APÉNDICE G

RIEGO Y DRENAJE

ANEXO G
RIEGO Y DRENAJE

[LISTA DE CUADROS]

[LISTA DE FIGURAS]

Cuadro 1

CALCULO ETO (PENMAN MODIFICADO)

Calculation of Evapotranspiration by Modified Penman Method

PROYECTO : Tempisque
ALTITUD : 11 (m)
LATITUD : 10.5 (°) 0 (Norte = 0 , Sur = 1)
LONGITUD: 85.5 (°)

Item	unidad	Ene.	Feb.	Mar.	Abr.	May	Jun.	Jul.	Ago.	Sep.	Oct.	Nov.	Dic.
T min.	°C	20.3	20.6	21.3	22.3	22.6	22.6	22.3	22.1	22.0	21.9	21.0	20.3
T max.	°C	34.1	35.1	36.3	36.8	35.0	32.5	32.6	32.7	32.2	31.9	32.1	32.9
T medio	°C	27.1	27.9	28.9	29.6	28.9	27.5	27.5	27.3	27.1	26.9	26.7	26.7
ea	mbar	36.3	38.2	40.6	42.4	40.6	37.3	37.1	36.8	36.2	35.8	35.3	35.5
RHmedio	%	69.5	66.2	65.7	68.4	80.5	87.1	82.8	86.2	89.7	88.9	84.3	78.8
ed	mbar	25.2	25.3	26.7	29.0	32.7	32.5	30.7	31.7	32.5	31.8	29.8	28.0
ea-ed	mbar	11.1	12.9	13.9	13.4	7.9	4.8	6.4	5.1	3.7	4.0	5.5	7.5
U	Km/dias	209	214	202	192	146	118	139	139	115	115	144	190
U2	Km/dias	282	288	272	259	198	159	188	188	156	156	194	256
f(u)		1.03	1.05	1.00	0.97	0.80	0.70	0.78	0.78	0.69	0.69	0.79	0.96
(1-W)		0.24	0.23	0.23	0.22	0.23	0.23	0.24	0.24	0.24	0.24	0.24	0.24
W		0.76	0.77	0.77	0.78	0.77	0.77	0.76	0.76	0.76	0.76	0.76	0.76
Ra	mm/dias	13.10	14.19	15.29	15.70	15.51	15.31	15.31	15.50	15.30	14.69	13.59	12.88
n	hrs.	8.7	8.9	8.4	8	6.1	4.9	5.8	5.8	4.8	4.8	6	7.9
N	hrs.	11.6	11.8	12.0	12.3	12.6	12.7	12.6	12.4	12.1	11.8	11.6	11.5
n/N		0.75	0.75	0.70	0.65	0.48	0.39	0.46	0.47	0.40	0.41	0.52	0.69
(0.25+0.5·n/N)		0.63	0.63	0.60	0.58	0.49	0.44	0.48	0.48	0.45	0.45	0.51	0.59
Rs	mm/dias	8.19	8.90	9.18	9.03	7.63	6.78	7.35	7.50	6.86	6.66	6.91	7.65
Rns		6.14	6.67	6.88	6.77	5.72	5.09	5.51	5.63	5.14	4.99	5.18	5.73
f(T)		16.09	16.27	16.49	16.66	16.49	16.18	16.17	16.14	16.08	16.03	15.99	16.00
f(ed)		0.12	0.12	0.11	0.10	0.09	0.09	0.10	0.09	0.09	0.09	0.10	0.11
f(n/N)		0.78	0.78	0.73	0.69	0.54	0.45	0.51	0.52	0.46	0.47	0.57	0.72
Rnl		1.48	1.50	1.36	1.18	0.78	0.65	0.80	0.77	0.66	0.69	0.90	1.23
Rn		4.66	5.17	5.52	5.60	4.94	4.44	4.71	4.85	4.49	4.31	4.28	4.50
RHm · (est.)	%	76	73	72	75	89	96	91	95	99	98	93	87
Udias (est.)	m/seg	2.9	3.0	2.8	2.7	2.0	1.6	1.9	1.9	1.6	1.6	2.0	2.6
Unoche (est.)	m/seg	1.9	2.0	1.9	1.8	1.4	1.1	1.3	1.3	1.1	1.1	1.3	1.8
Udias/Unoche (est.)		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
c		1.00	1.01	0.93	0.94	1.04	1.05	1.05	1.06	1.06	1.06	1.03	1.02
ETo	mm/dias	6.27	7.18	6.92	6.80	5.49	4.41	4.98	4.91	4.29	4.15	4.46	5.26
ETo	mm/mes	195	201	215	204	170	132	155	152	129	129	134	163

Cuadro-2 Preciptacion en Veranillo(Julio～Agosto)

Estacion: Had. Tempisque Unidad:mm

mes	JULIO						AGOSTO					
dia	1～5	6～10	11～15	16～20	21～25	26～31	1～5	6～10	11～15	16～20	21～25	26～31
1970	24.0	10.0	70.0	57.7	14.5	98.0	53.5	8.5	70.0	8.2	7.0	120.0
1971	0.0	3.0	1.0	14.5	86.5	52.5	58.0	16.0	0.5	108.0	80.0	87.0
1972	1.5	5.0	11.5	30.0	54.0	36.0	0.0	0.0	61.5	4.0	58.5	47.5
1973	11.5	0.0	1.5	8.0	62.5	42.0	23.0	25.0	55.0	8.0	149.5	246.0
1974	16.0	0.0	28.0	35.5	12.0	11.5	3.0	3.0	149.0	0.0	30.0	67.0
1975	33.5	34.5	2.0	4.5	28.0	0.0	34.5	6.5	15.0	97.0	4.0	55.5
1976	123.5	10.0	0.0	25.5	0.0	0.5	13.0	0.0	0.0	0.0	1.0	42.5
1977	28.5	1.0	0.0	4.0	0.3	12.5	1.0	73.5	0.0	8.9	79.0	2.2
1978	48.0	29.0	89.0	24.0	1.5	0.5	10.5	68.0	2.0	0.3	18.5	123.5
1979	52.0	5.0	23.5	13.0	17.0	21.0	34.0	0.3	5.5	38.0	74.5	124.7
1980	0.0	1.0	11.0	4.2	72.0	42.5	61.5	32.0	70.0	46.0	0.0	81.5
1981	78.0	17.7	54.1	0.3	34.5	1.2	1.0	9.4	106.7	36.7	93.7	86.1
1982	6.3	0.0	2.6	1.8	3.4	9.7	5.5	0.0	0.0	5.0	0.0	0.0
1983	28.5	67.6	0.6	10.9	22.2	0.4	13.6	45.5	0.0	53.5	3.2	105.2
1984	134.5	48.7	2.5	0.0	35.2	62.9	4.1	20.9	21.3	39.2	24.3	79.3
1985	1.4	13.0	20.5	25.5	68.3	29.3	67.7	17.3	4.5	1.4	30.0	90.5
1986	22.7	0.0	25.7	0.5	0.0	0.0	0.0	0.0	35.8	5.8	47.1	5.1
1987	19.0	0.7	39.2	47.4	41.1	81.7	13.4	2.9	3.4	2.0	0.0	25.5
1988	40.7	9.8	26.2	49.8	5.3	17.8	71.9	146.6	64.7	8.2	123.4	102.8
1989	5.9	6.6	0.0	0.0	15.1	67.2	27.2	1.3	63.3	26.9	6.7	56.0
1990	26.1	10.3	30.0	35.1	5.3	16.9	27.8	0.0	34.4	2.8	12.3	52.8
1991	34.9	6.0	0.0	21.5	0.0	0.0	89.5	39.6	0.6	0.0	35.5	24.7
1992	60.3	3.9	62.8	33.5	6.4	103.5	2.2	22.4	57.5	55.5	0.0	0.0
1993	12.8	19.2	1.2	3.0	9.4	0.2	10.2	23.9	139.8	84.4	59.5	51.2
1994	20.0	0.0	1.0	8.5	7.3	36.1	5.1	91.4	8.1	48.0	5.8	83.8
1995	20.0	0.0	1.0	8.5	8.3	30.4	126.4	50.1	114.2	54.1	81.8	119.0
1996	10.6	35.2	6.6	60.0	90.5	100.5	0.0	40.3	4.0	0.0	49.3	139.2
1997	0.0	0.0	2.0	2.0	0.0	30.2	0.0	0.0	50.1	0.0	0.0	70.9
1998	18.2	47.0	60.0	18.4	8.2	21.8	6.4	33.0	0.0	10.8	131.2	27.6
1999	128.4	14.3	109.8	10.4	0.0	0.0	146.9	87.5	53.1	29.4	159.9	122.4
Promedio	33.6	13.3	22.8	18.6	23.6	30.9	30.4	28.8	39.7	26.1	45.5	74.7
Diario de Prome.	6.7	2.7	4.6	3.7	4.7	5.1	6.1	5.8	7.9	5.2	9.1	12.4

