

TABLES

**TABLE B.2.1 POPULATION BY DEPARTMENT IN THE REPUBLIC OF BOLIVIA
IN 1950, 1976 AND 1992**

Department	Area (km ²)	Census Population			Average Annual Growth Rate (%)		Population Density (Persons/km ²)		
		1950	1976	1992	1950-76	1976-92	1950	1976	
Republic of Bolivia	1,098,581	3,019,031	4,613,486	6,420,792	1.64	2.09	2.75	4.20	5.84
1 Chuquisaca	51,524	282,980	358,516	453,756	0.91	1.48	5.49	6.96	8.81
2 La Paz	133,985	948,446	1,465,078	1,900,786	1.69	1.64	7.08	10.93	14.19
3 Cochabamba	65,631	490,475	720,952	1,110,205	1.49	2.74	7.47	10.98	16.92
4 Oruro	53,588	210,260	310,409	340,114	1.51	0.57	3.92	5.79	6.35
5 Potosí	118,218	534,399	657,743	645,889	0.80	-0.11	4.52	5.56	5.46
6 Tarija	37,623	126,752	187,204	291,407	1.51	2.80	3.37	4.98	7.75
7 Santa Cruz	370,621	286,145	710,724	1,364,389	3.56	4.16	0.77	1.92	3.68
8 Beni	213,564	119,770	168,367	276,174	1.32	3.14	0.56	0.79	1.29
9 Pando	63,827	19,804	34,493	38,072	2.16	0.62	0.31	0.54	0.60

Source : Censo Nacional de Poblacion y Vivienda 1950, 1976 y 1992 Instituto Nacional de Estadística

TABLE B.2.2 POPULATION BY PROVINCE IN DEPARTMENT OF SANTA CRUZ IN 1976 AND 1992

Province	Population						Distribution of Population in 1992 (%)			Average Annual Growth Rate (%), 1976 - 1992		
	1976		1992		Total	Rural	Urban	Total	Urban	Rural	Total	
	Urban	Rural	Urban	Rural								Urban
1 Andres Ibanez	261,236	55,174	316,410	725,087	59,591	784,678	57.5	6.59	0.48	5.84		
2 Warnes	4,288	26,628	30,916	13,452	24,833	38,285	2.8	7.41	-0.44	1.35		
3 Valasco	4,898	19,630	24,528	16,012	26,917	42,929	3.1	7.68	1.99	3.56		
4 Ichilo	5,120	32,673	37,793	21,054	28,430	49,484	3.6	9.24	-0.87	1.70		
5 Chiquitos	15,094	18,602	33,696	22,584	19,935	42,519	3.1	2.55	0.43	1.46		
6 Sara	13,943	14,576	28,519	17,193	12,414	29,607	2.2	1.32	-1.00	0.23		
7 Cordillera	19,499	34,753	54,252	32,953	55,675	88,628	6.5	3.33	2.99	3.12		
8 Vallegrande	5,040	25,251	30,291	6,341	20,403	26,744	2.0	1.45	-1.32	-0.78		
9 Florida	0	21,390	21,390	5,795	16,955	22,750	1.7	-	-1.44	0.39		
10 Obispo Santistevan	39,645	38,971	78,616	76,738	27,922	104,660	7.7	4.21	-2.06	1.80		
11 Nuflo de Chavez	3,555	29,615	33,170	8,664	52,344	61,008	4.5	5.73	3.62	3.88		
12 Angel Sandoval	0	8,044	8,044	3,849	6,846	10,695	0.8	-	-1.00	1.80		
13 Manuel Maria Caballero	2,287	10,812	13,099	3,221	12,853	16,074	1.2	2.16	1.09	1.29		
14 German Busch	0	0	0	18,517	6,909	25,426	1.9	-	-	-		
15 Guarayos	0	0	0	10,936	9,966	20,902	1.5	-	-	-		
Total	374,605	336,119	710,724	982,396	381,993	1,364,389	100.0	6.21	0.80	4.16		

Source : 1. Censo Nacional de Poblacion y Vivienda 1992, Instituto Nacional de Estadistica
 2. Compendio Estadistico de Poblacion y Vivienda a Nivel de Subregion y Provincia, 1976 y 1992, CORDECruz y USAID

TABLE B.2.3 POPULATION AND NUMBER OF HOUSEHOLDS BY PROVINCE AND CANTON IN THE STUDY AREA IN 1992

Province/ Canton	Number of Communities	Population			Number of Households	Average Size of Household (person/hh)
		Urban	Rural	Total		
I. Andres Banez						
1. Palmar del Oratorio	23	0	4,820	4,820	1,167	4.13
2. Cotoca	32	9,229	10,402	19,631	4,255	4.61
3. Ayacucho	17	0	4,690	4,690	1,146	4.09
4. Terebinto	15	0	3,582	3,582	863	4.15
5. Montero Hoyos	6	0	3,719	3,719	674	5.52
Total	93	9,229	27,213	36,442	8,105	4.50
II. Warnes						
1. Warnes	10	10,866	2,251	13,117	2,816	4.66
2. Tocomechi	9	0	2,704	2,704	554	4.88
3. Los Chacos	44	2,586	12,655	15,241	3,286	4.64
4. Juan Latino	4	0	818	818	180	4.54
5. Azusaoui	9	0	3,150	3,150	640	4.92
6. Chuchio	11	0	3,255	3,255	736	4.42
Total	87	13,452	24,833	38,285	8,212	4.66
III. Ichilo						
1. Buena Vista	23	2,873	6,584	9,457	2,113	4.48
2. San Javier	2	0	325	325	97	3.35
3. San Miguel	2	0	490	490	101	4.85
4. San Isidro	2	0	512	512	107	4.79
Total	29	2,873	7,911	10,784	2,418	4.46
IV. Sara						
1. Portachuelo	12	9,453	1,807	11,260	2,434	4.63
2. San Ignacio de Sara	9	0	2,021	2,021	444	4.55
3. Percoto	10	4,615	2,463	7,078	1,262	5.61
4. Santa Rosa del Sara	16	3,125	3,196	6,321	1,410	4.48
5. Palometas	9	0	2,920	2,920	666	4.38
Total	56	17,193	12,407	29,600	6,216	4.76
V. Obispo Santistevan						
1. Montero	11	57,027	1,542	58,569	11,903	4.92
2. Gral. A. Saavedra	35	2,918	8,721	11,639	2,502	4.65
3. Mineros	59	16,793	17,659	34,452	7,445	4.63
Total	105	76,738	27,922	104,660	21,850	4.79
Grand Total	370	119,485	100,286	219,771	46,801	4.70

Source: Censo Nacional de Poblacion y Vivienda 1992, Instituto Nacional de Estadistica

Note: Ciudad de Santa Cruz is excluded.

TABLE B.2.4 (1/2) POPULATION BY VILLAGE IN THE STUDY AREA IN 1992

I Andres Ibanez Province

Canton/Village	Population	Number of Household(hh)	Average Family Size (persons/hh)
I-1 Palmar del Ibanez			
1 Valle Sanchez	920	242	3.80
2 Ecia. Tirnd	56	16	3.50
3 Carretera al Norte	121	38	3.18
4 Cmd. Convento	137	28	4.89
5 Rcho. Pella Flor	190	49	3.88
6 Ecia. Parcelona	308	78	3.95
7 Ecia. Clara el Carmen	218	60	3.63
8 Cmd. Samaria	177	33	5.36
9 Cmd. Cupesi	167	42	3.98
10 Cmd. Palmar de Los Vir	279	65	4.29
11 Hda. Trocho	65	20	3.25
12 Cmd. 6 de Agosto	92	23	4.00
13 Palmar de Los Viruez	214	48	4.46
14 Barrio Nuevo	214	40	5.35
15 Hda. Taperas	122	24	5.08
16 Villa Flor	525	98	5.36
17 Cmd. Palmar Las Tapera	96	49	1.96
18 Palmar del Oratorio	234	49	4.78
19 Palmar de Aguilera	241	58	4.16
20 Cmd. Mapaiso	66	21	3.14
21 Cmd. Santa Maria	90	29	3.10
22 Caminos Km 8	164	31	5.29
23 Bajio Pirai	124	26	4.77
Total	4,820	1,167	4.13
I-2 Cotoca			
1 Cotoca	9,229	1,931	4.78
2 Campanero	930	172	5.41
3 Eneonado	878	189	4.65
4 Tajibos	696	128	5.44
5 Don Lorenzo uv-1	464	130	3.57
6 Cmd. Olara Sauce	85	18	4.72
7 Ecia. San Franillo	142	33	4.30
8 Col. Oanadiense	168	36	4.67
9 Cmd. Olara Serrano	487	103	4.73
10 Ecia. Olara Mara	129	35	3.69
11 Cmd. Mapaiso de Las pi	575	135	4.26
12 San Franilla uv-1	209	45	4.64
13 Col. Menonita Chorovi	458	74	6.19
14 Hda. Pela Diablo	250	60	4.17
15 Ecia. Sia. Barbara	320	72	4.44
16 Cmd. Itapaoui	323	62	5.21
17 Ecia. Singapur	91	23	3.96
18 Villa Alba	240	56	4.29
19 Ecia. Los Chacos	377	92	4.10
20 Prop. San Francisco	222	68	3.26
21 Col. Menonita Reinland	210	60	3.50
22 Menonita San Julian	253	72	3.51
23 Cmd. El Tarope	528	105	5.03
24 Cmd. Madrecita	66	14	4.71
25 Cmd. La Cruceña	355	78	4.55
26 Cmd. El Bicito	287	70	4.10
27 Carretera Santa Cruz	159	45	3.53
28 El Paraiso de La Sacac	311	51	6.10
29 Cmd. Callejas	509	110	4.63
30 San Jorge	268	64	4.19
31 Cordoba	157	50	3.14
32 Cmd. Buapiloy	255	74	3.45
Total	19,631	4,255	4.61

TABLE B.2.4 (2/2) POPULATION BY VILLAGE IN THE STUDY AREA IN 1992

I Andres Ibanez Province			
Canton /Village	Population	Number of Household(hh)	Average Family Size (persons/hh)
I-3 Ayacucho			
1 Porongo	1,134	295	3.84
2 Cmd. Lomas Urubo	341	79	4.32
3 Ecia. Paraiso	280	78	3.59
4 Ecia. Los ojos	312	73	4.27
5 Ecia. Guapuruso	332	80	4.15
6 Cmd. Buen Retiro	151	30	5.03
7 Ecia. La Miel	198	38	5.21
8 Cmd. Limon	127	34	3.74
9 Cmd. Surutubia	246	56	4.39
10 Pto. Villa Rosalia	241	65	3.71
11 Recho. Pozo Colorado Bu	74	22	3.36
12 Cmd. Guenda Espejos	138	28	4.93
13 Cdm. Tacuarembó	263	62	4.24
14 Cmd. Guenda Santa Rosa	194	53	3.66
15 Cmd. Potrerito	208	43	4.84
16 Cmd. Sombrerito	301	69	4.36
17 Cdm. Esmeralda	150	41	3.66
Total	4,690	1,146	4.09
I-4 Terebinto			
1 Luouillas	259	52	4.98
2 Terebinto uv-1 uv-2	452	140	3.23
3 Ecia. El Hondo Bajo	181	40	4.53
4 Ecia. Perdiz Arriba y	136	27	5.04
5 Cmd. El Hondo	220	39	5.64
6 Cmd. Chaco Guembe	325	79	4.11
7 Cmd. Las Cruces	296	87	3.40
8 Cmd. San Pedro de Tere	252	63	4.00
9 Snd. Nueva Palestina	224	54	4.15
10 Cmd. Guenda Patriota	134	26	5.15
11 Sind. Patriota Surutu	102	30	3.40
12 Cmd. Agua Dulce	173	46	3.76
13 Cmd. San Simon	135	37	3.65
14 Sind. Santa Fe	446	85	5.25
15 Santa Fe de	247	58	4.26
Total	3,582	863	4.15
I-5 Montero Hoyos			
1 Montero Hoyos	985	212	4.65
2 Puerto Pailas	1,621	322	5.03
3 Hda. El Dorado	647	34	19.03
4 Edia. Remanzo	141	37	3.81
5 Puerto La Negrita	123	31	3.97
6 Col. Menonita Berghal	202	38	5.32
Total	3,719	674	5.52
Grand Total	36,442	8,105	4.50

Source : Censo Nacional de Poblacion y Vivienda 1992,
Instituto Nacional de Estadistica

Note : Except Cantons of Villa Arrien, Paurito and La Guardia.

**TABLE B.2.5 (1/2) POPULATION BY VILLAGE IN
THE STUDY AREA IN 1992**

II Warnes Province			
Canton/Village	Population	Number of Household(hh)	Average Family Size (persons/hh)
II-1 Warnes			
1 Warnes	10,866	2,311	4.70
2 Sta. Rosita	536	134	4.00
3 El Sipa	389	79	4.92
4 Hda. Puesio Nuevo	108	26	4.15
5 Chane Justiniano	539	104	5.18
6 Ecía. Santa Rosita Del	281	46	6.11
7 El Carmen	103	33	3.12
8 Viviendas Dispersas	79	20	3.95
9 Rcho. Luisito	168	51	3.29
10 Hda. Nueva Hora	48	12	4.00
Total	13,117	2,816	4.66
II-2 Tocomecí			
1 La Finca	751	152	4.94
2 Hda. El Tajibo	165	35	4.71
3 Ecía. Batavia	266	63	4.22
4 La Marina	176	33	5.33
5 Cmd. La Tapera	262	45	5.82
6 Rcho. Paraíso	96	26	3.69
7 Cmd. Chimbote	337	56	6.02
8 Carpelaria	156	29	5.38
9 El Barrial	495	115	4.30
Total	2,704	554	4.88
II-3 Los Chacos			
1 Okinawa 1	2,585	525	4.93
2 El Tajibo	781	159	4.91
3 Nuevos Horizontes	1,060	219	4.84
4 El Carmen	329	53	6.21
5 Puerto Nuevo uv-3	366	72	5.08
6 Monte Verde uv-1 uv-1	356	65	5.48
7 Los Chacos uv-1	440	93	4.73
8 El Esperanza uv-1	356	91	3.91
9 La Reforma uv-1	255	57	4.47
10 Villa Carolita	241	56	4.30
11 Madrecita	198	41	4.83
12 El Paisaje	134	37	3.62
13 San Antonio	122	34	3.59
14 La Victoria	158	34	4.65
15 Manchegos	90	29	3.10
16 Copaivo	265	50	5.30
17 San Marino	308	106	2.91
18 San Pedro	372	89	4.18
19 Mercedes	203	37	5.49
20 Laberinto	132	26	5.08
21 Col. Monte Verde	126	31	4.06
22 San Marcos	174	40	4.35
23 Limoncito	264	47	5.62
24 Rcho. El Retiro	123	22	5.59
25 Santa Elena	208	41	5.07
26 Chira	164	21	7.81
27 Nueva Esperanza	257	60	4.28
28 Puerto Perez	144	26	5.54
29 San Antonio de La Cruz	246	48	5.13
30 Okinawa 2	302	85	3.55
31 Sind. 24 de Marzo	334	106	3.15
32 Empresa Algodonera El	292	66	4.42
33 Okinawa 2 uv-1 uv-7 uv	181	58	3.12
34 Nueva Aurora	212	44	4.82
35 Ecía. San Anselmo	450	77	5.84

**TABLE B.2.5 (2/2) POPULATION BY VILLAGE IN
THE STUDY AREA IN 1992**

II Warnes Province			
Canton /Village	Population	Number of Household(hh)	Average Family Size (persons/hh)
II-3 Los Chacos (continued)			
36 Okinawa 'I'	149	45	3.31
37 Cascabel - Los Ciervos	432	91	4.75
38 San Miguel	320	58	5.52
39 Col. Monte Cristo	477	101	4.72
40 La Tuja	231	63	3.67
41 Hda. La Porfia	399	58	6.88
42 Cmd. La Victoria	279	63	4.43
43 La Pampa	401	104	3.86
44 Navidad	324	58	5.59
Total	15,241	3,286	4.64
II-4 Juan Latino			
1 Juan Latino	272	56	4.86
2 Villa El Carmen	377	81	4.65
3 Naranjal Casleo - Est	145	28	5.18
4 Juan Latino Vargas	24	15	1.60
Total	818	180	4.54
II-5 Azusaoui			
1 Ras Barreras	762	160	4.76
2 Azusaoui	453	94	4.82
3 Hda. La Cuta	517	102	5.07
4 El Toro - Turobito	181	33	5.48
5 La Habrita - Paichancet	120	23	5.22
6 Naranjal Don Bosco	478	91	5.25
7 Hda. Naranjal Aguilera	286	58	4.93
8 La Habra Del Azusaoui	210	42	5.00
9 Ecia. - Ranchos - San	143	37	3.86
Total	3,150	640	4.92
II-6 Chuchio			
1 Las Barreras	541	125	4.33
2 Clara Chuchio uv-1	284	68	4.18
3 Ponderosa	253	78	3.24
4 El Arroyito	620	119	5.21
5 Hda. Victoria	295	73	4.04
6 Ecia. San Francisco	176	13	13.54
7 San Antonio	173	50	3.46
8 Las Maras	320	64	5.00
9 Monte Cristo	300	79	3.80
10 Cooperativa Orialsa	102	23	4.43
11 Villa Barrientos	191	44	4.34
Total	3,255	736	4.42
Grand Total	38,285	8,212	4.66

Source : Censo Nacional de Poblacion y Vivienda 1992,
Instituto Nacional de Estadistica

**TABLE B.2.6 POPULATION BY VILLAGE IN
THE STUDY AREA IN 1992**

III Ichilo Province

Canton /Village	Population	Number of Household(hh)	Average Family Size (persons/hh)
III-1 Buena Vista			
1 Buena Vista	2,873	647	4.44
2 Caranda	568	160	3.55
3 Cmd. San miguelito	204	39	5.23
4 Cmd. La Arboleda (Cent)	670	148	4.53
5 Cmd. Delicias	197	34	5.79
6 Sind. Potrerito - Cairo	273	51	5.35
7 Cmd. El Cairo	267	40	6.68
8 Cmd. Potrero Marcelo	177	43	4.12
9 Cmd. Santa Barbara	221	50	4.42
10 Cmd. Agua Calientes	185	45	4.11
11 Sind. Colorado	202	38	5.32
12 Sind. Monterrico	135	31	4.35
13 Sind. Salitral	105	30	3.50
14 Cmd. Villa Diego	355	70	5.07
15 Zona Dispersa de Espejillos	261	59	4.42
16 Sind. Santa Rosa	209	57	3.67
17 Cmd. Espejillos	155	41	3.78
18 Camino Villa Amboro	172	40	4.30
19 Sind. El Triunfo	114	30	3.80
20 Sind. El Carmen	577	119	4.85
21 Cooperativa El Cheyo	213	39	5.46
22 Sind. Recompensa 1	419	90	4.66
23 Camino Huaytu	905	212	4.27
Total	9,457	2,113	4.48
III-2 San Javier			
1 Cmd. Balacios	51	21	2.43
2 Cmd. San Javier	274	76	3.61
Total	325	97	3.35
III-3 San Miguel			
1 Cmd. San Miguel Rincon	243	44	5.52
2 A. Dispersa San Miguel	247	57	4.33
Total	490	101	4.85
III-4 San Isidro			
1 Cmd. San Isidro	194	41	4.73
2 Camino San Isidro-Cara	318	66	4.82
Total	512	107	4.79
Graand Total	10,784	2,418	4.46

Source : Censo Nacional de Poblacion y Vivienda 1992,
Instituto Nacional de Estadística

Note : Except Canton of San Carlos.

**TABLE B.2.7(1/2) POPULATION BY VILLAGE IN
THE STUDY AREA IN 1992**

IV Sara Province			
Canton/Village	Population	Number of Household(th)	Average Family Size (persons/hh)
IV-1 Portachuelo			
1 Portachuelo	9,453	2,004	4.72
2 Urucu	173	45	3.84
3 Cupichi Grande	187	56	3.34
4 El Banadito	165	39	4.23
5 La Querencia	89	25	3.56
6 San Miguelito	160	40	4.00
7 California	96	29	3.31
8 El Faisan	208	44	4.73
9 Ecia. Ramal Del Tojlle	190	40	4.75
10 La Loma	86	19	4.53
11 Los Manzanos	234	44	5.32
12 La Estrella	219	49	4.47
Total	11,260	2,434	4.63
IV-2 San Ignacio de Sara			
1 San Ignacio de Sara U	374	81	4.62
2 Sun Juan de Palometill	386	72	5.36
3 Manzanillar	209	47	4.45
4 Burgos Grande	170	42	4.05
5 Nueva Moca	134	25	5.36
6 El Burguito	155	39	3.97
7 San Javier del Norte	125	30	4.17
8 Granja Quimori	303	65	4.66
9 El Torrente	165	43	3.84
Total	2,021	444	4.55
IV-3 Pereoto			
1 La Belgica	4,615	933	4.95
2 El Motacu	154	41	3.76
3 Curiche de Madre	152	37	4.11
4 San Jorge	143	39	3.67
5 Capihuara	406	67	6.06
6 Cedro Afuera	77	28	2.75
7 San Genaro	132	34	3.88
8 La Repreba	156	40	3.90
9 Trampillote	98	27	3.63
10 Area Disperso-Tajibos	1,145	16	71.56
Total	7,078	1,262	5.61

**TABLE B.2.7 (2/2) POPULATION BY VILLAGE IN
THE STUDY AREA IN 1992**

IV Sara Province

Canton /Village	Population	Number of Household(hh)	Average Family Size (persons/hh)
IV-4 Santa Rosa del Sara			
1 Santa Rosa del Sarah	3,125	688	4.54
2 Nueva America	87	17	5.12
3 4 de Marzo	350	67	5.22
4 Villa Imperial Los And	145	32	4.53
5 Monte Rico	189	54	3.50
6 Pianchada	133	27	4.93
7 Santo Domingo	153	36	4.25
8 16 de Julio	215	50	4.30
9 San Miguel	157	36	4.36
10 Nazarehz	314	66	4.76
11 Galitea	367	89	4.12
12 Villa San Luis	286	66	4.33
13 Bellas Higuas	229	45	5.09
14 Campo 4, 5 y 6 Col, Menon	202	44	4.59
15 Campo 3,2,1 Col, Menon	150	34	4.41
16 El Remate	219	59	3.71
Total	6,321	1,410	4.48
IV-5 Palometas			
1 Azuvi uv-1	631	156	4.04
2 Loma Alta uv-1	843	197	4.28
3 Rincon de Palometas	656	138	4.75
4 Palometas	273	62	4.40
5 Saipina	35	11	3.18
6 El Adario	70	21	3.33
7 Montecillo	158	16	9.88
8 Grupan Soliz	100	26	3.85
9 El Colorado	154	39	3.95
Total	2,920	666	4.38
Grand Total	29,600	6,216	4.76

Source : Censo Nacional de Poblacion 1992, Instituto Nacional de Estadistica
Note : Except Canton of Cuatro Ojos.

**TABLE B.2.8 (1/2) POPULATION BY VILLAGE IN
THE STUDY AREA IN 1992**

V Obispo Santisteban Province			
Canton /Village	Population	Number of Household(hh)	Average Family Size (persons/hh)
V-1 Montero			
1 Montero	57,027	11,552	4.94
2 Villa Copacabana uv-1	273	57	4.79
3 Cmd. Rincon del Nayco	150	34	4.41
4 Monte Lecoro-Hda. Soletto	147	45	3.27
5 Todos Santa	190	44	4.32
6 Hda. Patuju	103	25	4.12
7 Cmd. El Cidral	183	43	4.26
8 Ecia. Los Fierros	240	39	6.15
9 Hda. San Miguel	79	27	2.93
10 Hda. San Marino	59	13	4.54
11 Hda. San Silvestre	118	24	4.92
Total	58,569	11,903	4.92
V-2 Gral. A. Saavedra			
1 Saavedra	2,918	621	4.70
2 Chane El Puente	751	150	5.01
3 Pico de Monte	703	160	4.39
4 Chane Bedoya	334	62	5.39
5 Chane Caimanes	351	79	4.44
6 Villa Copacabana	269	50	5.38
7 Chane Bedoya (Rural)	281	49	5.73
8 San Lorenzo	225	53	4.25
9 Juan de Los Amarillo	291	77	3.78
10 Caimanes	300	33	9.09
11 S. Juan de Los Amarillo	464	98	4.73
12 Faja San Salvador	458	79	5.80
13 Fortin Ieberiad	185	39	4.74
14 Faja Bolivar - Hda. Guaro	102	72	1.42
15 Cdm. Santa Mariha	161	37	4.35
16 12 de Doiubre	420	86	4.88
17 Hda. Las Peias	229	47	4.87
18 Hda. La Perla	116	33	3.52
19 S. Juan de Santa Maria	205	43	4.77
20 Col. Aroma 3er. Grupo	213	53	4.02
21 Col. Aroma 2do. Grupo	101	27	3.74
22 Col. Aroma 1er. Grupo	160	50	3.20
23 Col. El Barrio	177	42	4.21
24 Aurora 2do. Grupo uv-1	234	56	4.18
25 Cmd. Eomas del Bibosi	218	51	4.27
26 Cmd. Calleion Avarde	132	28	4.71
27 Villa Barro Negro	228	40	5.70
28 Cmd. San Feliyha. Tera	242	41	5.90
29 Ecia. La Criollita	134	35	3.83
30 Hda. Cruz del Sur	144	31	4.65
31 Hda. El Arrozal	188	35	5.37
32 Hda. Matja - Cmd. Eoledad	102	24	4.25
33 Cmd. San Martin - Cmd. B	114	17	6.71
34 Cmd. Naico	266	60	4.43
35 Cruz Soletto	223	44	5.07
Total	11,639	2,502	4.65
V-3 Mincros			
1 Mineros	11,181	2,263	4.94
2 Fernandes Alonzo	3,196	739	4.32
3 San Pedro	2,416	506	4.77
4 Chane Independencia	1,768	431	4.10
5 Chane Magalanes	689	152	4.53

TABLE B.2.8 (2/2) POPULATION BY VILLAGE IN
THE STUDY AREA IN 1992

V Obispo Santisteban Province			
Canton /Village	Population	Number of Household(hh)	Average Family Size (persons/hh)
V-3 Mineros (continued)			
6 Hardeman	1,745	362	4.82
7 Sagrado Corazon	1,378	274	5.03
8 San Jose del Norte	693	154	4.50
9 Col. San Juan del Piray	382	96	3.98
10 Murillo	367	97	3.78
11 Litoral	530	117	4.53
12 Haguay	290	54	5.37
13 La Porfia	315	66	4.77
14 Pueblo Nuevo uv-1	504	109	4.62
15 Cmd.	273	72	3.79
16 Cmd. El Trompillo	275	43	6.40
17 Col. El Carmen	180	35	5.14
18 Cmd. Santa Elena	134	28	4.79
19 Faja Topater	92	19	4.84
20 Cmd. Litoral	138	27	5.11
21 Sind. Sonia - Cmd. La P.	241	67	3.60
22 Murillo	125	37	3.38
23 Sind. La Calabera	180	59	3.05
24 Faja Monte Cristo	229	44	5.20
25 Sind. Los Triunfos	119	38	3.13
26 Villa Don Bosco	218	70	3.11
27 Sind. Chichas	245	68	3.60
28 Sind. San Isidro	126	39	3.23
29 Cmd. San Silvestre	357	81	4.41
30 Sind. Las Parabae	294	64	4.59
31 Hda. El Triunfo	153	41	3.73
32 Cmd. El Torno	320	59	5.42
33 Col. Cachuela Esperanza	193	36	5.36
34 Ecia. Los Munecos	153	30	5.10
35 Cmd. San Marcos	84	25	3.36
36 Cmd. San Lorenzo	156	48	3.25
37 Sind. Flor del Valle	120	32	3.75
38 Sind. Jerusalem	313	73	4.29
39 Cmd. Tunari	180	55	3.27
40 Sind. Polivar	408	116	3.52
41 Camino A Minero Yumali	237	48	4.94
42 Cmd. Faja Yumali	153	34	4.50
43 Cmd. Puesto Arena	21	15	1.40
44 Faja California	166	53	3.13
45 Faja La Porria	322	40	8.05
46 Cmd. San Miguel	70	22	3.18
47 Cmd. Rancho Nuevo	277	52	5.33
48 Naranjos Unagro	843	67	12.58
49 Cmd. Los Naranjos	202	41	4.93
50 Cmd. Nuevo Mundo-Cmd. R	99	25	3.96
51 Faja Copacabana	137	32	4.28
52 Faja Alianza	259	65	3.98
53 San Lorenzo	237	45	5.27
54 Sind. Santa Rosa	221	41	5.39
55 Faja Motacusal	35	22	1.59
56 Faja El Rorton	64	15	4.27
57 Faja Astillero	47	28	1.68
58 La Marotas 1	121	30	4.03
59 Villa Rosario	181	44	4.11
Total	34,452	7,445	4.63
Grand Total	104,660	21,850	4.79

