-5,2
6	2005		577	49,649	12,623	-37,026	. 6	2005					-3.00
7	2006			17,333	21,032	3,699		2006					9.1
8	2007		1,074	17,451	23,702	6,248	- 8				557		9.1
9	2008	15,422	1,190	16,618	26,395	9,777	9	2008	0		557		9,4
10	2009	• 0	1,318	3 1,318	29,087	27,769		2009			557		9.4
u	2010	• • •	1,318	3 1,318	29,087	27,769	- 11				557		9.4
12	1102	0	1,318	3 1,318	29,087	27,769	12	2011	C		557		9.4
13	2012	0	1,318	3 1,318	29,087	27,769	13				557		9,4
14	2013	0	1,318	3 1,318	29,087	27,769	: 14	2013	o		557		9.4
15	2014	0	1,318	1,318	29,087	27,769		2014			557		9,4
16	2015	0	1,318	1,318	29,087	27,769	- 16				557		9.1
17	2016	0	1,318	1,318	29,087	27,769	17		_		557	000,01	9.4
18	2017	0	1,318	1,318	29,087	27,769	- 18		ŏ		557	10,000	9.4
19	2018	0	1,318		29,087	27,769	19		ō		557	10,000	9.4
0:	2019	0	1,318	1,318	29,087	27,769	20		ō		557	10,000	9,4
15	2020	0	1,318	1,318	29.087	27,769	21		ŏ		557	10,000	9,4
2	2021	0	1,318	1,318	29,087	27,769	22		ŏ		557	10,000	9,4
23	2022	0	1,318		29,087	27,769	23		ŏ		557	10,000	9,4
24	2023	0	1,318		29,087	27,769		2023	ŏ		557	10,000	9,4
25	2024	0	1,318	1,318	29,087	27,769	25		Ö		557	10,000	9,4
6	2025	0	1,318	1,318	29,037	27,769	26		ō		557	10,000	9.4
27	2026	0	1,318		29,087	27,769	27		õ		557	10,000	9,4
8	2027	0	1,318		29,087	27,769	28	2027	ŏ		557	10,000	9,4
9	2028	0	1,318		29,087	27,769	29		ō		557	10,000	9.4
0	2029	0	1,318	1,318	29,087	27,769			ň		557	10,000	9.4
1	2030	0	1,318	1,318	29,087	27,769	31	2030	Ö		557	10,000	9,4
2	2031	0	1,318	1,318	29,087	27,769		2031	· ŏ		557	10,000	9,4
13	2032	0	1,318		29,087	27,769	33	2002	ő		557	10,000	9,4
14	2033	0	1,318		29,087	27,769	-	2033	ŏ	557	557	10,000	9,4
15	2014	0	1,318		29,087	27,769		2034	ŏ	557	557	10,000	9.4
36	2035	0	1,318	1,318	29,087	27,769		2035	ő		557	10,000	9,4
37	2036	0	1,318		29,087	27,769	37		Ö	0	· o	0	7.4
38	2037	0	1,318		29,087	27,769	38	2037	ŏ	ŏ	ő	0	
19	2038	0	1,318		29,087	27,769		2038	ŏ	• 0	ő	Ö	
	Total	177,401	43,963	221,364	970,221	748,857	÷	Total :	74,945	18.007	92 952	323,285	230,33
	-				EIRR (%)	15.38				2	,,,,,		
	-	Discount	B.C	PV(Bs.		NPV	- :	-	IX serves	12:02	Gilas	EIRR (%)	12.2
		Rate (%)	D.C	Cost		(Bs. 1,000)			Discount	8C	PV(Bs.		NPV
	-	15	1.02	88,424	90,511	2,087	•		Rate (%)	7002	Cost	Benefit (	
		12	1.25	102,314	128,004	25,690			15	0.83	18,368	40,239	-8,12
		10	1.46	113,485	165,651	52,166			12	1.02	53,435	51,255	82
		10	177	113,463	100,001	22,100			10	1.18	57,383	67,871	10.4

			EIRR (%)	15.33
Discount	B.C	PV(Bs.	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
15	1.02	88, 12 1	90,511	2,087
12	1.25	102,314	128,004	25,690
10	1.46	113,485	165,651	52,166
5	235	151,869	356,879	205,009
3	296	174,026	515,757	341,731

			EIRR (%)	12.2[
Discount	B/C	PV(Bs.	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
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

#### I-5. Total of The East Area Project

		000				
	) car	Eco	nomic C		Economic	⊤ (B)-(C)
		Construction	OM	Total (C)	Benefit (B)	
1	2000	4,916	. 0	4,916	0	-4,916
2	2001	83,541	0	83,511	0	83,541
3	2002	100,626	614	101,240	12,340	-83,900
4	2003	94,924	1,366	96,290	27,213	
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	200G	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.	4,198	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
2	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
3-1	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	501 335 1	47 182	722 516	2,896,541	2,163,026

			EIRR (%)	14.00
Discount	BC	PV(Bs.	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
15	0.94	339,696	318,866	-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	I.	conomic (	Cost		.з-(В)-(С) .		Year	ľż	onomic C	cst	Economic	
		Construction	n OM	Total (C)	Benefit (B)	<del></del>			Construction	OM	Total (C)	Benefit (B)	
1	2000	1,31	2 0	1,312	0	-1,312	1	2000	1,818	0	1,818		-1,81
: 2	2001	22,19	4 0	22,194	0		2		28,343	ő		. 0	
3	2002	22,09	2 165		2,209		3			216		5,026	
4	2003	20,15	2 330	20,482	4,417		4			333		7,749	
. 5	2004	14,67	4 483	15,157	6,465	-8,692	5			449	11,030	10,448	-
6	2005	i (	0 599	599	8,018	7,419	6			528	10,491	12,287	1,79
7	2006	di 🐧	599	599	8,018		7			607	607	14,125	
8	2007	' · · · · · · · ·	D 599	599	8,018	7,419	8	2007		607	607	14,125	
9	2008	•	597	599	8,018	7,419	9	2008	0	607	607	14,125	
10	2009	1.3	599	599	8,018	7,419	10		4	607	607	14,125	
11	2010	•	599	599	8,018		11	2010		607	607	14,125	
12	2011	(	599	599	8,018	7,419	12		O	607	607	14,125	
13	2012		599	599	8,018		13	2012	-	607		14,125	13,51
14	2013		599	599	8,018		14	2013		607	607	14,125	
15	2014	. (	599	599	8,018		15			607	. 607	14,125	-
16	2015	•	599	599	8,018			2015		607	607	14,125	
17	2016	(	599		8,018		17	2016		607	607	14,125	
18	2017	5. (	599	599	8.018		18	2017	ō	607	607	14,125	13,51
19	2018	. (	599	599	8,018	•	19	2018	ŏ	607	607	14,125	
20	2019		599	599	8,018	•	20	2019	_	607	607	14,125	•
21	2020		599	599	8,018	7,119	21	2020	ŏ	607	607	14,125	13,51
22	2021	- (			8,018	7,419	22	2021	ŏ	607	607	14,125	13,51
23	2022		599		8,018	7,419	23	2022	ő	607	607	14,125	13,51
24	2023		599	-	8,018	7,419	24	2023	· ŏ	607	607	14,125	13,51
25	2024	(			8,018	7,419	25	2024	ŏ	607	607	14,125	13,51
26	2025	. (	599		8,018	7,419	26	2025	ŏ	607	607	14,125	13,51
27	2026		599		8,018	7,419	27	2026	. 0	607	607	14,125	13,51
28	2027	: (			8,018	7,419	28	2027	ő	607	607	14,125	13,51
29	2028	. (			8,018	7,419	29	2028	ŏ	607	607	14,125	13,51
30	2029	. (	599		8,018	7,419	30	2029	ŏ	607	607	14,125	13,51
31	2030				8,018	7,419	31	2030	Ŏ	607	607	14,125	13,51
32	2031	(	599		8,018	7,419	32	2031	ő	607	607	14,125	13,51
33	2032	(	599		8,018	7.419	33	2032	ŏ	607	607	14,125	13,51
34	2033	(	599		8,018	7,419	34		ŏ	607	607	14,125	13,51
35	2034	(	599	599	8,018	7,419		2034	Ö	607	607	14,125	13,51
36	2035	. (			0	0	36	2035	õ	607	607	14,125	13,51
37	2036				. 0	Ō	37	2036	ŏ	0	ő	0	10,01
38	2037			-	ō	ŏ	38	2037	ō	ŏ	ő	. 0	
39	<b>2038</b>	(	0		0	0	39	2038	ŏ	ŏ	ő	ŏ	
	Total	80,424	18,948	99,372	253,631	154,259		Total	81,784	19,736	101,520	459,260	357,74
					EIRR (%)	8.43			** .			EIRR (%)	16.2
		Discount	B'C	PV(Bs.		NPV		•	Discount	B/C	PV(Bs.		NPV
		Rate (%)	=	Cost		(Bs. 1,000)			Rate (%)		Cost		(Bs. 1,000
	•	15	0.62	53,759	33,367	-20,392		•	15	1.08	54,210	58,338	4.12
		12	0.76	59,061	41,696	-14,366			12	1.31	59,589	78,300	18,71
		10	0.00	63.164	66.623	7.514					42,507	10,500	10,73