Cuadro-3

Caudal de Rio Tempisque

Puente de Guardia(74-19-01)
Areas de drenaje: 955 km2

Caudal Minimo Promedio

Unidad: m3/s

ano	May	Jun	Jul	Ago	Set	Oct	Nov	Dic	Ene	Feb	Mar	Abr	mes de min.
1979-80					Reinicio	52.10	33.20	22.90	14.90	11.20	8.99	7.86	Abr
1980-81	7.59	12.10	15.50	12.90	18.50	34.10	28.50	18.00	13.10	10.70	8.17	7.33	〃
1981-82	12.50	39.20	28.40	28.00	31.80	27.70	25.50	18.50	15.20	11.60	8.99	8.20	〃
1982-83	8.49	28.00	19.40	19.20	15.60	24.20	13.50	11.40	11.20	8.55	7.42	6.22	〃
1983-84	5.69	7.33	8.79	9.06	10.50	13.20	13.80	9.69	9.09	7.33	5.75	5.16	〃
1984-85	4.24	7.33	9.00	13.90	17.20	26.10	16.30	14.80	11.90	10.90	7.36	6.36	May
1985-86	6.22	7.91	10.30	11.70	13.20	14.60	18.00	14.20	11.50	8.37	6.77	5.77	Abr
1986-87	5.34	17.70	16.40	14.60	17.40	19.40	13.30	14.20	9.09	7.30	5.70	5.27	〃
1987-88	5.47	7.33	7.37	11.60	11.00	11.90	10.60	8.81	9.49	7.05	4.65	3.21	〃
1988-89	3.92	11.80	13.90	15.80	63.30	37.90	21.50	21.10	14.90	11.60	7.68	5.90	May
1989-90	5.69	7.05	8.20	10.30	11.60	15.60	14.20	9.69	8.49	5.95	4.16	3.22	Abr
1990-91	2.99	5.69	6.22	8.79	8.49	11.10	14.90	11.60	7.62	5.95	3.92	2.56	〃
1991-92	2.55	5.16	9.39	9.87	9.69	15.20	10.80	10.90	7.35	5.42	4.80	4.64	May
1992-93	3.62	5.48	7.25	10.40	12.00	11.20	9.14	8.67	8.45	5.34	4.13	3.96	〃
Caudal prom.	5.72	12.47	12.32	13.55	18.48	22.45	17.37	13.89	10.88	8.38	6.32	5.40	
Caudal mini.	2.55	5.16	6.22	8.79	8.49	11.10	9.14	8.67	7.35	5.34	3.92	2.56	

Caudal Promedio Mensual

Unidad: m3/s

ano	May	Jun	Jul	Ago	Set	Oct	Nov	Dic	Ene	Feb	Mar	Abr	Promedio
1979-80					Reinicio	89.20	69.40	29.90	18.50	12.90	10.00	8.47	
1980-81	13.00	22.40	23.40	18.70	46.80	92.80	67.80	25.70	16.20	12.20	9.33	8.12	29.70
1981-82	24.20	106.00	42.40	57.20	87.30	49.30	52.00	25.10	18.10	13.10	10.00	8.59	41.11
1982-83	98.90	80.70	28.90	22.20	24.30	39.70	17.40	12.30	14.40	9.82	7.98	6.88	30.29
1983-84	5.86	11.50	11.60	10.50	16.10	31.30	19.50	11.90	10.70	9.42	6.34	5.39	12.55
1984-85	6.47	12.00	29.50	23.70	105.00	58.40	26.00	17.70	14.30	11.60	9.01	6.92	26.72
1985-86	7.82	12.00	15.00	18.20	17.00	59.00	61.80	15.70	13.30	9.94	7.60	6.16	20.29
1986-87	30.70	101.00	21.00	19.40	25.70	39.50	16.10	20.20	10.70	8.12	6.44	5.41	25.36
1987-88	8.07	9.05	13.90	19.20	16.70	23.10	12.80	11.70	12.00	9.73	5.87	4.21	12.19
1988-89	7.54	36.40	23.00	120.00	185.00	97.20	33.40	24.30	20.70	13.30	9.54	6.52	48.08
1989-90	8.08	9.27	11.00	14.30	33.30	28.60	17.80	12.60	10.90	7.73	5.30	4.09	13.58
1990-91	6.21	8.69	10.20	13.70	13.00	49.90	33.90	15.20	10.30	7.19	4.99	3.12	14.70
1991-92	7.34	11.30	14.50	13.90	18.00	27.30	12.50	13.40	9.83	6.77	4.97	4.72	12.04
1992-93	4.83	10.50	11.70	17.30	27.90	21.10	10.80	15.20	12.70	6.88	4.77	4.36	12.34
Caudal prom.	17.62	33.14	19.70	28.33	47.39	50.46	32.23	17.92	13.76	9.91	7.30	5.93	23.00

Fuente: Instituto Costarricense de Electricidad(ICE),1995

Cuadro-4

Rebosadero (en La Presa MIGUEL DENGO)

