附表

表-1 水資源区毎の地下水開発可能量

Water Resources Region (WRR)	Base Data: Area (1) (km^2)	Base Data: Rainfall (2) (mm/year)	Recharge (3): 5% of (1) x (2) (MCM/year)	Availability (4): Ratio of GW Available Area (%)	GW Potential in 1995	GW Potential Forecast in MCM/year: Future GW Potential In Consideration of the Increase by Irrigation Development and the Decrease by Urbanization					
						2000	2005	2010	2015	2020	2025
I	14,103.3	2,878	2,029	61.5%	1,258	1,273	1,285	1,272	1,258	1,250	1,248
II	37,986.3	2,082	3,954	63.5%	2,551	2,614	2,703	2,704	2,685	2,716	2,825
III	23,545.7	1,832	2,157	58.7%	1,328	1,433	1,577	1,580	1,555	1,595	1,721
IV	47,475.0	1,750	4,154	38.9%	1,615	1,613	1,617	1,566	1,492	1,435	1,410
V	17,631.1	2,347	2,069	45.4%	955	989	1,036	1,039	1,030	1,046	1,085
VI	20,223.2	2,500	2,528	42.9%	1,092	1,107	1,133	1,128	1,115	1,118	1,144
VII	14,951.6	1,491	1,115	77.8%	871	875	881	879	873	873	879
VIII	21,531.9	2,800	3,015	84.2%	2,548	2,559	2,574	2,571	2,563	2,560	2,557
IX	18,740.3	1,774	1,662	63.4%	1,060	1,069	1,082	1,081	1,077	1,079	1,082
X	28,018.0	2,277	3,190	64.7%	2,074	2,087	2,106	2,101	2,090	2,092	2,116
XI	24,224.1	2,645	3,204	72.1%	2,319	2,334	2,353	2,352	2,346	2,352	2,375
XII	29,962.2	1,747	2,617	65.4%	1,727	1,750	1,779	1,761	1,731	1,726	1,758
Nation	298,392.7	2,124	31,694	59.9%	19,397	19,703	20,127	20,034	19,815	19,844	20,202

Note : The values above were derived by summed up those in the provinces belonging to the water resources region.

Data Source : Estimate by the Study Team

表-2　西暦1995年現在の水資源区毎の上工水需要量

(Unit : MCM/year)

Water Resources Region (WRR)	Municipal					Industrial	Total (M&I)
	Public			Private	Total		
	Level-III	Level-I & -II	Sub-total				
I	26.1	14.4	40.6	6.6	47.2	72.9	120.1
II	7.2	20.8	28.0	11.2	39.3	16.1	55.4
III	136.8	50.7	187.5	28.6	216.1	209.3	425.4
IV	1,082.3	48.4	1,130.7	71.5	1,202.2	625.8	1,828.0
V	35.3	30.4	65.7	11.6	77.3	19.8	97.1
VI	48.3	40.2	88.5	15.4	103.9	569.3	673.2
VII	74.0	34.6	108.6	14.7	123.3	165.8	289.1
VIII	17.3	24.6	41.9	8.7	50.6	31.4	82.0
IX	39.3	23.4	62.8	10.4	73.2	5.7	78.9
X	47.6	24.2	71.8	11.3	83.1	210.4	293.5
XI	58.7	21.6	80.3	15.4	95.7	215.1	310.8
XII	15.8	35.9	51.7	15.1	66.8	92.0	158.8
Total	1,588.9	369.3	1,958.2	220.5	2,178.7	2,233.6	4,412.3

表-3　首都圏上下水道公社 (MWSS)の給水量及び水道料金回収実績

Year	Water Production (MCM)			Volume Sold (MCM)	Revenued Water (%)	Non-Revenued Water (%)
	Groundwate	Surface Water	Total			
1985	29.5	757.4	786.9	302.9	38.5	61.5
1986	30.4	874.1	904.5	310.8	34.4	65.6
1987	27.9	834.8	862.7	336.5	39.0	61.0
1988	29.5	849.3	878.8	359.5	40.9	59.1
1989	29.0	859.1	888.1	375.8	42.3	57.7
1990	33.3	875.8	909.1	384.7	42.3	57.7
1991	33.9	779.6	813.5	386.5	47.5	52.5
1992	28.0	823.4	851.4	383.0	45.0	55.0
1993	25.7	907.1	932.8	397.3	42.6	57.4
1994	26.5	983.1	1,009.6	418.9	41.5	58.5
1995	27.2	948.7	975.9	426.5	43.7	56.3
1996	29.8	1,099.8	1,129.6	435.9	38.6	61.4