Source : Censo Nacional de Poblacion y Vivienda 1992, Instituto de Estadistica

**TABLE B.2.9 POPULATION PROJECTIONS FOR REPUBLIC OF BOLIVIA
AND DEP. OF SANTA CRUZ FOR PERIOD 1995-2010**

I Population Items	Census Population		Projected Population		
	1976	1992	1995	2000	2010
A Republic of Bolivia	4,613,486	6,420,792	7,413,834	8,328,700	9,274,963
B Dep. de Santa Cruz					
1. High Scenario	710,724	1,364,389	1,576,390	1,886,303	2,251,602
2. Low Scenario	710,724	1,364,389	1,574,257	1,876,133	2,216,352
3. Medium (Average)	710,724	1,364,389	1,575,324	1,881,218	2,233,977
Ratio to National Population (%)	15.4	21.2	21.2	22.6	24.1

II Average Annual Growth Rate (%) Items	Intercensal Growth Rate		Projected Growth Rate		
	1950-1976	1976-1992	1990-1995	1995-2000	2000-2005
A Republic of Bolivia	1.64	2.09	2.44	2.35	2.18
B Dep. de Santa Cruz					
1. High Scenario	3.56	4.16	3.81	3.65	3.60
2. Low Scenario	3.56	4.16	3.79	3.57	3.39
3. Medium (Average)	3.56	4.16	3.80	3.61	3.50

Source: (1) Censo Nacional de Poblacion y Vivienda 1976 y 1992, Instituto Nacional de Estadística
(2) Estimaciones y Proyecciones de La poblacion 1950-2050, Bolivia, Instituto Nacional de Estadística
(3) Proyecciones de Poblacion por Sexo y Edad 1991-2010, Dpto. de Santa Cruz, Cordecruz

TABLE B.3.1 GROSS DOMESTIC PRODUCT (GDP) AT CURRENT PRICES

Items	1988	1989	1990	1991	1992	Average Annual Growth Rate (%) 1988-1992
A Republic of Bolivia						
GDP (Bs. 1,000)	10,880,426	12,854,492	15,657,979	19,177,144	21,586,285	18.68
GDP (US\$ 1,000)	4,629,969	4,778,622	4,939,426	5,356,744	5,534,945	4.56
Per Capita GNP (Bs)	1,721	1,990	2,373	2,845	3,134	16.17
Per Capita GNP (US\$))	732	740	749	795	804	2.37
B Department of Santa Cruz						
GDP (Bs. 1,000)	2,876,394	3,388,274	4,362,831	5,399,847	6,521,974	22.71
GDP (US\$ 1,000)	1,223,997	1,259,581	1,376,287	1,508,337	1,672,301	8.11
Per Capita GNP (Bs)	2,338	2,657	3,300	3,939	4,589	18.36
Per Capita GNP (US\$))	995	988	1,041	1,100	1,177	4.29

Source : Cuentas Regionales, Resumen General, 1994, Instituto Nacional de Estadística

TABLE B.3.2 GDP BY ECONOMIC ACTIVITY OF BOLIVIA, 1988-1992
(AT THE 1990 CONSTANT PRICES)

Unit : Bs. 1,000

Items	1988	1989	1990	1991	1992	Average Annual Growth Rate (%) 1988-1992	Distribution of GDP in 1992(%)
A Industries							
1 Agriculture, hunting, forestry and fishing	12,766,388	13,173,117	13,844,829	14,533,788	14,911,405	3.96	89.4
1) Agriculture	1,397,040	1,314,644	1,359,958	1,508,064	1,444,253	0.83	8.7
2) Agro-industry	196,302	248,154	268,918	397,861	336,112	14.39	2.0
3) Stock-raising	898,512	941,133	969,352	971,030	955,294	1.54	5.7
4) Hunting, forestry and fishing	186,017	176,646	206,662	212,236	216,168	3.83	1.3
2 Mining and quarrying	1,341,164	1,502,433	1,653,566	1,683,952	1,699,637	6.10	10.2
1) Oil and gas	685,017	711,473	734,094	748,950	745,796	2.15	4.5
2) Metallic and non-metallic mineral	656,147	790,960	919,472	935,002	953,841	9.80	5.7
3 Manufacturing industries	2,138,429	2,222,181	2,379,110	2,472,585	2,571,586	4.72	15.4
4 Electricity, gas and water	225,127	234,741	249,205	273,189	295,664	7.05	1.8
5 Construction and public works	574,188	598,111	619,538	637,038	716,196	5.68	4.3
6 Trade	1,673,185	1,683,781	1,766,789	1,866,890	1,966,879	4.13	11.8
7 Transport and storage	1,509,533	1,541,958	1,600,897	1,657,786	1,718,494	3.29	10.3
8 Communications	171,677	193,724	203,851	218,010	270,328	12.02	1.6
9 Finance, insurance, business and other services	1,994,812	2,053,658	2,097,680	2,158,339	2,220,145	2.71	13.3
10 Restaurants and hotels	460,402	461,953	469,304	476,809	500,649	2.12	3.0
B Administrative public services	1,492,786	1,546,399	1,546,696	1,617,207	1,678,764	2.98	10.1
C Domestic service	88,405	91,060	92,534	94,311	96,339	2.17	0.6
Total	14,347,579	14,810,576	15,484,059	16,245,306	16,686,508	3.85	100.0

Source : Cuentas Regionales 1988-1992, Instituto Nacional de Estadística

TABLE B.3.3 GDP BY ECONOMIC ACTIVITY OF DEPARTMENT OF SANTA CRUZ, 1988-1992
(AT THE 1990 CONSTANT PRICES)

Unit : Bs. 1,000

Items	1988	1989	1990	1991	1992	Average Annual Growth Rate (%) 1988-1992	Distribution of GDP in 1992 (%)
A Industries	3,634,403	3,771,428	4,067,980	4,349,541	4,418,605	5.01	93.4
1 Agriculture, hunting, forestry and fishing	730,042	792,065	875,282	1,066,326	1,000,272	8.19	21.1
1) Agriculture	233,743	249,452	290,874	348,696	346,283	10.32	7.3
2) Agro-industry	160,862	212,945	229,817	356,337	294,025	16.27	6.2
3) Stock raising	252,640	260,074	273,326	275,480	277,708	2.39	5.9
4) Hunting, forestry and fishing	82,797	69,594	81,265	85,813	82,256	-0.16	1.7
2 Mining and quarrying	446,251	401,407	422,991	387,888	343,593	-6.33	7.3
1) Oil and gas	412,896	369,322	383,799	367,889	325,989	-5.74	6.9
2) Metallic and non-metallic mineral	33,355	32,085	39,192	19,999	17,604	-14.77	0.4
3 Manufacturing industries	708,092	745,761	826,089	867,618	908,892	6.44	19.2
4 Electricity, gas and water	78,911	79,468	84,487	90,663	95,536	4.90	2.0
5 Construction and public works	124,674	171,423	194,164	180,612	206,153	13.40	4.4
6 Trade	459,670	461,421	506,554	553,196	593,718	6.61	12.5
7 Transport and storage	432,596	443,058	465,071	483,309	501,321	3.75	10.6
8 Communications	47,627	51,723	55,485	60,590	87,721	16.50	1.9
9 Finance, insurance, business and other services	494,394	512,578	523,452	543,035	559,129	3.12	11.8
10 Restaurants and hotels	112,146	112,524	114,404	116,304	122,269	2.18	2.6
B Administrative public services	264,393	263,880	273,255	273,412	291,039	2.43	6.2
C Domestic service	21,255	21,513	21,595	21,779	22,205	1.10	0.5
Total	3,920,051	4,056,821	4,362,830	4,644,732	4,731,849	4.82	100.0

Source : Cuentas Regionales 1988-1992, Instituto Nacional de Estadística

**TABLE B.4.1 AGRICULTURAL PRODUCTION OF BOLIVIA, 1988-1992
(AT CURRENT PRICES)**

Unit : Bs. 1,000

Products	1988	1989	1990	1991	1992	Average Annual Share in Agricultural Production 1988-1992 (%)	Share in Agricultural Production in 1992 (%)
1 Non-Industrial Agricultural Products							
1) Grains	290,250	327,915	411,795	557,173	673,935	23.44	32.58
2) Legumes & vegetables	135,923	137,756	171,809	213,061	205,517	10.89	9.93
3) Tubers	377,383	401,647	491,058	659,632	653,570	14.72	31.59
4) Fruits	142,279	167,146	190,329	243,825	285,946	19.07	13.82
5) Oily grains	14,673	13,526	14,487	23,317	22,447	11.21	1.09
6) Fibers	117	179	232	380	591	49.92	0.03
7) Coffee & cacao	22,020	26,633	36,704	33,078	40,488	16.45	1.96
8) Spices	118	157	208	297	365	32.62	0.02
9) Animal foods	77,978	89,566	97,281	123,905	129,493	13.52	6.26
10) Flowers	3,629	4,608	5,948	7,842	9,547	27.36	0.46
11) Loan services	2,709	1,227	1,641	1,989	9,887	38.22	0.48
12) Improvement of soil & plantations	21,069	22,874	29,092	33,670	37,059	15.16	1.79
Total	1,088,148	1,193,234	1,450,584	1,898,169	2,068,845	17.42	100.00
2 Industrial Agricultural Products							
1) Oily grains	70,613	137,179	123,478	237,335	207,964	31.00	43.20
2) Tobacco	2,732	3,103	3,123	4,138	4,628	14.08	0.96
3) Sugar cane	101,054	112,909	158,346	218,840	190,108	17.11	39.49
4) Fibers	10,472	3,849	9,723	43,506	29,383	29.42	6.10
5) Tea	791	981	1,328	1,736	2,168	28.67	0.45
6) Loan services	2,966	7,584	13,135	5,908	23,347	67.50	4.85
7) Improvement of soil & Plantations	8,563	13,682	16,108	21,753	23,784	29.10	4.94
Total	197,191	279,287	325,241	533,216	481,382	25.00	100.00
3 Coca leaf							
	221,253	228,568	210,995	225,799	240,467	2.10	100.00
4 Livestock Products							
1) Cattle	524,299	630,557	744,483	896,408	1,000,597	17.54	63.76
2) Poultry	122,075	158,789	207,620	235,433	256,898	20.44	16.37
3) Other livestock	140,197	163,745	201,643	255,265	303,598	21.31	19.35
4) Livestock services	4,414	5,128	6,013	7,058	8,223	16.83	0.52
Total	790,985	958,219	1,159,759	1,394,164	1,569,316	18.68	100.00
5 Forest, Hunting and Fishing Products							
1) Exploitation of first class wood	62,577	72,424	96,529	121,399	145,773	23.54	39.40
2) Exploitation of second class wood	32,479	34,498	46,011	57,618	65,714	19.27	17.76
3) Plantation development	2,638	3,224	4,536	5,601	6,459	25.09	1.75
4) Forestry Products	32,811	45,431	53,257	62,066	70,142	20.92	18.96
5) Hunting	25,329	35,185	49,662	61,737	68,719	28.34	18.58
6) Fishing	4,815	6,745	9,178	10,750	13,144	28.54	3.55
Total	160,649	197,507	259,173	319,171	369,951	23.19	100.00
Grand Total	2,458,226	2,856,815	3,405,752	4,370,519	4,729,961	17.78	

Source : Cuentas Regionales, Sector Agropecuario 1988-1992, Instituto Nacional de Estadística

TABLE B.4.2 AGRICULTURAL PRODUCTION OF BOLIVIA, 1988-1992
(AT 1990 CONSTANT PRICES)

Unit : Bs.1,000

Products	1988	1989	1990	1991	1992	Average Annual Share in Agricultural Production	
						Growth Rate(%) 1988-1992	in 1992 (%)
1 Non-Industrial Agricultural Products							
1) Grains	409,114	386,473	411,795	488,510	510,423	5.69	32.12
2) Legumes & vegetables	179,834	159,174	171,809	183,265	159,465	-2.96	10.03
3) Tubers	485,682	450,496	491,058	570,604	505,419	1.00	31.80
4) Fruits	195,422	195,871	190,329	205,878	214,125	2.31	13.47
5) Oily grains	20,846	15,921	14,487	19,562	16,635	-5.49	1.05
6) Fibers	165	211	232	320	437	27.57	0.03
7) Coffee & cacao	31,220	31,325	36,704	28,080	29,748	-1.20	1.87
8) Spices	164	183	208	245	269	13.17	0.02
9) Animal foods	107,768	98,448	97,281	114,040	110,295	0.58	6.94
10) Flowers	5,296	5,558	5,948	6,449	6,803	6.46	0.43
11) Loan services	3,788	1,461	1,641	1,694	7,279	17.74	0.46
12) Improvement of soil & plantations	24,811	24,230	29,092	34,003	28,456	3.49	1.79
Total	1,464,110	1,369,351	1,450,584	1,652,650	1,589,354	2.07	100.00
2 Industrial Agricultural Products							
1) Oily grains	71,476	143,333	123,478	209,262	167,779	23.78	39.80
2) Tobacco	3,881	3,652	3,123	3,471	3,429	-3.05	0.81
3) Sugar cane	112,271	120,361	158,346	221,983	178,951	12.36	42.45
4) Fibers	14,754	4,139	9,723	41,185	33,218	22.49	7.88
5) Tea	1,154	1,183	1,328	1,428	1,545	7.57	0.37
6) Loan services	2,618	9,047	13,135	5,053	17,127	59.93	4.06
7) Improvement of soil & Plantations	10,904	16,401	16,108	19,431	19,497	15.64	4.63
Total	217,058	298,116	325,241	501,813	421,546	18.05	100.00
3 Coca leaf							
	239,966	231,419	210,995	193,060	183,755	-6.45	100.00
4 Livestock Products							
1) Cattle	711,759	736,974	744,483	751,046	714,377	0.09	61.89
2) Poultry	168,787	186,803	207,620	203,741	211,805	5.84	18.35
3) Other livestock	182,358	185,192	201,643	213,077	222,090	5.05	19.24
4) Livestock services	5,031	15,765	6,013	5,928	6,035	4.65	0.52
Total	1,067,935	1,124,734	1,159,759	1,173,792	1,154,307	1.96	100.00
5 Forest, Hunting and Fishing Products							
1) Exploitation of first class wood	94,303	82,349	96,529	101,609	106,724	3.14	39.79
2) Exploitation of second class wood	43,568	39,088	46,011	46,779	47,216	2.03	17.60
3) Plantation development	4,146	3,819	4,536	4,612	4,215	0.41	1.57
4) Forestry Products	50,744	49,899	53,257	50,723	47,689	-1.54	17.78
5) Hunting	33,836	38,700	49,662	50,448	52,232	11.47	19.47
6) Fishing	6,023	7,245	9,178	9,330	10,168	13.99	3.79
Total	232,620	221,100	259,173	263,501	268,244	3.63	100.00
Grand Total	3,221,689	3,244,720	3,405,752	3,784,816	3,617,206	2.94	-

Source : Cuentas Regionales, Sector Agropecuario 1988-1992, Instituto Nacional de Estadística

**TABLE B.4.3 AGRICULTURAL PRODUCTION OF DEPARTMENT OF SANTA CRUZ, 1988-1992
(AT CURRENT PRICES)**

Unit : Bs. 1,000

Products	1988	1989	1990	1991	1992	Average Annual Share in Agricultural Production Growth Rate(%) 1988-1992	in 1992 (%)
1 Non-Industrial Agricultural Products							
1) Grains	97,608	128,114	183,253	268,766	350,639	37.67	61.14
2) Legumes & vegetables	21,333	29,892	38,451	47,392	43,030	19.17	7.50
3) Tubers	53,924	60,888	87,428	107,015	97,235	15.88	16.95
4) Fruits	23,363	29,897	30,390	43,700	48,777	20.20	8.51
5) Oily grains	5,910	4,079	4,624	6,637	6,385	1.95	1.11
6) Fibers	9	13	8	42	0	-	0.00
7) Coffee & cacao	585	763	951	887	1,368	23.66	0.24
8) Spices	6	8	14	16	24	41.42	0.00
9) Animal foods	1,867	2,144	2,633	3,326	3,411	16.26	0.59
10) Flowers	0	0	0	0	0	-	0.00
11) Loan services	867	636	724	853	4,890	54.11	0.85
12) Improvement of soil & plantations	7,104	9,542	13,719	14,825	17,745	25.72	3.09
Total	212,576	265,976	362,195	493,459	573,504	28.16	100.00
2 Industrial Agricultural Products							
1) Oily grains	66,847	133,484	118,889	228,977	198,164	31.22	46.91
2) Tobacco	2,419	2,685	2,639	3,494	3,840	12.25	0.91
3) Sugar cane	69,605	81,572	120,565	179,710	149,050	20.97	35.29
4) Fibers	10,142	3,385	9,126	42,906	28,692	29.69	6.79
5) Tea	0	0	0	0	0	-	0.00
6) Loan services	2,824	7,108	12,492	5,290	20,609	64.36	4.88
7) Improvement of soil & Plantations	7,818	11,632	14,238	19,057	22,051	29.59	5.22
Total	159,655	239,866	277,949	479,434	422,406	27.54	100.00
3 Coca leaf							
	0	0	0	0	0	-	-
4 Livestock Products							
1) Cattle	123,904	147,724	175,446	211,311	236,032	17.48	52.56
2) Poultry	32,249	42,011	55,072	62,466	67,524	20.29	15.04
3) Other livestock	66,090	77,089	94,969	120,488	143,407	21.37	31.94
4) Livestock services	1,118	1,300	1,525	1,790	2,086	16.87	0.46
Total	223,361	268,124	327,012	396,055	449,049	19.08	100.00
5 Forest, Hunting and Fishing Products							
1) Exploitation of first class wood	39,547	44,888	59,796	75,226	89,772	22.75	60.86
2) Exploitation of second class wood	16,831	17,968	23,959	29,970	33,552	18.82	22.75
3) Plantation development	1,262	1,542	2,170	2,679	3,089	25.08	2.09
4) Forestry Products	6,293	7,890	9,747	11,556	12,004	17.52	8.14
5) Hunting	4,869	4,102	6,243	7,713	9,094	16.90	6.16
6) Fishing	0	0	0	0	0	-	0.00
Total	68,802	76,390	101,915	127,144	147,511	21.01	100.00
Grand Total	664,394	850,356	1,069,071	1,496,092	1,592,470	24.43	-

Source : Cuentas Regionales, Sector Agropecuario 1988-1992, Instituto Nacional de Estadística

**TABLE B.4.4 AGRICULTURAL PRODUCTION OF DEPARTMENT OF SANTA CRUZ, 1988-1992
(AT 1990 CONSTANT PRICES)**

Unit : Bs. 1,000

Products	1988	1989	1990	1991	1992	Average Annual Share in Agricultural Production	
						Growth Rate (%) 1988-1992	in 1992 (%)
1 Non-Industrial Agricultural Products							
1) Grains	137,744	150,817	183,253	230,744	260,915	17.32	60.43
2) Legumes & vegetables	29,605	35,327	38,451	40,312	32,166	2.10	7.45
3) Tubers	68,768	68,985	87,428	92,856	76,781	2.79	17.78
4) Fruits	31,939	35,018	30,390	36,790	36,198	3.18	8.38
5) Oily grains	8,396	4,801	4,624	5,568	4,732	-13.36	1.10
6) Fibers	13	15	8	35	0	-	0.00
7) Coffee & cacao	831	896	951	747	1,006	4.89	0.23
8) Spices	9	9	14	14	18	18.92	0.00
9) Animal foods	2,556	2,493	2,633	3,072	2,951	3.66	0.68
10) Flowers	0	0	0	0	0	-	0.00
11) Loan services	1,210	755	724	725	3,600	31.33	0.83
12) Improvement of soil & plantations	10,127	11,198	13,719	22,399	13,376	7.20	3.10
Total	291,198	310,314	362,195	433,262	431,743	10.35	100.00
2 Industrial Agricultural Products							
1) Oily grains	67,692	139,478	118,889	201,867	159,819	23.96	43.34
2) Tobacco	3,437	3,160	2,639	2,931	2,846	-4.61	0.77
3) Sugar cane	80,075	86,955	120,565	182,469	140,466	15.08	38.09
4) Fibers	14,293	3,665	9,126	40,622	32,434	22.74	8.80
5) Tea	0	0	0	0	0	-	0.00
6) Loan services	2,419	8,480	12,492	4,528	15,121	58.12	4.10
7) Improvement of soil & Plantations	9,955	14,082	14,238	17,023	18,076	16.08	4.90
Total	177,871	255,820	277,949	449,440	368,762	19.99	100.00
3 Coca leaf							
	0	0	0	0	0	-	-
4 Livestock Products							
1) Cattle	168,376	172,772	175,446	177,067	173,390	0.74	51.67
2) Poultry	44,479	49,377	55,072	53,960	55,880	5.87	16.65
3) Other livestock	85,898	87,138	94,969	100,473	104,761	5.09	31.22
4) Livestock services	1,523	1,525	1,525	1,504	1,531	0.13	0.46
Total	300,276	310,812	327,012	333,004	335,562	2.82	100.00
5 Forest, Hunting and Fishing Products							
1) Exploitation of first class wood	63,290	51,014	59,796	64,264	60,582	-1.09	59.35
2) Exploitation of second class wood	22,481	20,275	23,959	24,359	24,269	1.93	23.78
3) Plantation development	2,244	1,827	2,170	2,206	2,017	-2.63	1.98
4) Forestry Products	8,758	9,401	9,747	9,362	8,488	-0.78	8.32
5) Hunting	6,766	4,592	6,243	6,349	6,716	-0.19	6.58
6) Fishing	0	0	0	0	0	-	0.00
Total	103,539	87,109	101,915	106,540	102,072	-0.36	100.00
Grand Total	872,884	964,055	1,069,071	1,322,246	1,238,139	9.13	

Source : Cuentas Regionales, Sector Agropecuario 1988-1992, Instituto Nacional de Estadística

TABLE B.4.5 AGRICULTURAL PRODUCTION OF BOLIVIA AND
DEPARTMENT OF SANTA CRUZ IN 1992, AT CURRENT PRICES

Products	Bolivia		Santa Cruz		Ratio of Santa Cruz to Bolivia (%)
	Production (Bs. 1,000)	Share (%)	Production (Bs. 1,000)	Share (%)	
1 Non-Industrial Agricultural Products	2,068,845	43.74	573,504	36.01	27.72
2 Industrial Agricultural Products	481,382	10.18	422,406	26.53	87.75
3 Coca leaf	240,467	5.08	0	0.00	0.00
4 Livestock Products	1,569,316	33.18	449,049	28.20	28.61
5 Forest, Hunting and Fishing	369,951	7.82	147,511	9.26	39.87
Total	4,729,961	100.00	1,592,470	100.00	33.67

Source : Cuentas Regionales, Sector Agropecuario 1988-1992, Instituto Nacional de Estadística

TABLE B.5.1 MANUFACTURING INDUSTRIAL PRODUCTION OF BOLIVIA, 1988-1992
(AT CURRENT PRICES)

Unit : Bs. 1,000

Products	1988	1989	1990	1991	1992	Average Annual Share in	
						Growth Rate(%) 1988-1992	Production in 1992 (%)
1 Fresh & processed meat	910,969	1,025,916	1,213,870	1,496,716	1,858,338	19.51	16.87
2 Dairy products	91,510	101,772	116,535	147,657	187,900	19.71	1.71
3 Mill and Bakery products	732,921	884,975	1,042,883	1,260,084	1,531,384	20.23	13.90
4 Sugar and confectionery	159,015	208,862	351,246	458,118	627,462	40.94	5.70
5 Various food products	228,579	271,589	326,741	498,609	660,250	30.37	5.99
6 Drinks	278,044	316,009	379,859	510,890	575,845	19.96	5.23
7 Processed tobacco	31,590	27,444	36,732	44,580	54,812	14.77	0.50
8 Textiles, clothes and leather products	410,222	505,112	558,000	692,722	869,336	20.65	7.89
9 Wood and wooden products	407,027	506,641	654,317	796,333	962,530	24.01	8.74
10 Paper and paper products	155,613	187,611	219,116	287,978	346,726	22.18	3.15
11 Chemical products	172,592	200,872	230,707	281,497	341,267	18.58	3.10
12 Oil refinery products	695,070	843,771	1,049,284	1,445,260	1,590,800	23.00	14.44
13 Non-metallic mineral products	173,041	224,322	304,194	374,673	440,949	26.35	4.00
14 Basic metal products	122,615	264,177	316,200	353,393	448,314	38.28	4.07
15 Machinery and equipment	176,809	190,104	236,579	267,964	307,255	14.82	2.79
16 Other manufactured products	62,969	71,723	152,714	186,695	214,193	35.81	1.94
Total	4,808,586	5,830,900	7,188,977	9,103,169	11,017,361	23.03	100.00

Source : Cuentas Regionales, Sector Industria 1988-1992, Instituto Nacional de Estadística

TABLE B.5.2 MANUFACTURING INDUSTRIAL PRODUCTION OF BOLIVIA, 1988-1992
(AT 1990 CONSTANT PRICES)

Unit : Bs. 1,000

Products	1988	1989	1990	1991	1992	Average Annual Share in	
						Growth Rate(%) 1988-1992	Production in 1992 (%)
1 Fresh & processed meat	1,222,259	1,218,196	1,213,870	1,244,225	1,336,035	2.25	16.46
2 Dairy products	106,616	109,997	116,535	122,616	213,096	18.90	2.63
3 Mill and Bakery products	966,892	1,020,488	1,042,883	1,097,204	1,185,889	5.24	14.61
4 Sugar and confectionery	211,197	239,856	351,246	409,357	491,413	23.51	6.05
5 Various food products	272,358	294,660	326,741	421,734	614,829	22.58	7.57
6 Drinks	360,997	359,900	379,859	436,352	450,857	5.71	5.55
7 Processed tobacco	50,562	29,917	36,732	40,814	45,276	-2.72	0.56
8 Textiles, clothes and leather products	511,369	554,746	558,000	595,321	671,432	7.05	8.27
9 Wood and wooden products	539,629	601,340	654,317	672,785	762,795	9.04	9.40
10 Paper and paper products	181,551	200,103	219,116	238,633	267,046	10.13	3.29
11 Chemical products	207,221	223,951	230,707	240,002	263,882	6.23	3.25
12 Oil refinery products	961,757	1,017,870	1,049,284	1,055,470	909,629	-1.38	11.21
13 Non-metallic mineral products	225,055	255,763	304,194	318,099	298,411	7.31	3.68
14 Basic metal products	128,754	227,177	316,200	345,918	209,073	12.88	2.58
15 Machinery and equipment	241,582	225,430	236,579	242,153	236,669	-0.51	2.92
16 Other manufactured products	77,714	77,944	152,714	166,678	160,882	19.95	1.98
Total	6,265,513	6,657,338	7,188,977	7,647,361	8,117,214	6.69	100.00

Source : Cuentas Regionales, Sector Industria 1988-1992, Instituto Nacional de Estadística