Unidad:m3/s

ano	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Set	Oct	Nov	Dic	promedio
1983	39.3	53.6	52.9	59.6	47.1	34.7	31.7	38.0	35.9	28.0	29.1	47.0	41.4
1984	47.6	65.8	54.3	67.5	52.8	24.4	27.7	31.7	30.4	41.2	33.8	29.6	42.2
1985	44.8	49.1	51.9	57.5	59.4	43.3	32.7	29.7	32.7	29.5	30.6	41.3	41.9
1986	45.0	58.4	52.8	53.1	50.8	42.3	33.3	34.9	29.1	27.5	45.9	56.6	44.1
1987	63.6	69.0	76.2	65.3	51.6	35.0	37.4	18.7	25.4	14.5	24.5	37.8	43.2
1988	44.9	42.6	54.7	63.6	52.9	32.0	26.7	17.8	23.2	14.8	21.0	34.4	34.9
1989	54.3	55.8	53.4	63.9	58.8	39.6	37.2	31.6	22.5	23.0	40.5	36.1	43.1
1990	49.8	75.3	69.2	77.1	58.5	44.9	40.7	34.5	36.2	29.6	28.4	27.3	47.6
1991	58.5	52.4	71.8	69.0	58.6	46.2	50.8	42.7	40.9	31.3	34.0	43.2	49.8
1992	64.0	69.1	72.4	72.2	55.1	50.2	48.3	43.2	25.6	24.5	41.0	45.7	50.9
1993	54.1	54.7	59.7	59.7	43.3	36.9	38.1	47.6	37.1	43.9	65.2	63.6	50.3
1994	64.9	73.0	73.2	63.6	45.8	42.6	40.3	32.9	36.0	28.8	28.4	29.4	46.6
1995	58.6	59.8	62.3	52.9	44.7	35.2	35.9	34.2	28.8	27.7	36.1	44.6	43.4
1996	30.8	25.5	43.6	54.4	42.2	45.5	31.3	31.2	25.4	30.9	26.5	22.0	34.1
1997	46.5	54.2	61.0	76.3	56.0	43.1	45.4	58.5	55.1	39.4	41.1	46.3	51.9
1998	63.9	80.8	76.5	83.6	71.9	41.6	25.5	31.3	31.9	30.8	27.1	18.7	48.6
Promedio	51.913	58.694	61.619	64.956	53.094	39.844	36.438	34.906	32.263	29.088	34.575	38.975	44.63

Fuente:Instituto Costarricense de Electricidad(ICE)

Cuadro-5 Concesion de Aprovechamiento de Agua en el rio Tempisque

Unidad:l/s

tramo	No.	Usarios	Expe.	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SET	OCT	NOV	DIC
La Cueva ～Guardia	1	La Tranquera de Jiron	2933	50	50	50	50	50	50	50	50	50	50	50	50
	2	Rancho San Rafael S.A		600	600	600	600	0	0	0	0	0	0	600	600
	3	Granos del Pacifico	4858	160	160	160	0	160	160	160	160	160	160	160	160
	4	Inversiones Goda	2227	150	150	150	0	0	0	0	0	0	0	0	150
	5	Inversiones Rio Orinoco	2095	225	225	225	225	225	0	0	0	0	0	0	0
	6	Las Trancas	1961	100	100	100	100	100	100	100	100	100	100	100	100
	7	Agro. Federico Apestequi s.	4394	45	45	45	45	0	0	0	0	0	0	0	45
	8	Juanita M. Angulo	5228	220	220	220	220	0	0	0	0	0	0	0	220
		sub-total		1,550	1,550	1,550	1,240	535	310	310	310	310	310	910	1,325
Pte. Guardia		RIO TEMPISQUE(en Guardia)	Ave.	16,800	12,120	9,020	7,610	14,720	30,830	21,510	26,730	48,180	63,070	43,280	22,270
			1/5 NE	10,940	7,890	5,870	4,950	9,040	18,930	13,210	16,420	29,590	38,730	28,170	14,490
			1/10NE	9,420	6,790	5,050	4,260	7,190	15,060	10,510	13,060	23,530	30,800	24,250	12,480
Pte. Guardia ～Guinea	9	Ganadera Monte Claro	5104	60	60	60	0	0	0	0	0	0	0	60	60
	10	Los Chicones	5145	80	80	80	0	0	0	0	0	0	0	80	80
	11	Bragg Edgecombe Michael	2393	25	25	25	25	25	25	25	25	25	25	25	25
	12	CATSA(P1)	5156	700	700	350	350	700	700	700	700	700	700	700	700
	13	CATSA(P2)	2316	3500	3500	3000	3000	0	0	0	0	0	0	0	3500
	14	CATSA(P3)	4844	400	400	400	0	400	400	400	400	400	400	400	400
	15	Had. Tempisque(P1)	5558	250	250	250	250	250	250	250	250	250	250	250	250
	16	Had. Tempisque(P2)	4695	750	750	0	0	750	750	750	750	750	750	750	750
	17	Edgar Espinoza Canton	4849	50	50	50	0	0	0	0	0	0	0	50	50
	18	Had. Birmania del Tempisque	5554	450	450	0	0	450	450	450	450	450	450	450	450
	19	Cheves y Aguilar	5176	35	35	35	0	0	0	0	0	0	0	35	35
	20	El Genizaro	1584	200	200	200	200	200	200	200	200	200	200	200	200
	21	Agropecuaria Zapandi	2010	50	50	50	50	50	10	10	10	10	100	10	50
	22	Canera Moralito	5854	60	60	60	0	60	60	60	60	60	60	60	60
	23	Agropecuaria Raga	6416	60	60	60	0	60	60	60	60	60	60	60	60
	24	Agricola la Ceiba	1232	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
	25	Azucarera el Viejo	1234	568	568	568	568	568	0	0	0	0	0	0	568
	26	Had. Rio Seco	1443	800	800	800	800	0	0	0	0	0	0	0	800
		sub-total		9,488	9,488	7,438	6,693	4,963	4,355	4,355	4,355	4,355	4,445	4,580	9,488
Abajo de Guinea		Caudal del Rio Tempisque	Ave.	7,312	2,632	1,582	917	9,757	26,475	17,155	22,375	43,825	58,625	38,700	12,782
			1/5 NE	1,452	-1,598	-1,568	-1,743	4,077	14,575	8,855	12,065	25,235	34,285	23,590	5,002
			1/10NE	-68	-2,698	-2,388	-2,433	2,227	10,705	6,155	8,705	19,175	26,355	19,670	2,992