Data Source:MWSS

表-4　西暦1996年に於ける既存国家灌漑システムのリスト(1/2)

SYSTEM	WRR*	Province Served	No. of Systems	Service Area (ha)	Actual Irrigated Area (ha)			Cropping Intensity (%)		
					Wet	Dry	Total	Wet	Dry	Total
Region 1										
Agno-Sinucalin	III	Pangasinan	2	12,130	7,046	5,000	12,046	58	41	99
Ambayoan-Dipalo	III	Pangasinan	3	6,302	3,250	792	4,042	52	13	64
Amburayan	I	La Union	1	3,420	3,250	2,590	5,840	95	76	171
Ilocos Norte	I	Ilocos Norte	8	6,175	5,038	4,240	9,278	82	69	150
Ilocos Sur	I	Ilocos Sur	3	3,840	3,370	1,238	4,608	88	32	120
Lower Agno-Totonoguen	III	Pangasinan	1	7,500	3,772	2,025	5,797	50	27	77
Masalip	I	La Union	1	1,585	1,300	716	2,016	82	45	127
San Fabian-Dumuloc	III	Pangasinan	2	3,594	2,395	1,387	3,782	67	39	105
Subtotal			21	41,546	29,421	17,988	47,409	66	40	106
Region 2										
Abulog-Apayao-Pamplona	II	Cagayan-Apayao	2	10,895	4,500	5,032	9,532	41	46	87
Baggao	II	Cagayan	1	1,812	1,020	1,481	2,501	56	82	138
Banurbor	*II*	*Cagayan*	*1*	1,087	680	990	1,670	63	91	154
Baua	II	Cagayan	1	1,353	452	746	1,198	33	55	89
Dummun	II	Cagayan	1	1,502	962	1,385	2,347	64	92	156
IAAPIS	*II*	*Cagayan*	*1*	2,306	980	1,300	2,280	42	56	99
Lower Chico	II	Cagayan	1	1,856	1,226	895	2,121	66	48	114
Magapit	II	Cagayan	1	7,500	3,730	7,170	10,900	50	96	145
Mallig	*II*	*Isabela*	*1*	2,427	1,370	1,480	2,850	56	61	117
MARIIS District I	II	Isabela	1	24,054	18,662	18,982	37,644	78	79	157
MARIIS District II	II	Isabela	1	24,468	21,995	21,947	43,942	90	90	180
MARIIS District III	*II*	*Isabela-Ifugao*	*1*	24,793	16,763	16,539	33,302	68	67	134
MARIIS District IV	II	Isabela	1	24,083	17,597	17,756	35,353	73	74	147
San Pablo-Cabagan	II	Isabela	1	1,273	686	696	1,382	54	55	109
Solana-Tuguegarao	*II*	*Cagayan*	*1*	1,000	679	507	1,186	68	51	119
Pinacanauan	II	Cagayan	1	880	460	461	921	52	52	105
Tumauini	II	Isabela	1	3,615	1,651	2,253	3,904	46	62	108
Upper Chico (CAR)	*II*	*Kalinga-Apayao Isabela*	*1*	17,551	9,689	9,600	19,289	55	55	110
Zinundungan	II	Cagayan	1	2,045	1,869	1,869	3,738	91	91	183
Subtotal			20	154,504	104,971	111,089	216,060	68	72	140
Region 3										
Bucao	III	Zambales	1	1,231	No operation					
Angat-Maasim	III	Bulacan	1	31,485	21,555	26,464	48,019	68	84	153
Caming	III	Tarlac	1	8,600	6,776	3,250	10,026	79	38	117