				0-10
Discount	B C	PV(Bs.	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
15	0.62	53,759	33,367	-20,392
12	0.76	59,061	44,696	-14,366
10	0.88	63,164	55,623	-7,541
	1.40	76,518	107,182	30,634
3	1.75	83,962	147,087	63,125

			EIRR (%)	16.24
Discount	B/C	PV(Bs.	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
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.4.10 ECONOMIC ANALYSIS FOR ALTERNATIVE-2 PLAN

II-3. Total of the West Area Project

III. Total of the Whole Project

					Unit: Bs.1,0				<del></del>			Unit: RM!	
	Year .	Eco	onomic C	ost	Conomic	- (B)-(C)		Year	Ec	onomie C	ost	Economic	(B)-(C
		Construction	OM	Total (C)	Benefit (B)	<u> </u>			Construction	OM	Total (C)	Benefit (B)	····
ì	2000	3,130	0	3,130	0	-3,130	1	2000	8,046	. 0	8,046	•	-8,0-K
2	2001	50,537	Ō		0	-50,537	. 2	2001	134,078	2, 0	134,078		-134,078
3	2002	37,867	381	38,248	7,235	-31,013	3	2002	138,493	995	139,488	19,575	-119,913
4	2003	35,456	663	36,119	12,166	-23,953	4	2003	130,380	2,029	132,409	39,379	-93,030
5	2004	25,255	932	26,187	16,914	-9,273	5	2004	150,708	2,990	153,698	57,924	95,77
- 6	2005	9,963	1,127	31,090	20,305	9,215	6	2005	143,653	4,109	- 147,762	80,125	67,637
7	2006	0	1,206		22,143	20,937	. 7	2006	16,380	5,239	21,619	103,589	81,970
8	2007	0	1,206		22,143	20,937	. 8	2007		5,360		106,259	84,519
9	2008	0	1,206		22,143	20,937	. 9	2008	15,422	5,482		108,952	88,048
10	2009	0	1,206		22,143	20,937	10	2009		5,604	5,604	111,644	106,0 K
11	2010	0	1,206	1,206	22,143	20,937	11	2010	0	5,604	5,604	111,644	106,040
12	2011	0	1,206		22,143	20,937	. 12	2011	0	5,601	5,001	111,644	106,040
13	2012	C	1,206		22,143	20,937	13	2012	0	5,604	5,604	111,634	106,040
14	2013	: · O	1,206		22,143	20,937	14	2013	0	5,604	5,601	111,614	106,040
- 15	2014	. 0	1,206	1,206	22,143	20,937	15	2014	. 0	5,604	5,604	111,644	106,0 K
16	2015	0	1,206	1,206	22,143	20,937	16	2015	0	5,604	5,604	111,644	106,040
17	2016	0	1,206	1,206	22,143	20,937	17	2016	0	5,604	5,604	111,644	106,040
18	2017	0	1,206	1,206	22,143	20,937	18	2017	. 0	5,604	5,604	111,644	106.0 X
19	2018	0	1,206	1,206	22,143	20,937	19	2018	0	5,604	5,604	111,644	106,040
20	2019	0	1,206	1,206	22,143	20,937	20	2019	0	5,601	5,604	111,614	106,040
- 21	2020	Ó	1,206	1,206	22,143	20,937	21	2020	0	5,604	5,601	111,644	106.0 K
22	2021	. 0	1,206	1,206	22,143	20,937	22	2021	0	5,604	5,604	111,641	106,040
23	2022	. 0	1,206	1,206	22,143	20,937	23	2022	0	5,604	5,601	111,641	106,040
24	2023	0	1,206	1,206	22,143	20,937	24	2023	0	5,604	5,604	111,611	106,040
25	2024	. 0	1,206	1,206	22,143	20,937	25	2024	0	5,604	5,604	111,644	106,040
26	2025	0	1,206	1,206	22,143	20,937	26	2025	0	5,604	5,601	111,641	106,040
27	2026	. 0	1,206	1,206	22,143	20,937	27	2026	0	5,604	5,601	111,644	106,040
28	2027	0	1,206	1,200	22,143	20,937	28	2027	0	5,604	5,604	111,644	106,040
29	2028	0	1,206	1,206	22,143	20,937	29	2028	0	5,004	5,601	111,644	106,040
30	2029	. 0	1,206	1,206	22,143	20,937	30	2029	0	5,601	5,601	111,611	106,040
31	2030	• 0	1,206	1,206	22,143	20,937	31	2030	0	5,601	5,004	111,641	106,040
32	2031	0	1,206	1,206	22,143	20,937	32	2031	0	5,604	-	111,611	106,040
33	2032	0	1,206	1,206	22,143	20,937	33	2032	0	5,604	5,604	111,644	106,040
34	2033	. 0	1,206	1,206	22,143	20,937	34	2033	0	5,604	5,604	111,644	106,040
35	2034	0	1,206	1,206	22,143	20,937	35	2034	0	5,604	5,604	111,644	106,040
36	2035	•	607	607	14,125	13,518	36	2035	0	5,005	5,005	103,626	98 621
37	2036	0	0	0	0	0	37	2036	0.	1,318	1,318	29,087	27.769
38	2037	0	0	0	Ō	0	38	2037	0	1,318	1,318	29,087	27,769
39	2038	. 0	0	0	0	0	. 39	2038	ō	1,318	1,318	29,087	27.769
	Total	162,208	38 684	200,892	712,891	511,999		Total	753,540	190 967	03.1.103	3,609,432	2,675,025

			EIRR (%)	12.51
Discount	B/C	PV(Bs.	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
15	0.85	107,968	91,704	-16,261
12	1.04	118,650	122,996	4,346
10	1.21	126,936	153,278	26,342
5	1.93	154,009	297,284	143,185
3	2.42	169,235	409,737	240,502

			EfRR (%)	13.64
Discount	B/C	PV(Bs.	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
15	0.92	417,665	410,570	-37,095
12	1.12	501,769	562,296	60,528
. 10	1.31	511,343	711,176	166.833
5	2.00	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. Rio Chane