Cuadro-6 Caudales restituidos del Rio Piedras en el sitio de la presa

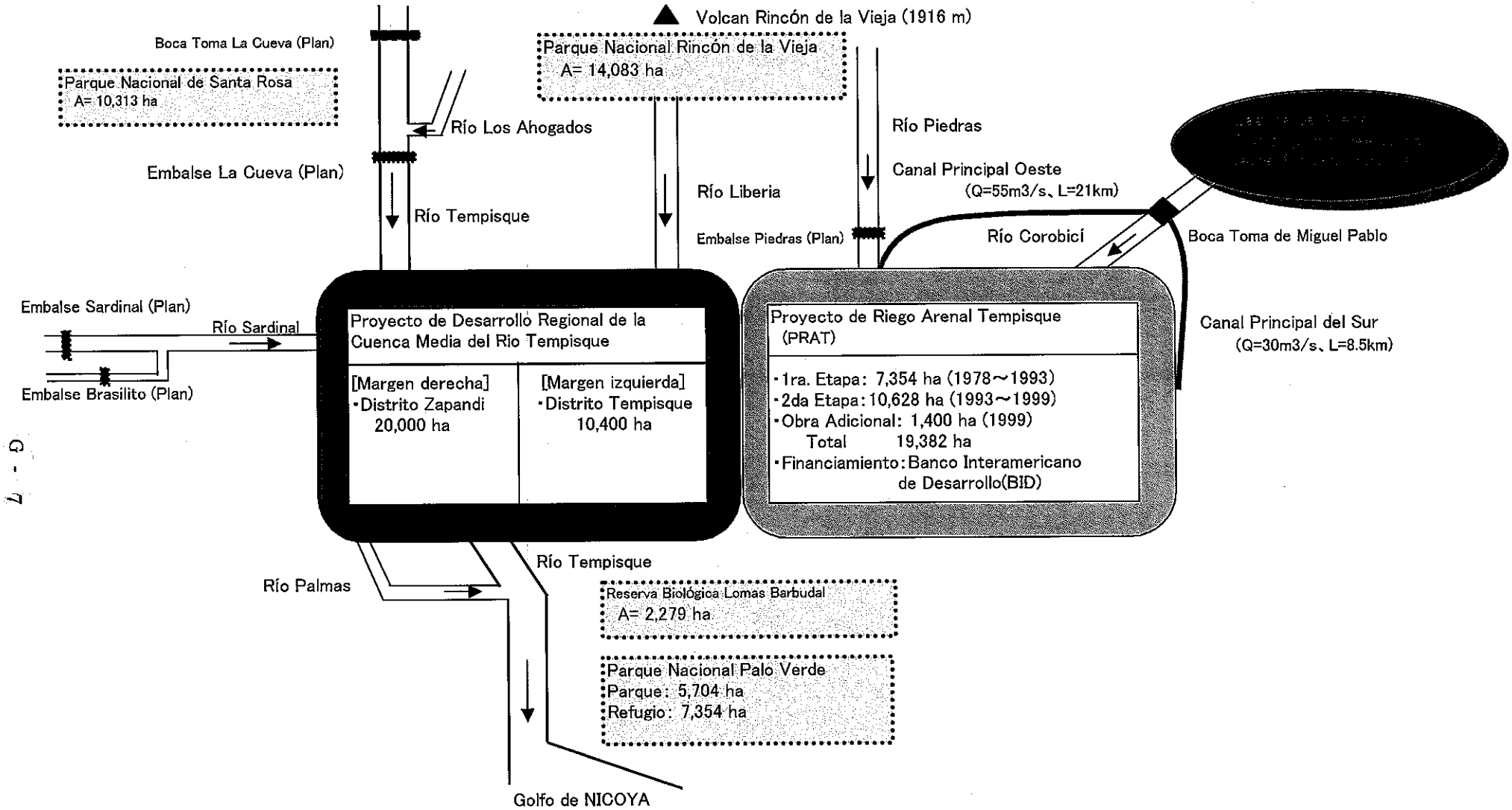
Unidad:m3/s

ano	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Set	Oct	Nov	Dic	Annual
1961	1.79	1.42	1.22	0.90	2.38	3.74	4.81	5.72	12.1	8.48	20.5	3.01	5.51
1962	3.11	2.10	1.08	0.91	3.61	11.7	6.59	6.89	8.30	13.52	6.61	2.66	5.59
1963	1.93	1.61	1.36	1.48	3.39	3.60	4.54	3.95	4.75	5.25	10.9	3.32	3.84
1964	1.59	1.03	0.80	0.71	2.06	3.80	7.47	8.74	15.2	12.4	5.57	2.11	5.12
1965	2.40	1.74	1.32	0.93	2.42	3.38	6.20	4.95	8.57	10.1	7.52	1.92	4.29
1966	1.15	0.83	1.36	1.17	5.12	11.7	7.80	8.57	7.14	22.8	7.71	3.44	6.57
1967	4.20	2.45	1.52	1.13	3.33	8.40	7.74	10.2	13.7	14.9	11.3	4.27	6.93
1968	2.83	1.89	1.08	1.43	4.11	16.5	7.25	6.22	8.82	7.67	7.53	2.41	5.65
1969	1.51	1.46	1.16	0.96	2.11	5.17	4.42	8.22	9.07	36.2	11.6	4.24	7.18
1970	2.26	2.55	1.66	1.39	6.40	8.65	6.81	15.9	28.8	26	16.0	6.09	10.21
1971	4.94	2.73	1.65	1.46	3.69	7.44	5.59	5.75	22.4	25.9	8.65	1.86	7.67
1972	3.68	1.76	1.20	0.87	3.54	4.79	7.79	4.80	6.43	4.94	4.06	1.68	3.80
1973	1.06	0.95	0.65	0.75	2.38	3.81	9.32	12.3	19.4	37.3	13.8	2.37	8.67
1974	2.16	1.86	1.16	0.79	4.05	7.79	6.27	6.89	25.1	12.3	7.0	2.26	6.47
1975	1.51	1.24	0.80	0.63	1.96	3.37	4.83	5.16	14.4	11.9	20.9	5.22	5.99
1976	1.81	1.94	1.07	0.72	3.44	5.39	7.12	6.27	7.99	8.35	7.11	2.90	4.51
1977	1.35	0.84	0.74	0.76	2.26	5.00	5.84	7.60	7.48	9.07	4.72	1.59	3.94
1978	1.12	0.95	0.64	0.60	2.49	5.81	4.59	5.87	9.83	13.8	8.48	3.19	4.78
1979	1.21	0.82	0.65	0.97	3.11	9.66	8.04	8.74	24.3	25.4	15.6	2.56	8.42
1980	1.96	1.33	1.10	0.90	7.05	8.73	12.3	10.8	11.2	24.7	26.2	2.94	9.10
Media	2.08	1.44	0.97	0.85	3.40	6.18	7.17	7.42	14.85	17.37	11.65	2.66	6.34

Fuente:Instituto Costarricense de Electricidad(ICE)