Colo-Cauayan	III	Bataan Pampanga	2	1,427	400	483	883	28	34	62
Nayom-Bayto	III	Zambales	2	1,948	1,650	1,625	3,275	85	83	168
NEPIS	III	Nueva Ecija	1	1,313			0			0
Sto. Tomas	III	Zambales	1	3,924	No operation					
TASMORIS	III	Tarlac	2	13,976	No operation					
Porac-Gumain	III	Pampanga	1	4,405	1,033	2,554	3,585	23		81
UPRIIS District I	III	Nueva Ecija	1	24,962	20,616	16,577	37,193	83	66	149
UPRIIS District II	III	Nueva Ecija	1	23,913	22,682	13,063	35,745	95	55	149
UPRIIS District III	III	Nueva Ecija	1	29,846	20,564	16,052	36,616	69	54	123
UPRIIS District IV	III	Nueva Ecija	1	23,831	17,958	10,809	28,797	76	45	121
Subtotal			16	170,841	113,262	90,877	204,139	66	53	119
Region 4										
Agos	IV	Quezon	1	1,119	1,119	1,119	2,238	100	100	200
Amnay-Patrick	IV	Mindoro Occ.	1	2,213	900	900	1,800	41	41	81
Baco Bucayao	IV	Mindoro Or.	1	6,327	3,928	3,469	7,397	62	55	117
Caguray	IV	Mindoro Occ.	1	3,308	982	229	1,211	30	7	37
Camingas	IV	Romblon	1	256	284	256	540	111	100	211
Cavite FLIS	IV	Cavite	1	13,086	8,425	3,862	12,287	64	30	94
Disalit	III	Aurora	1	485	320	380	700	66	78	144
DHL	IV	Quezon	3	3,309	2,520	2,757	5,307	76	84	160
Laguna FLIS	IV	Laguna	6	3,250	2,130	1,891	4,021	66	58	124
Lumintao	IV	Mindoro Occ.	1	1,504	1,002	721	1,723	67	48	115
Mafatgao-Batang-Batang	IV	Palawan	2	3,200	3,484	2,517	6,001	109	79	188
Sta. Maria-Mayor	IV	Laguna	2	1,773	935	991	1,966	55	56	111
Paghahan	IV	Mindoro Occ.	1	1,005	653	653	1,306	65	65	130
Palico	IV	Batangas	1	886	826	826	1,652	93	93	186
Pula-Bansud	IV	Mindoro Or.	2	3,830	3,343	3,343	6,686	87	87	175
Sta. Cruz-MMBL	IV	Laguna	5	4,917	3,317	3,180	6,557	68	64	132
Mag-asawang Tubig	IV	Mindoro Or.	1	1,700	400	665	1,065	24	39	63
Subtotal			31	52,228	34,668	27,789	62,457	66	53	120
Region 5										
Barit-Buhi-Lalo	V	Camarines Sur	2	9,720	4,824	4,491	9,315	50	46	96
Cagaycay	V	Camarines Sur	1	1,755	506	1,400	1,906	29	80	109
Daet-Talisay-Matogdon	V	Camarines Norte	2	2,746	2,580	2,526	5,106	94	92	186
Inarihan-Tigman-Hinagyanan	V	Camarines Sur	1	3,542	2,775	2,776	5,551	78	78	157
Libmanan-Cabusao	V	Camarines Sur	1	2,503	No Operation					
MNOH	V	Albay	4	1,946	1,943	1,941	3,884	100		200
Pili-Bulan-San Francisco	V	Sorsogon	3	1,200	950	800	1,750	79		146
Subtotal			14	23,412	13,578	13,934	27,512	58	60	118