TABLE B.5.3 MANUFACTURING INDUSTRIAL PRODUCTION OF DEPARTMENT
OF SANTA CRUZ, 1988-1992, AT CURRENT PRICES

Unit : Bs. 1,000

Products	1988	1989	1990	1991	1992	Average Annual	
						Growth Rate(%) 1988-1992	Share in Production in 1992 (%)
1 Fresh & processed meat	262,830	296,582	350,210	429,503	536,144	19.51	13.96
2 Dairy products	43,781	47,601	53,073	59,520	88,800	19.34	2.31
3 Mill and Bakery products	231,895	276,277	281,590	362,413	483,847	20.19	12.60
4 Sugar and confectionery	108,895	138,670	232,800	273,102	416,104	39.81	10.83
5 Various food products	114,752	135,818	157,167	201,978	317,590	28.98	8.27
6 Drinks	88,801	97,080	108,169	149,229	165,763	16.89	4.32
7 Processed tobacco	18	14	21	27	30	13.62	0.00
8 Textiles, clothes and leather products	135,987	175,617	185,051	240,058	288,307	20.67	7.51
9 Wood and wooden products	157,966	205,514	380,135	308,204	559,196	37.17	14.56
10 Paper and paper products	20,650	42,768	63,024	74,132	70,973	36.16	1.85
11 Chemical products	37,380	43,461	47,718	66,424	70,587	17.23	1.84
12 Oil refinery products	297,184	350,868	441,927	601,189	644,049	21.33	16.77
13 Non-metallic mineral products	19,012	24,235	33,617	39,110	48,731	26.53	1.27
14 Basic metal products	1,084	506	5,004	5,075	1,745	12.64	0.05
15 Machinery and equipment	41,957	38,749	58,714	66,054	80,394	17.65	2.09
16 Other manufactured products	25,897	28,259	80,889	66,726	69,076	27.80	1.80
Total	1,588,089	1,902,019	2,479,109	2,942,744	3,841,336	24.71	100.00

Source : Cuentas Regionales, Sector Industria 1988-1992, Instituto Nacional de Estadística

TABLE B.5.4 MANUFACTURING INDUSTRIAL PRODUCTION OF DEPARTMENT
OF SANTA CRUZ, 1988-1992, AT 1990 CONSTANT PRICES

Unit: Bs. 1,000

Products	1988	1989	1990	1991	1992	Average Annual	
						Growth Rate(%) 1988-1992	Share in Production in 1992 (%)
1 Fresh & processed meat	352,650	356,693	350,210	417,026	402,420	3.36	13.98
2 Dairy products	51,005	46,644	53,073	58,427	116,067	22.82	4.03
3 Mill and Bakery products	305,930	361,885	281,590	330,690	391,125	6.33	13.58
4 Sugar and confectionery	138,952	159,373	232,800	245,419	336,518	24.75	11.69
5 Various food products	136,821	139,125	157,167	170,835	243,738	15.53	8.47
6 Drinks	112,435	110,168	108,169	152,546	127,246	3.14	4.42
7 Processed tobacco	29	15	21	24	25	-3.64	0.00
8 Textiles, clothes and leather products	170,324	193,816	185,051	221,413	220,746	6.70	7.67
9 Wood and wooden products	199,578	242,428	380,135	305,395	426,045	20.87	14.80
10 Paper and paper products	27,695	45,043	63,024	77,536	48,271	14.90	1.68
11 Chemical products	45,870	48,414	47,718	61,474	54,571	4.44	1.90
12 Oil refinery products	411,039	423,334	441,927	454,353	355,534	-3.56	12.35
13 Non-metallic mineral products	25,406	29,118	33,617	45,203	34,906	8.27	1.21
14 Basic metal products	1,148	1,284	5,004	6,965	1,658	9.63	0.06
15 Machinery and equipment	57,357	49,098	58,714	69,745	66,623	3.81	2.31
16 Other manufactured products	29,647	30,685	80,889	60,277	53,834	16.08	1.87
Total	2,065,886	2,237,123	2,479,109	2,677,328	2,879,327	8.65	100.00

Source : Cuentas Regionales, Sector Industria 1988-1992, Instituto Nacional de Estadística

TABLE B.5.5 MANUFACTURING INDUSTRIAL PRODUCTION OF BOLIVIA AND DEPARTMENT OF SANTA CRUZ IN 1992, AT CURRENT PRICES

Products	Bolivia		Santa Cruz		Ratio of Santa Cruz to Bolivia (%)
	Production (Bs. 1,000)	Share (%)	Production (Bs. 1,000)	Share (%)	
1 Fresh & processed meat	1,858,338	16.87	536,144	13.96	28.85
2 Dairy products	187,900	1.71	88,800	2.31	47.26
3 Mill and Bakery products	1,531,384	13.90	483,847	12.60	31.60
4 Sugar and confectionery	627,462	5.70	416,104	10.83	66.32
5 Various food products	660,250	5.99	317,590	8.27	48.10
6 Drinks	575,845	5.23	165,763	4.32	28.79
7 Processed tobacco	54,812	0.50	30	0.00	0.05
8 Textiles, clothes and leather products	869,336	7.89	288,307	7.51	33.16
9 Wood and wooden products	962,530	8.74	559,196	14.56	58.10
10 Paper and paper products	346,726	3.15	70,973	1.85	20.47
11 Chemical products	341,267	3.10	70,587	1.84	20.68
12 Oil refinery products	1,590,800	14.44	644,049	16.77	40.49
13 Non-metallic mineral products	440,949	4.00	48,731	1.27	11.05
14 Basic metal products	448,314	4.07	1,745	0.05	0.39
15 Machinery and equipment	307,255	2.79	80,394	2.09	26.17
16 Other manufactured products	214,193	1.94	69,076	1.80	32.25
Total	11,017,361	100.00	3,841,336	100.00	34.87

Source : Cuentas Regionales, Sector Agropecuario 1988-1992, Instituto Nacional de Estadística

TABLE B.6.1 EXPORT STRUCTURE OF BOLIVIA, 1988-1994

Products	Unit : US\$ Million								Average Annual Growth Rate(%) 1988-1994	Share of Export Products in 1994 (%)
	1988	1989	1990	1991	1992	1993	1994	1994		
1 Minerals	273.1	403.4	407.2	356.0	379.7	362.0	307.3	1.99	42.5	
Tin	77.0	126.5	106.5	99.7	107.4	83.4	68.7	-1.88	9.5	
Zinc	60.1	132.2	146.0	139.7	172.8	119.5	80.0	4.88	11.1	
Silver	45.1	58.8	50.8	43.1	44.4	56.0	48.3	1.15	6.7	
Antimony	17.4	15.8	12.8	10.3	9.3	7.8	8.4	-11.43	1.2	
Tungsten	5.3	6.9	4.7	7.7	5.7	1.6	1.7	-17.26	0.2	
Gold	59.8	44.4	64.6	39.1	21.9	76.3	86.4	6.33	12.0	
Others	8.4	18.8	21.8	16.4	18.2	17.4	13.8	8.63	1.9	
2 Hydrocarbons	218.9	214.0	227.0	241.2	126.3	96.5	74.0	-16.54	10.2	
Petroleum	0.0	0.0	0.0	5.9	1.6	6.1	1.1	-	0.2	
Natural gas	214.9	213.8	225.3	232.6	122.8	90.2	72.9	-16.49	10.1	
Propane gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	
Butane gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	
Others	4.0	0.2	1.7	2.7	1.9	0.2	0.0	-	0.0	
3 Non-traditional	108.2	204.5	292.6	251.3	206.3	296.0	341.6	21.12	47.3	
Coffee	16.9	12.7	14.3	7.2	6.8	3.7	12.2	-5.29	1.7	
Wood	25.5	44.2	49.9	48.8	49.9	52.3	51.4	12.39	7.1	
Sugar	6.3	19.3	31.7	30.8	25.3	18.5	32.1	31.18	4.4	
Rubber	2.0	1.4	2.0	1.0	0.7	1.3	0.0	-	0.0	
Leather	19.5	17.7	26.5	12.5	10.3	12.2	7.4	-14.91	1.0	
Soybeans	20.2	54.3	48.2	69.3	51.5	68.9	70.4	23.13	9.7	
Metal machine	0.1	0.5	0.4	0.5	0.0	0.0	0.0	-	0.0	
Craft products	0.0	0.0	0.0	7.7	8.1	7.9	5.7	-4.89	0.8	
Chestnut	0.0	0.0	0.0	11.5	11.3	14.9	11.6	0.14	1.6	
Cattle	0.0	0.0	0.0	14.9	0.0	0.4	0.0	-	0.0	
Cotton*	0.0	0.0	0.0	13.1	6.5	10.3	14.4	1.59	2.0	
Clothes*	0.0	0.0	0.0	6.8	6.6	8.3	9.9	6.46	1.4	
Oils*	0.0	0.0	0.0	7.4	3.9	7.3	14.8	12.25	2.0	
Jewelry	0.0	0.0	0.0	0.0	5.9	58.0	79.2	-	11.0	
Others	17.7	54.4	119.6	19.8	19.5	32.0	32.5	10.66	4.5	
4 Total**	600.2	821.9	926.8	848.5	712.3	754.5	722.9	3.15	100.0	

Source : Boletín Estadístico No.283, Sep.1994, Banco Central de Bolivia

Note : * Average annual growth rates for cotton, clothes and oils are for the period 1991-1994.

** Total does not express FOB value.

**TABLE B.6.2 IMPORT GOODS ACCORDING TO ECONOMIC PURPOSE, BOLIVIA
1988-1994**

Unit : US\$ Million

Classification	1988	1989	1990	1991	1992	1993	1994	Average Annual Growth Rate(%) 1988-1994	Share of Import Goods in 1994(%)
1 Consumption goods	128.3	137.5	152.9	206.0	204.8	242.7	210.2	8.58	25.5
Non-perishables	57.4	70.2	63.3	96.3	88.9	109.9	92.4	8.26	11.2
Perishables	70.9	67.3	89.6	109.7	115.9	132.8	117.8	8.83	14.3
2 Interim goods	228.3	249.0	253.5	351.2	384.7	422.8	307.2	5.07	37.2
Fuel and lubricants	4.8	2.6	3.5	7.8	12.0	2.6	3.4	-5.59	0.4
For agriculture	8.3	9.7	10.9	21.8	13.1	16.6	17.0	12.69	2.1
For industry	185.7	199.3	194.1	263.4	307.3	347.6	223.8	3.16	27.1
For construction	29.5	37.4	45.0	58.2	52.3	56.0	63.0	13.48	7.6
3 Capital goods	231.8	220.8	270.8	383.5	469.5	518.3	300.3	4.41	36.4
For agriculture	13.4	13.9	16.0	24.6	18.6	20.8	11.7	-2.24	1.4
For industry	137.4	127.6	169.2	252.3	301.5	309.4	185.9	5.17	22.5
Transport equipment	81.0	79.3	85.6	106.6	149.4	188.1	102.7	4.04	12.4
4 Others	2.1	3.7	10.0	28.7	31.3	22.1	8.2	25.49	1.0
5 Total (CIF value)	590.5	611.0	687.2	969.4	1,090.3	1,205.9	825.9	5.75	100.0

Source : Boletín Estadístico No.283, Sep.1994, Banco Central de Bolivia

**TABLE B.6.3 BALANCE OF INTERNATIONAL PAYMENTS,
BOLIVIA, 1992 AND 1993**

	Unit : US\$ Million	
Items	1992	1993
I. Current Account (A+B)	-408	-472
A. Goods, Services and Interests (1+2+3)	-655	-710
1 Trade	-452	-496
-Exports (FOB)	638	710
-Imports (CIF)	-1,090	-1,206
2 Services	-10	-9
-Exports	177	184
-Imports	-187	-193
3 Interests of Investment	-193	-205
i) Received	15	12
ii) Paid	-208	-217
-Interests for public external debt	-99	-119
-Other interents	-109	-98
B. Transfers	247	238
II. Capital Account (A+B)	406	377
A. Direct Investment	120	122
B. Other Capital	286	255
III. Basic Balance (I+II)	-2	-95
IV. Errors and Omissions	-144	-28
V. Total (III+IV))	-146	-123

Source : Boletín Estadístico No.283, Sep.1994, Banco Central de Bolivia

**TABLE B.6.4 OFFICIAL EXCHANGE RATE OF FOREIGN CURRENCY
(BOLIVIANS/UNITED STATE DOLLAR)**

Month/Year	1990	1991	1992	1993	1994	Average Annual Variation Rate (%)
January	2.9915	3.4344	3.7534	4.1027	4.4844	10.65
February	3.0296	3.4671	3.7726	4.1296	4.5164	10.50
March	3.0653	3.4969	3.7921	4.1595	4.5585	10.43
April	3.0953	3.5207	3.8113	4.1880	4.5870	10.33
May	3.1224	3.5424	3.8369	4.2176	4.6147	10.26
June	3.1427	3.5690	3.8647	4.2483	4.6500	10.29
July	3.1660	3.5937	3.8992	4.2782	4.6495	10.08
August	3.1927	3.6131	3.9437	4.3050	4.6640	9.94
September	3.2360	3.6377	3.9883	4.3323	4.6753	9.64
October	3.2798	3.6676	4.0185	4.3666	4.6700	9.24
November	3.3197	3.6960	4.0467	4.4070	4.6900	9.02
December	3.3698	3.7208	4.0795	4.4476	4.7000	8.67
Annual Average	3.1676	3.5800	3.9006	4.2652	4.6217	9.91
Average Monthly Variation Rate(%)	1.09	0.73	0.76	0.74	0.43	-

Source : (1) Boletín Estadístico No.283, Sep.1994, Banco Central de Bolivia

(2) Devaluación e Inflación de Bolivia y los Países Limitrofes, Enero 1995, INE

Note : Exchange rate in table indicates an average between purchase and sale rates.

TABLE B.7.1 CONSUMER PRICE INDEX FOR MAIN GROUPS AT NATIONAL AVERAGE, LA PAZ AND SANTA CRUZ
(1991=100)

Classification	National Average			La Paz			Santa Cruz		
	Weight in 1991	Price Index in 1994	Average Annual Rise Rate(%) 1991-1994	Weight in 1991	Price Index in 1994	Average Annual Rise Rate(%) 1991-1994	Weight in 1991	Price Index in 1994	Average Annual Rise Rate(%) 1991-1994
1 General	100.00	132.24	9.76	100.00	132.23	9.76	100.00	130.28	9.22
2 Foods and beverages	49.10	133.19	10.02	50.44	131.53	9.57	45.68	131.75	9.63
3 Clothes and footwears	8.17	127.92	8.55	7.83	129.95	9.13	9.45	124.35	7.53
4 Housing	9.77	133.28	10.05	8.98	127.88	8.54	9.12	126.93	8.27
5 Equipment and furnishings of household	6.69	132.38	9.80	6.59	136.81	11.01	7.80	130.59	9.30
6 Health	3.83	134.47	10.38	3.80	135.56	10.67	4.10	135.15	10.56
7 Transport and communications	10.80	126.22	8.07	10.42	130.43	9.26	11.82	125.94	7.99
8 Education	4.57	136.66	10.97	4.31	143.32	12.75	5.05	130.93	9.40
9 Recreation and cultural services	3.31	138.53	11.48	3.97	143.42	12.77	2.66	134.35	10.34
10 Miscellaneous goods and services	3.77	130.55	9.29	3.66	125.66	7.91	4.34	138.09	11.36

Source : Indice de Precios al Consumidor, Resume Anual 1994, Instituto Nacional de Estadística

TABLE B.9.1 FINANCIAL STATEMENT OF CENTRAL GOVERNMENT

Financial Items	1988	1989	1990	1991	Unit : Bs. Million
					Average Annual Growth Rate (%)
I. Revenue					
1. Tax Revenue	1,203.3	1,342.4	1,733.2	2,335.2	24.7
1) Domestic Revenue	367.2	446.6	560.5	819.3	30.7
2) Custom Revenue	140.4	138.3	139.7	160.1	4.5
3) Royalty	695.7	757.5	1,033.0	1,355.8	24.9
Mineral	7.6	16.6	11.3	7.7	0.4
Petroleum	688.1	740.9	1,021.7	1,348.1	25.1
2. Other Revenue	43.4	210.6	124.2	440.4	116.5
3. Total (Bs. million)	1,246.7	1,553.0	1,857.4	2,775.6	30.6
(US\$ million)			586.4	775.3	
II. Expenditure					
1. Personnel Expenses	646.1	777.0	915.1	1,120.9	20.2
2. Purchase of Services	96.6	119.2	133.7	172.6	21.3
3. Purchase of Materials	114.1	149.2	160.6	188.2	18.2
4. Fixed Assets	45.4	46.8	64.7	82.6	22.1
5. Public Debt	185.2	234.2	389.6	690.2	55.0
1) Domestic Debt	16.2	22.3	138.5	320.0	170.3
2) Foreign Debt	169.0	211.9	251.1	370.2	29.9
Repayment	69.9	89.1	111.7	370.2	74.3
Interest	99.1	122.8	139.4	0.0	-
6. Transfer/Investment	200.0	225.3	322.7	350.8	20.6
7. Other Expenses	9.7	15.8	47.9	119.9	131.2
3. Total (Bs. million)	1,297.1	1,567.5	2,034.3	2,725.2	28.1
(US\$ million)			642.2	761.2	
III. Surplus/Deficit	-50.4	-14.5	-176.9	50.4	-

Source : INE

TABLE B.9.2 BUDGET EXECUTION OF CORDECRUZ FOR THE PERIOD 1988 - 1994

Unit: US\$ 1,000

Description	1988		1989		1990		1991		1992		1993		1994	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. TOTAL INCOME	29,467	100.0	34,744	100.0	29,811	100.0	47,536	100.0	50,107	100.0	57,748	100.0	42,413	100.0
1. Own Income	29,467	100.0	34,744	100.0	29,811	100.0	35,874	75.5	37,114	74.1	43,204	74.8	27,934	65.9
1.1 Current Income	23,000	78.1	21,725	62.5	22,482	75.4	26,385	55.5	25,734	51.4	26,057	45.1	21,149	49.9
Tax collection	6,394	21.7	8,040	23.1	7,191	24.1	8,488	17.9	12,231	24.4	13,113	22.7	8,008	18.9
Oil bonus	15,719	53.3	12,336	35.5	14,049	47.1	15,721	33.1	12,173	24.3	12,261	21.2	12,768	30.2
Wood bonus	215	0.7	234	0.7	155	0.5	290	0.6	556	1.1	121	0.2	251	0.6
Mining bonus	0	0.0	0	0.0	16	0.1	1	0.0	1	0.0	1	0.0	0	0.0
Various current income	672	2.3	1,115	3.2	1,071	3.6	1,885	4.0	773	1.5	391	0.7	102	0.2
Sale of divused goods	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	170	0.3	0	0.0
1.2 Extraordinary Income	0	0.0	0	0.0	0	0.0	0	0.0	514	1.0	7,465	12.9	331	0.8
Privatization	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6,967	12.1	119	0.3
Extraord. payment (Oil Export)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	498	0.9	0	0.0
Fund deposit FINDESA	0	0.0	0	0.0	0	0.0	0	0.0	514	1.0	0	0.0	0	0.0
Toll collections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	211	0.5
1.3 Recoveries	6,249	21.2	12,832	36.9	6,024	20.2	8,996	18.9	10,866	21.7	9,169	15.9	4,962	11.7
Debt recoveries	1,304	4.4	190	0.5	189	0.6	250	0.5	3,484	7.0	1,024	1.8	3,454	8.1
Bonus of debt recovery	4,945	16.8	12,642	36.4	5,835	19.6	8,746	18.4	7,382	14.7	8,145	14.1	1,508	3.6
1.4 Balance in Bank	218	0.7	187	0.5	1,303	4.4	493	1.0	0	0.0	513	0.9	1,492	3.5
2. External Income	0	0.0	0	0.0	0	0.0	11,662	24.5	12,993	25.9	14,544	25.2	14,479	34.1
2.1 Internal Credit	0	0.0	0	0.0	0	0.0	4,540	9.6	8,538	17.0	9,592	16.6	9,436	22.2
2.2 Internal Transfers	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	376	0.7	714	1.7
2.3 External credits	0	0.0	0	0.0	0	0.0	2,530	5.3	1,890	3.8	2,827	4.9	1,709	4.0
2.4 Donations	0	0.0	0	0.0	0	0.0	4,592	9.7	2,565	5.1	1,749	3.0	2,620	6.2
II. TOTAL EXPENSES	29,335	100.0	32,573	100.0	29,401	100.0	47,382	100.0	49,373	100.0	48,795	100.0	40,994	100.0
1. Own Expenses	29,335	100.0	32,573	100.0	29,401	100.0	35,720	75.4	36,380	73.7	35,954	73.7	27,249	66.5
1.1 Current Expenses	4,660	15.9	6,312	19.4	7,109	24.2	8,159	17.2	14,131	28.6	17,906	36.7	14,765	36.0
Personal services	2,915	9.9	3,551	10.9	4,441	15.1	5,157	10.9	4,903	9.9	4,198	8.6	3,110	7.6
Non-personal services	1,146	3.9	1,432	4.4	1,528	5.2	2,088	4.4	2,190	4.4	2,497	5.1	1,040	2.5
Material and supplies	503	1.7	492	1.5	568	1.9	739	1.6	690	1.4	381	0.8	266	0.6
Financing assets	0	0.0	0	0.0	0	0.0	0	0.0	18	0.0	55	0.1	6	0.0
Debt service	0	0.0	0	0.0	0	0.0	0	0.0	5,722	11.6	8,529	17.5	8,563	20.9
Social reserves	96	0.3	837	2.6	572	1.9	175	0.4	608	1.2	2,246	4.6	1,780	4.3
1.2 Transfers	6,215	21.2	4,201	12.9	3,769	12.8	3,889	8.2	2,950	6.0	3,664	7.5	3,693	9.0
1.3 Investments	18,460	62.9	22,060	67.7	18,523	63.0	23,672	50.0	19,299	39.1	14,384	29.5	8,793	21.4
Investments in assets	107	0.4	21	0.1	137	0.5	72	0.2	186	0.4	26	0.1	25	0.1
Investments in projects	18,353	62.6	22,039	67.7	18,386	62.5	23,600	49.8	19,113	38.7	14,358	29.4	8,768	21.4
2. External Expenses	0	0.0	0	0.0	0	0.0	11,662	24.6	12,993	26.3	12,841	26.3	13,745	33.5
2.1 Internal credits	0	0.0	0	0.0	0	0.0	4,540	9.6	8,538	17.3	9,593	19.7	8,116	19.8
2.2 Internal transferences	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	690	1.4	714	1.7
2.3 External credits	0	0.0	0	0.0	0	0.0	2,530	5.3	1,890	3.8	1,036	2.1	2,662	6.5
2.4 Donations	0	0.0	0	0.0	0	0.0	4,592	9.7	2,565	5.2	1,522	3.1	2,253	5.5
III. SURPLUS/DEFICIT	132	-	2,171	-	410	-	154	-	734	-	8,953	-	1,419	-

Source: Finance Office, CORDECRUZ, 1995

TABLE B.9.3 INVESTMENT PLAN OF CORDECruz FOR THE PERIOD 1995 - 1999

Unit : US\$ 1,000

Sector	1995		1996		1997		1998		1999		Average Annual Growth Rate (%)					
	Proj.	Non-proj.	Sum	Proj.	Non-proj.	Sum	Proj.	Non-proj.	Sum	Proj.		Non-proj.	Sum			
1 Agriculture	1,085	1,110	2,195	4,562	5,158	9,720	13,611	12,344	25,955	17,552	11,610	29,162	17,539	3,493	21,032	75.9
2 Education	298	0	298	200	0	200	557	0	557	557	0	557	557	0	557	16.9
3 Electricity	105	501	606	792	300	1,092	86	0	86	86	0	86	86	0	86	-38.6
4 Industry	0	242	242	0	297	297	0	188	188	0	102	102	102	0	192	-5.6
5 Mining	0	0	0	0	300	300	0	850	850	0	550	550	550	0	550	-
6 Multisectors	6,607	3,891	10,498	8,647	6,617	15,264	7,548	4,968	12,516	4,908	3,668	8,576	972	1,275	2,247	-32.0
7 Water Resources	0	0	0	0	0	0	0	117	117	0	318	318	318	0	0	-
8 Health	1	141	142	50	152	202	650	152	802	650	152	802	650	0	650	46.3
9 Basic Sanitation	1,233	0	1,233	3,547	0	3,547	14,328	0	14,328	13,307	0	13,307	15,310	0	15,310	87.7
10 Transportation	2,351	10,571	12,922	8,756	53,679	62,435	7,515	60,326	67,841	23,099	60,055	83,154	43,756	58,546	102,302	67.7
Total	11,680	16,456	28,136	26,554	66,503	93,057	44,295	78,945	123,240	60,159	76,455	136,614	78,870	64,056	142,926	50.1

Source : Finance Office, CORDECruz, 1995

TABLE B.9.4 BUDGET FOR PUBLIC INVESTMENT OF MUNICIPALITIES IN 1995
IN DEPARTMENT OF SANTA CRUZ

Unit: Bs.