Figura-1

RELACION CON EL PROYECTO DE RIEGO ARENAL-TEMPISQUE



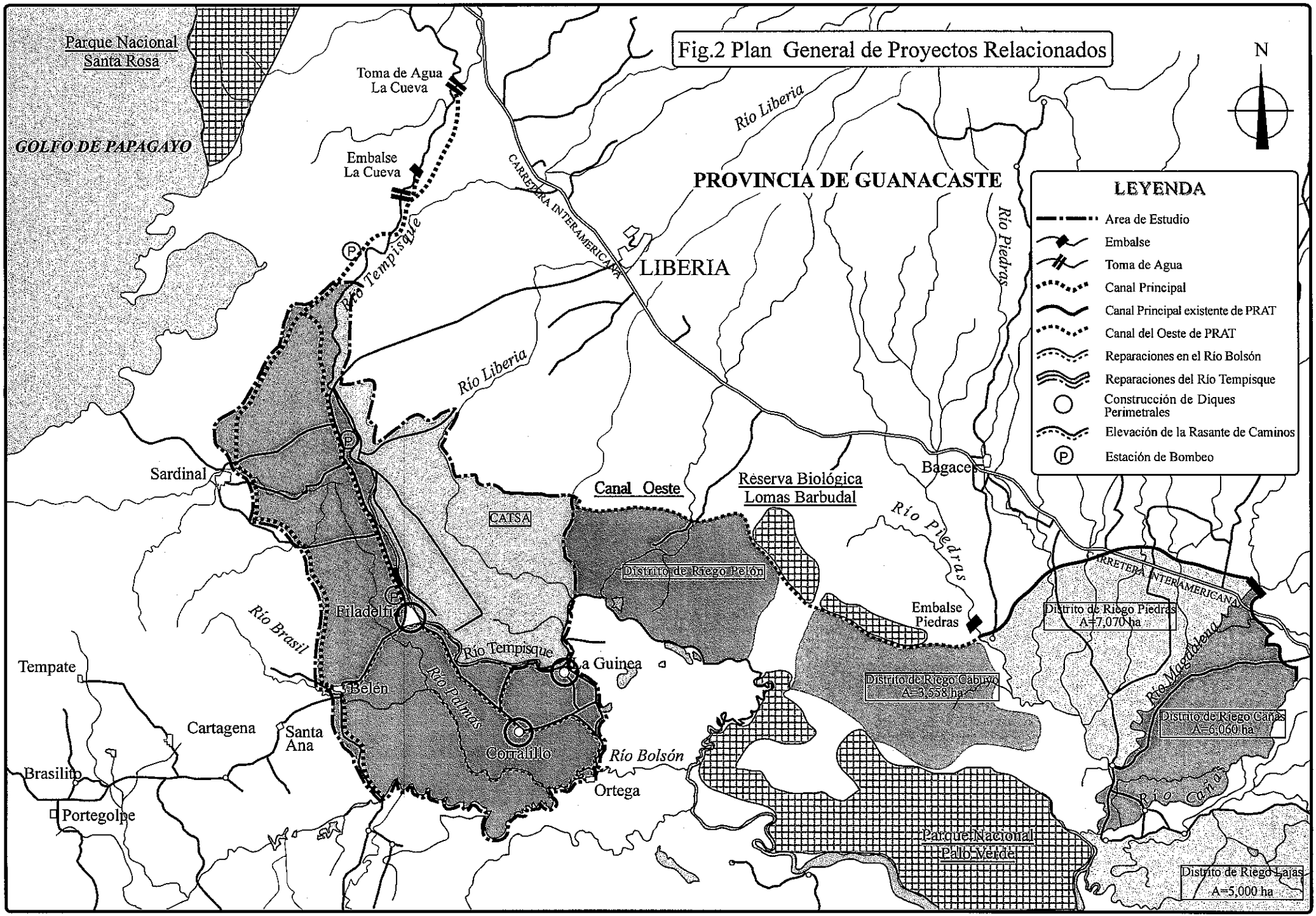


Fig.2 Plan General de Proyectos Relacionados
N
Parque Nacional
Santa Rosa
GOLFO DE PAPAGAYO
Toma de Agua
La Cueva
Embalse
La Cueva
Río Liberia
CARRETERA INTERAMERICANA
PROVINCIA DE GUANACASTE
LIBERIA
Río Piedras
Río Tempisque
Río Liberia
LEYENDA
Area de Estudio
Embalse
Toma de Agua
Canal Principal
Canal Principal existente de PRAT
Canal del Oeste de PRAT
Reparaciones en el Río Bolsón
Reparaciones del Río Tempisque
Construcción de Diques Perimetrales
Elevación de la Rasante de Caminos
Estación de Bombeo
Sardinal
Canal Oeste
Reserva Biológica
Lomas Barbudal
Bagaces
CATSA
Distrito de Riego Pelón
Río Piedras
CARRETERA INTERAMERICANA
Filadelfia
Río Brasil
Río Tempisque
La Guinea
Embalse
Piedras
Distrito de Riego Piedras
A=7,070 ha
Tempate
Belén
Río Palmas
Distrito de Riego Cabuyo
A=3,558 ha
Río Magdalena
Distrito de Riego Cañas
A=6,060 ha
Cartagena
Santa
Ana
Corralillo
Río Bolsón
Brasilito
Ortega
Río Cañas
Portegolpe
Parque Nacional
Palo Verde
Distrito de Riego Lajas
A=5,000 ha