表-4　西暦1996年に於ける既存国家灌漑システムのリスト(2/2)

SYSTEM	WRR*	Province Served	No. of Systems	Service Area (ha)	Actual Irrigated Area (ha)			Cropping Intensity (%)		
					Wet	Dry	Total	Wet	Dry	Total
Region 6										
Aganan-Sta. Barbara	VI	Iloilo	2	8,262	7,062	3,485	10,547	85	42	128
Aklan-Panakuyan	VI	Aklan	2	4,816	4,216	4,216	8,432	88	88	175
Bago	VI	Negros Occ.	1	12,700	9,723	8,093	17,816	77	64	140
Barotac-Viejo	VI	Iloilo	1	1,774	1,400	983	2,383	79	55	134
Jalaur-Suague	VI	Iloilo	3	14,400	11,556	8,550	20,106	80	59	140
Mambusao	VI	Capiz	1	1,423	990	878	1,868	70	62	131
Pangiplan	VI	Negros Occ.	1	1,735	957	940	1,897	54	53	107
Sibalom-San Jose	VI	Antique	1	5,065	4,375	3,036	7,411	86	60	146
Sibalom-Tigbauan	VI	Iloilo	1	2,020	1,624	550	2,174	80	27	108
Subtotal			13	52,235	41,903	30,731	72,634	80	59	139
Region 7 & 8										
Bao	VIII	Northern Leyte	1	1,917	1,892	1,795	3,597	94	94	188
Binahaan-Tibak	VIII	Northern Leyte	4	6,041	4,116	4,122	8,238	68	68	136
Mainit-Pongso	VIII	Northern Leyte	2	2,184	1,760	1,478	3,238	81	68	148
Dagulitan-Guinarona	VIII	Northern Leyte	2	1,496	750	883	1,633	50	59	109
Bito	VIII	Northern Leyte	1	1,411	1,332	1,313	2,645	94	93	187
Balire-Jhamon Cibuga	VIII	Northern Leyte	4	1,715	1,388	1,273	2,661	81	74	155
Handang-Hdongos Dasay	VIII	No.-So. Leyte	2	1,078	1,078	1,078	2,156	100	100	200
Subtotal			16	15,842	12,226	11,942	24,168	77	75	153
Region 9										
Dipolo	IX	Misamis Occ.	1	1,600	929	821	1,750	58	51	109
Labangan	IX	Zamboanga Sur	1	3,595	2,500	1,966	4,466	78	62	140
Salug	IX	Zamboanga Sur	1	7,224	5,995	5,600	11,595	83	78	161
Sibuguey Valley	IX	Zamboanga Sur	1	3,143	2,300	2,310	4,610	73	73	147
Subtotal			4	15,162	11,724	10,693	22,421	77	71	148
Region 10										
Manupali	XII	Bukidnon	1	4,395	1,311	1,627	2,938	30	37	67
Muleta	XII	Bukidnon	1	4,062	1,326	1,272	2,598	33	31	64
Pulangui	XII	Bukidnon	1	8,547	8,263	8,336	16,599	97	98	194
Roxas-Kuya	XII	Bukidnon	1	753	763	784	1,547	101	104	205
Rugnan	XII	Lanao del Sur	1	2,500	207	154	361	8	6	14
Subtotal			5	20,257	11,870	12,173	24,043	59	60	119
Region 11										
Allah 1	XII	South Cotabato	1	10,539	11,970	6,075	18,045	114	58	171
Batutu	X	Davao del Norte	1	3,269	3,197	3,135	6,332	98	96	194
Buayan	XII	South Cotabato	1	719	587	550	1,137	83	75	157
Lasang	XI	Davao del Norte	1	4,450	4,373	4,432	8,805	98	100	198
Lupon	XI	Davao Oriental	1	2,131	2,245	2,245	4,490	105	105	211
Padada	XI	Davao del Sur	1	3,512	3,529	3,393	6,922	100	97	197
Saug	XI	Davao del Norte	1	2,941	3,003	2,625	5,628	102	89	191
Siluay	XI	South Cotabato	1	1,406	1,246	1,225	2,471	89	87	176
Banga Marbel	XII	South Cotabato	3	5,157	5,315	4,428	9,743	103	86	189
Libeganon	XI	Davao del Norte	1	7,093	10,726	8,338	19,064	151	118	269
Saug-Libeganon	XI	Davao del Norte	1	479	469	500	969	98	104	202
Dumaguil	XII	South Cotabato	1	2,300	1,361	1,300	2,661	59	57	116
Lambayong	XII	South Cotabato	1	11,033	10,139	4,033	14,172	92	37	128
Kipalku	XI	Davao del Norte	1	1,500	2,359	1,797	4,156	157	120	277
Mal	XI	Davao del Sur	1	2,509	2,568	2,584	5,152	102	103	205
Subtotal			17	59,029	63,087	46,640	109,727	107	79	186
Region 12										
Allah 2 - Lambayong	XII	South Cotabato	1							
Kaberan-Pagalungan	XII	No. Cota -Maguindanao	2	5,018	4,400	4,395	8,795	88	88	175
Libungan	XII	No. Cota -Maguindanao	1	9,360	8,799	5,596	14,395	94	60	154
Malasila	XII	North Cotabato	1	4,006	3,360	3,193	6,553	84	80	164
Milang	XII	North Cotabato	1	2,981	2,100	1,913	4,013	70	64	135
Talayan	XII	Maguindanao	1	700	35	358	393	5	51	56
Matanding	XII	Lanao del Norte	1	4,500	3,466	3,437	6,903	77	76	153
Alip	XII	Maguindanao	1	2,300	2,233	1,855	4,088	97	81	178
Subtotal			9	28,865	24,393	20,747	45,140	85	72	156
CARAGA										
Andanan	X	Agusan del sur	1	3,416	3,096	3,106	6,202	91	91	182
Cabadbaran	X	Agusan del Norte	2	3,212	2,160	1,932	4,032	65	60	126
Cantilan	XI	Surigao del Sur	1	1,786	1,496	1,500	2,996	84	84	168
Gibong	X	Agusan del Sur	1	2,755	2,116	2,656	4,272	98	100	198
Sinuelao	X	Agusan del Sur	1	2,319	2,180	2,207	4,387	103	104	207
Tago	XI	Surigao del Sur	1	2,202	2,345	2,104	4,449	106	96	202
Subtotal			7	14,891	13,333	13,005	26,338	90	87	177
Total			173	651,812	474,436	407,612	882,048	73	63	135