No.	Municipalities	Grand Total		Local Finance				External Finance						
		Amount (%)	Total Amount (%)	National Fund	Own Resources	Popular Participation	Community Contribution	Others	Total Amount (%)	External Credit	Donation			
1	COMARAPA	1,352,534	0.40	1,352,534	0.44	0	18,284	1,334,250	0	0	0	0	0	
2	SALPINA	271,985	0.08	271,985	0.09	0	10,500	261,485	0	0	0	0	0	
3	SAN JOSE	1,527,570	0.45	1,527,570	0.50	0	162,651	1,364,919	0	0	0	0	0	
4	PAILON	2,740,307	0.80	2,740,307	0.89	0	13,283	1,102,274	0	1,624,750	0	0	0	
5	ROBORE	2,160,306	0.63	2,160,306	0.70	0	41,981	1,650,325	0	468,000	0	0	0	
6	CONCEPCION	1,677,880	0.49	1,258,049	0.41	0	19,434	1,238,615	0	0	419,831	0	419,831	
7	SAN JAVIER	655,921	0.19	655,921	0.21	0	403,201	0	0	252,720	0	0	0	
8	SAN JULIAN	4,778,502	1.40	4,778,502	1.56	0	11,000	4,256,177	165,511	345,814	0	0	707,984	
9	BOYUBE	1,160,284	0.34	452,300	0.15	0	4,710	360,110	0	0	0	0	0	
10	CABEZAS	1,292,947	0.38	1,292,947	0.42	0	7,600	1,285,347	0	0	0	0	0	
11	CAMERI	4,997,800	1.46	4,997,800	1.63	0	704,988	3,350,774	0	942,028	0	0	0	
12	CHARAGUA	2,723,773	0.80	2,176,879	0.71	0	12,000	951,792	0	1,213,087	0	0	546,394	
13	CUYVO	289,860	0.08	289,860	0.09	0	4,593	285,267	0	0	0	0	0	
14	GUTIERREZ	593,624	0.17	593,624	0.19	0	0	578,752	0	14,872	0	0	0	
15	LAGUNILLAS	1,797,348	0.52	769,530	0.23	0	0	408,547	0	300,983	1,087,818	3.05	0	1,087,818
16	MAIRANA	529,796	0.15	529,796	0.17	0	28,650	501,146	0	0	0	0	0	
17	PAMPA GRANDE	684,322	0.20	684,322	0.22	0	0	684,322	0	0	0	0	0	
18	QUIRUSILLA	283,147	0.08	283,147	0.09	0	5,530	151,527	0	126,090	0	0	0	
19	SAMAPATA	938,391	0.27	938,391	0.31	0	28,418	728,173	0	181,800	0	0	0	
20	PUERTO QUIJARRO	1,747,467	0.51	1,747,467	0.57	0	838,558	908,909	0	0	0	0	0	
21	PUERTO SUAREZ	2,288,986	0.67	2,288,986	0.75	0	234,083	1,957,703	0	97,200	0	0	0	
22	ASCENSION DE GUARAYO	1,617,524	0.47	1,085,505	0.35	0	63,555	1,022,150	0	0	532,019	1.48	0	532,019
23	EL PUENTE	834,856	0.24	595,130	0.13	0	0	382,860	0	12,270	439,726	1.23	0	439,726
24	URUBICHIA	303,641	0.09	303,641	0.10	0	1,100	302,541	0	0	0	0	0	
25	COTOCA	2,653,308	0.78	2,653,308	0.87	0	1,114,062	1,393,746	0	142,500	0	0	0	
26	LA GUARDIA	2,761,013	0.81	2,761,013	0.90	0	460,460	2,300,553	0	0	0	0	0	
27	PORONGO	906,670	0.26	906,670	0.30	0	43,200	863,470	0	0	0	0	0	
28	SANTA CRUZ	251,524,915	73.47	228,443,982	74.54	0	64,888,262	181,053,966	0	145,650,324	23,080,933	64.34	21,591,959	1,488,974
29	EL TORNO	2,957,142	0.86	2,957,142	0.96	0	400,000	2,373,606	0	183,536	0	0	0	
30	BUENA VISTA	3,448,725	1.01	1,471,002	0.48	0	52,494	827,781	398,327	194,400	1,977,723	5.51	0	1,977,723
31	SAN CARLOS	2,374,550	0.69	1,805,845	0.59	0	0	1,669,765	0	136,080	568,705	1.59	0	568,705
32	YAPAGANI (SAN JUAN)	4,322,292	1.26	2,395,330	0.78	0	274,206	1,148,334	0	972,790	1,926,962	5.37	0	1,926,962
33	SAN MATIAS	1,039,003	0.30	630,725	0.21	0	33,000	500,725	0	97,000	408,278	1.14	0	408,278
34	MINERO	4,747,900	1.39	4,747,900	1.55	0	310,500	3,317,772	0	1,119,628	0	0	0	
35	MONTERO	6,033,161	1.76	6,033,161	1.97	0	0	5,305,661	0	727,500	0	0	0	
36	GENERAL SAAVEDRA	1,125,144	0.33	1,125,144	0.37	0	53,501	1,023,143	0	48,500	0	0	0	
37	PORTACHUELO	4,314,263	1.26	2,555,780	0.83	0	0	2,483,180	0	72,600	1,758,483	4.90	0	1,758,483
38	SANTA ROSA	2,875,741	0.84	1,096,869	0.36	0	2,500	1,045,969	0	48,400	1,778,872	4.96	0	1,778,872
39	MORO MORO	527,566	0.15	527,566	0.17	0	0	488,686	0	38,880	0	0	0	
40	POSTRER VALLE	268,199	0.08	268,199	0.09	0	0	243,899	0	24,300	0	0	0	
41	PUCARA	357,877	0.10	357,877	0.12	0	0	327,031	0	30,846	0	0	0	
42	EL TRIGAL	435,011	0.13	435,011	0.14	0	0	352,391	0	82,620	0	0	0	
43	VALLE GRANDE	1,814,179	0.53	1,814,179	0.59	0	133,086	1,628,648	0	52,445	0	0	0	
44	SAN IGNACIO	2,945,332	0.86	2,945,332	0.96	0	0	2,154,772	0	790,560	0	0	0	
45	SAN MIGUEL	1,278,936	0.37	973,900	0.32	0	159,792	814,108	0	0	305,036	0.85	0	305,036
46	SAN RAFAEL	489,226	0.14	152,356	0.05	0	0	152,356	0	0	336,870	0.94	0	336,870
47	WARNES	5,910,655	1.73	5,910,655	1.93	0	1,493,410	4,417,245	0	0	0	0	0	
Grand Total (Bs.)		342,359,579	100	306,483,445	100	0	71,629,191	78,409,403	561,838	155,883,013	35,876,134	100	21,591,959	14,284,175
Grand Total (US\$)		71,324,912	100	63,850,718	100	0	14,922,748	16,335,292	117,050	32,475,628	7,474,195	100	4,498,325	2,975,870

Source: Ministerio de Hacienda, 1995

TABLE B.10.1 EXTERNAL AID TO BOLIVIA FOR PERIOD 1990 - 1994

Unit : US\$ 1,000

Countries/Agencies	1990	1991	1992	1993	1994	Total Amount or Technical Assistance(T)	Loan(L), Grant(G) or Assistance(T)
I. Foreign Countries							
1 USA	15,908	37,466	53,495	91,345	91,005	289,219	G,T
2 Japan	13,057	25,593	18,755	21,973	14,682	94,058	G,T
3 Germany	46,051	46,051	46,051	46,051	n.a.	184,204	L,G,T
4 Italy	n.a.	26,533	26,533	26,533	n.a.	79,599	L,G
5 Switzerland	16,839	21,254	19,709	18,820	n.a.	76,622	n.a.
6 Canada	19,170	25,730	n.a.	n.a.	n.a.	44,900	n.a.
7 France	8,667	8,667	8,667	8,667	2,000	36,668	L,G,T
8 Belgium	2,159	4,049	3,719	4,872	3,752	18,551	G,T
Sub-total	121,851	195,343	176,929	218,261	111,439	823,821	
II. International Agencies							
1 BID	194,200	175,900	111,050	86,750	244,930	812,830	L,G,T
2 BIRF	26,044	59,399	85,849	100,848	76,725	348,865	L
3 CAF	n.a.	n.a.	n.a.	88,800	n.a.	88,800	L
4 CEE	10,468	10,468	n.a.	n.a.	n.a.	20,936	G,T
Sub-total	230,712	245,767	196,899	276,398	321,655	1,271,431	
III. Total	352,563	441,110	373,828	494,659	433,094	2,095,252	

Source : Ministry of Finance, 1995

JICA Office, Bolivia, Sep. 1995

Note : BID : Banco Interamericano de Desarrollo

BIRF : Banco Interamericano de Reconstrucion y Fomento

CAF : Corporacion Andiana Fomento

CEE : Comunidad Economica Europa

n.a. : not available.

TABLE B.10.2 (1/2) FINANCIAL AND TECHNICAL AID OF FOREIGN COUNTRIES TO BOLIVIA

Unit : US\$ 1,000

Donors	Sector	Responsibility	Location	Loan(L), Grant(G) or Technical Assistance(T)	Period	Total Amount
I. USA (USAID)						
	1 Social Service	NGO	La Paz, Cocha., Santa Cruz	G	1992-94	2,385
	2 Administration	Ministries concerned	Whole country	G	1988-94	3,766
	3 Administration	Ministries concerned	Whole country	G	1991-97	4,500
	4 Justice	Supreme Court	Whole country	G	1988-93	2,038
	5 Justice	Supreme Court	La Paz, Tarija, Santa Cruz	G	1992-97	10,000
	6 Institution	National Assembly	Whole country	G	1988-94	3,000
	7 Social Service	NGO, Villages	Whole country	G	1991-95	500
	8 Human Resources	Catholic Universities	Whole country	G	1993-98	4,500
	9 Foods	FHI, ADRA	Whole country	G	1992-97	12,000
	10 Finance	Ministry of Finance	Whole country	G	1993-94	65,000
	11 Social Service	Private enterprises	Whole country	G	1991-96	9,220
	12 Regional Development	CORDECO	Cochabamba	G	1991-97	80,000
	13 Electric	Ministry of Finance	Whole country	G	1991-96	15,000
	14 Industry	Ministry of Finance	Whole country	G	1986-94	18,500
	15 Industry	Ministry of Finance	Whole country	G	1987-94	10,000
	16 Administration	IDEA, Enterprises	Whole country	G	1985-95	6,000
	17 Human Resources	Enterprises	Whole country	G	1985-95	4,769
	18 Trade	Ministry of Finance	Whole country	G	1988-95	23,000
	19 Trade	FUNDA, PRODEM	La Paz, Cochabamba	G	1988-97	13,850
	20 Finance	Central Bank	Whole country	G	1987-96	6,200
	21 Administration	Ministry of Finance	Whole country	G	1992-97	8,000
	22 Agriculture	PL-480 Office	Whole country	G	1992-97	4,000
	23 Health	Ministry of Human Resources	Whole country	G	1990-97	19,500
	24 Health	Ministry of Human Resources	Whole country	G	1988-95	20,000
	25 Medical Service	PROSALUD	La Paz, Santa Cruz	G	1991-96	6,500
	26 Medical Service	Ministry of Human Resources	La Paz, Santa Cruz, Cocha.	G	1988-95	4,000
	27 Medical Service	NGO	Whole country	G	1991-95	7,000
	28 Education	Ministry of Human Resources	Whole country	G	1991-96	5,000
	29 Medical Service	Medical Organizations	Whole country	G	1991-96	8,000
	30 Foods (General)	Churches	Whole country	G	1992-97	10,000
	31 Foods(Wheat)	PL-480 Office	Whole country	G	1992-97	7,800
	32 Electric	Ministry of Finance	Whole country	G	1991-96	4,200
	33 Environment(Forest)	FONAMA	Whole country	G	1993-2000	15,000
	34 Natural Environment	FONAMA	Whole country	G	1993-2000	21,800
	35 Foods(Wheat)	PL-480 Office	Whole country	G	1992-97	39,600
	Total					474,628
II. CANADA (CIDA)						
	1 Bilateral Aid	-	-	-	1986-90	13,360
	2 Foods	-	-	-	1986-90	10,950
	3 Volunteer	-	-	-	1986-90	15,600
	4 Industries	-	-	-	1986-90	770
	5 Administration	-	-	-	1986-90	10,610
	6 Canada Fund	-	-	-	1986-90	1,700
	7 Oil-refinery	-	-	-	1986-90	1,670
	8 Human-relation	-	-	-	1986-87	70
	9 Multi. Aid	-	-	-	1986-90	30,650
	Total					85,380
III. BELGIUM (AGCD)						
	1 Medical Services	-	Santa Cruz	G,T	1987-91	1,650
	2 Medical Services	-	Santa Cruz	G,T	1993-98	1,975
	3 Navigation	-	Santa Cruz	G,T	1984-95	5,150
	4 Medical Services	-	Santa Cruz	G,T	1993-	4,118
	5 Infrastructure	-	Pando	G,T	1990-	1,400
	6 Account	-	Country	G,T	1991-	6,000
	7 Fund	-	Country	G,T	1989-	5,600
	9 Indirect Aid	-	Country	G,T	1991-	3,450
	Total					29,343

TABLE B.10.2 (2/2) FINANCIAL AND TECHNICAL AID OF FOREIGN COUNTRIES TO BOLIVIA

Unit : US\$ 1,000						
Donors	Sector	Responsibility	Location	Loan(L), Grant(G) or Technical Assistance(T)	Period	Total Amount
IV. GERMANY (GTZ)						
	1 Water Supply	-	Oruro	L	1987-1993	96,000
	2 Water Supply	-	La Paz, Cocha., Santa Cruz	L	1987-1993	109,200
	3 Irrigation	-	Santa Cruz	L	1987-1993	15,000
	4 Electric	-	Tarija	L	1987-1993	2,600
	5 Electric	-	Santa Cruz	L	1987-1993	19,500
	6 Transport(Railway)	-	La Paz	L	1987-1993	2,700
	7 Transport (Air port)	-	La Paz	L	1987-1993	10,000
	8 Administration	-	La Paz	L	1987-1993	5,560
	9 Mining	-	La Paz	L	1987-1993	25,000
	10 Finance	-	La Paz	L	1987-1993	25,000
	11 Finance	-	La Paz	G	1987-1993	9,800
	12 Finance	-	La Paz	L	1987-1993	2,000
	Total					322,360
V. FRANCE (FAC)						
	1 Medical Service	-	Hospitals in Tarija, Oruro &	L	1979-93	100,000
	2 Infra. (Gas facilities)	-	Cities in country	L	1989-96	16,000
	3 Air Transport	-	Country	G,T	1995	1,000
	4 Water Resources	-	Cochabamba	G,T	1995	1,000
	5 Transport (Ropeway)	-	La Paz	L	1995	1,500
	Total					119,500
VI. SWITZERLAND (COTESU)						
	1 Macro Economy	-	-	-	1989-92	33,844
	2 Agriculture, Livestock	-	-	-	1989-92	11,602
	3 Forest, Environment	-	-	-	1989-92	8,959
	4 Rural Development	-	-	-	1989-92	14,442
	5 Urban Development	-	-	-	1989-92	3,645
	6 Other Sectors	-	-	-	1989-92	4,130
	Total					76,622
VII. Italy (DGCS)						
	1 Medical Service	-	Potosi	L,G	1991-93	73,000
	2 Medical Service	-	Potosi	G	1991-93	6,600
	Total					79,600
Grand Total						1,187,433

Source : Ministry of Finance, 1995
JICA Office, Bolivia, Sep. 1995

TABLE B.10.3 AID OF BID (BANCO INTERAMERICANO DE DESARROLLO)
TO BOLIVIA(1987 - 1994)

Year	Sector	Responsibility	Location	Unit : US\$ 1,000	
				Loan(L), Grant(G) or Technical Assistance(T)	Total Amount
1987	1 Industry	FIS	Whole country	L	88,200
	2 Agriculture	Agri. Union of Department	Santa Cruz	L	500
	3 Infra. (General)	CORDECO	Cochabamba	L	500
	4 Finance	FIE	Whole country	L	500
	5 Finance	-	Whole country	L	4,200
	Total				93,900
1988	6 Mining (Oil)	Ministry of Finance	Potosi	L	45,800
	7 Infra. (Road)	Ministry of Finance	-	L	33,200
	8 Tourism	Ministry	Whole country	L	40,000
	9 Industry	CORDEBENI	Beni	L	600
	10 Regional Development	ARADO	Whole country	L	500
	11 Administration	Ministry of Finance	Whole country	G,T	3,900
	Total				124,000
1989	12 Mining (Oil)	Ministry of Finance	Potosi	L	56,900
	13 Social Development	FIS	Whole country	L	34,700
	14 Industry	Ministry of Finance	Whole country	L	51,200
	15 Mining	Ministry of Finance	Whole country	L	18,000
	16 Industry	CORDEBENI	Beni	L	1,500
	17 Administration	Ministry of Finance	Whole country	L	970
	18 Administration	Municipalities	Whole country	L	130
	19 Electric	Ministry of Finance	Whole country	L	100
	20 Social Development	FIS	Whole country	L	4,000
	21 Administration	Ministry of Finance	Whole country	T	620
		Total			
1990	22 Infra. (Road)	Ministry of Finance	La Paz	L	50,900
	23 Electric	Ministry of Finance	Whole country	L	80,000
	24 Urban Development	FNDR	Whole country	L	60,000
	25 Industry	CORDEBENI	Beni	L	500
	26 Administration	Ministry of Finance	Whole country	G	2,800
		Total			
1991	27 Finance	Ministry of Finance	Whole country	L	60,000
	28 Finance	Ministry of Finance	Whole country	L	80,000
	29 Medical Service	Ministry of Finance	Whole country	L	33,900
	30 Social Development	FIE,PRODEM,MUPADE	Whole country	L	2,000
		Total			
1992	31 Infra. (Road)	Ministry of Finance	La Paz,Beni	L	95,000
	32 Finance (Multi.Sectors)	Ministry of Finance	Whole country	L	6,400
	33 Administration	Ministry of Finance	Whole country	L	1,700
	34 Finance (National Invest	Ministry of Finance	Whole country	L	2,500
	35 Finance (Taxes System)	Ministry of Finance	Whole country	L	1,000
	36 Human Resources	MUPADE	Whole country	L	570
	37 Industry	PROCREDIT	Whole country	L	510
	38 Agriculture	-	Whole country	L	140
	39 Administration	-	Beni	L	3,200
	40 Human Resources	-	Whole country	L	30
		Total			
1993	41 Urban Development	FNDR	Whole country	L	64,000
	42 Agriculture	-	Whole country	L	12,500
	43 Finance	Ministry of Finance	Whole country	L	6,000
	44 Administration	Ministry of Finance	Whole country	G,T	3,900
	45 Infra. (River)	-	-	L	150
	46 Environment	-	Whole country	L	10
	47 Administration	IMPEX	-	L	10
	48 Education	Ministry of Finance	Whole country	L	150
	49 Environment	-	Whole country	L	30
	Total				86,750
1994	50 Education	Ministry of Finance	Whole country	L	55,000
	51 Housing	-	Whole country	L	45,000
	52 Finance (Multi. Sectors)	-	Whole country	L	100,000
	53 Environment	-	Whole country	L	30,000
	54 Administration	-	Whole country	L,T	10,000
	55 Administration	-	Whole country	G,T	1,600
	56 Human Resources	MUPADE	Whole country	L	700
	57 Defence	-	Whole country	L	750
	58 Commerce	-	Cochabamba	L	680
	59 Industry	CAPIA-COCHABAMBA	Cochabamba	L	600
	60 Industry	CAPIA-SANTA CRUZ	Santa Cruz	L	600
	Total				244,930
	Grand-total				1,198,856
	Annual Average				149,856

Source : Ministry of Finance, 1995
JICA Office, Bolivia, Sep. 1995

TABLE B.104 AID OF BIRF, CAF AND CEE TO BOLIVIA

Unit : US\$ 1,000

Sector	Responsibility	Location	Loan(L), Grant(G) or Technical Assistance(T)	Period	Total Amount
I. BIRF (Banco Internacional de Reconstrucción y Fomento)					
1 Urban Development	Gov. of La Paz city	La Paz	L	1988-95	15,000
2 Energy (Electric)	ENDE	Whole country	L	1988-94	6,800
3 Administration	MPC	Whole country	L	1989-93	9,700
4 Transport	Ministries concerned	Whole country	L	1989-93	37,000
5 Mining	Ministry of Mining	Whole country	L	1989-93	35,000
6 Health	Ministry of Health	LP, Cocha. SC	L	1990-96	20,000
7 Agriculture	CORDECRUZ	Santa Cruz	L	1991-96	35,000
8 Health	FIS	Whole country	L	1990-94	20,000
9 Industry	BCB	Whole country	L	1991-95	16,100
10 Health	FNDR	LP, Cocha. SC	L	1991-96	35,000
11 Agriculture	IBTA	Whole country	L	1991-98	23,000
12 Finance	Ministry of Finance	Whole country	L	1991-95	11,300
13 Multi. Sectors	MPC	Whole country	L	1991-93	40,000
14 Agriculture	Export Fund of Bolivia	Whole country	L	1992-95	21,000
15 Transport (Road)	Public Road Corporation	Whole country	L	1992-96	80,000
16 Finance	MPC	Whole country	L	1992-93	10,400
17 Health	ONAMFA	Whole country	L	1993-98	50,000
18 Social Development	FIS	Whole country	L	1993-98	40,000
19 Administration	FNDR	Whole country	L	1994-99	42,000
20 Finance	Ministry of Finance	Whole country	L	1994-97	15,000
Total					562,300
II. CAF (Corporacion Andiana Fomento)					
1 Industry	MEY, LTDA	Whole country	L	1993	2,300
2 Finance (Multi. Sectors)	BANCO MERCANT.	Whole country	L	1993	3,000
3 Finance (Multi. Sectors)	MPC	Whole country	L	1993	60,000
4 Transport	MPC	Whole country	L	1993	23,500
Total					88,800
III. CEE (Comunidad Economica Europea)					
1 Agriculture	-	Oruro, Potosi	G,T	1983-91	32,190
2 Agriculture	-	-	G,T	1983-91	24,810
3 TDPS Plan	-	-	G,T	1983-91	6,640
4 Flood Control	-	LP, SC, ETC.	G,T	1983-91	15,690
5 Water Supply	-	Potosi	G,T	1991	6,700
6 Agriculture	-	Potosi	G,T	1991	8,180
Total					94,210
Grand Total					745,310

Source : Ministry of Finance, 1995
 JICA Office, Bolivia, Sep. 1995

TABLE B.10.5 (1/2) COOPERATION OF JAPAN TO BOLIVIA

Unit : Yen 1,000

Machine, Equipment and Materials	Responsibility	Location	Loan(L), Grant(G) or Technical Assistance(T)	Year	Total Amount
1 Surveying Instrument	Ministry of Agriculture	Whole country	G	1965	1,652
2 Agricultural Machine	Agricultural Pilot Farm	Cochabamba	G	1965	520
3 Agricultural Machine	Agricultural Pilot Farm	Cochabamba	G	1965	2,622
4 Surveying Instrument	Ministry of Agriculture	Whole country	G	1969	1,720
5 Seismometer	Geological Survey Institute	Whole country	G	1970	5,025
6 X-ray Analyzer	Geological Survey Institute	Whole country	G	1971	12,840
7 Machine	Telephone Public Corporation	La Paz	G	1972	11,508
8 Medical Equipment	National Hospitals	Whole country	G	1973	9,451
9 Medical Equipment	Na Paz National Hospital	La Paz	G	1975	4,510
10 Mineral Testing Machine	San Andrez University	La Paz	G	1978	14,789
11 Mining Equipment	Mining and Mineral Fund	Whole country	G	1979	20,504
12 Geological Equipment	Ministry of Education	Whole country	G	1980	19,375
13 Communication Equipment	Telephone Public Corporation	La Paz, Santa Cruz	G	1981	19,892
14 Fish-Raising Equipment	Ministry of Agriculture	Whole country	G	1981	38,753
15 Mineral Testing Machine	Mining Public Corporation	Whole country	G	1982	34,272
16 Fish-Raising Equipment	Ministry of Agriculture	Whole country	G	1982	978
17 Fish-Raising Equipment	Ministry of Agriculture	Whole country	G	1983	10,316
18 Agricultural Equipment	Tropical Agricultural Center	Whole country	G	1984	41,026
19 Rice-farming Equipment	Tropical Agricultural Center	Whole country	G	1985	4,387
20 Equipment for Job-training	Job-training School	Whole country	G	1986	31,972
21 Communication Equipment	Tele-communication School	Whole country	G	1988	48,058
22 Fish-Raising Equipment	Fishing Development Center	Whole country	G	1989	72,442
23 Equipment for Job-training	Job-training School	Whole country	G	1991	71,740
24 Medical Equipment	National Medical Institute	Whole country	G	1992	22,639
25 Construction Equipment	Telephone Public Corporation	Whole country	G	1993	83,593
26 Tele-com. Training Equipment	Tele-communication School	Whole country	G	1994	8,219
27 Medical Equipment	Mayor de San Simon Univ.	Cochabamba	G	1994	6,129
28 Equipment for Job-training	Tarija Job Training School	Tarija	G	1995	9,980
Total					608,912

Source : JICA Office, Bolivia, Sep. 1995

TABLE B.10.5 (2/2) COOPERATION OF JAPAN TO BOLIVIA

II. Grant Cooperation			Unit : Yen 1,000			
Sectors	Responsibility	Location	Loan(L), Grant(G) or Technical Assistance(T)	Year	Total Amount	
1	Construction of Medical Center	Ministry of Health	La Paz	G,T	1977	700,000
2	Construction of Medical Center	Ministry of Health	Chuquisaca	G,T	1978	800,000
3	Construction of Medical Center	Ministry of Health	Cochabamba	G,T	1979	1,100,000
4	Construction of Medical School	Ministry of Health	Whole country	G,T	1980	1,400,000
5	Construction of Hospital	Ministry of Health	Trinidad	G,T	1981	800,000
6	Construction of Hospital	Ministry of Health	Trinidad	G,T	1982	700,000
7	Construction of Hospital	Ministry of Health	Santa Cruz	G,T	1983	505,000
8	Construction of Hospital	Ministry of Health	Santa Cruz	G,T	1984	1,847,000
9	Construction of Hospital	Ministry of Health	Santa Cruz	G,T	1984	1,848,000
10	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1985	700,000
11	Const. of Fish-raising Center	Ministry of Agriculture	Whole country	G,T	1986	805,000
12	Road Improvement	Road Development Corporation	Whole country	G,T	1986	510,000
13	Improv. of Medical Equipment	Ministry of Health	Whole country	G,T	1986	710,000
14	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1986	700,000
15	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1982	200,000
16	Increase in Seed Production	Ministry of Agriculture	Cochabamba	G,T	1987	1,416,000
17	Road Improvement	Road Development Corporation	Whole country	G,T	1987	1,000,000
18	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1987	700,000
19	Water Resources Development	City of El Alto	El Alto	G,T	1988	1,693,000
20	Road Improvement	Road Development Corporation	Cochabamba	G,T	1988	1,254,000
21	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1988	700,000
22	Water Resources Development	City of El Alto	El Alto	G,T	1989	691,000
23	Improvement of Repair Shop	Road Development Corporation	Whole country	G,T	1989	852,000
24	Improv. of Garbage Equipment	Ministry of Environment	La Paz	G,T	1989	595,000
25	Road Improvement	Road Development Corporation	Potosi	G,T	1989	758,000
26	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1989	600,000
27	Increase in Livestock Production	Ministry of Agriculture	Whole country	G,T	1990	724,000
28	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1990	400,000
29	Road Improvement	Road Development Corporation	La Paz	G,T	1990	767,000
30	Road Improvement	Road Development Corporation	Chuquisaca, Tarija	G,T	1991	1,565,000
31	Improv. of Water Supply System	Cordeco	Cochabamba	G,T	1991	1,356,000
32	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1991	450,000
33	Road Improvement	Road Development Corporation	Oruro	G,T	1992	769,000
34	Improv. of Garbage Equipment	Ministry of Environment	Whole country	G,T	1992	1,134,000
35	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1992	450,000
36	Improv. of Garbage Equipment	Ministry of Environment	Whole country	G,T	1993	602,000
37	Design of El Alto Air-port	Department of Air-Port Bureau	El Alto	G,T	1993	130,000
38	Road Improvement	Road Development Corporation	Whole country	G,T	1993	1,078,000
39	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1993	550,000
40	Design of El Alto Air-port	Department of Air-port Bureau	El Alto	G,T	1994	972,000
41	Road Improvement	Road Development Corporation	Whole country	G,T	1994	-
42	Increase in Food Production	Ministry of Agriculture	Whole country	G,T	1994	450,000
43	Bridge Improvement	Road Development Corporation	Santa Cruz	G,T	1994	55,000
44	Improvement of Repair Shop	Road Development Corporation	Whole country	G,T	1994	10,000
	Total					35,046,000

Source : JICA Office, Bolivia, July 1995

TABLE B.10.6 (1/2) EXTERNAL AID PROJECTS IN DEPARTMENT OF SANT CRUZ, 1991 - 1995

Unit: US\$ 1,000

No.	Projects	Executing Body	External Sources	Fund											
				1991		1992		1993		1994		1995			
				LC	FC	LC	FC	LC	FC	LC	FC	LC	FC		
I. AGRICULTURAL SECTOR															
A 1	Lowlands Agricultural Extension	Cordobaz	IDA AIF	43	0	16	8	6	0	23	0	0	0	0	
A 2	General Plan of Irrigation - PRIORUZ	Cordobaz	KFW	0	86	11	122	0	0	0	0	0	0	0	
A 3	Irrigation (Comarapa-Sapras-San Ramon)	Cordobaz	KFW	0	98	78	115	87	42	475	27	244	0	0	
A 4	Irrigation - San Isidro	Cordobaz	KFW	0	6	149	8	0	4	0	0	8	0	0	
A 5	Master Plan of Fruit Trade	Cordobaz	JICA	0	0	0	0	0	49	0	33	500	0	0	
A 6	Agricultural Drainage in Northern Area	Cordobaz	JICA	0	0	0	0	0	3	0	0	120	0	0	
A 7	Santa Rosa de Sara Market (FDC)	Cordobaz	BEL	0	0	0	0	0	0	0	0	0	11	0	
A 8	Buena Vista Market (FDC)	Cordobaz	FDC	0	0	0	0	0	0	0	11	0	0	0	
A 9	San Juan de Yapecam Market (FDC)	Cordobaz	BID	0	0	0	0	0	0	0	13	0	0	0	
A 10	ASCENSION DE GUARAYOS (FDC)	Cordobaz	FDC	0	0	0	0	0	0	0	26	0	0	0	
A 10	ASCENSION DE GUARAYOS (FDC)	Cordobaz	BID	0	0	0	0	0	0	0	29	0	0	0	
A 10	ASCENSION DE GUARAYOS (FDC)	Cordobaz	FDC	0	0	0	0	0	0	0	3	0	0	0	
A 10	ASCENSION DE GUARAYOS (FDC)	Cordobaz	BID	0	0	0	0	0	0	0	45	0	0	0	
A 11	Pullon Market (FDC)	Municip.	BEL	0	0	0	0	0	0	0	0	0	0	13	
A 12	San Miguel de Velasco Market (FDC)	Municip.	FDC	0	0	0	0	0	0	0	7	0	0	0	
A 13	Vegetable Research and Extension	CIAT	G-BR	863	233	833	199	490	203	0	0	0	0	0	
			JICA	199	99	227	0	0	0	0	0	0	0	0	
			FAO	371	149	339	0	0	0	0	0	0	0	0	
			IDA	269	0	0	0	0	0	0	0	0	0	0	
A 14	Low Land Research and Extension	CIAT	IDA	88	285	72	1,945	12	1,521	0	0	0	0	0	
A 15	Agricultural Research in Eastern Low Lands	CIAT	AIF	0	0	0	0	0	0	118	228	77	204	0	
A 16	Lands	CIAT	AIF	0	0	0	0	0	0	12	276	90	72	0	
A 17	Ichilo, Sara Research	CIAT	G-BR	0	0	0	0	0	0	0	0	0	0	38	
A 18	Tech. Study and Dendrology in Chiquitania	CDO	JICA	0	0	4	0	4	16	1	0	0	0	0	
			JAP	0	0	0	0	0	13	0	0	0	0	0	
A 19	Guarayos (FDC)	FDC	BID	0	0	0	0	0	0	0	0	0	0	17	
Total of Agricultural Sector				994	1,443	1,040	2,750	635	2,406	262	1,147	235	1,219	0	
II. LIVESTOCK SECTOR															
L 1	Cattle Research and Extension	CIAT	G-BR	140	104	153	172	76	208	0	0	0	0	0	
L 2	Genetic Improvement of Cattle	SNAG	JICA	73	2,385	279	253	84	300	0	0	0	0	0	
Total of Livestock Sector				213	2,689	432	425	160	508	0	0	0	0	0	
III. MANUFACTURING INDUSTRIAL SECTOR															
I 1	Promotion of Micro Small Industries	Cordobaz	SWIT.	0	0	97	154	0	0	0	0	0	0	0	
			GOB	0	0	0	0	0	0	0	0	0	0	0	
			OT-FI	0	0	0	1	0	0	0	0	0	0	0	
I 2	Support of Metalmechanic Industry	Cordobaz	OT-EXT	0	79	0	0	0	0	0	0	0	0	0	
Total of Manufacturing Industry				0	79	97	163	0	0	0	0	0	0	0	