I-2. Rio Pailon

					Unit: Bs.1	.000			2410 1 011011			Unit: Bs.	1000
	Year	Fx	onomic	Cost	Economic		-	Year	Fc Fc	onomic (	Post	Economic	
		Construction	ı OM	Total (C	Benefit (B)		_		Construction			Benefit (B	
1	2000	1,67	,	0 1,677	0	1.677							
2	2001	28,83		0 28,832	0	-1,677 -28,832	I						
3	2002	28,832		•	359		2			4.7			
4	2003	28,832		~	718	-28,688	3						
5	2004	28,832		5 29,477	1,077	-28,544	4						
Ġ	2005	27,15			1,435	-28,400	5			_		-	
7	2006		1,07		1,791	-26,579 720	6						, .
8	2007		1.07		1,791		7				-		
9	2008		) 1,07		1,794	720 720	8						
io	2009	ì			1,794	720	Ξ.		_	•			-
11	2010	ì			1,794	720 720	10			955			
12	2011	Č					11			1,353			
13	2012	. (			1,794	720		2011		•			-
14	2013				1,794	720	13			1,763	1,763		
15	2014		1.07		1,791	720		2013		1,763			
16	2015				1,794	720	15			1,763	1,763	36,454	
17	2016	. 0			1.794	720	16	-		1,763	1,763	36,451	
18		0		-	1,794	720		2016		1,763	1,763	36,451	34,69
19	2017 2018	0			1.794	720	18			1,763	1,763	36,454	34,69
		0			1,794	720	19			1,763	1,763	36,454	34,69
20	2019	0			1,794	720	20			1,763	1,763	36,454	34,69
21	2020	0			1,794	720	2]	2020	0	1,763	1,763	36,454	34,69
22	2021	0			1.794	720	22	2021	0	1,763	1,763	36,454	34,69
23	2022	0			1,791	720	23	2022	0	1,763	1,763	36,454	34,69
2.4	2023	, , <b>O</b>	-		1,794	720	24	2023	0	1,763	1,763	36,454	34,69
25	2024	O			1,794	720	25	2024		1,763	1,763	36,451	34,69
26	2025	C			1,794	720	26	2025	0	1,763	1,763	36,454	34,69
27	2026	. 0			1,794	720	27	2026	0	1,763	1,763	36,454	34,69
28	2027	0		•	1,794	720	28	2027	0	1,763	1,763	36,454	34,69
29	<b>2</b> 028	, 0			1,794	720	29	2028	O	1,763	1,763	36,454	34(0)
30	2029	- 0			1,794	720	30	2029	0	1,763	1.763	36,454	34,69
31 .	2030	. 0			1,794	720	31	2030	0	1,763	1.763	36,454	34,69
32	2031	0			1,794	720	32	2031	0	1,763	1,763	36,454	34,69
33	2032	. 0		•	1,794	720	33	2032	0	1,763	1,763	36,454	34,69
3-1	2033	0	1,074	1,074	1,791	720	34	2033	0	1,763	1,763	36,454	34,60
35	2004	0	1,074	1,074	1,794	720	35	2034	0	1,763	1,763	36,454	34.69
36	2035	0	1,074	1,074	1,794	720	36	2035	0	1,763	1,763	36,454	34.69
37	2036	. 0	- 0	0	0	0	37	2036	0	1,763	1,763	36,451	34.69
38	2037	• • • • •	0	0	0	0	38	2037	. 0	1,763	1,763	36,454	34,69
39	2038	. 0	. 0	0	0	0	39	2038	0	1,763	1,763	36,454	34,69
10	2039	0	. 0	0	0	0	40	2039	Ŏ	1,763	1,763	36,451	34,69
11	2010	. 0	C		0	Ō	41	2010	ŏ	1,763	1,763	36,454	34,69
	~ _ • _ •		0.050		***			_				·	
	Total	143,160	3-1_109	178,529	57,410	-121,119		Total	236,795	56,153	292,948	1,161,090	868,14
					EIRR (%)	#DIV/0!			* *			EIRR (%)	14.3.
		Discount	BC	PV(Bs.		NPV		•	Discount	B/C	PV(Bs.		NPV
	: -	Rate (%)		Cost		Bs. 1,000)		•	Rate (%)		Cost		(Bs. 1,000)
	. –	15	0.08	88,904	6,895	-82,009		· •	15	0.96	71,149	68,236	-2,913
		12	0.09	99,055	9,372	-89,684			12	1.17	90,809	106,221	15,417
		10	0.11	106,994	11,786	-95,208			10	1.36	107,606	146,519	38,913
		5	0.18	133,235	23,395	-109,840			5		170,199		
		3		147,904	2-3-17-7	-115,358			3	2.17	1 (0,177	369,068	198,800

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

1-3. Quebrada Chane

I-4. Chane Chacras

					Unit: Bs.1							Unit: Bs.	1,000
	) car		conomic		Economic			Yea	г Бо	onomie (	Cost	Economi	c (B)-(C
		Construction	n OM	Total (C	Benefit (B)				Construction	OM	Total (C)	Benefit (B	
i	2000	) (	0 (	) (		. 0	. 1	2000	. 0		) 0		
2			Ď (			-				_			)
3	2002	: '	0 0				3			-			)
4	2003		,										
. 5	2004	1.	b c	_									14,07
6												2,317	
7					ŏ							•	
8					-	-,							
9	2008						Š			572 951			
10	2009			-			10						
11	2010			,	10,782		11		•				
12	2011		760	-			12			1,190	7		
13	2012		760				13			1,318			
14			760		•								
15	2014				•		14		_				
16	2015			- 7	•		15						
17	2016	Č			-		10			1,318			
18	2017	. (				•	17			1,318	•	29,087	
19	2018	(			13,960		.18			1,318		29,087	
20	2019	,			13,960	13,200	19			1,318	•	29,087	27,769
21	2020	-			13,960	13,200	20			1,318		29,087	27,769
22		C			13,960	13,200	21		0	1,318		29,087	27,769
	2021	. 0			13,960	13,200	22		0	1,318	1,318	29,087	27,769
23	2022	C			13,960	13,200	23		. 0	1,318	1,318	29,087	27,769
24	2023	g			13,960	13,200	24	2023	0	1,318	1,318	29,087	27,769
25	2024	0		760	13,960	13,200	25	2024	0	1,318	1,318	29,087	
26	2025	0		760	13,960	13,200	26		0	1,318	1,318	29,087	27,769
27	2026	0		760	13,960	13,200	27		0	1,318	1,318	29,087	
28	2027	0		760	13,960	13,200	28		. 0	1,318	1,318	29,087	27,769
29	2028	. 0		760	13,960	13,200	29	2028	. 0	1,318	1,318	29,087	27,769
30	2029	0		760	13,960	13,200	30	2029	· 0	1,318	1,318	29,087	27,769
31	2030	0		760	13,960	13,200	31	2030	. 0	1,318	1,318	29,087	
32	2031	0		760	13,960	13,200	32	2031	. 0	1,318	1,318	29,087	27,769
33	2032	0		760	13,960	13,200	33	2032	. 0	1,318	1,318	29,087	27,769
34	2033	. 0		760	13,960	13,200	34	2033	; o	1,318	1,318	29,087	27,769
35	2034	0		760	13,960	13,200	35	2034	0	1,318	1,318	29,087	27,769
36	2035	0		760	13,960	13,200	36		• 0	1,318	1,318	29,087	27,769
37	2036	0		760	13,960	13,200	37		Ō	1,318	1,318	29,087	27,769
38	2037	0		760	13,960	13,200	38		or ŏ	1,318	1,318	29,087	27,769
39	2038	0	760	760	13,960	13,200	39		Ō	1,318	1,318	29,087	27,769
40	2039	0	760	760	13,960	- 13,200	40	2039	ō	1,318	1,318	29,087	27,769
41	2040	0	760	760	13,960	13,200	41		. 0	1,318	1,318	29,087	27,769
	Total	102,191	24,060	126,251	411,941	315,693		Total	177,401	43.963	221,364	970,221	748,857
					E(RR (%)	12.52							
	-	Discount	ВC	PV(Bs.		NPV			(News	11:25		EIRR (%)	15.38
		Rate (%)		Cost					Discount -	B/C	PV(Bs.		NPV
	-	15	0.85	29,730	25,291	(Bs. 1,000)			Rate (%)		Cost		(Bs. 1,000)
		12	1.04	38,206	39,630	-4,439			15	1.02	66,861	(8,439	1,578
	-	10	1.21	45,475	54,893	1,424			12	1.25	81,564	102,044	20,480
		5	1.92			9,417			10	1.46	93,730	136,902	43,112
		3	2.40	72,689	139,541	66,852			5	2.35	137,750	323,700	185,950
			4.40	89,416	214,786	125,370			- 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