Note : * : Water Resources Region

Source: National Irrigation Administration

表-5　西暦1996年に於ける既存共同灌漑システムのリスト(1/2)

WATER RES. REGION	PROVINCE	AMORTIZING SYSTEMS				NON-AMORT. & OTHER GOVT AGENCY ASST				PRIVATE SYSTEMS				TOTAL				IRRIGATION INTENSITY (%)		
			Service	Irrigated Area (ha)			Service	Irrigated Area (ha)			Service	Irrigated Area (ha)			Service	Irrigated Area (ha)		Wet	Dry	Total
		Number	Area (ha)	Wet	Dry	Number	Area (ha)	Wet	Dry	Number	Area (ha)	Wet	Dry	Number	Area (ha)	Wet	Dry			
	Abra	54	3,651.00	1,860.00	1,850.00	32	649.00	588.00	588.00	187	8,523.00	7,762.00	6,035.00	273	12,823.00	10,210.00	8,473.00	79.62	66.08	145.70
	Benguet***	64	1,386.00	1,153.00	1,236.00	64	1544.00	1285.00	1264.00	210	3,549.00	2,981.00	1,360.00	338	6,479.00	5,419.00	3,862.00	83.64	59.61	143.25
I	Ilocos Norte	39	3,829.00	3,392.00	2,024.00	145	12111.00	11976.00	4134.00	614	14,121.00	13,918.00	3,350.00	798	30,061.00	29,286.00	9,508.00	97.42	31.63	129.05
	Ilocos Sur	36	2,607.00	2,069.00	614.00	75	5664.00	4426.00	681.00	121	4,598.00	3,916.00	627.00	232	12,869.00	10,411.00	1,922.00	80.90	14.94	95.83
	La Union	41	2,935.00	2,238.00	1,350.00	143	5076.00	4279.00	3118.00	25	1,462.00	247.00	71.00	209	9,473.00	6,764.00	4,539.00	71.40	47.92	119.32
	TOTAL	234	14,408.00	10,712.00	7,076.00	459	25044.00	22554.00	9785.00	1157	32,253.00	28,824.00	11,443.00	1850	71,705.00	62,090.00	28,304.00	86.59	39.47	126.06
	Batanes	2	25.00	0.30	0.30	0	0.00	0.00	0.00	0	-	-	-	2	25.00	0.30	0.30	1.20	1.20	2.40
	Cagayan	53	8,143.00	4,792.00	3,253.00	37	5384.00	2437.00	2197.00	93	5,544.00	5,352.00	4,807.00	183	19,071.00	12,581.00	10,257.00	65.97	53.78	119.75
	Ilugao	36	2,299.00	1,351.00	1,341.00	21	996.00	545.00	475.00	114	3,137.00	1,789.00	1,826.00	171	6,432.00	3,685.00	3,642.00	57.29	56.62	113.91
II	Isabela	26	3,509.00	1,795.00	1,100.00	5	670.00	290.00	135.00	11	1,941.00	585.00	210.00	42	6,111.00	2,670.00	1,445.00	43.69	23.65	67.34
	Kalinga-Adayao	34	2,838.00	1,226.00	1,102.00	17	481.00	446.00	377.00	148	6,313.00	4,582.00	3,679.00	199	9,632.00	6,254.00	5,158.00	64.93	53.55	118.48
	Nueva Vizcaya	29	6,093.00	5,226.00	4,958.00	25	2342.00	1847.00	1708.00	201	15,168.00	12,396.00	11,094.00	255	23,603.00	19,469.00	17,760.00	82.49	75.24	157.73
	Quirino	24	2,357.00	691.00	887.00	18	1336.00	519.00	604.00	39	442.00	367.00	324.00	81	4,135.00	1,777.00	1,815.00	42.97	43.89	86.87
	Mt. Province	117	2,948.00	2,745.00	2,578.00	67	636.00	627.00	636.00	761	4,316.00	4,159.00	4,318.00	945	7,902.00	7,531.00	7,532.00	95.30	95.32	190.62