TABLE B.10.6 (2/2) EXTERNAL AID PROJECTS IN DEPARTMENT OF SANT CRUZ, 1991 - 1995

Unit : US\$ 1,000

No	Projects	Executing Body	External Sources	Fund											
				1991		1992		1993		1994		1995			
				LC	FC	LC	FC	LC	FC	LC	FC	LC	FC		
IV. TRANSPORTATION SECTOR															
T 1	Low Land Access Road B3	Cordecruz	AIF	0	0	0	0	0	0	150	0	0	0	42	
			CAF	0	0	0	0	0	0	0	0	0	0	52	
T 2	Low Land Access Road B4	Cordecruz	AIF	0	0	0	0	0	0	100	0	0	0	42	
			CAF	0	0	0	0	0	0	0	0	0	0	31	
T 3	Low Land Access Road B6	Cordecruz	AIF	0	0	0	0	0	0	100	0	0	0	70	
			CAF	0	0	0	0	0	0	0	0	0	0	52	
T 4	Concepcion - San Ignacio Road	Cordecruz	GTZ	279	1,286	201	0	67	0	9	0	0	0	0	
T 5	Rio Quiser Bridge	Cordecruz	GTZ	0	82	0	0	0	0	0	0	0	0	0	
T 6	Low Land Road	Cordecruz	IDA	266	250	58	246	440	1,695	0	0	0	0	0	
T 7	Campo 201 - Valle Esperanza Road	Cordecruz	AIF	0	0	0	0	0	0	42	55	0	0	0	
			CAF	0	0	0	0	0	0	0	50	0	0	0	
T 8	Puerto Paz - Dos Milanos Road	Cordecruz	AIF	0	0	0	0	0	0	32	11	0	0	0	
			CAF	0	0	0	0	0	0	0	16	0	0	0	
T 9	Valle Esperanza - San Diego Road	Cordecruz	AIF	0	0	0	0	0	0	39	50	0	0	0	
T 10	Barealons - Futuro Road	Cordecruz	AIF	0	0	0	0	0	0	26	53	0	0	0	
			CAF	0	0	0	0	0	0	0	23	0	0	0	
T 11	Praisao - Barcelons Road	Cordecruz	AIF	0	0	0	0	0	0	22	30	0	0	0	
			CAF	0	0	0	0	0	0	15	15	0	0	0	
T 12	San Diego - Yanahua Road	Cordecruz	AIF	0	0	0	0	0	0	84	98	0	0	0	
			CAF	0	0	0	0	0	0	0	54	0	0	0	
T 13	Futuro - San Rafael Road	Cordecruz	AIF	0	0	0	0	0	0	5	58	0	0	0	
			CAF	0	0	0	0	0	0	0	51	0	0	0	
T 14	Santa Cruz - Abejo Road	Cordecruz	CI-FRW	6,331	0	1,830	1,510	3,613	0	312	0	43	0	0	
			CI-FI	0	0	0	0	0	0	0	0	0	0	0	
			CI-EXT	0	0	0	412	0	0	0	0	0	0	0	
			CI-EXT	0	0	0	0	0	0	0	0	0	0	0	
			FONPLATA	0	0	0	0	0	0	0	0	0	0	860	
T 15	Boyube Hito Villazon Road	Cordecruz	CAF	0	115	0	39	0	0	0	0	0	0	0	
T 16	External Supervision of Santa Cruz Road	Cordecruz	CI-FRW	0	0	375	509	0	0	0	0	0	0	0	
T 17	Santa Cruz - Wames Highway (ENDR)	Cordecruz	BID	0	1,798	0	0	0	0	0	0	0	0	0	
T 19	4th Ring Avenue (ENDR)	Cordecruz	BID	0	164	652	0	0	0	0	0	0	0	0	
T 19	Sanjaya - Sivena Country Road	Municip.	BID	0	754	263	1,664	0	0	0	0	0	0	0	
T 20	Study of Saque - Ipati Road	SNC	BID	3	18	0	0	0	0	0	0	0	0	0	
T 21	Samaipata - Tarcuna (2) Road	SNC	BID	214	1,325	694	0	0	0	0	0	0	0	0	
T 22	Chumoro - Yapasani Access Road	SNC	BID	2,086	5,468	1,859	6,252	2,927	6,893	1,401	5,096	4,303	33	0	
			CAF	1,857	0	0	2,597	0	40	0	0	0	0	0	
			FONPLATA	0	0	0	0	0	0	0	1,154	0	0	600	
T 23	Santa Cruz - Trinidad Road	SNC	FONPLATA	2,037	1,211	1,014	603	1,379	1,117	1,668	2,538	1,078	1,998	0	
T 24	Santa Cruz Country Roads	SNC	BID	559	196	0	0	0	0	0	0	0	0	0	
T 25	Concepcion - San Ignacio Road	SNC	GTZ	0	124	0	442	0	0	412	33	0	0	0	
T 26	Santa Cruz Country Roads	SNC	JICA	0	0	0	0	0	6,683	372	0	0	0	0	
T 27	Zod. Maintenance Program	SNC	AIF	0	0	0	0	0	0	0	3,749	453	2,422	0	
			CAF	0	0	0	0	0	0	0	1,279	0	2,631	0	
Total of Transportation Sector				11,775	14,340	6,580	14,478	8,868	16,423	4,574	17,630	5,877	8,813		
Grand Total				12,982	18,551	8,149	17,816	9,663	19,342	4,834	18,777	6,112	10,832		

Source : Ministry of Finances, Oct. 1995

TABLE B.10.7 INTERNATIONAL TECHNICAL COOPERATION PROJECTS IN DEPARTMENT OF SANTA CRUZ

Unit : US\$ 1,000

No.	Project Name	Period	Executing Bodies	Sources	Cost			Total Amount
					1988-1993 (Executed)	1994 (Executed)	1995 (Program)	
I. Agricultural Sector								
a 1	Development of Poor Rural Areas	1991-95	CORDES	PMA	629	296	81	1,006
a 2	Promotion of Modules for Dairy Cow Development	1991-95	CORDES	PMA	578	0	690	1,268
a 3	Evaluation and Improvement of Grain Harvest Technique	1990-95	FAO	HOL	2,178	712	415	3,305
a 4	British Mission in Tropical Agriculture	1990-95	G-BR	G-BR	2,320	1,500	1,500	5,320
a 5	Laboratories of Veterinaries	1987-96	LIDIVET	G-BR	1,050	200	0	1,250
a 6	Whole Sale Project in SCZ	1993-95	CORDECRUZ	JAP	0	160	150	310
a 7	Regional Development, Department of Santa Cruz	1987-95	CORDECRUZ	GERM	11,435	1,063	1,172	13,670
a 8	Root Biology	1989-95	CIAT	HOL	1,040	132	292	1,464
a 9	Geographical Information System in the Chaco Area	1994-95	CORDES	OAS	0	0	10	10
a 10	Rural Development of Ichilo	1992-95	CORDECRUZ	GERM	1,100	625	828	2,553
a 11	Protection of Consumer Against Food Sold on the Street	1992-94	FAO	FAO	31	8	0	39
a 12	Territorial Arrangement of Bolivian Amazonic Area	1993-95	SENMA	BID	0	0	20	20
a 13	Support of National Program for Sustainable Development of Chaco Area	1993-96	CORDES	PNUD	27	48	128	203
a 14	Cattle Improvement	1987-95	UGRM	JAP	6,000	1,000	1,000	8,000
a 15	Technical Improvement of Rice production	1991-94	CIAT	JAP	1,000	500	0	1,500
a 16	Project on Nutrition of Dairy Cattle	1994-96	ADEPLE	G-BR	0	192	168	360
a 17	Bean Project in the Andean Area	1994-96	CIAT	COTE	0	115	188	303
a 18	Pilot Project of Sericulture	1995	CORDECRUZ	PNUD	0	0	33	33
a 19	Agriculture	1995	UGRM	FRA	0	0	19	19
a 20	Research and Training Center for Farmers	1993-96	CIFCA	HOL	0	555	402	957
a 21	Natives Project	1993-96	APCOB	HOL	304	301	446	1,051
a 22	Root Biology II	1995-97	CIAT	HOL	0	392	500	892
a 23	Amaranth	1994-96	CIAT	GERM	0	13	31	44
a 24	Resurrection of Pilon Slab Biosphere	1995-98	COOP. A	HOL	0	0	785	785
a 25	Diagnosis for Communities	1994-95	ASEO	HOL	0	14	18	32
Total of Agricultural Sector					27,692	7,826	8,876	44,394
II. Industrial Sector								
i 1	Support to the Small Scale Metal-mechanic Industry	1989-94	APMEC	COTE	379	80	0	459
i 2	Development and Promotion of Wooden Products for Export	1991-94	CANEB	DANID	243	131	0	374
				PNUD	210	-38	0	172
i 3	Counselling to Chamber on Policies and Norms for Industrial Activities	1993-95	CNI	ONUDI	0	6	0	6
i 4	Technical Assistance for Leather Industry	1992-94	IMPEX	CEE	105	105	0	210
i 5	Support to small Enterprises in the Department of Santa Cruz	1993-96	CAPTA	GERM	450	375	432	1,257
i 6	Bolivian Foundation for Women Development	1994-96	FUNFUD	COTE	0	38	42	80
Total of Industrial Sector					1,387	697	474	2,558
III. Transportation Sector								
t 1	Improvement of Navigation on Ichilo, Mamore and Other Rivers	1984-97	CEPIMA	BEL	1,111	255	59	1,425
t 2	Construction of Rural Roads	1985-95	SNC	GERM	7,650	1,125	62	8,837
Total of Transportation Sector					8,761	1,380	121	10,262
Grand Total					37,840	9,903	9,471	57,214

Source : Ministry of Finance, Oct. 1995

TABLE B.10.8 FINANCIAL CONDITIONS OF EXTERNAL ASSISTANCE

No.	Sources	Modality		Interest Rate (%)	Service Commission (%)	Undertaking Commission (%)	Repayment Term (Years)	Grace Period* (Years)
		Reimbursable	Non-reimbursable					
I. Multilateral Organizations								
1	World Bank	○		0.00	0.75	0.00-0.50	40	10
2	Interamerican Development Bank	○		1.00-2.00	0.00	0.50	40	10
	-ditto-		○					
3	Andean Promotion Corporation	○	○	7.00(+2.50)	0.00	0.20-0.75	10	1
4	FONPLATA	○		7.50	0.00	1.00	17	3
	-ditto-		○					
5	FIDA	○		0.00	1.00	0.00	40	10
6	OPEC	○		2.75	0.00	1.00	17	5
7	Nordic Development Fund	○		0.00	0.75	0.00	40	10
II. Bilateral Organizations								
1	Japan - OECF	○		3.00	0.00	0.00	30	10
	- JICA		○					
2	German Federal Republic	○		0.75	0.00	0.00	40	10
	-ditto-		○					
3	European Unit	○						
4	USAID	○						
5	Spain - FAE	○	○	0.95	0.00	0.50	30-40	8-10
	- FAD		○	7.50-8.50	0.00	0.50	3-5	0
	- OCIDE		○					
6	Switzerland	○						
7	Holland	○						
8	Sweden	○						
9	Canada	○						
10	Belgium	○						
11	France	○		2.25-3.50	0.00	0.00	12	6
	-ditto-		○					
12	Great Britain	○						
13	Italy	○		1.50	0.00	0.00	20	10.5
	-ditto-		○					
14	China	○		0.00	0.00	0.00	20	10
15	Denmark	○						
16	Taiwan	○		5.00	0.00	0.00	10	2.5

Source: Ministry of Finance, 1995

Note: (*) Grace period is included in repayment term.

The conditions are variable, and estimates are average.

SUPPORTING REPORT C
FLOOD AND FLOOD DAMAGE

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SUPPORTING REPORT C FLOOD AND FLOOD DAMAGE

1. Major Floods

From the 1960s to the present, the study area has suffered from wide floods several times. The recorded major floods in the study area are as follows;

Eastern area: 1968, 1972, 1983, 1987 and 1992

Western area: 1963, 1966, 1982, 1983, 1991 and 1992

For the eastern area, 1983 Floods and 1992 Floods were the biggest floods recorded in recent years. The 1983 Floods was mainly caused by overflow of the Río Piray. 1992 Floods was recorded as the wide flood of river basins in the study area as well as overflow of the Río Piray.

For the western area, 1983 Floods and 1992 Floods were also the biggest floods recorded in recent years. In 1983, by the overflow like debris flow of the Río Yapacani, area along the Río Yapacani was inundated. In 1992, wide inundation was recorded in river basins the of study area.

2. Flood and Flood Damage Survey

In order to know the conditions of flood and flood damages in the study area, flood and flood damage survey was conducted. The method of the survey was questionnaire to the inhabitants and interview to the local government officials. The survey focused on the 1992 Floods in the first, because the 1992 Floods was recorded as wide floods of river basins in the study area. Furthermore, the conditions of the annual floods was also investigated by the survey.

Questionnaire survey was conducted between April to May 1995 in the first. The number of the first survey is 635 as shown in *Table C.2.1*. *Fig. C.2.1* shows locations of the points of the first survey. Between September and October 1995, supplemental survey for flood damage was conducted.

3. 1992 Floods

Fig. C.3.1 shows the area of 1992 Floods in the study area. *Table C.3.1* shows the summary of flood conditions of 1992 Floods. Total area of 1992 Floods was 4,857 km² and average depth and duration was 70 cm and 7 days.

(1) Eastern Side

Fig. C.3.2 shows inundation area with average depth and duration of 1992. Floods for the eastern side of the study area. The conditions of the flood in this side were as follows:

1) Río Chané Basin (Upstream of Road 9)

In the upstream area from the National Road No. 9 of the Río Chané Basin, 46 percent of the area was inundated. Depth of the inundation was between 1.0 m and 0.4 m. Overflow happened along the Arroyo Los Sauces, Río Pailón, Quebrada Chané etc.

2) Río Chané Basin (Downstream of Road 9)

In the downstream area from the National Road No.9 of the Río Chané Basin, about 100 percent of the area was inundated. Depth of the inundation was between 0.4 m and 1.3 m. Overflow happened along the Río Chané, Río Pailón, Quebrada Chané, Quebrada Toro, Quebrada Las Maras and Quebrada Las Chacras. The Río Chané, which is the most downstream river of the Río Chané Basin was affected by the flood water level of the Río Piray.

3) Area along Road 9

Due to the insufficient openings such as bridges and culverts along the National Road No.9, flood water from the upstream was blocked by road embankment and overtopped on it. The southern areas along the road were flooded with a quite few km width.

4) Río Piray

The Río Piray overflowed in the downstream area from Warnes. A part of the flood water entered into the Río Chané Basin through the Quebrada Chané and Quebrada Las Chacras.

5) Okinawa Drainage Basin

Wide flood occurred in the upstream and downstream areas from the National Road No.9 in the Okinawa Drainage Basin. Depth of the flood was 0.8 m to 1.0 m in the downstream area. In the upstream area, the depth was 0.4 m to 1.0 m.

6) Río Grande

Along the Río Grande, overflow happened at two or three places in the downstream reach from the National Road No.9.

(2) Western Side

Fig. C.3.3 shows inundation area with average depth and duration of 1992 Floods for the western side of the study area. The conditions of the flood in this side were as follows;

1) Río Palometillas Basin

Along the Río Palometillas, inundation occurred in the downstream reaches. The inundation area was only 95 km² within the study area.

2) Río Palacios Mainstream Basin

Inundation occurred along the mainstream of the Río Palacios. Average depth of the inundation was between 0.7 m and 1.0 m.

3) Arroyo Yapacanicito, Jochi, Tacuaral and Tejeria Basins

Most of the areas of the Arroyo Yapacanicito, Jochi, Tacuaral and Tejeria basins were inundated. Average depth was 0.4 m to 1.0 m.

4) Río Yapacani Mainstream

Along the Río Surutú, which is the right tributary of the Río Yapacani, overflow occurred around Santa Fé. A part of the flood water overtopped the National Road No.7 and entered into the Arroyo Tejeria and Arroyo Yapacanicito basins. Along the downstream reaches from the Road 7, overflow happened in the low-lying areas along the river course.

4. Annual Floods

Fig. C.4.1 shows the area of Annual Floods in the study area. *Table C.4.1* shows the summary of flood conditions of Annual Floods. Total area of Annual Floods is 2,444 km² and average depth and duration is 47 cm and 5 days.

(1) Eastern Side

Fig. C.4.2 shows inundation area with average depth and duration of Annual Floods for the eastern side of the study area. The conditions of the flood in this side were as follows;

1) Río Chané Basin (Upstream of Road 9)

About 20 percent of this area is inundated. Inundation happens along the Arroyo Los Sauces, Río Pailón, Quebrada Chané etc.

2) Río Chané Basin (Downstream of Road 9)

In this area about 61 percent of the area is inundated. Inundation happens along the Río Chané, Río Pailón, Quebrada Chané, Quebrada Toro, Quebrada Las Maras and Quebrada Las Chacras.

3) Area along Road 9

Inundation happens along the upstream side of the National Road No.9.

4) Río Piray

Overflow happens from the downstream reach around Montero.

5) Okinawa Drainage Basin

In the downstream area from Road 9, wide inundation occurs. Average depth of the inundation is about 0.5 m. In the upstream area of Road 9 inundation occurs along the Road 9.

6) Río Grande

Along the Río Grande, some overflow happened at two or three places in the downstream reach from the National Road No.9.

(2) Western Side

Fig. C.4.3 shows inundation area with average depth and duration of Annual Floods for the western side of the study area. The conditions of the flood in this side were as follows;

1) Río Palometillas Basin

Along the Río Palometillas, inundation occurs in the downstream reach..

2) Río Palacios Mainstream Basin

Inundation also occurs along the mainstream of the Río Palacios.

3) Arroyo Yapacanicito, Jochi, Tacuaral and Tejeria Basins

Most of the Tejeria basin is inundated annually. On the contrary, about 50 percent of the Arroyo Yapacanicito, Jochi and Tacuaral basins are inundated.

4) Río Yapacani Mainstream

The Río Yapacani does not overflow annually.

5. Floods of the Río Piray, Grande and Yapacani

History of the major floods of the Río Piray, Grande and Yapacani are described in below.

(1) Río Piray

The 1983 Floods was the biggest flood recorded in recent years. The 1983 Floods was caused by the heavy rainfall in the upstream basin. Santa Cruz and vicinity areas were inundated by the floods. The flood water overflowed into low-lying areas along the river. The flood damage included 100 people perished, 900 people missing and US\$ 37 million worth of property damage.

(2) Río Grande

The area along the left bank of the Río Grande, that is located at immediate upstream of National Road No.9, has suffered from floods from the Río Grande four times in the last 36 years. The years are 1959, 1968, 1973 and 1986. Those floods hit Okinawa-I area. The southern stretches from this point to Pailas Bridge have had no flood overtopping problems ever reported.

(3) Río Yapacani

Along the Río Yapacani from National Road No.7 to approximately 30 km to the North,

overflow problems from the river were recorded in June 1966, November 1982, January and March 1983 in the past 30 years. However, the flood areas were limited to the low-lying areas along the river course.

In the upstream reach from the Road 7, Río Surutú have overflowed in 1983 and 1992. Part of the flood water entered into the Arroyo Tejeria and Arroyo Yapacanicito in 1992.

6. Causes of Floods

According to the answers of the questionnaire, people feel that river overflow and inadequate drainage are the two main reasons of inundation (refer to *Table C.6.1*).

Therefore, causes of floods was studied by analyzing the data of flood depth and flood water level as well as the information of the flood conditions collected by the flood survey for 1992 Floods. The causes of floods in the study area are as follows;

- 1) Inundation by the Río Piray, Río Grande or Río Yapacani
- 2) Inundation by its own basin runoff with backwater effect of the Río Piray
- 3) Inundation by its own basin runoff with inflow water from the Río Piray, Río Grande or Río Yapacani
- 4) Inundation by its own basin runoff

Fig. C.6.1 shows the division of areas in the study area corresponding to the above causes of floods. The area of 1992 Floods can be divided as follows;

- (1) Inundation Area by the Río Piray, Río Grande or Río Yapacani
 - 1) Reaches downstream from Warnes along the mainstream of the Río Piray
 - 2) Downstream reaches of the Río Grande
 - 3) Reaches along the Río Yapacani
- (2) Inundation Area by Its Own Basin Runoff with Backwater Effect of the Río Piray
 - 1) Reaches of the Río Chané
- (3) Inundation Area by Its Own Basin Runoff with Inflow Water from the Río Piray, Río Grande or Río Yapacani
 - 1) Upstream reaches from the National Road No.9, which are along the Quebrada

- Chané and Quebrada Las Chacras
 - 2) Downstream reaches from the Road 9, which are along the Río Pailón, Quebrada Chané, Quebrada Toro, Quebrada Las Maras and Quebrada Las Chacras
 - 3) Downstream area from the Road 9, which is along the Okinawa Drainage
 - 4) River basins of the Arroyo Tejeria and Arroyo Yapacanicito
- (4) Inundation Area by Its Own Basin Runoff
- 1) Upstream reaches from the Road 9, which are along the Río Pailón, Arroyo Los Sauces, Quebrada Toro, Quebrada Las Maras and others
 - 2) Río Palometillas basin
 - 3) Río Palacios basin which includes Arroyo Jochi and Tacuaral basins

7. Study on Flood Damage

7.1 General Assets

The assets in the flood hazard area are mainly composed of general assets, agricultural crops, public facilities and others. The general assets are composed of buildings and household effects and classified into residential houses, shops, factories, restaurants, schools, hospitals, churches.

(1) Distribution of General Assets in Flood Area

Based on the questionnaire survey and other information, number and kind of the general assets in potential flood area are estimated as shown in *Tables C.7.1* and *C.7.2*.

(2) Appraisals of General Assets in the Study Area

Based on the asset survey in the study area, the average appraisals of buildings and household effects of each asset at price in 1995, are given in *Table C.7.3*.

7.2 Agricultural Crops

(1) Supplemental Questionnaire Survey

Flood damage of agriculture products is evaluated by the supplemental questionnaire survey conducted between September and October, 1995. The survey was divided into two areas; the western area and eastern area. This is because these areas are much

different of agriculture which is affected by natural conditions such as soil and flood pattern.

The survey method are as follows;

- 1) As a agriculture production of annual flood, production in summer season of 1994 were surveyed.
- 2) The production in 1992, the year of the most severe flood in recent years, were surveyed as a production of flood damage.

(2) Relationship between Flood Damage and Flood Conditions

To estimate flood damage, relationship between yield and flood conditions for the crops in the study area, composed of flood depth and duration, are shown in *Fig. C.7.1* to *Fig. C.7.4*.

As shown in these figures, crop damage is more related to flood depth than flood duration in the both areas.

(3) Ratio of Agriculture Yield

Table C.7.4 to *Table C.7.5* shows the results of the supplemental questionnaire survey for the western side and eastern side. These tables contain landuse condition of these areas and agriculture yields of 1992 and 1994.

Percentage of seeding area and numbers of cattles per hectare are much smaller in 1992 than those in 1994. Furthermore, yields of crop and livestock were also much smaller in 1992 than those in 1994. Therefore, flood affected agriculture yield very much.

7.3 Assess in Potential Damage Area

Structural measures of flood control and drainage improvement are planned for Chané - Pailón and San Juan - Antofagasta by this study. Assets of Chané - Pailón and San Juan - Antofagasta is estimated. The assets are composed of buildings and agricultural crops. Method of estimation was described as follows;

(1) Number of Buildings

Numbers of the buildings were estimated by the following equation.

$$N = P \times \sum N_{i0} \times A_i/A_{i0}$$

- where, N : number of buildings of sub-project
 A_i : area of each municipality of sub-project
 N_{i0} : number of buildings in the whole area of concerned municipality of the sub-project
 A_{i0} : whole area of the concerned municipality of the sub-project
 P : proportion of the density of buildings of the sub-project to the density of buildings of the whole area of the concerned municipalities

Considering the distribution of buildings in the study area, following values were applied for P.

A. Chané - Pailón:

- | | | |
|----|-------|---|
| 1) | P=0.3 | Río Chané and Chane - Chacras |
| 2) | P=0.7 | Río Pailón, Quebrada Chané and Okinawa Drainage |

B. San Juan - Antofagasta:

- | | | |
|----|-------|--------------------------|
| 1) | P=1.0 | San Juan and Antofagasta |
|----|-------|--------------------------|

(2) Areas of Agricultural Crops

Areas of agricultural crops were measured by using the landuse map made by this study.

The results of the estimation are shown in *Table C.7.6*. Based on the *Table C.7.6*, assets in the flood area for both without and with flood mitigation and drainage improvement were estimated as shown in the "Supporting Report K: Project Evaluation".

TABLES

TABLE C.2.1 NO. OF SAMPLES IN FLOOD AREAS

Building/Facility	Total Area		Flood Free Area		Flood Area		Annual Flood Area		1992 Flood Area		Other Flood Area	
	(No.)	(%)	(No.)	(%)	(No.)	(%)	(No.)	(%)	(No.)	(%)	(No.)	(%)
1. Residence												
High Class	18	(100%)	2	(11%)	16	(89%)	7	(39%)	13	(72%)	10	(56%)
Medium Class	136	(100%)	19	(14%)	117	(86%)	49	(36%)	79	(58%)	79	(58%)
Low Class	424	(100%)	82	(19%)	342	(81%)	149	(35%)	265	(63%)	249	(59%)
2. Shop	9	(100%)	5	(56%)	4	(44%)	1	(11%)	3	(33%)	2	(22%)
3. Restaurant	5	(100%)	2	(40%)	3	(60%)	0	(0%)	1	(20%)	3	(60%)
4. School	12	(100%)	10	(83%)	2	(17%)	0	(0%)	1	(8%)	1	(8%)
5. Church	6	(100%)	6	(100%)	0	(0%)	0	(0%)	0	(0%)	0	(0%)
6. Factory	10	(100%)	1	(10%)	9	(90%)	7	(70%)	9	(90%)	5	(50%)
7. Hospital	9	(100%)	7	(78%)	2	(22%)	1	(11%)	2	(22%)	0	(0%)
8. Micro Hospital	2	(100%)	1	(50%)	1	(50%)	1	(50%)	0	(0%)	0	(0%)
9. Posta Sanitaria	3	(100%)	2	(67%)	1	(33%)	1	(33%)	1	(33%)	1	(33%)
10. Clinic	1	(100%)	0	(0%)	1	(100%)	1	(100%)	1	(100%)	0	(0%)
Total	635	(100%)	137	(22%)	498	(78%)	217	(34%)	375	(59%)	350	(55%)
					(100%)		(44%)		(75%)			(70%)

*Note: 1). Major occurrence year of floods reported in "Others" column includes 1968,1975, 1977,1983, 1985, 1990, 1991, 1993, 1994, 1995 in addition to 1992.