1-6. Total of The East Area Project

	١.			• • •										Unit: Bs. (	1,000
	. •	, eat		1:0	onomic (	Cost	Economic	→ (B)-(C)	•	Year	B	cononsie C	ost	Liconomic	
			Const	ruction	OM	Total (C)	Benefit (B)				Construction	OM	Total (C)	Benefit (B.	, (,
	1 2	2000		1,210	• 0	1,210	0	-1,210	ι	2000	2,887		1 2007		
•	2 2	2001		19,891	0		Õ	19,894	2		48,726	Ó	-1	. 0	_,
	32	2002		19,366	148		2,657	-16,857	3				49,413	2010	
	4 2	2003		11,718	296	12,014	5,314	-6,700	4				55,352	3,016 6,032	-
		2004		11,720	383	12,103	6,876	-5,227		2004	54,628		55,761	10,271	
		2005		11,037			8,438	-3,069	6		56,401		57,939	14,485	
		2006		0			10,000	9.43	7			1.945	87,299	18,724	
		2007		0			10,000	9,443	8	2007	116,261		118,825	31,783	
		2008		0			10,000	9,443	. 9	2008	84,231		87,676	50,112	
		2009		0	-		10,000	9,443	10		94,330	4,066		62,701	
1		010	:	0		557	10,000	9,413	11	2010	88,998	4,767		76,947	
. 1		2011		. 0		557	10,000	9,443	12	2011	0	5,472	5,472	91,295	
1.		012		0		557	10,000	9,413	13	2012	0	5,472	5,472	91,295	
1		013		0		557	10,000	9,413	14	2013	0	5,472	5,472	91,295	
	5 20			0		557	10,000	9,413	15	2014	0	5,472	5,472	91,295	
		015		0	557	557	10,000	9,413	16	2015	0	5,472	5,472	91,295	
1		016		0		557	10,000	9,443	17	2016	0	5,472	5,472	91,295	85,823
. 18		017 018		0		557	10,000	9,413		2017	0	5,472	5,472	91,295	85,823
	20		- 1	0	557	557	10,000	9,413	19	2018	0	5,472	5,472	91,295	85,823
21		020		0	557	557	10,000	9,413		2019	0	5,472	5,472	91,295	85,823
	2 20			0	557	557	10,000	9.413	21	2020	0	5,472	5,472	91,295	85,823
23		021		0	557 557	557	10,000	9.411		2021	0	5,472	5,472	91,295	85,823
24		023		0	557 557	551	10,000	9.413		2022	0	5,472	5,472	91,295	85,823
25		024		0	557	557 557	10,000	9.413	24	2023	0	5,472	5,472	91,295	85,823
26		025		0	557	557	10,000	9.413		2024	0	5,472	5,472	91,295	85,823
27		026		ŏ	557	557	10,000	9.413	26	2025	0	5,472	5,472	91,295	85,823
28		027		ŏ	557	557	10,000 10,000	943	27	2026	0	5,472	5,472	91,295	85,823
29	_	028		ŏ	557	557	10,000	9.413	28	2027	0	5,472	5,472	91,295	85,823
30		029		õ	557	557	10,000	9,443 9,443	29 30	2028	0	5,472	5,472	91,295	85,823
31		330		ō	557	557	10,000	9.443		2029 2030	0	5,472	5,472	91,295	85,823
32	20	331		Ō	557	557	10,000	9,443		2031	0	5,472	5,472	91,295	85,823
. 33	20	332		0	557	557	10,000	9,443		2032	0	5,472	5,472	91,295	85,823
34	20	033		0	557	557	10,000	9.413		2033	0	5,472 5,472	5,472	91,295	85,823
35	20	μ.		0	557	557	10,000	9.443		2034	. 0		5,472	91,295	85,823
36		35		0	557	557	10,000	9.413		2035	0	5,472 5,472	5,472 5,472	91,295	85,823
37		36		0	0	0	0	0		2036	0	3,841	3,841	91,295	85,823
. 38	_	37		0	0	0	ō	ŏ		2037	0	3,841	3,841	79,501 79,501	75,660
39		138		0	0	0	0	Õ		2038	0	3,841	3,841	79,501	75,660 75,660
. 40		39		0	0	0	0	0		2039	ő	3.841	3.811	79,501	75,660
41	20	340		0	0	0	0	0		2040	ő	3.841	3,841	79,501	75,660
											•	0,311	5,012	12,01	2,5000
<u>.</u>	To	Hal	7	4,945	18,007	92,952	323,285	230,333		Total	735,492	176,552	912,044	2,953,951	2,041,907
				:		1	EJRR (%)	12.21							
٠.			Disco	unt	BC	PV(Bs. 1		NPV		-	Discount	B/C	PV(Bs.	EIRR (%)	10.18 NPV
		_	Rate	(E)	_	Cost	Benefit (I				Rate (%)	D.C.	Cost		NPV (Bs. 1,000)
			15		0.83	48,358	40,239	-8,129		_	15	0.69	305,013	209,100	-95,912
			. 12		1.02	53,435	54,255	820			12		363,070	311,523	-95,912 -51,547
			10		1.18	57,383	67,871	10,488			10	· .	111,247	417,970	6,723
			. 5		1.89	70,397	133,043	62,666			5		\$4,270	983,767	404,497
3			3		237	77,679	181,302	106,623			3			1,484,155	796,562