Figura-3 DIAGRAMA DEL SISTEMA DEL PROYECTO DE RIEGO ARENAL-TEMPISQUE

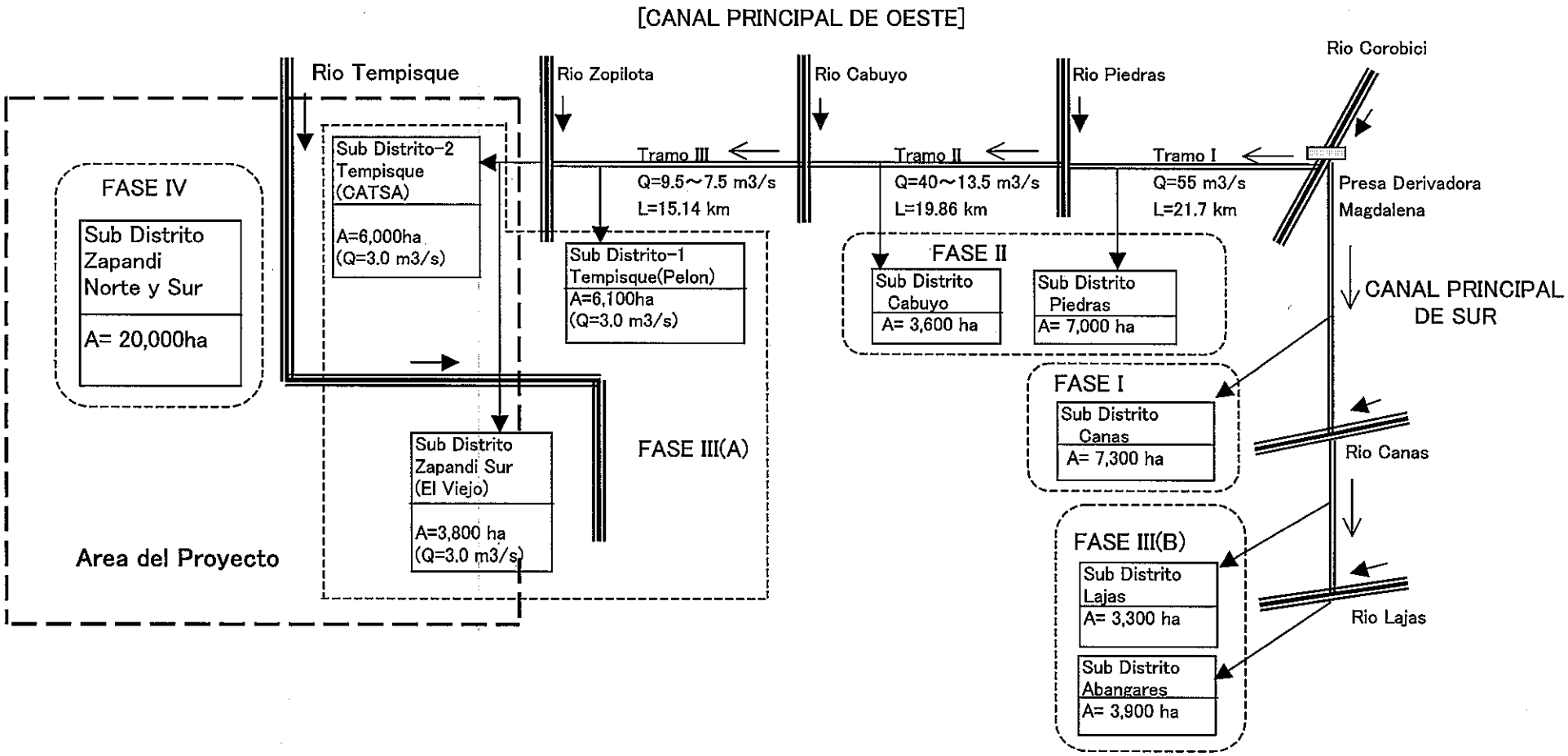
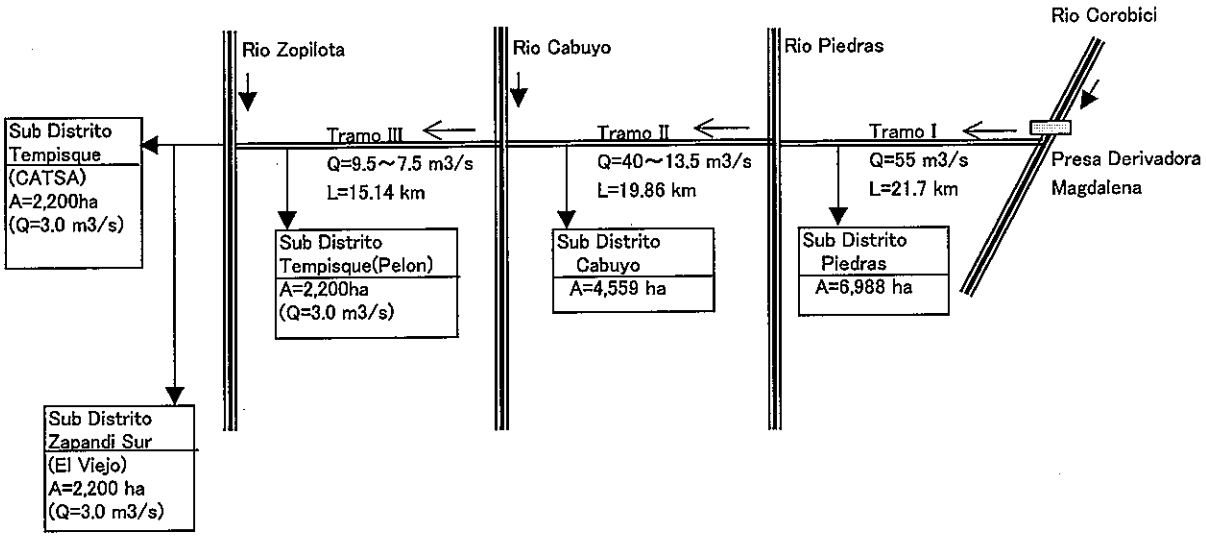


Figura-4 CANAL PRINCIPAL DE OESTE DE PRAT

[SITUACION ACTUAL]



[LARGO PLAZO]

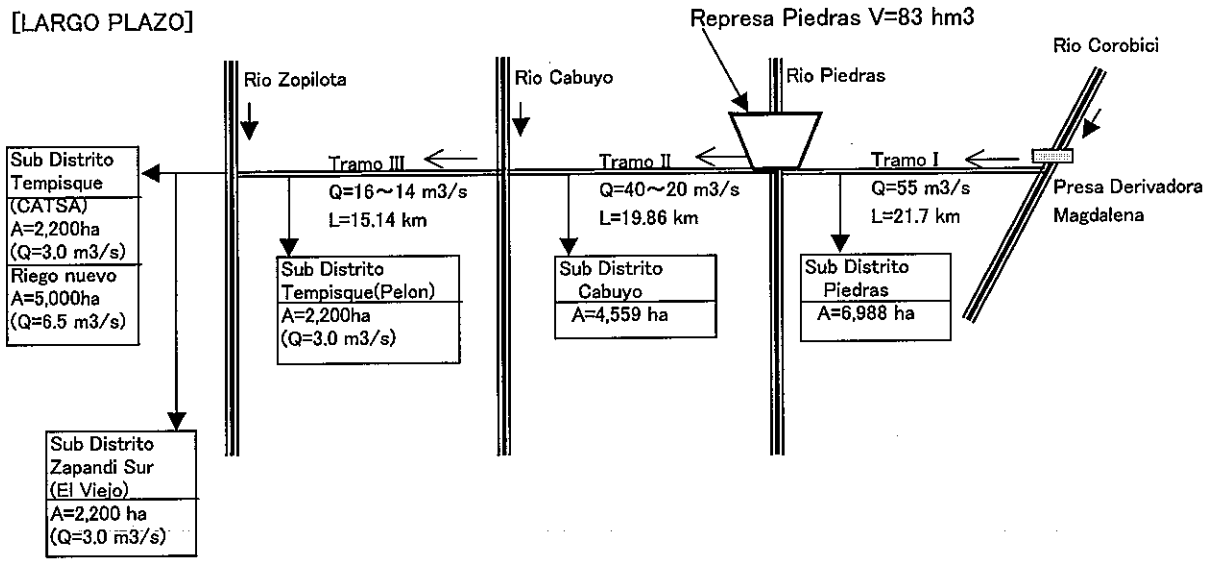
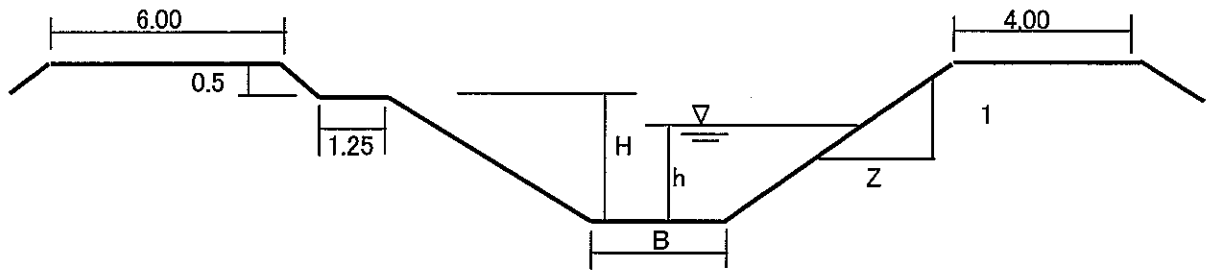