TABLE C.3.1 1992 FLOOD CONDITIONS

River System	Drainage Area (km ²)	Flood Area (km ²)	Flood Depth			Flood Duration			Remarks
			Max. (cm)	Min. (cm)	Ave. (cm)	Max. (day)	Min. (day)	Ave. (day)	
1. Rio Grande Upstream (South from No.9 Road)	890	532	200	10	63	30	0.2	10	Andres Ibanes Warnes
2. Rio Grande Downstream (North from No.9 Road)	358	345	200	10	93	30	1	14	Warnes Santiesteban
3. Rio Chane Upstream (South from No.9 Road)	1,575	727	140	5	45	32	1	8	Andres Ibanes Warnes
4. Rio Chane Downstream (North from No.9 Road)	696	696	150	20	63	15	0.1	5	Warnes Santiesteban
5. Rio Pirai	1,165	966	200	20	80	30	1	8	Andres Ibanes Warnes Santiesteban Sara Sara
6. Rio Palometillas	730	95	140	20	54	15	0.1	4	
7. Rio Palacios	1,285	1,017	180	20	80	20	1	4	Sara Ichilo
8. Rio Yapacani	479	479	200	10	78	20	0.4	4	Ichilo
Total	7,178	4,857	176	14	70	24	1	7	

TABLE C.4.1 ANNUAL FLOOD CONDITIONS

River System	Drainage Area (km ²)	Flood Area (km ²)	Flood Depth			Flood Duration			Remarks
			Max. (cm)	Min. (cm)	Ave. (cm)	Max. (day)	Min. (day)	Ave. (day)	
1. Rio Grande Upstream (South from No.9 Road)	890	221	100	10	39	20	0.2	7	Andres Ibanes Warnes
2. Rio Grande Downstream (North from No.9 Road)	358	259	150	10	67	15	2	9	Warnes Santiestebean
3. Rio Chanc Upstream (South from No.9 Road)	1,575	326	100	5	27	10	1	3	Andres Ibanes Warnes
4. Rio Chanc Downstream (North from No.9 Road)	696	427	80	30	50	10	3	4	Warnes Santiestebean
5. Rio Pirai	1,165	446	100	5	41	15	1	4	Andres Ibanes Warnes Santiestebean Sara
6. Rio Palometillas	730	20	100	10	42	7	0.1	3	Sara
7. Rio Palacios	1,285	463	150	4	59	15	1	3	Sara Ichilo
8. Rio Yapacani	479	291	100	10	52	10	0.1	3	Ichilo
Total	7,178	2,444	110	11	47	13	1	5	

TABLE C.6.1 CAUSES OF FLOODS

River System	No. of Samples		Causes of Floods											
	Total Area (No.)	Flood Free Area (No.)	Flood Area (No.)	Annual Flood			1992 Flood			Other Floods				
				Inadequate Drainage (No.)	River Overflow (No.)	Others (No.)	Inadequate Drainage (No.)	River Overflow (No.)	Others (No.)	Inadequate Drainage (No.)	River Overflow (No.)	Others (No.)		
1. Rio Grande Upstream (South from No.9 Road)	92 (100%)	34 (37%)	58 (63%)	11 (19%)	4 (7%)	8 (14%)	14 (24%)	18 (31%)	7 (12%)	21 (36%)	12 (21%)	6 (10%)		
2. Rio Grande Downstream (North from No.9 Road)	35 (100%)	3 (9%)	32 (91%)	2 (6%)	15 (47%)	5 (16%)	2 (6%)	27 (84%)	1 (3%)	1 (3%)	26 (81%)	1 (3%)		
3. Rio Chane Upstream (South from No.9 Road)	177 (100%)	38 (21%)	139 (79%)	33 (24%)	7 (5%)	26 (19%)	72 (52%)	22 (16%)	21 (15%)	37 (27%)	24 (17%)	21 (15%)		
4. Rio Chane Downstream (North from No.9 Road)	42 (100%)	4 (10%)	38 (90%)	2 (5%)	3 (8%)	5 (13%)	3 (8%)	30 (79%)	0 (0%)	3 (8%)	27 (71%)	1 (3%)		
5. Rio Pirai	77 (100%)	14 (18%)	63 (82%)	12 (19%)	11 (17%)	2 (3%)	27 (43%)	19 (30%)	1 (2%)	23 (37%)	23 (37%)	1 (2%)		
6. Rio Palometelas	38 (100%)	25 (28%)	63 (72%)	10 (16%)	11 (17%)	8 (13%)	10 (16%)	14 (22%)	9 (14%)	10 (16%)	31 (49%)	8 (13%)		
7. Rio Palacios	60 (100%)	12 (20%)	48 (80%)	8 (17%)	8 (17%)	4 (8%)	19 (40%)	15 (31%)	4 (8%)	12 (25%)	17 (35%)	9 (19%)		
8. Rio Yapacani	64 (100%)	7 (11%)	57 (89%)	11 (19%)	10 (18%)	1 (2%)	16 (28%)	22 (39%)	2 (4%)	15 (26%)	18 (32%)	3 (5%)		
Total	635 (100%)	137 (22%)	498 (78%)	89 (18%)	69 (14%)	59 (12%)	163 (33%)	167 (34%)	45 (9%)	122 (24%)	178 (36%)	50 (10%)		
			498 (100%)	(41%)	(32%)	(27%)	(43%)	(45%)	(12%)	(35%)	(51%)	(14%)		
			498	237 (44%)	375 (75%)	350 (70%)								

TABLE C.7.1 ASSETS IN PROVINCES/MUNICIPALS

Province	Municipio	Popu- lation (Person)	House- holds (No.)	Administ. Area (km2)	Residence			Shop (No.)	Factory (No.)	Restau- rant (No.)	School (No.)	Hospital			Clinic (No.)	Church (No.)
					High (No.)	Medium (No.)	Low (No.)					General (No.)	Micro Hospital (No.)	Posta Sanitaria (No.)		
1.Andrez de Ibanes	Cotoeca	19,631	4,255	460	(149)	(1,217)	(2,889)	(155)	(11)	(30)	(30)	(1)	(2)	(3)	(2)	(9)
	Cant. Monter Hoyos	3,719	674	255	(24)	(193)	(458)	(29)	0	8	(6)	0	0	1	0	1
2.Warnes	Warnes	38,285	8,212	2,305	1,068 13%	3,285 40%	3,860 47%	(302)	40	25	49	1	4	25	0	18
	3.Obispo Santiesteban	58,569	11,903	253	238 2%	2,381 20%	9,284 78%	1342	54	39	35	2	10	2	6	10
4.Sara	Saavedra	11,639	2,502	478	125 5%	500 20%	1,877 75%	60	0	3	26	1	0	4	0	5
	Mineros	34,452	7,445	650	372 5%	4,467 60%	2,606 35%	400	8	24	80	1	1	6	0	60
5.Ichilo	Porachuelo	11,260	2,434	570	(85)	(696)	(1,653)	(89)	(6)	(14)	(17)	(1)	(1)	(2)	(1)	(5)
	Canton Palometa	2,920	666	317	7 1%	133 20%	526 79%	16	0	4	7	0	1	3	0	4
	Santa Rosa del Sara	6,321	1,410	336	0 0%	71 5%	1340 95%	(50)	3	(4)	30	1	1	8	0	6
San Carlos	San Carlos	18,347	3,595	1,440	(72) 2%	(1,797) 50%	(1,726) 48%	(145)	24	(6)	18	1	0	7	0	(9)
	Buena Vista	10,784	2,113	114	0 0%	292 14%	1,821 86%	(85)	0	8	35	1	0	4	0	6
(Average %)					4%	29%	68%									
Total		215,927	45,209	7,178	2,139	15,031	28,038	2,674	146	165	332	9	20	65	9	134

Note: 1. Above figure is obtained by interview from Municipio Offices

2. Figure in parenthesis is estimated based on average-area-ratio of other municipio offices

TABLE C.7.2 ASSETS IN RIVER SYSTEMS

River System	Province	Municipio	Whole Area (km ²)	Partial Area (km ²)	Ratio (%)	Population (Person)	Households (No.)	Admini Area (km ²)	Residence			Shop (No.)	Factory (No.)	Restaur (No.)	School (No.)	Hospital			Clinic (No.)	Church (No.)
									High (No.)	Medium (No.)	Low (No.)					General (No.)	Micro Hospital (No.)	Posta Sanitaria (No.)		
1. Rio Grande Upstream (South from No.9 Road)	Andrez de Ibañes	Cotoca	460	234	51%	9,986	2,165	234	76	619	1,470	79	5	15	15	0	1	2	1	5
	Wames	C. Monter Hoyos	255	255	100%	3,719	674	255	24	193	458	29	0	8	6	0	0	1	0	1
	Wames	Wames	2,305	401	17%	6,660	1,429	401	186	571	671	53	7	4	9	0	1	4	0	3
	Sub-total (1)		890	890		20,366	4,267	890	235	1,383	2,599	161	12	23	29	1	2	7	1	9
2. Rio Grande Downstream (North from No.9 Road)	Wames	Wames	2,305	209	9%	3,471	745	209	97	298	350	4	2	4	0	0	0	2	0	2
	O. Santisteban	Saavedra	478	30	6%	730	157	30	8	31	118	4	0	0	2	0	0	0	0	0
	Mineros	Mineros	650	119	18%	6,307	1,363	119	68	818	477	73	1	4	15	0	1	1	0	11
	Sub-total (2)		358	358		10,509	2,265	358	173	1,137	945	104	5	7	21	0	1	4	0	13
3. Rio Chane Upstream (South from No.9 Road)	Andrez de Ibañes	Cotoca	460	173	38%	7,383	1,600	173	56	458	1,087	58	4	11	11	0	1	1	1	4
	Wames	Wames	2,305	1343	58%	22,307	4,785	1,343	622	1,914	2,249	176	23	15	29	1	2	15	0	10
	Montero	Montero	253	59	23%	13,658	2,776	59	56	555	2,165	313	13	9	8	0	2	0	1	2
	Sub-total (3)		1,575	1,575		43,348	9,161	1,575	734	2,927	5,500	548	40	35	48	1	5	16	2	16
4. Rio Chane Downstream (North from No.9 Road)	Wames	Wames	2,305	219	10%	3,637	780	219	101	312	367	29	4	2	5	0	0	2	0	2
	O. Santisteban	Saavedra	478	313	65%	7,621	1,638	313	82	328	1,229	39	0	2	17	1	0	3	0	3
	Mineros	Mineros	650	164	25%	8,693	1,878	164	94	1,127	657	101	2	6	20	0	0	2	0	15
	Sub-total (4)		696	696		19,951	4,297	696	277	1,767	2,253	169	6	10	42	1	1	7	0	20
5. Rio Pirai	Andrez de Ibañes	Cotoca	460	53	12%	2,262	490	53	17	140	333	18	1	3	3	0	0	0	0	1
	Wames	Wames	2,305	133	6%	2,209	474	133	62	190	223	17	2	1	3	0	0	0	1	0
	O. Santisteban	Montero	253	194	77%	44,911	9,127	194	183	1,825	7,119	1,029	41	30	27	2	8	2	5	8
	Mineros	Mineros	650	367	56%	19,452	4,204	367	210	2,522	1,471	226	5	14	45	1	1	3	0	34
6. Rio Palometillas	Sara	Portachuelo	570	56	10%	1,106	239	56	8	68	162	9	1	1	2	0	0	0	0	1
	Sara	Portachuelo	570	420	74%	75,318	15,718	420	520	4,982	10,215	1,327	50	53	92	3	9	10	5	48
	Santa Rosa del S	Santa Rosa del S	336	220	65%	8,297	1,793	220	63	513	1,218	66	4	10	13	0	1	1	1	4
	Canton Palometas	Canton Palometas	317	90	28%	4,139	923	90	2	46	877	33	2	3	20	1	1	5	0	4
7. Rio Palacios	Sara	Portachuelo	570	94	16%	13,265	2,906	94	65	597	2,244	103	6	14	34	1	2	8	1	9
	Ichilo	Santa Rosa del S	336	116	35%	1,857	401	94	14	115	273	15	1	2	3	0	0	0	0	1
	San Carlos	San Carlos	1,440	961	67%	12,244	2,399	961	48	1,200	1,152	97	16	4	12	1	0	3	0	2
	Buena Vista	Buena Vista	114	114	100%	10,784	2,113	114	0	292	1,821	85	0	8	35	1	0	4	0	6
8. Rio Yapacani	Ichilo	Portachuelo	1,440	479	33%	27,067	5,400	479	24	598	574	48	8	2	6	0	0	2	0	3
	San Carlos	San Carlos	479	479	100%	6,103	1,196	479	24	598	574	48	8	2	6	0	0	2	0	3
	Sub-total (8)		7178	7178		215,927	45,209	7,178	2,139	15,031	28,038	1,466	165	332	9	20	65	9	134	
	Total																			

TABLE C.7.3 AVERAGE BUILDING COSTS AND HOUSEHOLD EFFECTS

Facilities/ Building	Building			Household Effects / Others						No. of Samples (No.)	
	Floor Area (m ²)	Floor Height (m)	Const Year	Const. Cost (Bs.)	Household Effects (Bs.)	Animal (Bs.)	Equipment (Bs.)	Shop Comod. Price (Bs.)	Factory Product (Bs./year)		Sub-total Amount (Bs.)
1. Residence											
High Class	1,073	20	1,974	579,600	116,990	852,290	1,309,200	-	-	2,278,480	17
Medium Class	341	19	1,975	115,250	48,620	278,490	285,240	-	-	612,350	138
Low Class	84	16	1,975	7,090	5,620	34,190	33,420	-	-	73,230	427
2. Shop	138	26	1,971	19,600	-	-	25,360	61,500	-	86,860	9
3. Restaurant	208	20	1,976	23,000	-	-	17,080	-	-	17,080	5
4. School	420	20	1,976	78,920	-	-	13,380	-	-	13,380	12
5. Church	579	19	1,970	170,500	-	-	29,590	-	-	29,590	6
6. Factory	877	23	1,983	119,700	-	-	369,930	-	581,300	951,230	10
7. Hospital	1,458	19	1,972	1,094,000	-	-	6,873,990	-	-	6,873,990	9
8. Micro Hospital	96	18	1,991	31,500	-	-	11,880	-	-	11,880	2
9. Posta Sanitaria	57	10	1,970	18,000	-	-	3,650	-	-	3,650	3
10. Clinic	320	15	1,988	627,000	*	*	*	*	*	*	1
Total											639

Note(*): Clinic data could not be collected in the Questionnaire Survey.

TABLE C.7.4(1/2) RESULTS OF QUESTIONNAIRE SURVEY FOR FLOOD DAMAGE IN THE WESTERN AREA

(1) Land Use

Items	Annual Unit Crop	Perennia Crop	Natural Pasture	Improved Pasture	Fallow	Idle Land	Total
(Ha)	13,985	116	414	2,107	872	1,051	18,544
(%)	75.4	0.6	2.2	11.4	4.7	5.7	100

Percentage of crop production area except pasture 87.9 %

(2) 1992

Average flood duration 11.7 Day Average Depth 56.7 Cm

1) Crop Cultivation

Planted area and yield

	Soybean	Rice	Maize	Total
(Ha)	1,691	8,364	27	10,082
(%)	16.8	83.0	0.3	100
(T/Ha)	1.12	2.01	0.71	

Percentage of seeding area except pasture 72.1 %

2) Livestock

Pasture

	Natural	Improved	Total
(Ha)	426	2,075	2,501
(%)	17.0	83.0	100
Damaged area (Ha)	114	474	588
(%)	26.7	22.8	23.5

Cattle

	Beef Cattle	Dairy Cattle	Both	Total
(Head)	3,499	95	14	3,608
(%)	97.0	2.6	0.4	100
Damage (Head)	392	2	0	394
(%)	11.2	2.1	0.0	10.9

Average number of cattle per hectare 1.44 Head/Ha

TABLE C.7.4(2/2) RESULTS OF QUESTIONNAIRE SURVEY FOR FLOOD
DAMAGE IN THE WESTERN AREA

3) Poultry

	Meat	Egg	Total
Number	13,043	159,500	172,543
(%)	7.6	92.4	100.0
Damage	200	6,150	6,350
(%)	1.5	3.9	3.7

(3) 1994

Average flood duration 2.5 Days Average depth 9.7 Cm

1) Crop Cultivation

Planted area and yield

	Soybean	Rice	Maize	Total
(Ha)	1,215	10,396	15	11,626
(%)	10.5	89.4	0.1	100
(T/Ha)	1.8	3.0	3.7	

Percentage of seeding area except pasture 83.1 %

2) Livestock

Pasture

	Natural	Improved	Total
(Ha)	410	2,180	2,590
(%)	15.8	84.2	100.0
Damaged area (Ha)	0	0	0
(%)	0.0	0.0	0.0

Cattle

	Beef	Dairy	Both	Total
(Head)	5,442	174	21	5,637
(%)	96.5	3.1	0.4	100.0
Damage (Head)	4	0	0	4
(%)	0.1	0.0	0.0	0.1

Average number of cattle per hectare 2.18 Head/Ha

3) Poultry

	Meat	Egg	Total
Number	19,978	199,750	219,728
(%)	9.1	90.9	100.0
Damage	3	0	3
(%)	0.0	0.0	0.0

(4) Farmer's desire of farm activity after improving flood

Crop	Soybean	Rice	Fruits	Cotton	Sunflower	Veg.	Maize
(%)	21.7	21.7	12.6	11.9	9.8	7.7	7.0

TABLE C.7.5(1/2) RESULTS OF QUESTIONNAIRE SURVEY FOR FLOOD DAMAGE IN THE WESTERN AREA

(1) Land Use

Items	Annual Crop	Perennia Crop	Natural Pasture	Improved Pasture	Fallow	Idle Land	Total
(Ha)	13,106	17	1,233	3,039	2,437	999	20,831
(%)	62.9	0.1	5.9	14.6	11.7	4.8	100.0

Percentage of crop production area except pasture 79.2 %

(2) 1992

Average flood duration 18.1 Day Average Depth 61.3 Cm

1) Crop Cultivation

Planted area and yield

	Soybean	Rice	Sugarcane	Maize	Sorghum	Total
(Ha)	7,015	1,615	1,279	444	150	10,502
(%)	66.8	15.4	12.2	4.2	1.4	100.0
(T/Ha)	1.06	2.51	36.96	0.98	0.009	

Percentage of seeding area except pasture 80.1 %

2) Livestock

Pasture

	Natural	Improved	Total
(Ha)	1,099	2,308	3,407
(%)	32.3	67.7	
Damaged area (Ha)	91	974	1,065
(%)	8.3	42.2	31.3

Cattle

	Beef Cattle	Dairy Cattle	Both	Total
(Head)	2,499	620	66	3,185
(%)	78.5	19.5	2.1	100.0
Damage (Head)	237	40	0	277
(%)	9.5	6.5	0.0	8.7

Average number of cattle per hectare 0.93 Head/Ha

TABLE C.7.5(2/2) RESULTS OF QUESTIONNAIRE SURVEY FOR FLOOD
DAMAGE IN THE WESTERN AREA

(3) 1994

Average flood duration 3.7 Days Average depth 8.0 Cm

1) Crop Cultivation

Planted area and yield

	Soybean	Rice	Sugarcane	Maize	Sorghum	Total
(Ha)	8,246	1,496	1,424	469	365	12,000
(%)	68.7	12.5	11.9	3.9	3.0	100.0
(T/Ha)	2.4	2.7	60.2	4	2.6	

Percentage of seeding area except pasture 91.6 %

2) Livestock

Pasture

	Natural	Improved	Total
(Ha)	939	2,064	3,003
(%)	31.3	68.7	
Damaged area (Ha)	1	465	466
(%)	0.1	22.5	15.5

Cattle

	Beef	Dairy	Both	Total
	Cattle	Cattle		
(Head)	3,227	373	405	4,005
(%)	80.6	9.3	10.1	100.0
Damage (Head)	502	0	0	502
(%)	15.6	0.0	0.0	12.5

Average number of cattle per hectare 1.33 Head/Ha

(4) Farmer's desire of farm activity after improving flood

Crop	Soybean	Rice	Maize	Fruits	Wheat	Veg.	Sugar	Sorghum
(%)	18.7	14.4	14.4	14.4	7.2	6.5	5.0	5.0

TABLE C.7.6 ASSETS OF CHANE- PAILON AND SAN JUAN - ANTOFAGASTA

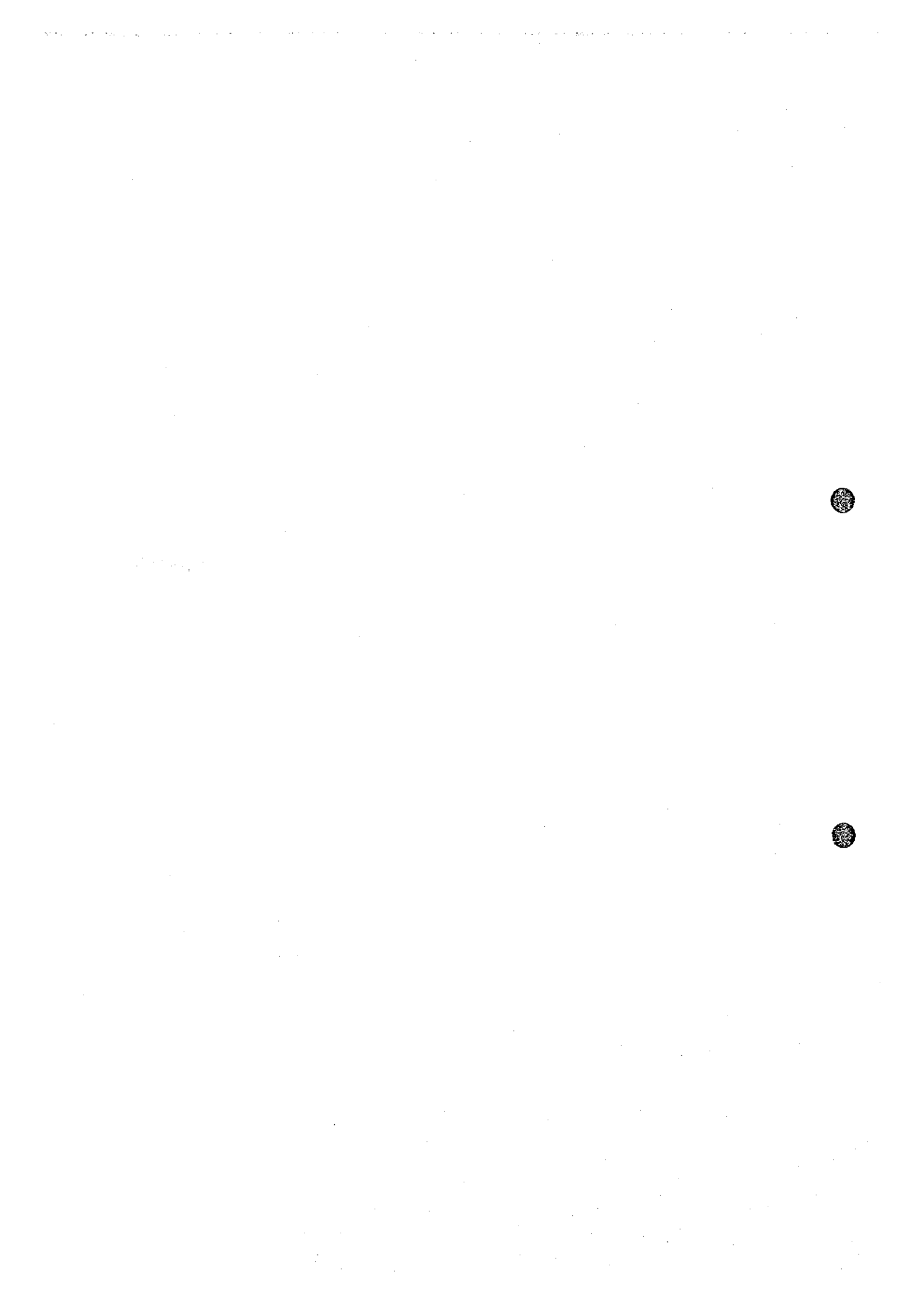
1 NUMBER OF BUILDINGS

Sub-project	Area (km ²)	Buildings (No.)											Total
		Residence			Shop	Restau- rant	School	Church	Factory	Hospital	Health Center	Total	
		High	Medium	Low									
A. CHANE - PAILON	1024.2	193	1024	1615	177	15	19	10	10	2	6	3071	
1) Rio Chane	107.4	17	203	129	18	1	4	3	0	0	0	376	
2) Rio Pailon	260.5	58	179	210	24	2	4	1	3	1	2	483	
3) Chane - Chacras	318.9	39	339	595	62	8	4	4	2	1	1	1053	
4) Quebrada Chane	159.5	39	182	538	57	2	5	1	3	1	1	830	
5) Okinawa Drainage	177.9	40	122	144	16	1	3	1	2	0	1	330	
B. SAN JUAN - ANTOFAGASTA	663.1	33	827	795	67	2	8	4	11	1	2	1752	
1) San Juan	355.1	18	443	426	36	1	4	2	6	1	2	939	
2) Antofagasta	308.0	15	384	369	31	1	4	2	5	0	0	813	

C 2 AREA OF AGRICULTURAL CROPS

Sub-project	Area (km ²)	Agricultural Crops (Ha)										Total
		Soy- beans	Rice	Sugar cane	Maize	Sorghum	Pasture		Total			
							Natural	Improv.				
A. CHANE - PAILON	1024.2	24455	4986	40156	1464	826	3637	7804	83308	83308		
1) Rio Chane	107.4	2437	497	3340	146	82	119	255	6876	6876		
2) Rio Pailon	260.5	11160	2275	2382	668	377	1249	2680	20791	20791		
3) Chane - Chacras	318.9	248	51	23166	15	8	1195	2564	27247	27247		
4) Quebrada Chane	159.5	786	160	11248	47	27	443	951	13662	13662		
5) Okinawa Drainage	177.9	9824	2003	0	588	332	631	1354	14732	14732		
B. SAN JUAN - ANTOFAGASTA	663.1	5126	33093	59	74	0	1713	8720	48785	48785		
1) San Juan	355.1	2443	15773	59	35	0	1220	6211	25741	25741		
2) Antofagasta	308.0	2683	17320	0	39	0	493	2509	23044	23044		