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

II-1. San Juan

II-2. Antofagasta

		:			Unit: Bs.1	,000						Unit: Bs.1	.000
	J, ¢st	Ex	conomic (	Cost	Economic	(B)-(C)	,	<b>Y</b> car		conomic (	Cost	Economic	(B) (C
		Construction	OM	Total (C)	Benefit (B)				Constructio	п ОМ	Total (C)	Benefit (B)	. ,
ı	2000	1,035		1,035	0	-1,035	. 1	2000	1,81	8 · C	1,818	. 0	-1,88
2	2001	17,317	' 0				2						
3	2002	17,509	129				3		- •			5,026	
4	2003	20,459	258				4		•				
5	2004			-			5						
6	2005	· · · · · ·	528				. 6					12,287	
7	2006			-			7			0 607			
8	2007	. 0				-	8			0 607	-		•
. 9	2008	. 0					š			607		- •	
10	2009	Ô					10			607			
11	2010	0				•	11	2010		607			
12		0					12	2011		607		•	
13	2012	Ŏ					13	2012		607			
14	2013	Ö			8,018		14	2012			- • -	,	
15	2014	Ō			8,018	-	15					• • •	,
16	2015	Ö			8,018		16	2014 2015		0 607			
17	2016	ō			8,018	• • •	17					14,125	
18	2017	ŏ	. 7		8,018	•	18		-			14,125	
19	2018	ŏ	528		8,018		19	2017			-	14,125	
20	2019	Ď	528		8,018		20	2018				14,125	
21	2020	ŏ	528		8,018	-		2019				14,125	13,518
22	2021	ŏ	528		8,018		21	2020				14,125	13,51
23	2022	ŏ	528		8,018	•	22	2021	٠ (		-	14,125	13,51
24	2023	Ö	528				23	2022	•			14,125	13,511
25	2024	0	528		8,018	7,490	2-1	2023	•			14,125	13,518
26	2025	. 0	528		8,018	7,490	25	2024		-	-	14,125	13,510
27	2026				8,018	7,490	26	2025	•			14,125	13,518
28	2027	0	528		8,018	7,490	27	2026	•			14,125	13,518
29		-	528		8,018	7,490	28	2027				14,125	13,518
29 30	2028	0	528		8,018	7,490	29	2028				14,125	13,518
	2029	0	528		8,018	7,490	30	2029	C		607	14,125	13,518
31	2030	0	528		8,018	7,490	31	2030	C		607	14,125	13,518
32	2031	0	.528	528	8,018	7,490	32	2031	C	607	607	14,125	13,518
33	2032	0	528		8,018	7,490	33	2032	C			14,125	13,518
34	2033	0	528		8,018	7,490	. 3-1	2033	· C			14,125	13,518
35	2034	0	528	528	8,018	7,490	35	2034	. C	607	607	14,125	13,518
36	2035	0	0	_	0	. 0	36	2035	C	607	607	14,125	13,518
37	2036	0	0		0	0	37	2036	C	_	_	0	•
38	2037	0	0		0	• . 0	. 38	2037	0	. 0	. 0	0	C
39	2038	0	0		0	. 0	39	2038	. 0	0	0	0	C
40	2039	0	0		0	0	40	2039	0	0	0	0	
41	2040	0	0	0,	0	0	41	2040	. 0	0	o	0	C
	Total	70,995	16,639	87,634	252,673	165,039		Total	81,784	19,736	101,520	459,260	357,740
					CIRR (%)	9.97				· •• · · · · · · · · · · · · · · · · ·			
	-	Discount	BC	J'V(Bs.	1.0001	NPV			Discount	B/C	tisters	EIRR (%)	16.24
		Rate (%)		Cost	Benefit	(Bs. 1,000)				S.C.	PV(Bs.		NPV
	-	15	0.70	46,661	32,813	-13,848			Rate (%)	1.00	Cost		(Bs. 1,000)
		12	0.86	51,424	44,082	-7,341				1.08	51,210	58,338	4,128
		10	1.00	55,113	54,965	-148			12	1.31	59,589	78,300	18,711
		5	1.58	67,154	106,392			* .	10	1.53	63,772	97,655	33,883
		3	1.98	73,817	146,235	39,238			5	2.45	77,551	190,102	112,551
	-		1.70	73,017		72,418			3	3.08	85.273	262,650	177 377

TABLE K.4.15 ECONOMIC ANALYSIS FOR ALTERNATIVE-1 PLAN (under Construction Schedule)

II-3. Total of the West Area Project

III. Total of the Whole Project

						Unit: Bs.1,	000		### I	otal of the	1111016	rrolect	Unit : RM	11.000
	Year		E	conomic	Cost	Economic	(B)-(C)		Year	- Ca	onomic C	·	~	
		Consta				Benefit (B)	. (5) (5) .						Economic	
						Betterit (B)				Construction	OM	Total (C)	Benefit (B	)
1			2,853	. (	0 2,853	0	-2,853	. 3	2000	5,740	0	5,740	) (	-5,740
2			45,660	) (	0 45,660	0	-45,660	2	2001	91,386				
3			33,284				-26,644	. 3	2002					
4			35,763			-	-24,687	. 4	2003			91,700		
5			25,256			16,705	-9,412	5	2004		1,994	81,878		
- 6			9,963				9,286	6	2005		2,594			
7			0				21,008	7	2006	85,354	3,080	88,434	40,867	
8			0				21,008	8	2007	116,261	3,699	119,900	53,926	
9	2008		0				21,008	9	2008		4,590	88,811		
10			0			22,143	21,008	10	2009	94,330	5,201	99,531	84,844	
11	2010		0			22,143	21,008	11	2010	88,993	5,902	94,900	99,090	
13	2011		0			22,143	21,008	12	2011	0	6,607			106,831
14	2012 2013		0			22,143	21,008	13	2012	0	6,607	6,607		106,831
15	2013		υ			22,143	21,008	14	2013	0	6,607	6,607		106,831
16	2015		0	1,135		22,143	21,008	1.5	2014	. 0	6,607	6,607		106,831
17	2015		0	1,135		22,143	21,008	16	2015		6,607	6,607		106,831
18	2017		. 0	1,135		22,143	21,008	17	2016		6,607			106,831
19	2018		0	1,135		22,143	21,008	18	2017	0	6,607	6,607		
20	2019		0	1,135 1,135		22,143	21,008	19	2018	0	6,607	6,607		
21	2020		0	1,135		22,143	21,008	20	2019	• 0	6,607	6,607		
	2021		0	1,135		22.143	21,008	21	2020	0	6,607	6,607	113,438	
23	2022		. 0	1,135	-	22,143	21,008	22	2021	0	6,607	6,607	113,438	
	2023		ő	1,135		22,143 22,143	21,008	23	2022	0	6,607	6,607	113,438	•
	2024		ŏ	1,135		22,143	21,008	24	2023	. 0	6,607	6,607	113,438	
26	2025		ŏ	1,135			21,008	25	2024	0	6,607	6,607	113,438	
27	2026		ŏ	1,135		22,143	21,008	26	2025	0	6,607	6,607	113,438	
28	2027		ŏ	1,135		22,143	21,008 21,008	27 28	2026 2027	0	6,607	6,607	113,438	
29	2028	1 .	ŏ	1,135		22,143	21,008	29	2027	0	6,607	6,607	113,438	106,831
30	2029	100	ō	1,135		22,143	21,008	30	2029	0	6,607 6,607	6,607	113,438	
31	2030	1	ŏ	1,135		22,143	21,008	31	2030	0	6,607	6,607	113,438	106,831
32	2031	•	ō	1,135		22,143	21,008	32	2031	. 0	6,607	6,607	113,438	106,831
33	2032		Ō	1,135		22,143	21,008	33	2032	0	6,607	6,607 6,607	113,438	106,831
34	2033		0	1,135		22,143	21,008	34	2033	. 0	6 607	6,607	113,438	106,831
35	2034		0	1,135		22,143	21,008	35	2034	ő	6,607	6,607	113,438	106,831
	2035	-	0	607		14,125	13,518	36	2035	o	6,079	6,079	113,438	106,831
	2036		0	0		0	0	37	2036		3,841	3,841	105,420 79,501	99,341
	2037		0	. 0		ō	Ö	38	2037	. 0	3,841	3,841	79,501	75,660
	2038		0	0		0	ŏ	39	2038	ŏ	3,841	3,841	79,501	75,660 75,660
40	2039	-	• 0	0	0	0	Ö	40	2039	ŏ	3,841	3,841	79,501	75,660
41	2040		0	0	0	0	O	41	2010	ŏ	3,841	3,841	79,501	75,660
								_		•	5,5.2	0,011	75,201	73,000
	Total	152	2,779	36,375	189,154	711,934	522,780		Total	888 271	222027	1.101.100	3,665,884	0.500.00
							1.22,100		LUGI	000,211	212,921	1,101,198	1,000,884	2,561,686
					ı	EIRR (%)	13.41						EIRR (%)	10.00
	-	Disco	unt	B:C	PV(Bs.		NPV		-	Discount	B.C	PV(Bs.		10.83
		Rate (			Cost	Benefit (				Rate (%)	. B.C _	Cost Cost		NPV (Bs. 1,000)
	-	15		0.90	100,871	91,151	-9,720		_	15	0.74	405,883	300,251	
		12		1.10	111,012	122,382	11,370			.12	0.74	474,082	433,905	-105,632
		. 10		1.28	118,884	152,620	33,735			10	1.08	530,132	570,590	-40,177
	S	. 5		2.05	144,705	296,494	151,789			5	1.76		1,285,261	40,458 556,287
		3		2.51	159,090	408,885	249,795		-	3	2.24	846,683	1,283,040	1,046,357
	_									<del></del>				4 - 1 - 1 - 1