Figura-5 SECCION DE CANAL PRINCIPAL DE OESTE

Unidad: m



TRAMO II

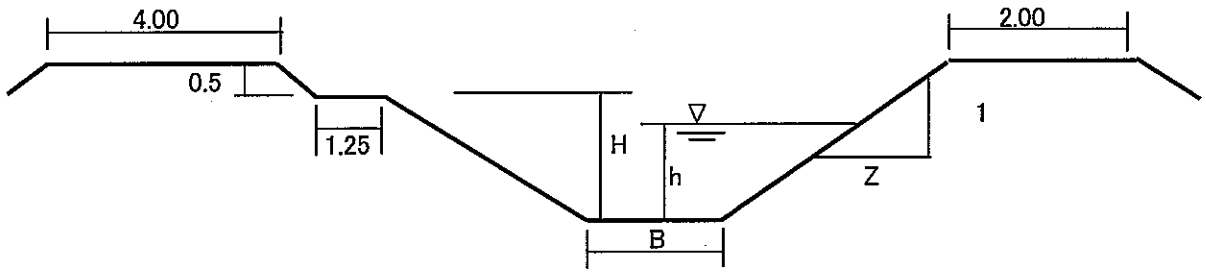
ESTACION	Q(m3/s)	B(m)	Z(m/m)	n	pendiente	h (m)	H (m)
0+ 00 ～ 1+240	40.0	6.00	1.5	0.014	1/10,000	3.18	3.8
1+240 ～ 9+000	15.0	3.50	1.0	0.030	1/6,660	3.51	4.25
9+000 ～11+030	15.0	3.50	1.0	0.030	1/6,660	3.49	4.25
11+030～11+060	13.5	3.00	1.0	0.014	1/200	3.49	4.25
11+060～19+740	13.5	3.00	1.0	0.030	1/6,660	3.49	4.25
19+740～19+798	13.5	3.00	1.0	0.014	1/2,000	3.49	4.25
19+798～19+860	13.5	3.00	1.0	0.030	1/6,660	3.49	4.25

TRAMO III

ESTACION	Q(m3/s)	B(m)	Z(m/m)	n	pendiente	h (m)	H (m)
0- 043 ～ 4+555	9.5	2.50	1.5	0.030	1/5,000	2.56	3.30
4+555 ～ 5+200	9.5	2.50	1.5	0.030	1/5,000	2.56	3.30
5+200 ～15+089	7.5	2.00	1.5	0.030	1/5,000	2.41	3.15

Figura-6 SECCION TIPICA DE CANAL PRINCIPAL

Unidad: m



Sistema de Riego de Bomba P1

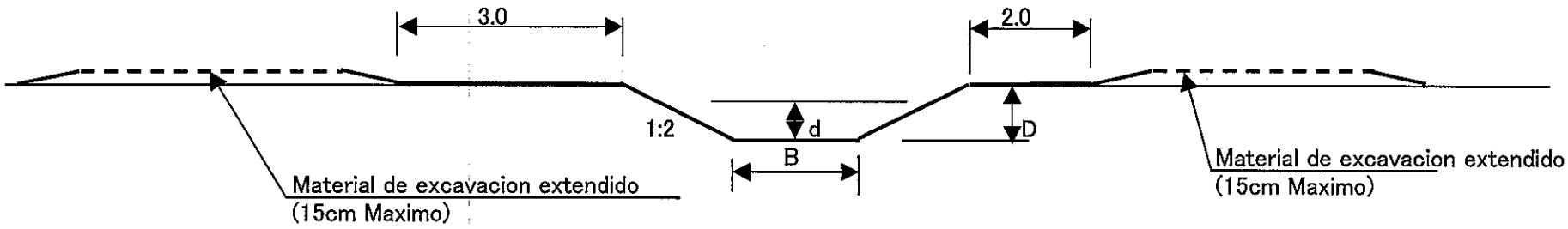
ESTACION	Q(m3/s)	B(m)	Z(m/m)	n	pendiente	h (m)	H (m)
Canal Principal No.1							
No.0+ 00 ～ 7+100	1.03	1.00	1.5	0.035	1/1,500	0.92	1.20
Canal Secundario No.1							
No.7+100～11+250	0.50	0.80	1.2	0.035	1/1,000	0.67	1.00

Sistema de Riego de Bomba P2

ESTACION	Q(m3/s)	B(m)	Z(m/m)	n	pendiente	h (m)	H (m)
Canal Principal No.2-1							
No.0+000 ～ 2+130	1.15	0.80	1.5	0.035	1/500	0.73	1.10
No.2+130 ～ 5+00	1.15	0.90	1.5	0.035	1/1,000	0.91	1.20
Canal Secundario No.2-1							
No.5+00 ～10+650	0.65	0.90	1.2	0.035	1/2,800	0.94	1.20
Canal Principal No.2-2							
No.0+00 ～1+30	0.82	0.90	1.5	0.035	1/1,300	0.82	1.15
No.1+30 ～7+100	0.82	0.90	1.5	0.035	1/1,800	0.89	1.20

Figura -7

SECCION TIPICA DE CANAL DE DRENAJE



	Q(m3/s)	B(m)	Z(m/m)	n	pendiente	V (m/s)	d (m)	D (m)	L (km)
D-1	5.70	1.50	1:2.0	0.040	1/600	0.89	1.47	1.80	1.80
D-2	7.30	1.40	〃	0.040	1/300	1.22	1.42	1.80	2.30
D-3	5.40	1.60	〃	0.040	1/1,000	0.72	1.58	2.00	1.70
D-4	6.50	2.0	〃	0.040	1/1,500	0.65	1.80	2.20	2.20
D-5	7.80	2.0	〃	0.040	1/1,000	0.79	1.79	2.20	2.00
D-6	5.20	1.60	〃	0.040	1/1,000	0.71	1.56	2.00	1.80