FIGURES



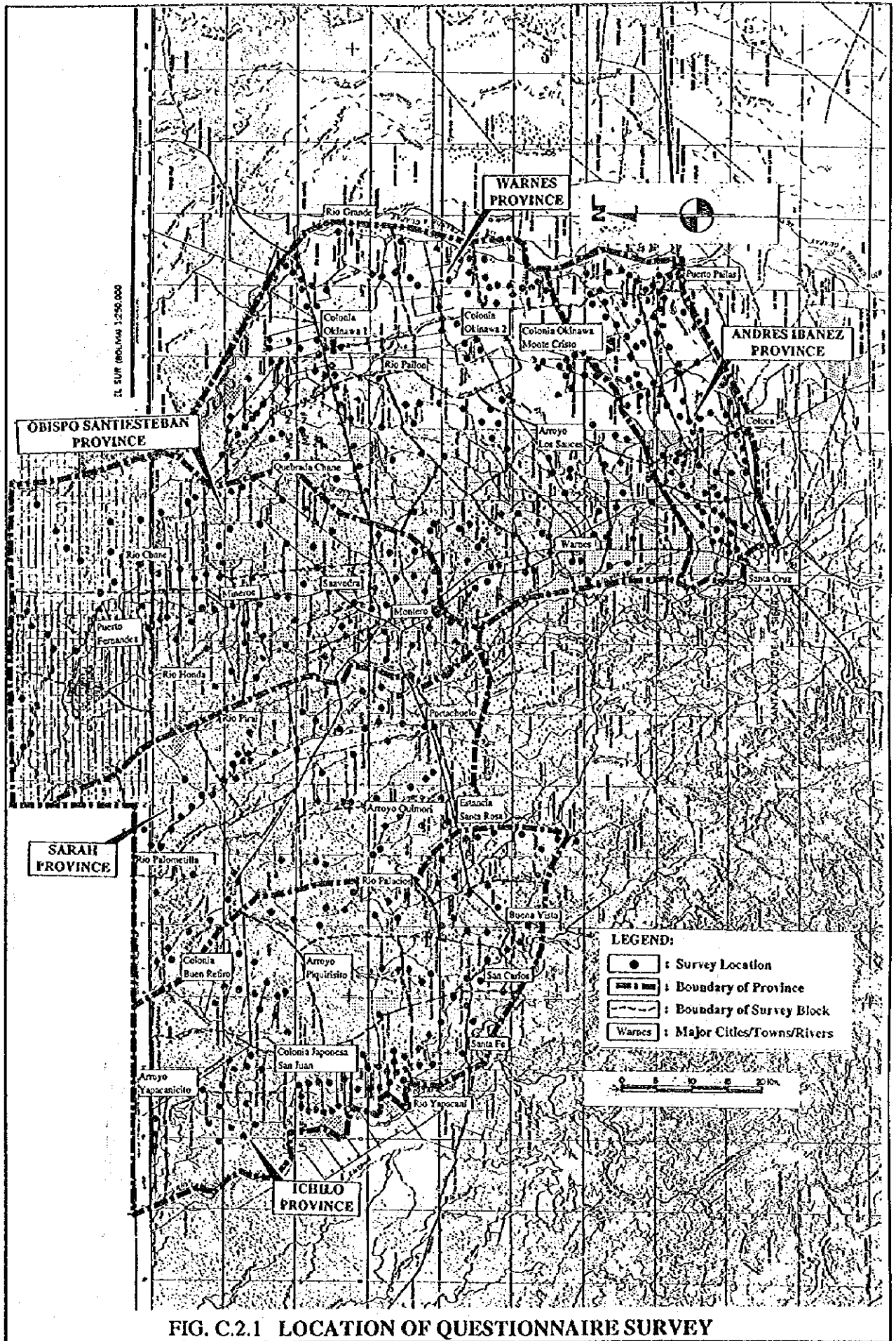


FIG. C.2.1 LOCATION OF QUESTIONNAIRE SURVEY

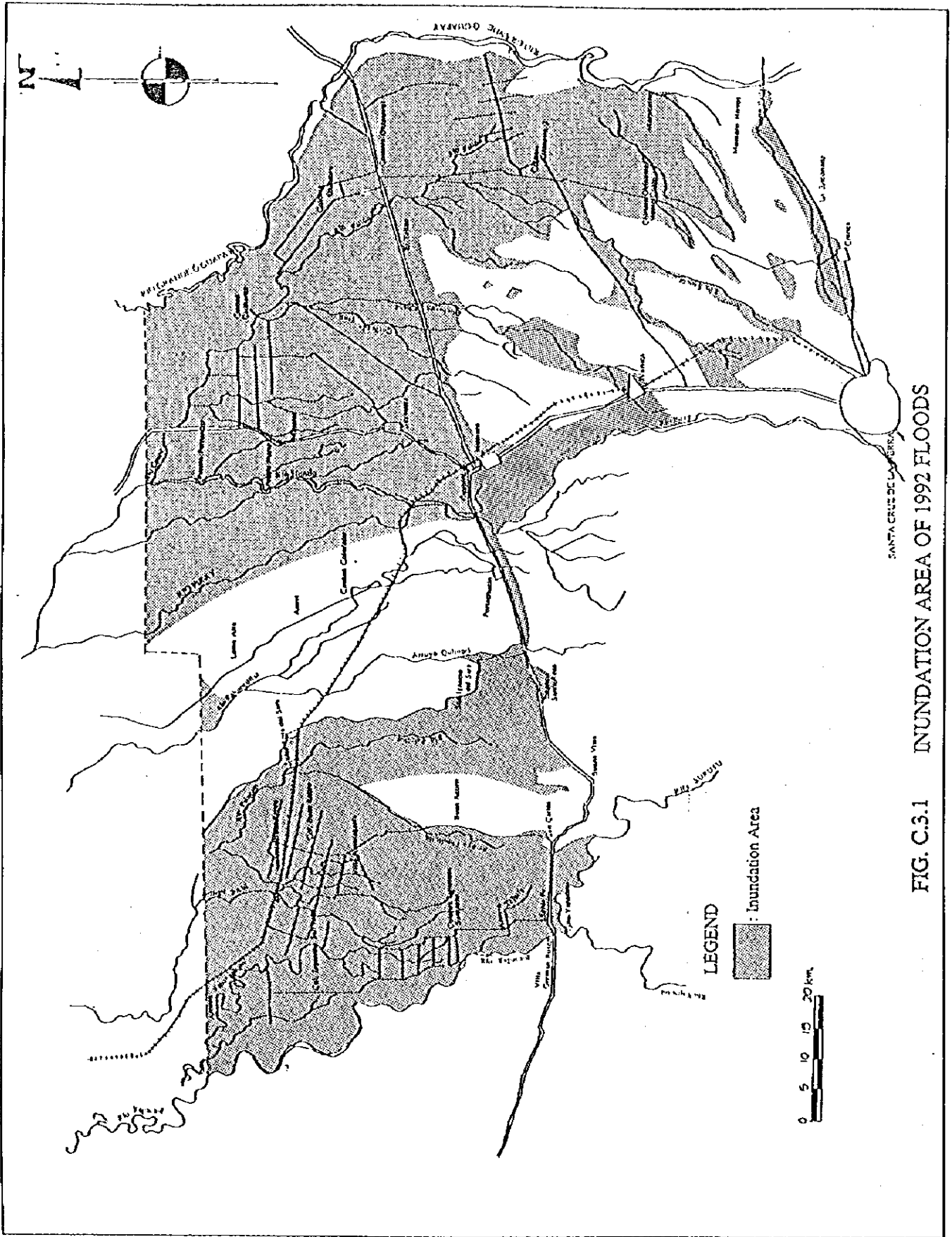
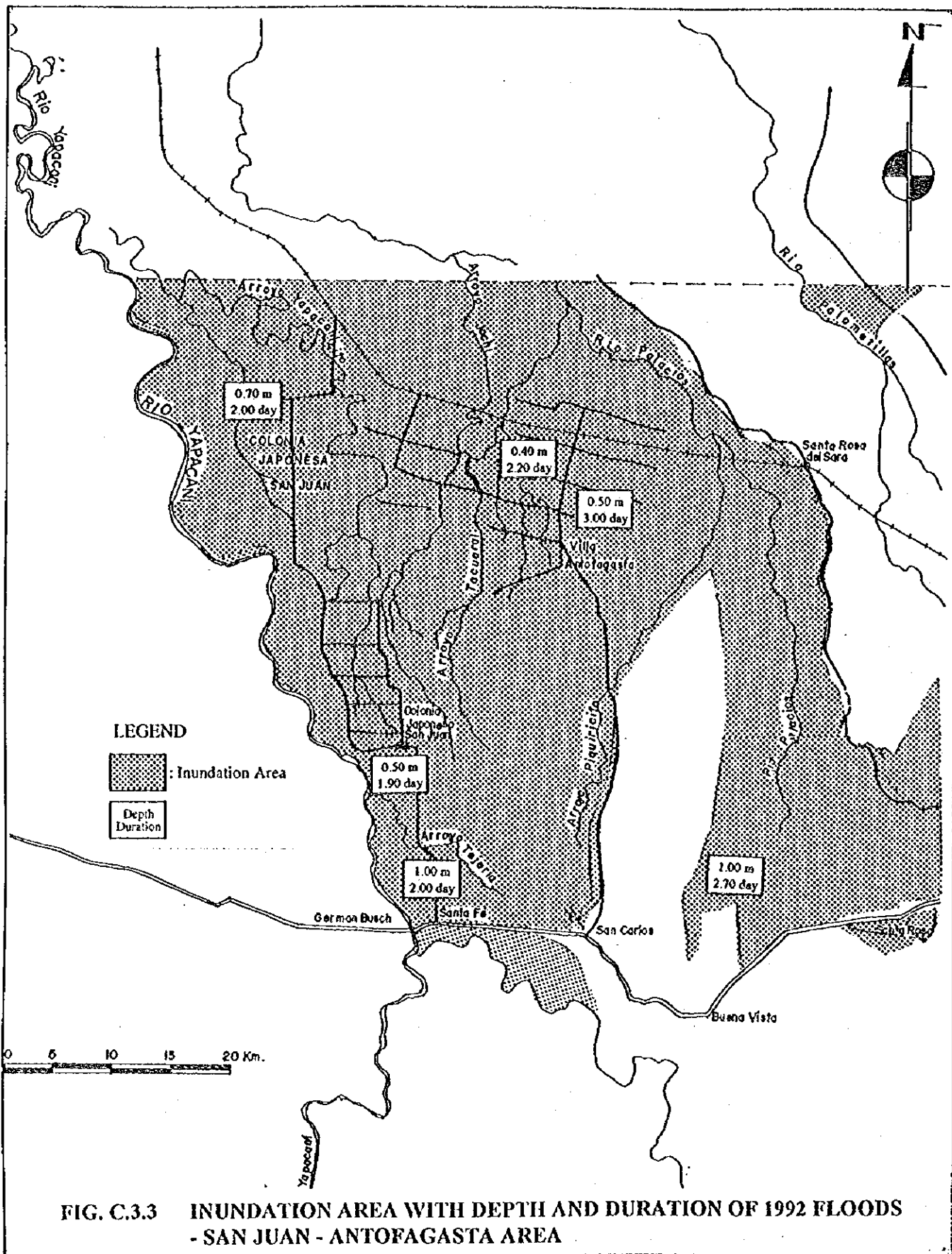
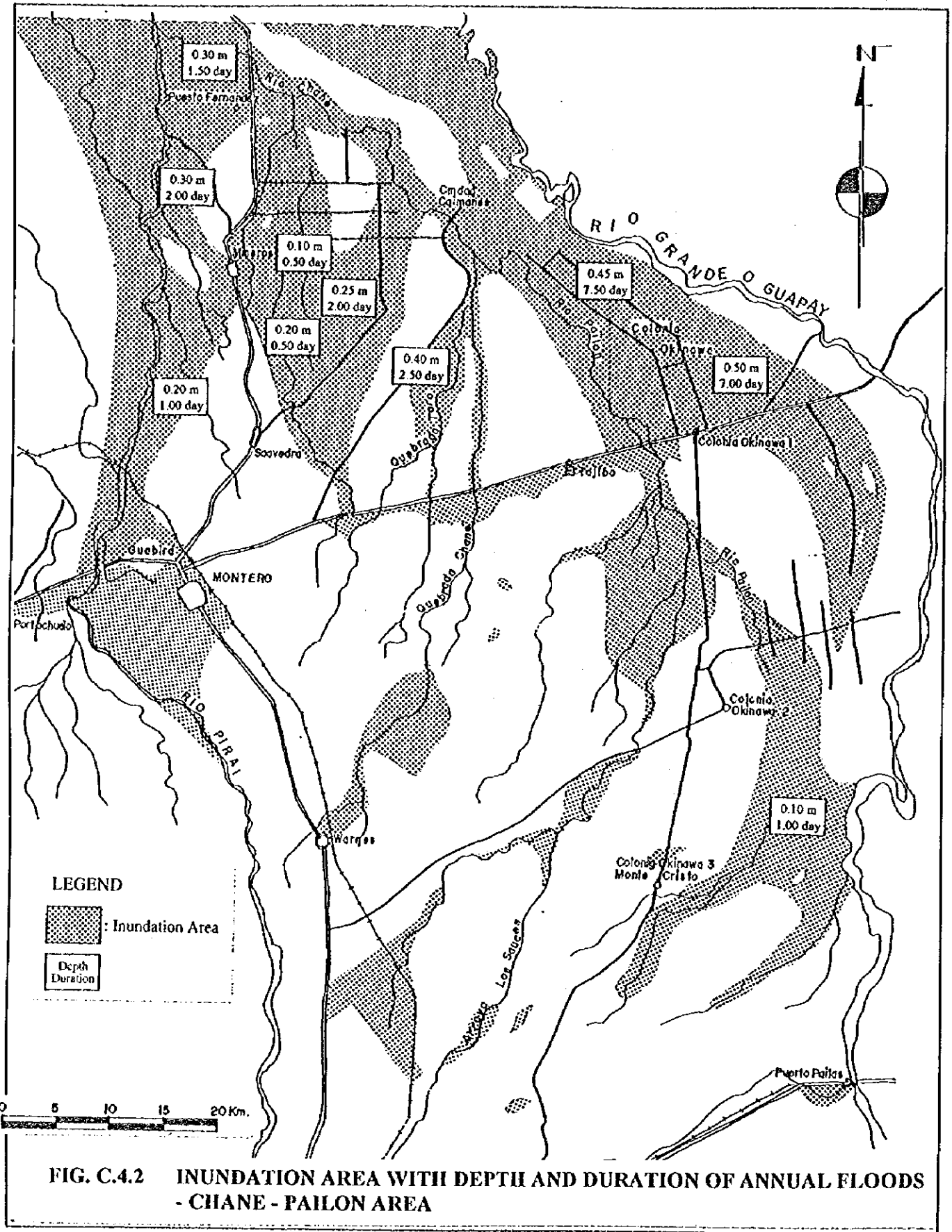
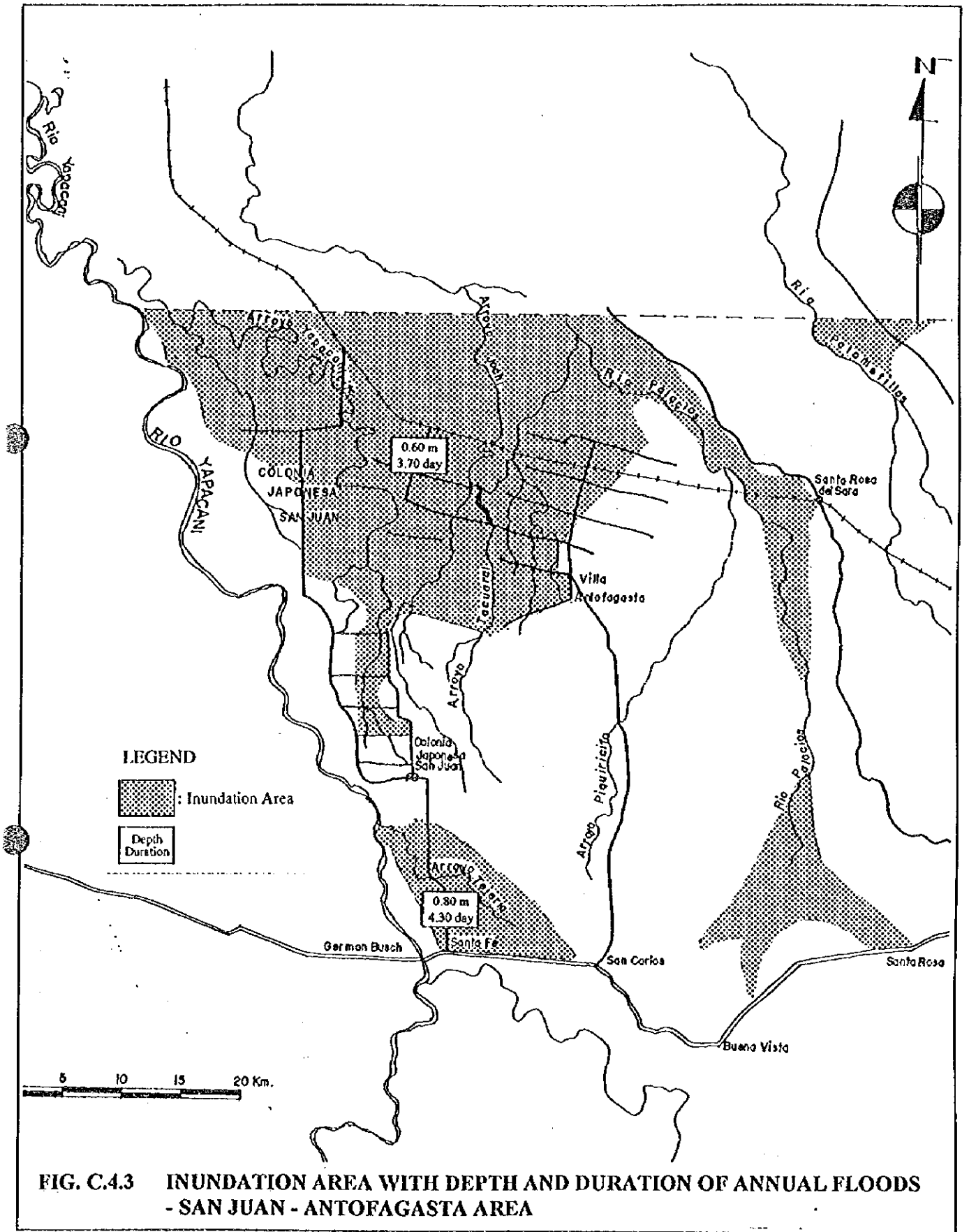


FIG. C.3.1 INUNDATION AREA OF 1992 FLOODS







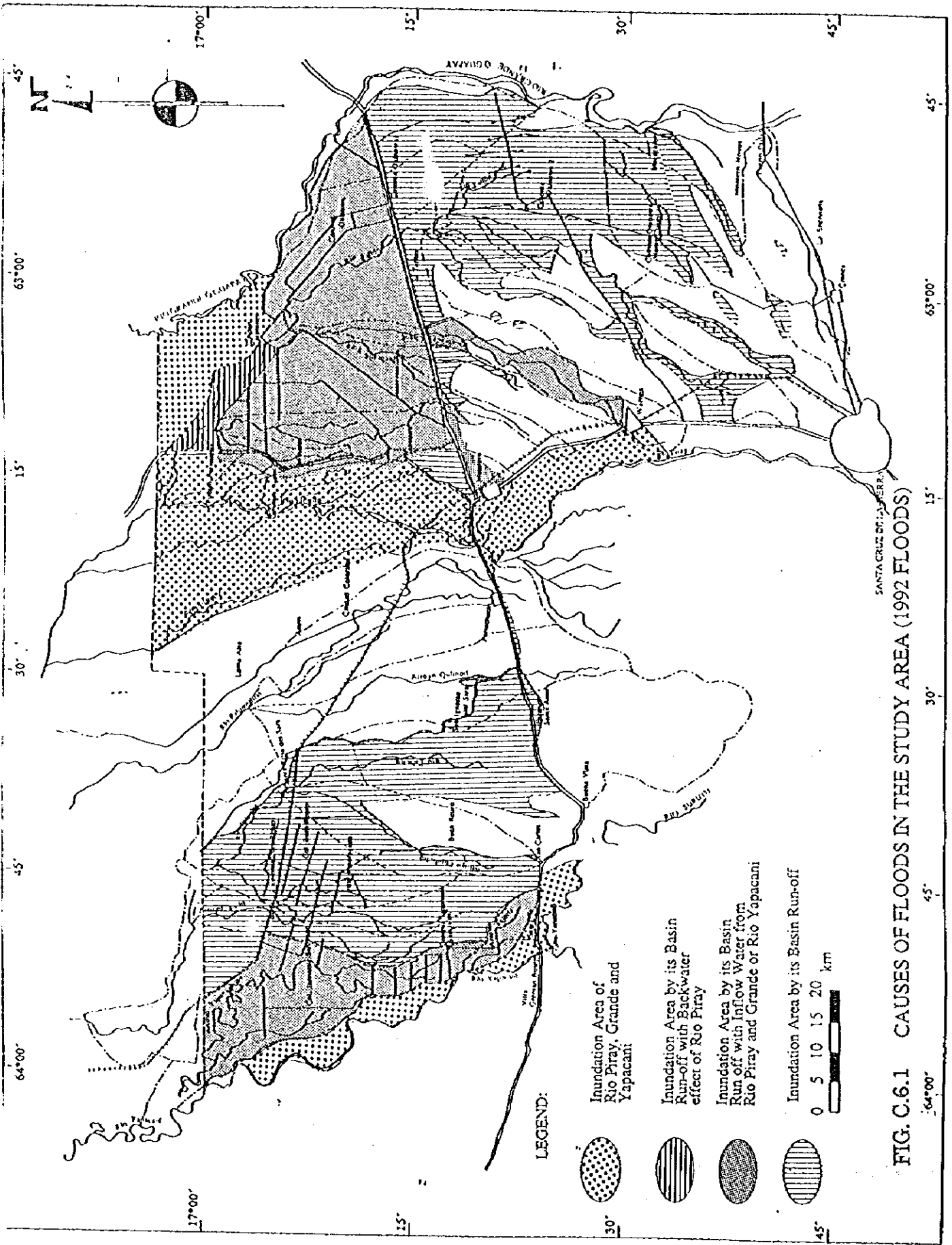
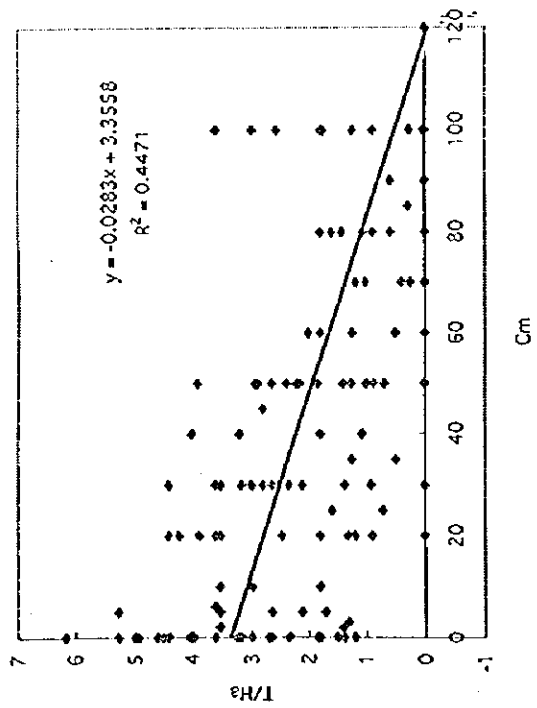
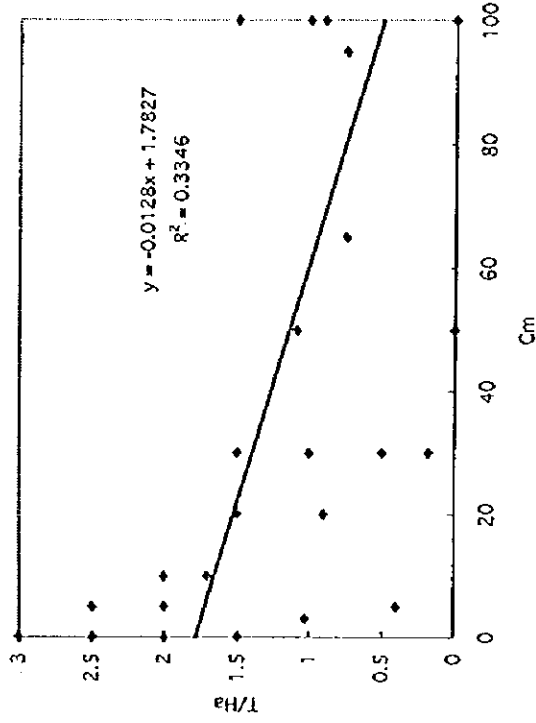


FIG. C.6.1 CAUSES OF FLOODS IN THE STUDY AREA (1992 FLOODS)



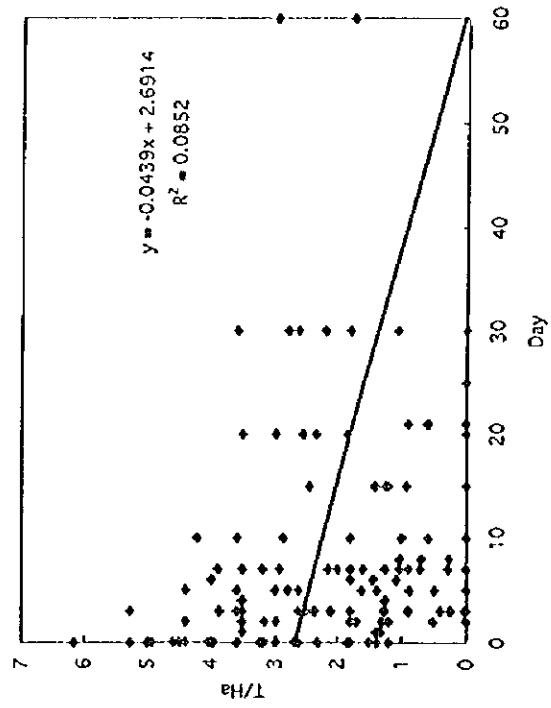
RICE

FIG. C.7.1 RELATIONSHIP BETWEEN INUNDATION DEPTH AND CROP DAMAGE IN THE WESTERN AREA



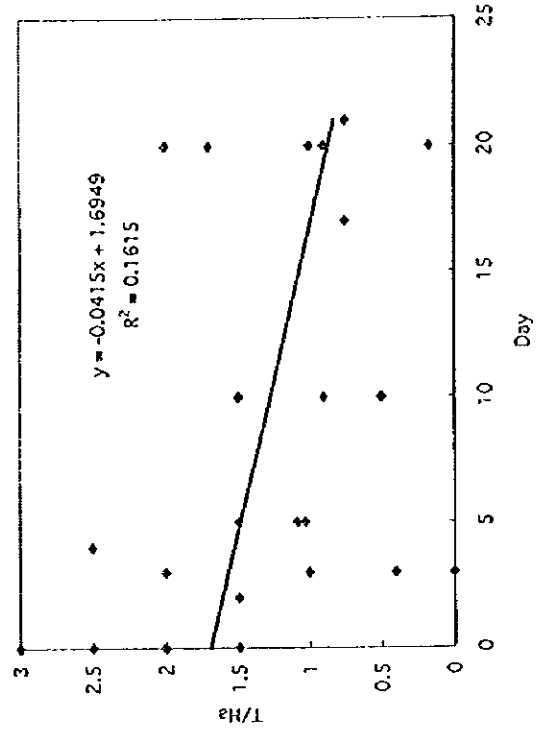
SOYBEAN

FIG. C.7.1 RELATIONSHIP BETWEEN INUNDATION DEPTH AND CROP DAMAGE IN THE WESTERN AREA



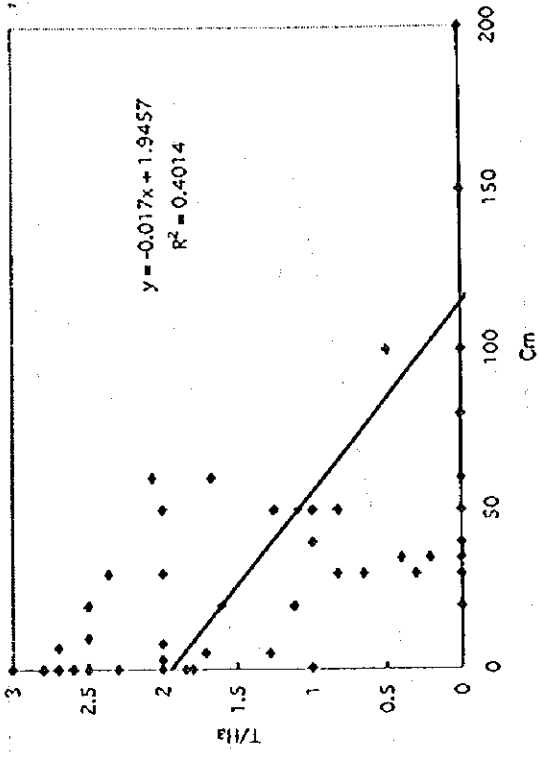
RICE

FIG. C.7.2 RELATIONSHIP BETWEEN INUNDATION DURATION AND CROP DAMAGE IN THE WESTERN AREA

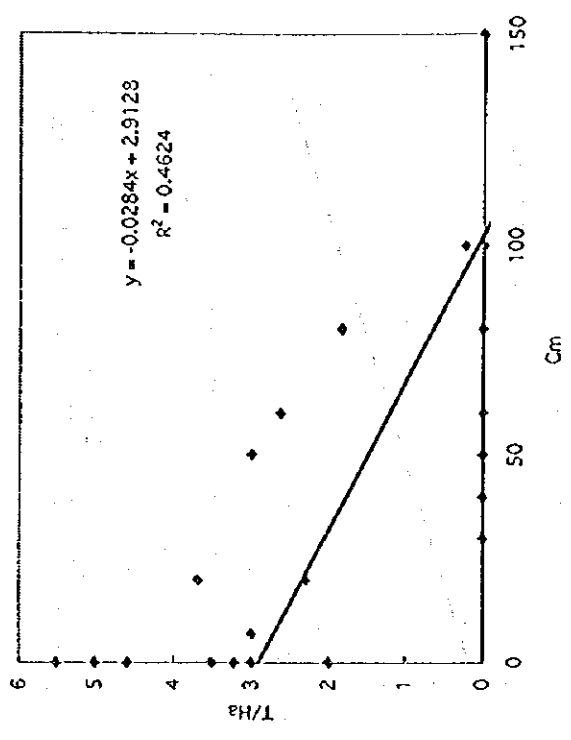


SOYBEAN

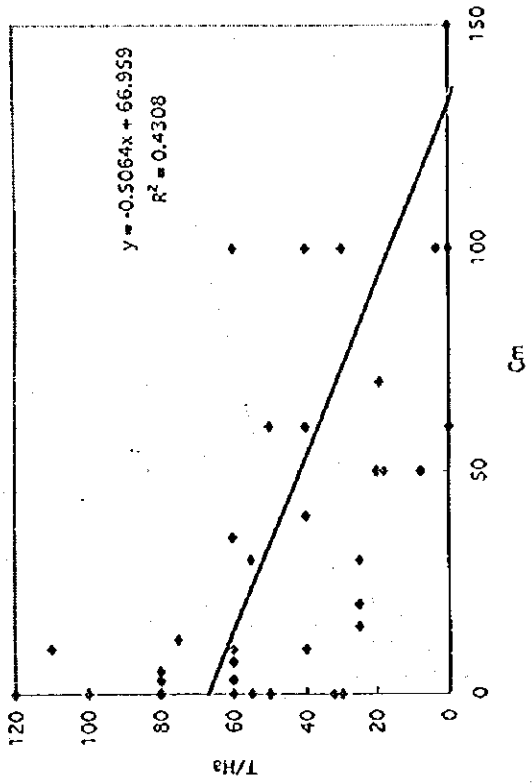
FIG. C.7.2 RELATIONSHIP BETWEEN INUNDATION DURATION AND CROP DAMAGE IN THE WESTERN AREA