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

I-1. Rio Pailon

1-2. Quebrada Chane

	Year	E	conomic (		Unit: Bs.1,0 Economic	• (B)-(C)		<u> </u>			(Jan.)	Unit: Bs.L.0	
		onstruction			Benefit (B)	* (b)·(c)		Year	Construction	onomie		Economic Benefit (B)	(B)-(C
	··		0	**********	ixikiii (ii)	<del></del>			COINTIOCHOR	UNI	Total (C)	Dettern (B)	
1	2000	2,495			0	-2,495	1	2000	O	. 0	0	. 0	. (
2	2001	42,760			0	-42,760	2	2001	O	. 0	0	0	(
3	2002	42,760			6,575	-36,503	3	2002	. 0	. 0	6	0	
. 4	2003	43,426			13,171	-30,892	4	2003	0	0	. 0	. 0	
5	2004	. 53,592			19,747	-3-1,800	5	2004	0	-	Q	0	
6	2005	51,762			27,976	-25,139	6	2005	359	. 0	3.99	0	-359
7	2006	0			36,454	34,691	7	2006	6,811	0	6,811	. 0	-6.811
8	2007	0			36,454	34,691	8	2007	24,424	43	24,467	790	23,67
. 9	2008	0			36,454	34,691	9	2008	24,425	224	24,649	4,115	-20.53
10	2009	: 0			36,454	34,691	10	2009	24,358	406	24,764	7,458	-17,300
11	2010	. 0			36,454	34,691	. 11	2010	21,814	587	22,401	10,782	-11,619
12	2011	0			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	700	760	13,960	13,200
14	2013	. 0			36,454	34,691	14	2013	. 0	760	760	-	13,200
15	2014	. 0	1,763	1,763	36,454	34,691	15	2014	0	760		13,960	13,200
16	2015	0	1,763	1,763	36,454	34,691	16	2015	0	760	and the second second	13,960	13,200
17	2016	0	1,763	1,763	36,454	34,691	17		0	760	760	13,960	13,200
18	2017	0	1,763	1,763	36,454	34,691	18	2017	. 0			13,960	13,200
19	2018	. 0	1,763	1,763	36,454	34,691	19		ŏ				13,200
20	2019	0	1,763	1,763	36,454	34,691	20	2019	ŏ	760		13,960	13,200
21	2020	0	1,763	1,763	36,454	34,691	21		Ö	760	760	13,960	13,200
22	2021	. 0	1,763	1,763	36,454	34,691	22		Ö	760	700	13,960	13,200
23	2022	0	1,763	1,763	36,454	34,691	23	2022	Ö	760	760		13,200
24	2023	0	1,763	1,763	36,454	34,691	24	2023	ō	760	760	13,960	13,200
25	2024	• . 0	1,763		36,451	34,691	25	2024	. Õ	760			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	Ö	760			13,200
28	2027	0	1,763	1,763	36,454	34,691	28	2027	ő	760	760		13,200
29	2028	. 0	1,763	1,763	36,454	34,691	29	2028	ŏ	760	760		13,200
30	2029	. 0	1,763		36,454	34,691	30	2029	. 0	760	760	,	13,200
31	2030	0	1,763		36,454	34,691	31	2030	Ö	760	760		13,200
32	2031	. 0	1,763	-	36,454	34,691	32	2031	0	760	760		13,200
33	2032	. 0	1.763	•	36,454	34,691	33	2032	0	760	700	13,960	13,200
34	2033	0	1.763	1,763	36,454	34,691		2033	0	760	760	13,960	13,200
35	2034	. 0	1,763		36,454	3-1,691		2034	0	760	700	13,960	13,200
36	2035	0	1.763	1,763	36,454	34.691		2035	0	760	760		
37	2036	0	0		0	0		2036	. 0	760	760	•	13,200
	2037	. 0	. 0	-	0	0	38	2037	0	760	760	13,960	13,200
	2038	ŏ	ŏ	-	ő	0	39	2037	0	760	760	13,960	13,200
	2039	ő	ŏ	-	ő	ő	40	2039	0	760	760 760	13,900	13,000
	2010	0	ŏ	_	0	. 0		2039	0	760		13,900	13,200
		•	·	v	U	. •	41	4010		700	760	13,960	13,200
	Total	236,795	56,153	292,948	1,161,090	868,142		Total	102,191	24.060	126.251	411,944	315,693

			EIRR (%)	14.33
Discount	B.C.	PV(Bs.	1,000}	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
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

			EIRR (%)	12.52
Discount	B/C	PV(Bs.	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
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)

1-3, Chane Chacras

I-4. Okinawa Drainage

	Unit: Bs.1,0				000						Unit: Bs.1,000			
	Year	Eco	onomic C	ost	Economic	• (B)-(C)		J'car	Ecc	nomic C	est	Economic	(B)-(C)	
		Construction	OM	Total (C)	Beacht (B)				Construction	OM:	Total (C)	Benefit (B)		
ı	2000	0	0	0	0	0	1	2000	1,210	0	1,210	0	-1,210	
2	2001	· o	ő		ő	Õ	2	2001	19,894	0	19,894	0	19,894	
3	2002	852	0		ŏ	-852	3	2002	19,366	148	19,514	2,657	-16,857	
4	2003	14,076	ŏ		ő	-14,076	4	2003	11,718	296	12,014	5,314	6.700	
Š	2004	14,076	105	-	2,317	11,864	5	2004	11,720	383	12,103	6,876	-5.227	
6	2005	15,355	202	-	4,612	10.952	6	2005	11,037	470	11,507	8,438	3,062	
7	2006	35,783	314		6,930	-29,167	7	2006	0	557	557	10,000	9.443	
8	2007	49,077	572		12,623	37,026	8	2007	ō	557	557	10,000	9.411	
9	2008	16,380	953		21.032	3,699	9	2008	Ō	557	557	10,000	9.113	
10	2009	16,380	1,074	17,454	23,702	6,248	10	2009	0	557	557	10,000	9,443	
11	2010	15,422	1,196	16,618	26,395	9,777	11	2010	. 0	557	557	10,000	9.111	
12	2011	0	1,318	1,318	29.087	27,769	12	2011	0	557	557	10,000	9.411	
13	2012	0	1,318	1,318	29,087	27,769	13	2012	0	557	557	10,000	9.443	
14	2013	0	1,318	1,318	29.087	27,769	14	2013	0	557	557	10,000	9.413	
15	2014	0	1,318	1,318	29.087	27,769	15	2014	0	557	557	10,000	9.413	
16	2015	. 0	1,318	1,318	29,087	27,769	- 16	2015	0	557	557	10,000	9,443	
ŧ7	2016	0	1,318	1,318	29,087	27,769	17	2016	0	557	557	10,000	9.413	
18	2017	0	1,318		<b>2</b> 9,08 <b>7</b>	27,769	18	2017	0	557	557	10,000	9,413	
19	2018	0	1,318	1,318	29,087	27,769	19	2018	Ó	557	557	10,000	9,443	
20	2019	Q	1,318		29,087	27,769	20	2019	0	557	557	10,000	9.443	
21	2020	0	1,318	1,318	29,087	27,769	21	2020	0	557	557	10,000	9.443	
22	2021	0	1,318		29,087	27,769	22		0	557	557	10,000	9.443	
23	2022	0	1,318	1,318	29,087	27,769	23	2022	0	557	557	10,000	9.413	
24	2023	0	1,318	1,318	29,087	27,769	24	2023	0	557	557	10,000	9,413	
25	2024	0	1,318	1,318	29,087	27,769	25	2024	0	557	557	10,000	9.413	
26	2025	0	1,318	1,318	29,087	27,769	26	2025	0	557	557	10,000	9,443	
27	2026	0	1,318	1,318	29,087	27,769	27	2026	. 0	557	557	10,000	6'113	
28	2027	0	1,318	1,318	29,087	27,769	28	2027	0	557	557	10,000	9,113	
29	2028	0	1,318	1,318	29,087	27,769	29	2028	0	557	557	10,000	9.443	
.30	2029	0	1,318	1,318	29,087	27,769	30	2029	0	557	557	10,000	9,413	
31	2030	0	1,318	1,318	29,087	27,769	31	2030	0	557	557	10,000	9,413	
32	2031	0	1,318	1,318	29,087	27,769	32	2031	0	557	557	10,000	9,443	
33	2032	0	1,318	1,318	29,087	27,769	- 33	2032	0	557	557	10,000	9,443	
34	2033	0	1,318	1,318	29,087	27,769	34	2033	0	557	557	10,000	9,413	
35	2034	0	1,318	1,318	29,087	27,769	35	2034	0	557	557	000,01	9,413	
36	2035	0	1,318	1,318	29,087	27,769	36	2035	0	557	557	10,000	8413	
37	2036	0	1,318	1,318	29,087	27,769	37	2036	0	0	0	0	0	
38 39	2037 2038	0	1,318 1,318	1,318 1,318	29,087 29,087	27,769 27,769	38	2037	0	0	0	0	0	
40	2039	0	1,318	1,318	29,087	27,769 27,769	39 40	2038 2039	0	0	0	0 0	0	
41	2040	0	1,318		29,087	27,769	40	2010	0	0	0	Ö	0	
	Total	177,401	43,933	221,364	970,221	748,857		Total	74,945	18,007	92,952	323,285	230,333	
					EIRR (%)	15.38						E(RR (%)	12.21	
	-	Discount	BC	PV(Bs.	1,000)	NOA			Discount	B/C	PV(Bs.		NPV	
	_	Rate (%)		Cost	Benefit	(Bs. 1,000)			Rate (%)	-	Cost		Bs. 1,000)	
	-	15	1.02	66,861	68,439	1,578			15	0.83	48,368	40,239	-8,129	
		12	1.25	81,564	102,044	20,480			12	1.02	53,435	54,255	820	
		10	1.46	93,790	136,902	43,112			10	1.18	57,383	67,871	10,483	
		5	235	137,750	323,700	185,950			5	1.89	70,397	133,063	62,666	
		3	3	164,036	486,150	322,114			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