	TOTAL	321	28,763.00	18,026.30	15,219.30	190	11845.00	6711.00	6132.00	1367	36,863.00	29,230.00	26,258.00	1676	76,911.00	53,967.30	47,609.30	70.17	61.90	132.07
	Aurora	19	4,314.00	2,086.00	1,956.00	7	1090.00	960.00	960.00	57	5,654.00	2,364.00	1,756.00	83	11,058.00	5,430.00	4,672.00	49.10	42.25	91.35
	Bataan	28	1,938.00	1,687.00	1,307.00	25	3253.00	2503.00	2345.00	31	1,457.00	1,406.00	885.00	84	6,648.00	5,596.00	4,537.00	84.16	68.25	152.42
	Benguet***	31	977.00	796.00	714.00	108	1093.00	1089.00	936.00	136	2,175.00	1,978.00	1,026.00	275	4,245.00	3,865.00	2,676.90	91.05	63.04	154.09
	Bulacan	16	1,245.00	345.00	486.00	43	4729.00	1523.00	1112.00	2	41.00	35.00	15.00	61	6,015.00	1,903.00	1,615.00	31.64	26.85	58.49
III	Nueva Ecija	29	11,505.00	8,315.00	4,620.00	19	2480.00	1975.00	1745.00	47	10,351.00	7,380.00	1,525.00	95	24,336.00	17,670.00	7,290.00	72.61	29.96	102.56
	Pampanga	44	5,486.00	1,824.00	1,332.00	87	16909.00	5412.00	4904.00	2	399.00	250.00	120.00	133	22,794.00	7,486.00	6,356.00	32.84	27.88	60.73
	Pangasinan	63	13,743.00	9,221.00	4,363.00	317	45028.00	34740.00	14955.00	74	10,301.00	8,249.00	2,837.00	454	69,432.00	52,213.00	22,155.00	75.20	31.91	107.11
	Tarlac	15	5,956.00	3,138.00	1,550.00	8	3118.00	950.00	765.00	36	5,501.00	3,288.00	1,521.00	59	14,585.00	7,376.00	3,836.00	50.57	26.30	76.87
	Zambales	20	2,651.00	1,362.00	951.00	52	4383.00	1336.00	661.00	15	243.00	198.00	114.00	87	7,277.00	2,896.00	1,726.00	39.80	23.72	63.52
	TOTAL	265	47,825.00	28,776.00	17,281.00	666	82383.00	50511.00	27783.00	400	36,182.00	25,148.00	9,799.00	1331	166,390.00	104,435.00	54,863.00	62.77	32.97	95.74
	Batangas	27	1,516.00	1,147.00	1,039.00	24	539.00	401.00	401.00	13	669.00	669.00	669.00	64	2,724.00	2,217.00	2,109.00	81.39	77.42	158.81
	Cavite	3	128.00	110.00	50.00	2	182.00	182.00	182.00	0	-	-	-	5	310.00	292.00	232.00	94.19	74.84	169.03
	Laguna	28	1,867.00	1,785.00	1,839.00	16	629.00	532.00	532.00	60	2,078.00	2,078.00	2,078.00	101	4,574.00	4,375.00	4,449.00	95.65	97.27	192.92
IV	Marinduque	30	914.00	275.00	207.00	2	26.00	0.00	0.00	2	53.00	-	-	34	993.00	275.00	207.00	27.69	20.85	48.54
	Palawan	44	7,642.00	2,126.00	1,428.00	17	2840.00	1359.00	817.00	5	627.00	189.00	189.00	66	11,109.00	3,674.00	2,434.00	33.07	21.91	54.98
	Quezon	62	2,729.00	2,292.00	2,157.00	38	1757.00	1374.00	1096.00	129	5,146.00	4,934.00	3,861.00	229	9,632.00	8,600.00	7,114.00	89.29	73.86	163.14