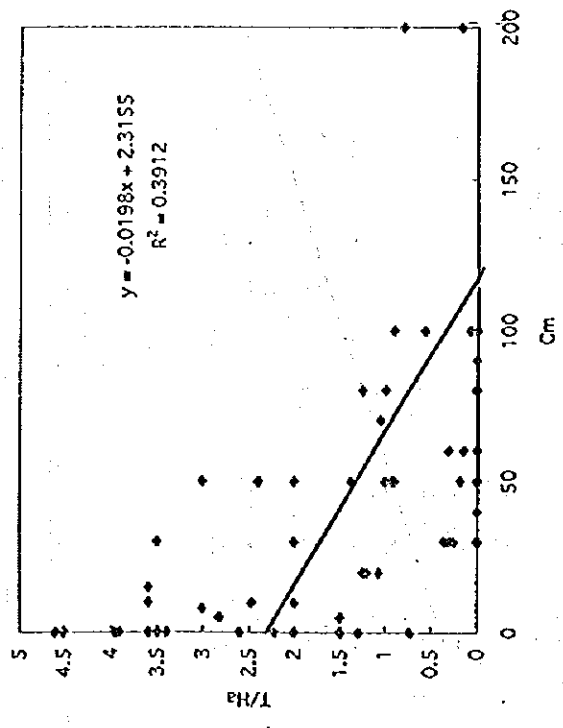
SOYBEAN



MAIZE



SUGAR CANE



RICE

FIG. C.7.3 RELATIONSHIP BETWEEN INUNDATION DEPTH AND CROP DAMAGE IN THE EASTERN AREA

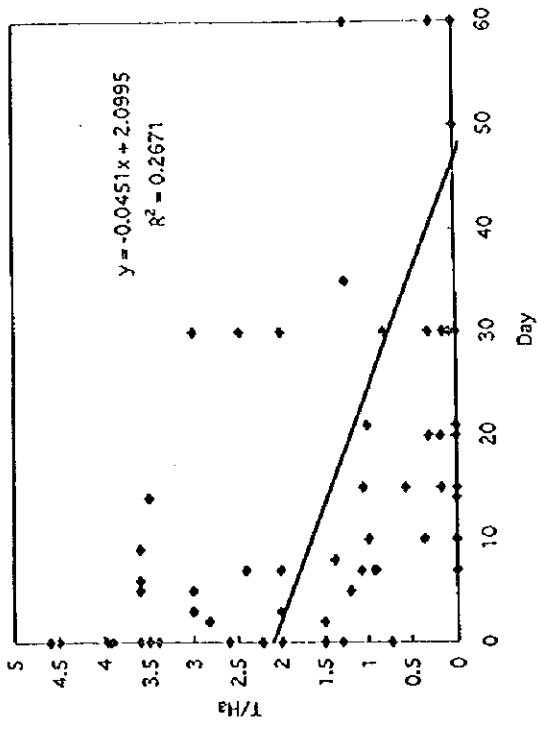
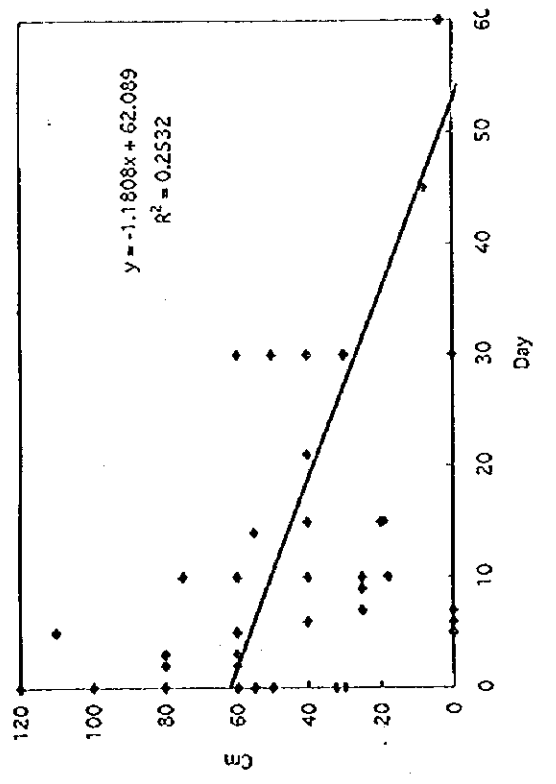
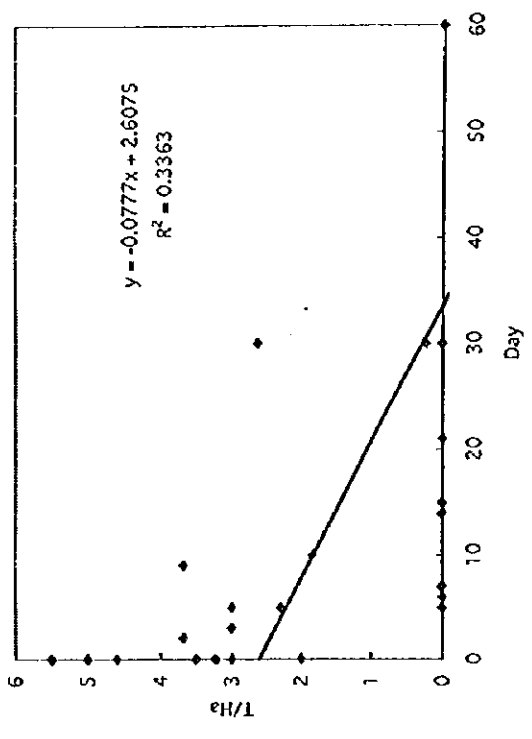
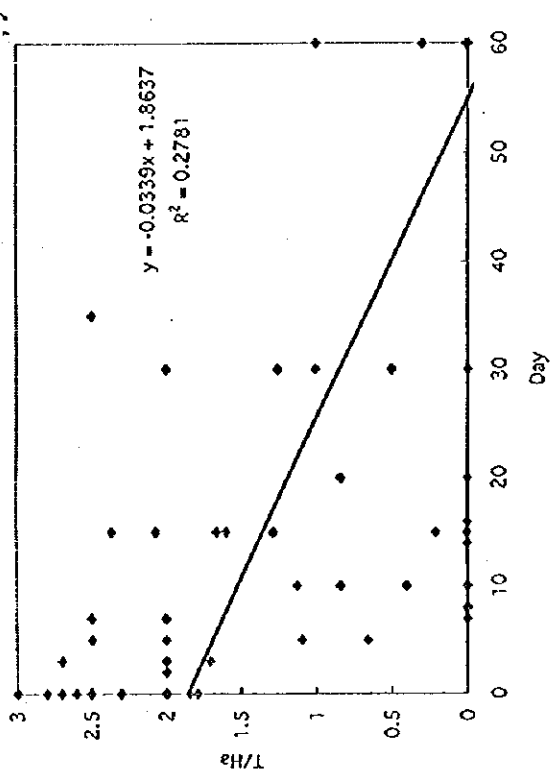


FIG. C.7.4 RELATIONSHIP BETWEEN INUNDATION DURATION AND CROP DAMAGE IN THE EASTERN AREA

SUPPORTING REPORT D
REGIONAL DEVELOPMENT

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SUPPORTING REPORT D REGIONAL DEVELOPMENT

1. General

The development of the study area was commenced by the completion of the national road from Cochabamba to Santa Cruz in 1954. Since then the population of the Department of Santa Cruz has increased rapidly by the migrants from the Altiplano and immigrants from foreign countries. The population of the Department reached 1.36 million in 1992.

The study area stands in the fertile agricultural land and has mostly been exploited by the first half of the 1980s. Currently the development in the Department has expanded to the outside of the study area, i.e., the east side of the Río Grande, the west side of Río Yapacani and the north side of the Río Chane.

The current national and regional development policies, the general development trend and the existing basic infrastructure have been studied for the study area.

2. Development Policy

2.1 National Development Policy and Plan

(1) Sustainable Development

The Republic of Bolivia has made "A New Policy for the National Development" with a slogan of Sustainable Development. According to the new policy, sustainable development is explained as follows:

"The sustainable development seeks to improve the living standards of all the Bolivians, through a productive change, which require a rational utilization of the human, natural, physical and financial resources, and the institutional and cultural assets, without endangering the fulfillment of needs of the future generation and within the nature's capacity and in a context of social equity and governability."

The sustainable development concept is supported by the following principals:

- a. Economic Growth,
- b. Social Equity,
- c. Rational Use of Natural Resources,
- d. Strengthen the Governability.

Under the new policy, the major items in the New Policy are as follows:

- a. Constitutional Reform,
- b. Reform of the Executives,
- c. Capitalization Program,
- d. Popular Participation Project,
- e. Reform of Education.

Among the above, the Popular Participation Project is aiming decentralization of the administrative authority and responsibility of the State to the local communities. Under this project, the local and municipal governments will be strengthened and play a more important role on the regional development under the guidelines of the State Government.

(2) National Development Plan

The PGDES (General Plan for Social and Economic Development) has been formulated by the Ministry of Sustainable Development and Environment in order to achieve the sustainable development. The objectives and policies of the PGDES are described as follows:

1) Improvement of the existing conditions of the international trade

In order to increase the trade amount of traditional products and to confront the international trade market, it is necessary to improve the existing conditions of the international trade. The elimination of the existing obstacles of the international trade, especially related to the institutional restrictions and the problems in physical infrastructure, is a key measure in this field.

- a. The improvement of transportation infrastructure will be one of the top priority projects, which will create the export lanes, connecting the productive areas of La Paz - Cochabamba - Santa Cruz to the neighboring countries such as Peru, Chile, Brazil, Paraguay and Argentine. The construction of secondary roads will feed the main national and regional road networks which are acting as domestic production lanes.
- b. The improvement of the international airport and the waterway, 'Paraguay - Parana', are also important for encouraging the international trade.

- c. The interconnection of oil and gas distribution networks will be strongly supported as well as the hydroelectric potential to attempt to convert Bolivia into a regional center for energy distribution in the South America.
- d. The government also makes effort on elimination of various restrictions on import and export activities through the institutional and legal reform, and improving the Bolivia's position on the bilateral and multi-lateral agreements such as the Andean Pact, ALADI, MERCOSUR and supporting for various commercial agreements both public and private sectors.

2) Improvement of Production System

By improving the production system, the production should be increased at a competitive level in the international market. In the first stage, export amount should be increased by the exploitation of natural resources, considering "sustainable development", and then some productive transformation should be required in order to improve the production system.

3) Human Development

In order to optimize the social investment, it should be necessary to improve the basic and technical education, the health care and the housing conditions.

4) Rational Use of Natural Resources and Preservation of the Environment

The country is blessed with abundant natural resources. The rationale use of the natural resources and the preservation of the environment are key issues in order to achieve the sustainable development.

5) Rural and Agricultural Developments

An optimum development method for the rural and agricultural areas is also a key issue for attaining the sustainable development. The rural development will improve the productive capacities of the small producers, and enhance their possibilities to the market. This will reflect the increment of their incomes and satisfy the basic needs of the rural inhabitants.

2.2 Regional Development Policy (CORDECRUZ)

(1) Development Plan of the Department of Santa Cruz

The PDSCD (Development Plan of Santa Cruz Department: 10 year period) was formulated under the national policies and the guidelines of the PGDES (Republic's General Plan of Economical and Social Development) in June 1995.

(2) Development Potentials

The development potentials of the Department of Santa Cruz are summarized as follows:

- a. There are significant potential areas for commercial, agriculture, cattle raising, forest reserves, water resources and tourist spots.
- b. The geographical location of the Department has an advantage in its relationship with the future international corridors for transportation; *Export Lanes*, connecting the Pacific and the Atlantic, and connecting the Amazon basin to the Rfo de la Plata basin. The Department has an international airport and natural gas distribution centers. It means that the Department has significant development potentials for exportation.
- c. The region has adequate supplies of electricity, natural gas, potable water, fundamental road networks, important technical services, commercial and banking services, especially in the city of Santa Cruz to support the production.

Besides the region has an important role to support the dynamic national development in the following areas.

(3) Roles of the Department of Santa Cruz

- a. To contribute to supply for the domestic market with consumption goods, raw materials, intermediate goods, and energy resources.
- b. To be the main region for non-traditional products of the country, at medium term.
- c. To contribute to absorb the demographic increase from the backward regions of the country through the generation of employment opportunities.

(4) PLUS (Land Use Plan of the Department of Santa Cruz)

The CORDECRUZ prepared a land use plan for the Department (PLUS) in 1995 for the target year of 2005 (Fig. D.2.1). The land use plan is composed of the followings:

Land Use	Area (1,000 km ²)	Share (%)
Intensive use for agriculture & cattle raising	29.6	8
Limited use for agriculture & cattle raising	14.8	4
Extensive use for cattle raising	111.0	30
Forests	118.4	32
Protection / conservation	95.5	25
Others	3.7	1

Source: CORDECRUZ

1) Agricultural Potential

The study area has been developed since the 1950s as shown in Fig.D.2.2. The arable land (44,400 km² or 12% of the Department), is located in Chaco-Benian Plain, including the study area, the eastern and northern parts of the study area. The current cultivated area, not including cultivated pasture, is reaching 800 km². The potential area for irrigation in future is located in the Río Grande - Abapo - Izozog zone which covers an area of 2,000 km². (See Fig.D.2.3)

The CAO (Agricultural and Cattle Raising Chamber of the Orient) has set up the goals for the major agricultural products. The goals and the existing production areas in the Department and the study area are shown as follows:

- a. Soybeans: 10,000 km² (2,500 km² in the Department, and 900 km² in the study area at present),
- b. Wheat: 1,500 km² (540 km² in the Department and 100 km² in the study area at present)
- c. Sunflower: 1,160 km² (600 km² in the Department, and 80 km² in the study area at present)
- d. Cotton: 500 km² (200 km² in the Department and 50 km² in the study area at present)

2) Livestock (cattle raising) Potential

According to the PLUS, 30% of the Department is mapped out for cattle raising. The major parts of that are located in the south-east and in the east of Santa Cruz as shown in *Fig. D.2.4*.

3) Forest Potential

The forest area of the Department is the largest in the country. About 70% of the Department is covered by forests. The proposed protection area is 118,400 km² that is 32% of the Department. The location map of the forest potential areas is shown in *Fig. D.2.5*.

However, the current actual forest reserve areas cover only around 55,000 km². In 1992, 119 companies had forest concessions of 149,000 km² in total.

Besides the above, there is a vast abandoned area that had been once developed for agriculture and cattle raising purposes, but abandoned. The abandoned area requires to be recovered by reforestation.

4) Biological Diversity

Zoning from the biological aspects is also proposed in the PLUS as follows:

- a. Zone-1: The area has a very high ecological value and requires to prohibit any human activity because of its fragile ecosystem (11.6% of the Department area),
- b. Zone-2: The area has a high ecological value and requires to restrict the usage. The area should be utilized in a sustainable way such as forest in order to preserve the ecosystem (39.7%),
- c. Zone-3: The area has some ecological value and require to take careful attention for the use of the area, because the ecosystem is likely to be disturbed by development activities such as agricultural purposes (33.9%),
- d. Zone-4: The area has a low ecological value and requires a balanced development (14.8%).

The study area mostly belongs to the Zone-4 except the areas along the rivers. The total protection area is 93,250 km² that covers around 25 % of the Department. The protection areas with a high ecological value are located outside the study as shown in *Fig. D.2.6*.

(5) Goals and Objectives

The Department of Santa Cruz is to take an important role to achieve the goals of the national economic growth. The key issue is to accelerate the exports of regional products, which include a vast amount of natural resources.

The main sectors to promote the regional economic growth at a short and mid term are listed as follows:

- a. Mining (Precambrian mining),
- b. Hydrocarbon (butane exploitation potential),
- c. Agriculture/livestock and agroindustry,
- d. Wood industry,
- e. Services related to foreign commerce and in transit trade,
- f. Manufacturing industry in general,
- g. Tourism.

(6) Development Policies

The Development policies for the Department of Santa Cruz are as follows:

1) Dominant and Multi-sector Policies

a. Development of export lanes

This policy is the most feasible choice at short term economic development for export of both regional and national products, creating the international export lanes that link Arica (Chile) - Ilo (Peru) ports to La Paz, Oruro, Cochabamba, Santa Cruz and Puerto Quijarro - Puerto Busch (access to Brazil, Paraguay and Argentine). The export lanes are shown in *Fig.D.2.7*.

About 90% of the agricultural potential areas, the most potential mining areas, industrial and population centers are located along the export lanes.

The study area is located at the central part of the lane which is connecting Yapacani -

Montero - Warnes - Santa Cruz - Cotoca - Pailon. The lane will give a large impact to the study area by developing the industries. By development of the export lanes, the opportunities will increase for foreign and domestic investments to the productive sectors, especially to the non-traditional export sectors.

b. Development of intermediate cities

The intermediate cities along the lanes such as Montero and Warnes are important to support the lane development. The major functions to be developed are summarized as follows:

Montero

- To support the metropolitan area of Santa Cruz,
- To develop a production center of industrial/livestock,
- To promote the industrial park project,
- To execute technical and commercial services for supporting agriculture/livestock and agroindustrial development in the northern part of the Department including wholesale and stock-marketing,
- To execute social services such as health, education and culture, for the surrounding areas.

Warnes

- To promote the industrial park project,
- To develop an inter modal loading terminal
- To execute supporting services for the international airport (air-front industry).

2) Specific Policies for Priority Sectors

a. Transportation

- To establish the minimum indispensable access for export,
- To complete the road through Yapacani - Montero - Santa Cruz - Puerto Suarez, railway and gas pipeline,
- To strengthen the institution for road maintenance,
- To establish minimum networks at secondary and tertiary levels,
- To improve the existing road conditions.

b. Agriculture

- To encourage technology development through research, extension and organizational improvement,
- To execute disease control for agriculture and livestock,
- To improve the secondary road networks,
- To provide various measures to get credit more easy, especially for small and mid-scale producers,
- To clarify land ownership and to provide arable land for landless producers,
- To control smuggling and dumping,
- To improve human capability and technical transformation through the governmental supporting services.

c. Forestry

- To promote deforestation of the concession,
- To promote afforestation of the deteriorated and abandoned areas.

d. Industry

- To modernize and development of technology,
- To provide incentives to the investors such as tax free for the capital,
- To provide various measures to get credit more easy,
- To improve human capability and technical transformation through the governmental supporting services,
- To encourage participation to the international fairs,
- To control smuggling,
- To promote small-scale industries and handicrafts.

e. Hydrocarbon

- To increase the liquid gas mining for domestic consumption,
- To complete the gas pipeline from Santa Cruz to Brazil.

f. Mining

- To investigate and develop the mining potential areas,
- To strengthen the governmental support to the mining enterprises,
- To conserve the natural resources in the mining areas,

- To conserve the native people in the areas,
- To provide infrastructure in the areas.

2.3 Interpretation of the Regional Development Policy on the Study Area

The followings are the interpretation of the regional development policy on the study area.

- 1) The study area is already exploited and used for agriculture, livestock and others. There is no vacant land for further expansion.
- 2) The basic infrastructures such as fundamental road, electricity, water supply, urban development of the city of Santa Cruz and factories are prepared at a fundamental level. The further investment required is to upgrade and to expand the existing fundamental infrastructure, including development of the secondary road networks, expansion of the industrial areas, especially for acceleration of the non-traditional export, and development of the secondary cities of Montero, Warnes, etc., in order to cope with the production increase and the population increase both in and outside of the study area.

3. Population and Settlement

3.1 Urban and Rural Development

(1) The City of Santa Cruz

The city of Santa Cruz has developed rapidly since the 1950s and it become the second largest city in the country. The number of the population of the city in the past are shown as follows;

Year	Population	Rate of increase(%)
1900	15,874	-
1950	41,461	1.99
1976	254,682	7.23
1992	697,272	6.50

The municipality of the city of Santa Cruz has prepared "The City Development Master Plan" in 1993. According to the Master Plan, the population of the city of Santa Cruz will become 1.7 millions (by low forecast) to 2.1 millions (by high forecast) in the year of 2010.

Accordingly the city boundary of Santa Cruz will be expanded from 5,631 ha in 1992 to 62,500 ha in 2010. The future city area proposed by the Master Plan is shown in *Fig.D.3.1.*

The city of Santa Cruz is partly drained to the Río Chané basin and partly to Río Pirai and Río Grande. The future expansion of the urban area of Santa Cruz will affect the runoff of those basins, Especially the Río Chané basin, because the urban area is located in the upper reach.

(2) The Other Cities in the Study Area

1) Urban areas and the municipalities

There are twelve (12) urban areas that have more than 2,000 of population within the study area, except Santa Cruz city. Among them, the city of Montero is the largest with a population of 57,027, followed by the city of Mineros with 11,181 and the city of Warnes with 10,855 in 1992. The total urban population is 119,177 in 1992, as shown in *Table D.3.1.* There are eight (8) municipalities that were established by the new law of popular participation. In addition to the above municipalities, Santa Fe de Yapacani and Okinawa I are scheduled to be new municipalities.

2) Future Expansion of the City Areas

The acreage of each urban area is estimated based on the municipal map, the past trend and the population forecast for both existing and the year of 2010 as follows:

Municipality	Existing city area (ha)	Future city area (ha)	Remarks
1. Montero	1,150*	2,500*	based on the municipality plan
2. Mineros	280	600	50p/ha for existing
3. Warnes	220	550	2.5 times of existing area
4. Portachuelo	200	500	50p/ha and 2.5 times
5. Cotoca	189*	530*	based on the municipality plan
6. San Carlos	80	160	40p/ha and 2.0 times
7. Santa Rosa	80	160	40p/ha and 2.0 times
8. Saavedra	70	140	40p/ha and 2.0 times

Note; * areas are calculated by the study team by using the municipality plans and maps .

(3) Major Colonies in the Study Area

There are five (5) major colonies in the study area as shown in *Fig. D.3.2*. They are:

- a. Okinawa (Japanese): Soybeans, cattle raising
- b. San Juan (Japanese): Soybeans, poultry, fruits
- c. Puesto Fernandez (National): Sugar cane
- d. Aroma (National): Sugar cane
- e. Antofagasta (National): Rice

These colonies were established from the 1950s to the 1960s due to the Bolivian government policy of developing the lowland.

Those areas play an important role for the productions of soybeans, rice, livestock and sugar cane in the study area as follows:

- a. Soybeans: 68,000 tons (25%)
- b. Rice: 35,000 tons (25%)
- c. Sugar cane: 70,000 tons (25%)
- d. Population: 9,500 persons (25%)
- e. Area: 1,334 ha (19%)
- f. Roads: 15 km of asphalt (36%), 573 km of gravel (42%) and 36% of the length of the secondary roads in the study area.

Note: (%) shows the share of 5 colonies in the study area.

The detail information on the colonies of Okinawa, San Juan and Antofagasta is shown in *Table D.3.2*.

(4) Development of New Colonies in the Surroundings

Several large colonies have been developed mostly in the eastern region of the study area beyond the Río Grande since the 1970s. They have been developed as the national and Mennonite colonies as shown in *Fig. D.3.3*.

The following areas are located next to the study area and depend on the factories such as rice mill, soybean's factory, sugar mill and/or markets in the study area.

1) Enconada-Ayacucho Area

10,850 ha of rice fields that corresponds around 10 % to the total rice fields in the study

area, around 10,000 ha of soybeans, having 1,278 rural population, 273 families and most of them are small farmers. There is some conflict of encroaching on the Chore Forest Reserve.

2) Chane-Pirai Area

There is 40,000 ha of soybeans that corresponds around 45 % to the total soybeans' fields in the study area and 10,000 ha of rice fields, 800 ha of wheat and 60 ha of sunflower. Total population is 11,320 persons including the populated areas of San Pedro (2,416), Hardeman (290), San Jose del Norte (693), Col. San Juan del Piray (382), Murillo (367) and Litoral (530).

3.2 Future Population

The population of the study area is tentatively assumed based on the followings and shown in *Tables D.3.1, D.3.3 and D.3.4*.

- a. The population of the city of Santa Cruz in 2010 is estimated as 2.1 millions (high forecast) and 1.7 millions (low forecast) by the Municipality.
- b. The number of the rural population will keep it as 1992 Census until 2010.
- c. The number of the urban population will increase according to its past trend (1976-1992)

4. Basic Infrastructures

4.1 Existing Conditions of Transportation Facilities

(1) Road

There is 46,311 km of road in Bolivia, of which 7,576 km (16.4%) is the fundamental road, 5,956 km (12.9%) is the complement and 46,311 km (70.7%) is the district road. As for the surface condition, the share of the paved road is account for only 4.2% of the total length of the road. The road improvement is one of the most important development issues in the national and regional development plans. According to the traffic volume of the fundamental road (*Fig. D.4.1*) shows an important role of the road in the study area.

The Government of Bolivia promotes a strategic policy to create a new national and international economic corridor connecting the Atlantic zone (Brazil, Argentine and Paraguay toward the European market) to the Pacific zone (Peru and Chile toward the