	Year	- Exc	nomic Co	ost	Economic	→ (B)-(C
		Construction	OM.	Total (C)	Benefit (B)	
ŧ	2000	3,705	0	3,705	0	-3,705
2	2001	62,654	0	62,651	0	-62,65
3	2002	62,978	466	63,414	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	-51,897
6	2005	78,513	2,032	80,545	41,027	-39,518
7	2006	42,524	2 634	45,228	53,384	8,150
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	33,070
11	2010	37,236	4,103	41,339	83,631	42,292
12	2011	0	4,398	4.198	89,501	85,103
13	2012	Ò	4,398	4,398	89,501	85,103
14	2013	. 0	4,398	+1398	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	82,501	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	4.198	4,398	89,501	85,103
26	2025	Ó	4,398	4_198	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
1	2030	0	4,398	4,398	89,501	85,103
2	2031.	0	4,398	4,398	89,501	85,103
33	2032	0	4,398	4,398	89,501	85,103
4	2033	. 0	4,398	4,398	89,501	85,103
15	2034	0	4,398	4,398	89,501	85,103
6	2035	. 0	4,398	4,398	89,501	85,103
37	2036	0	2,078	2,078	43,047	40,969
8	2037	0	2,078	2,078	43,047	40,969
9	2038	0	2,078	2,078	43,047	40,969
ю	2039	0	2,078	2,078	43,047	40,969
11	2040	0	2,078	2,078	43,047	40,969

			EIRR (%)	14.04
Discount	B:C	PV(Bs.	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
15	0.94	288,066	271,216	-16.8.0
12	1.15	333,242	383,128	42,886
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-i. San Juan

II-2. Antofagasta

		_			Unit: Bs.1,	000			Amonagasi			Unit: Bs.1,0	000
	Year	T2	onomic C	.ost	Liconomic	, (B)-(C),		Year	Eco	nomic C	ost	Economic	(B)-(C
	Ċ	onstruction	OM	Total (C)	Benefit (B)			•	Construction			Benefit (B)	
i	2000	1,312			0	-1,312	. 1	2000	1,818	: 0	1,818	. 0	-1.81
2	2001	22,194			0	-22,194	2	2001	28,343	0	28,343	0	28 34
3	2002	22,092			2 209	-20,048	3	2002	15,775	216	15,991	5,026	10.96
4	2003	20,152	330	20,482	4,417	-16,065	- 4	2003	15,301	333	15,637	7,749	-7.88
5	2004	14,674	483	15,157	6,465	-8,692	- 5	2004	10,581	419	11,030	10,418	54
6	2005	0	599	599	8,018	7,419	6	2005	9,963	528	10,491	12,287	1,79
7	2006	0	599	599	8018	7,419	7	2006	0	607	607	14,125	13.5
8	2007	. 0	599	599	8,018	7,419	8	2007	0	607	607	14,125	13.51
9	2008	0	599	599	8,018	7,419	9	2008	. 0	607	607	14,125	13.5
10	2009	0	599	599	8,018	7,419	10	2009	0	607	607	14,125	13.5
11	2010	0	599	599	8,018	7,419	- 11	2010	· ŏ	607	607	14,125	13.51
12	2011	. 0	599		8,018	7,419	12	2011	ŏ	607	607	14,125	13.5
13	2012	. 0	599	599	8,018	7,419	13	2012	ŏ	607	607	14,125	13.51
14	2013	. 0	599	599	8,018	7,419	14	2013	. 0	607	607	14,125	13.51
15	2014	0	599	599	8,018	7,419	-15	2014	ő	607	607	14,125	13.51
16	2015	0	599	599	8,018	7,419	16	2015	ő	607	607	14.125	13.51
17	2016	0	599	599	810.8	7,419	17		ő	607	607	14,125	13,5
18	2017	0	599	599	8,018	7,419	18	2017	; 0	607	607	14,125	13.5
19	2018	. 0	599	599	8,018	7,419	19	2018	. 0	607	607	14,125	13.5
0	2019	Ö	522	599	8,018	7,419	20	2019	o	607	607	14,125	
21	2020	Ô	599	599	8,018	7,419	21	2020	0	607	607	-	13.5
22	2021	0	599	599	8,018	7,419		2021	. 0	607	607	14,125	13.51
23	2022	0	599	599	8,018	7,419	23	2022	. 0	607	607	14,125	13,51
24	2023	0	599	599	8,018	7,419	24	2023	ŏ	607	607	14,125	13.51
25	2024	ŏ	599	599	8,018	7,419	25	2024	. 0	607	607	14,125	13,51
26	2025	. 0	599	599	8,018	7.419	26	2025	Ŏ	607	607	14,125	13.51
27	2026	0	599	599	8,018	7,419	27	2026	ŏ	607	607	14,125	13,51
28	2027	. ŏ	599	599	8,018	7,419	28	2027	. 0			14,125	13,51
29	2028	ŏ	599	599	8,018	7,419	29	2027	0	607 607	607 607	14,125	13,58
Ó	2029	. 0	599	599	8,018	7,419		2029	0	607	607	14.125	13,58
31	2030	Ğ	599	599	8,018	7,419	31	2030	0	607	607	14,125	13,51
12	2031	ŏ	599	599	8,018	7,419	32		0	607	607	14,125	13,50
13	2032	ŏ	599	599	8,018	7,419	33	2032	0	607	607	14,125	13,51
3.1	2033	ò	599	599	8,018	7,419	34		. 0	607		14,125	13,58
35	2034	Ö	599	599	8,018	7,419	35	2033	. 0		607	14,125	13,51
36	2035	o č	0	. 0	0,010	7,417		2035	0	607	607	14,125	13,51
	2036	ŏ	ŏ	0	ő	0	37		0	607	607	14,125	13,51
	2037	ő	ŏ	Ö	0	0	-	2037	0	o i		0	
9	2038	0	ŏ	0	0	0	39		0	0	. 0	0	
ю	2039	. 0	ŏ	o	0	0	40	2039	0	0	0	0	(
i	2010	. 0	0	Ŏ	Ŏ	ŏ	41	2010	ő	ő	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
Discount	BC	PV(8s.	1,000)	NPV
Rate (%)	* •	Cost	Benefit	(Bs. 1,000)
15	0.62	53,759	33,367	-20,392
12	0.76	59,061	41,6%	-14,366
10	0.88	63,164	55,623	7.541
5	1.10	76,518	107,182	30,634
3	2	83,962	147,087	63,125