	Mindoro Oriental	17	4,930.00	3,558.00	2,307.00	8	4169.00	0.00	0.00	45	5,200.00	5,150.00	2,557.00	70	14,299.00	8,708.00	4,864.00	60.90	34.02	94.92
	MindoroOccidental	20	3,726.00	2,972.00	1,715.00	5	172.00	140.00	90.00	34	4,325.00	2,218.00	1,660.00	59	8,225.00	5,330.00	3,465.00	64.80	42.13	106.93
	Rizal	31	1,656.00	1,069.00	704.00	28	1536.00	1199.00	948.00	0	-	-	-	59	3,192.00	2,268.00	1,652.00	71.05	51.75	122.81
	Romblon	38	1,358.00	854.00	674.00	9	288.00	212.00	241.00	3	72.00	72.00	72.00	50	1,718.00	1,138.00	987.00	66.24	57.45	123.69
	TOTAL	300	26,468.00	16,168.00	12,120.00	143	12138.00	5399.00	4307.00	294	18,170.00	15,310.00	11,086.00	737	56,776.00	36,877.00	27,513.00	64.95	48.46	113.41
	Albay	28	5,224.00	3,394.00	3,161.00	313	26882.00	19048.00	14676.00	23	287.00	-	-	364	31,393.00	22,442.00	17,837.00	71.49	56.82	128.31
	Camarines Norte	27	1,964.00	647.00	616.00	68	880.00	65.00	35.00	6	342.00	97.00	97.00	101	3,186.00	809.00	748.00	25.39	23.48	48.87
	Camarines Sur	109	15,101.00	6,085.00	5,342.00	31	5451.00	3090.00	2654.00	148	16,817.00	12,641.00	6,797.00	288	37,369.00	21,816.00	14,193.00	58.38	37.98	96.36
V	Catanduanes	31	1,197.00	556.00	334.00	14	465.00	7.00	10.00	0	-	-	-	45	1,662.00	563.00	344.00	33.87	20.70	54.57
	Masbate	21	1,304.00	516.00	402.00	9	351.00	45.00	30.00	117	2,317.00	310.00	181.00	147	3,972.00	871.00	613.00	21.93	15.43	37.36
	Sorsogon	44	3,831.00	2,597.00	2,519.00	31	1782.00	532.00	0.00	103	2,947.00	-	-	178	8,560.00	3,129.00	2,519.00	36.55	29.43	65.98
	TOTAL	260	28,621.00	13,795.00	12,374.00	466	34811.00	22787.00	16805.00	397	22,710.00	13,048.00	7,075.00	1123	86,142.00	49,630.00	36,254.00	57.61	42.09	99.70
	Aklan	28	2,248.00	1,512.00	1,355.00	0	0.00	0.00	0.00	0	-	-	-	28	2,248.00	1,512.00	1,355.00	67.26	60.28	127.54
	Antique	34	4,763.00	3,817.00	3,469.00	14	1118.00	755.00	567.00	88	3,102.00	2,860.00	2,572.00	136	8,983.00	7,432.00	6,608.00	82.73	73.56	156.30
	Capiz	28	2,413.00	1,099.00	826.00	0	0.00	0.00	0.00	0	-	-	-	28	2,413.00	1,099.00	826.00	45.54	34.23	79.78
VI	Iloilo & Guimaras	42	4,692.00	2,465.00	1,743.00	16	679.00	269.00	269.00	51	2,397.00	117.00	117.00	109	7,768.00	2,871.00	2,129.00	36.96	27.41	64.37
	Negros Occ.***	25	2,174.00	1,225.00	1,231.00	0	0.00	0.00	0.00	0	-	-	-	25	2,174.00	1,225.00	1,231.00	56.35	56.62	112.97
	Negros Or.***	0	-	-	-	4	890.00	810.00	650.00	0	-	-	-	4	890.00	810.00	650.00	91.01	73.03	164.04
	TOTAL	157	16,290.00	10,138.00	8,624.00	34	2687.00	1834.00	1486.00	139	5,499.00	2,977.00	2,689.00	330	24,476.00	14,949.00	12,799.00	61.08	52.29	113.37