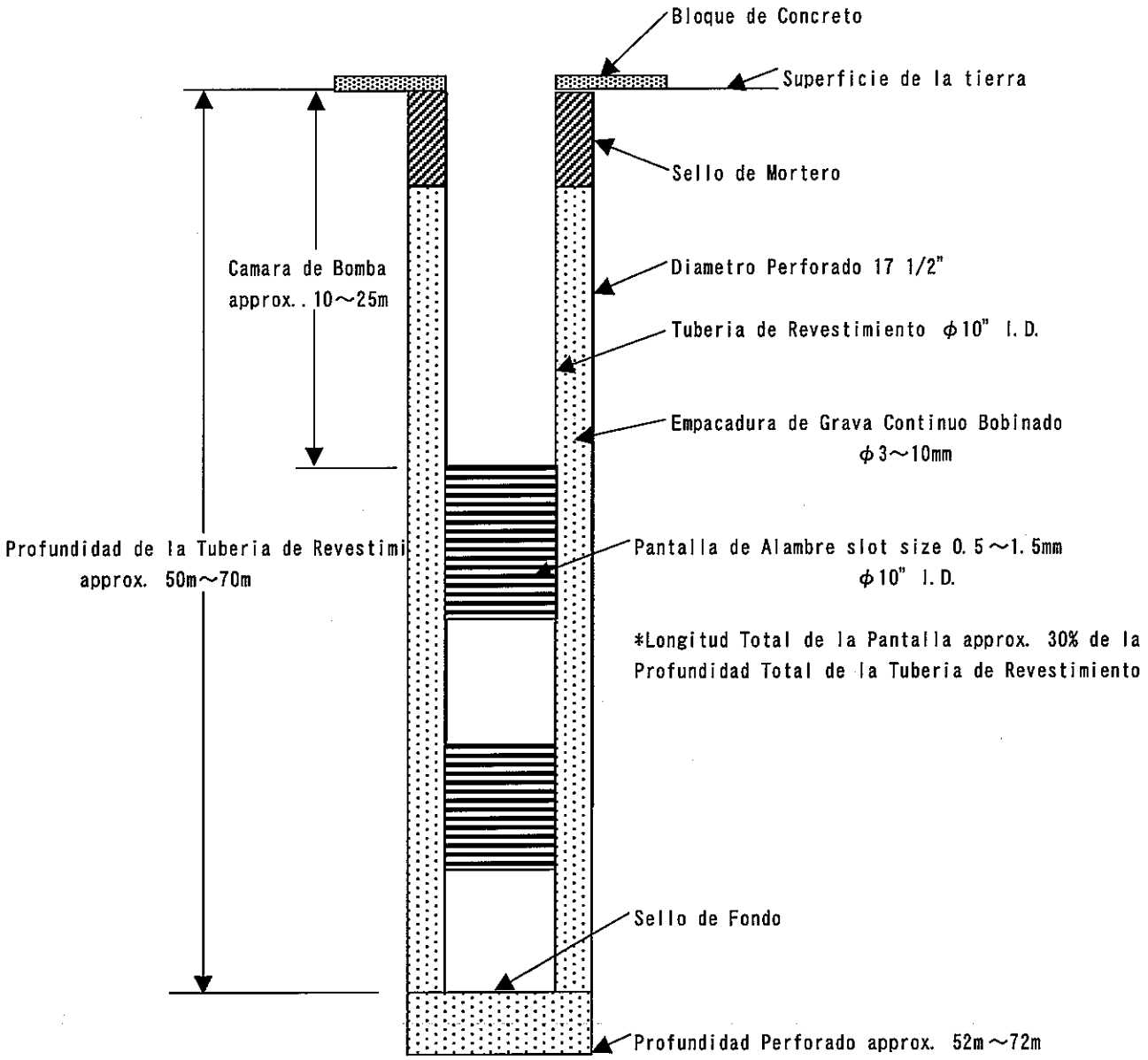


Figura-8 Pozo de produccion Tipico

Figura - 9 CURVA DE VOLUMEN - ELEVACION (Represa de La CUEVA)

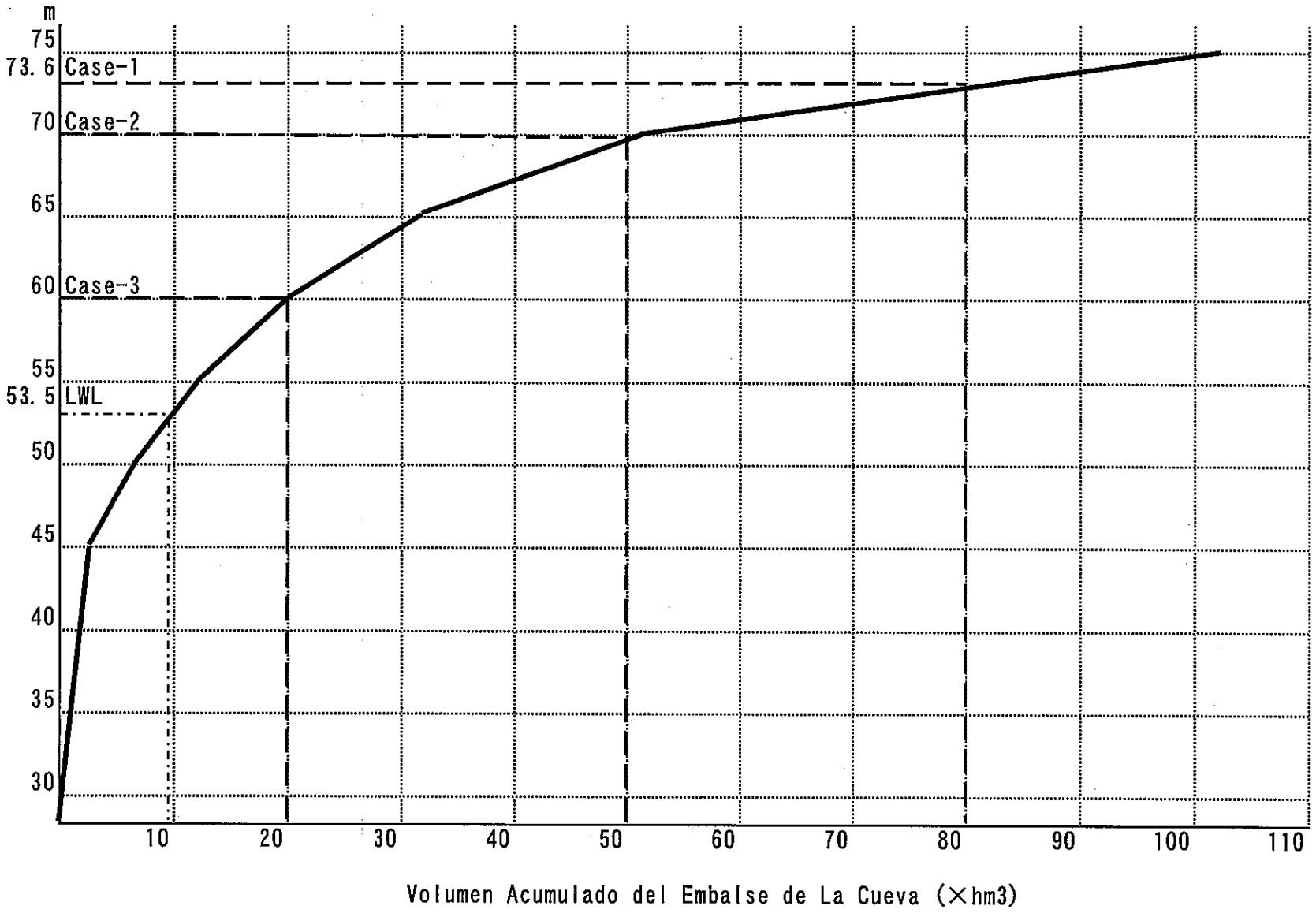


Figura - 10

CURVA DE VOLUMEN - ELEVACION (En GUARDIA)