			EIRR (%)	16.24
Discount	BC	PV(Bs,	1,000)	NPV
Rate (%)		Cost	Benefit	(Bs. 1,000)
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

III. Total of the Whole Project

	Unit: Bs.1,000						****	total of the	Hogeet	Unit: RM 1,000			
	Year	lice	onomie C	Cost	Economic	ъ (B)-(C)		Year Economic Cost			Economic	(B)-(C	
		Construction	OM	Total (C)	Benefit (B)				Construction	OM	Total (C)	Benefit (B)	
1	2000		0		0	-3,130	1	2000	6,835	0	6,835	0	-6,835
2			0		0	50,537	2	2001		0	113,191	0	-113,191
3		•	381		7,235	31.013	3	2002					-85,22
	2003	•	663	-	12,166	-21,951		2003	104,676	1,5%	106,272	30,652	-75,620
5		_	912	-	16,914	-9,273	5					45,854	-61,16
6			1,127		20,305	9,215	- 6	2005		3,159	91,635	61,331	-30,30
7	2006		1,206		22,143	20,937	. 7	2006		3,840	46,434	75,527	29,093
8			1,206		22,143	20.937	8	2007		4,141	77,642	82,010	4,368
9	2008		1,206		22,143	20,937	9	2008	40,805	4,703	45,508	93,743	48,235
10			1,206	-	22,143	20,937	- 10			5,006	45,744	99,757	51,013
	2010		1,206	-	22,143	20,937	11	2010		5,309	42,545	105,774	63,229
	2011	0	1,206	-	22,143	20,937	12	2011	0	5,604	5,601	111,644	106,040
13	2012		1,206		22,143	20,937	13	2012	0	5,604	5,604	111,641	106,040
			1,206		22,143	20,937	14	2013	0	5,604	5,604	111,644	106,040
	2014		1,206		22,143	20,937	15	2014	0	5,604	5,604	111,641	106,040
	2015		1,206	-	22,143	20,937	16	2015	• 6	5,604	5,604	111,614	106,040
17	2016		1,206		22,143	20,937	17	2016	. 0	5,604	5,604	111,641	106,040
18		0	1,206		22,143	20,937	18	2017	0		5,604		106,040
19	2018	0	1,206		22,143	20,937	19	2018	. 0	5,604	5,604	111,644	106,040
20	2019	0	1,206		22,143	20,937	20	2019	0	5,604	5,601	111,644	106,040
21	2020	0	1,206		22,143	20,937	21	2020	0	5,604	5,601	111,644	106,040
	2021	0	1,206		22,143	20,937	22	2021	0	5,604	5,601	111,644	106,040
23	2022	0	1,206		22,143	20,937	23	2022	0	5,604	5,604	111,644	106,040
24	2023	0	1,206		22,143	20,937	24	2023	0	5,604	5,604	111,644	106,040
25	2024	0	1,206		22,143	20,937	25	2024	0	5,604	5,601	111,644	106,040
26	2025	0	1,206	1,206	22,143	20,937	26	2025	0	5,604	5,604	111,644	106,040
27	2026	0	1,206	1,206	22,143	20,937	27	2026	Ó	5,604	5,604	111,644	106,040
28	2027	0	1,206	1,206	22,143	20,937	28	2027	0	5,604	5,604	111,644	106,040
29	2028	0	1,206		22,143	20,937	29	2028	0	5,604	5,604	111,644	106,040
30	2029	. 0	1,206	1,206	22,143	20.937	30	2029	0	5,604	5,604	111,644	106,040
	2030	0	1,206	1,206	22,143	20,937	31	2030	0	5,604	5,604	111,644	040,001
32	2031	0	1,206	•	22,143	20,937	32	2031	0	5,604	5,604	111,644	106,040
33	2032	0	1,206		22,143	20,937	33	2032	0	5,604	5,604	111,644	106,040
34	2033	0	1,206		22,143	20,937	34	2033	. 0	5,604	5,601	111,644	106,040
3.5	2034	0	1,206	1,206	22,143	20,937	35	2034	0	5,601	5,604	111,641	106,040
36	2035	0	607	607	14,125	13,518	36	2035	0	5,005	5,005	103,626	98,621
37	2036	0	0	-	0	0	37	2036	0	2,078	2.078	43,047	40,969
38	2037	0	0		0	0	38	2037	0	2,078	2,078	43,047	40,969
39	2038	0	0	_	0	0	39	2038	0	2,078	2,078	43,047	40,969
	2039	, 0	0		0	0	40	2039	0	2,078	2.078	43,017	40,969
41	2040	0	0	0	0	0	41	2040	0	2,078	2,078	43,047	40,969
	Total	162,208	38,684	200,892	712,891	511,999		Total	753,540	180,867	934,407	3,609,432	2,675,025
					EIRR (%)	12.51						EIRR (%)	13.63
	-	Discount	BC	PV(Bs.		NPV			Discount	B/C	PV(Bs.		NPV
		Rate (%)		Cost		(Bs. 1,000)			Rate (%)	D.C -	Cost		(Bs. 1,000)
		15	0.85	107,968	91,704	-16,264		-	15	0.92	396,035	362,920	-33,114
		12	1.04	118,650	122,936	4,346			12	1.12	451,892	506,124	
		10	1.21	126,936	153,278	26,342			10	1.12	426,884		54,232
		5	1.93	154,099	297,284	143,185			5	2.09	652,157	648,914 1,364,623	152,030
		3	2	169,235	402,737	2-10,502			3	3			712,466
	_		<u>-</u>		********	A 727,-1474				.,	742,142	1,951,554	1,209,41

APPENDIX

TERMS OF REFERENCE OF SURVEY WORKS

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## APPENDIX

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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 Supervisior.

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 km<sup>2</sup>

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 photographying 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:

and the second of the second o

and the engineering of the following of the company of the company

1. 1. 10. 14. 1. 1. 10.

and programme the contract of the contract of

- 1. Aerial Photography
  - (1) Negative film (8,500 km<sup>2</sup>) : 1 set
  - (2) Positive film (8,500 km<sup>2</sup>)
  - (3) Contact print (8,500 km2) : 3 sets
  - (4) Photo index map
- 2. Flight Record
  - (1) name of contract
  - (2) name of photographing organization
  - (3) beginning and end times of flight
  - (4) date of flight was a second of the secon
  - (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.

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# Section 2 Quantity and Location of Work

- 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)
  Yapacanicíto 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.

化氯化二甲基甲基甲二甲酚磺基丁

## (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: 6cm √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: 5cm + 3cm

√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 moths 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

. Leat

(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

*
3 sections
3 sections
5 sections
3 sections
3 sections
•
4 section
3 section
section:
1 section
section
section
·
section
0 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: 6cm x VS,

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:  $5cm + 3cm \times \sqrt{s}$ ,

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)

 $V = 1/100 \approx 1/1,000$ 

## 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 maltipurpose 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 tempereture
  - -Electric conductibity
  - -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

#### 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.

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

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-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.

## 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