表-5　西暦1996年に於ける既存共同灌漑システムのリスト(2/2)

WATER RES. REGION	PROVINCE	AMORTIZING SYSTEMS				NON-AMORT. & OTHER GOVT AGENCY ASST				PRIVATE SYSTEMS				TOTAL				IRRIGATION INTENSITY (%)		
			Service	Irrigated Area (ha)			Service	Irrigated Area (ha)			Service	Irrigated Area (ha)			Service	Irrigated Area (ha)		Wet	Dry	Total
		Number	Area (ha)	Wet	Dry	Number	Area (ha)	Wet	Dry	Number	Area (ha)	Wet	Dry	Number	Area (ha)	Wet	Dry			
	Bohol	48	5,179.00	2,999.00	2,831.00	72	2249.00	1573.00	718.00	108	2,098.00	1,746.00	880.00	228	9,526.00	6,318.00	4,429.00	66.32	46.49	112.82
	Cebu	44	3,346.00	1,391.00	1,389.00	3	98.00	0.00	0.00	3	81.00	-	41.00	50	3,525.00	1,391.00	1,430.00	39.46	40.57	80.03
VII	Negros Occ.***	2	597.00	66.00	50.00	0	0.00	0.00	0.00	0	-	-	-	2	597.00	66.00	50.00	11.06	8.38	19.43
	Negros Or.***	26	4,390.00	2,825.00	2,798.00	19	710.00	565.00	400.00	10	340.00	320.00	280.00	55	5,440.00	3,710.00	3,478.00	68.20	63.93	132.13
	Siquijor	5	335.00	97.00	90.00	15	130.00	98.00	72.00	0	-	-	-	20	465.00	195.00	162.00	41.94	34.84	76.77
	TOTAL	125	13,847.00	7,378.00	7,158.00	109	3187.00	2236.00	1190.00	121	2,519.00	2,066.00	1,201.00	355	19,553.00	11,680.00	9,549.00	59.74	48.84	108.57
	Northern Leyte & Biliran	34	8,116.00	2,833.00	2,529.00	66	10243.00	4721.00	3857.00	47	4,312.00	2,204.00	1,969.00	147	22,671.00	9,758.00	8,355.00	43.04	36.85	79.90
	Southern Leyte	40	2,771.00	2,045.00	2,005.00	37	1211.00	859.00	687.00	46	619.00	433.00	330.00	123	4,601.00	3,337.00	3,022.00	72.53	65.68	138.21
VIII	Eastern Samar	27	1,260.00	699.00	365.00	36	839.00	212.00	65.00	0	-	-	-	63	2,099.00	911.00	430.00	43.40	21.44	64.84
	Northern Samar	33	2,434.00	307.00	248.00	12	455.00	146.00	20.00	0	-	-	-	45	2,889.00	453.00	268.00	15.68	9.28	24.96
	Western Samar	23	1,633.00	331.00	321.00	0	0.00	0.00	0.00	0	-	-	-	23	1,633.00	331.00	321.00	20.27	19.66	39.93
	TOTAL	157	16,214.00	6,215.00	5,468.00	151	12748.00	5938.00	4649.00	93	4,931.00	2,637.00	2,299.00	401	33,893.00	14,790.00	12,416.00	43.64	36.63	80.27
	Basilan	2	186.00	130.00	130.00	0	0.00	0.00	0.00	0	-	-	-	2	186.00	130.00	130.00	69.89	69.89	139.78
	Misamis Occ.	32	3,558.00	3,010.00	2,993.00	8	1443.00	1443.00	1443.00	5	115.00	115.00	115.00	45	5,116.00	4,568.00	4,551.00	89.29	88.96	178.24
	Sulu	0	-	-	-	0	0.00	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
IX	Tawi-Tawi	0	-	-	-	0	0.00	0.00	0.00	0	-	-	-	0	-	-	-	-	-	-
	Zamboanga Norte	51	5,344.00	3,833.00	2,981.00	0	0.00	0.00	0.00	0	-	-	-	51	5,344.00	3,833.00	2,981.00	71.73	55.78	127.51
	Zamboanga Sur	54	9,180.00	5,854.00	5,027.00	42	1738.00	1014.00	915.00	30	1,972.00	1,832.00	1,349.00	126	12,890.00	8,700.00	7,291.00	67.49	56.56	124.06
	TOTAL	139	18,268.00	12,827.00	11,131.00	50	3181.00	2457.00	2358.00	35	2,087.00	1,947.00	1,464.00	224	23,536.00	17,231.00	14,953.00	73.21	63.53	136.74
	Agusan Norte	24	2,668.00	1,505.00	916.00	36	1922.00	0.00	0.00	14	960.00	-	-	74	5,570.00	1,505.00	916.00	27.02	16.45	43.46
	Agusan Sur	17	2,490.00	661.00	669.00	29	1510.00	448.00	307.00	41	1,615.00	467.00	-	87	6,615.00	1,576.00	976.00	28.07	17.38	45.45
	Bukidnon***	7	2,010.00	452.00	370.00	2	95.00	0.00	52.00	0	-	-	-	9	2,105.00	452.00	422.00	21.47	20.05	41.52
X	Camiguin	9	373.00	160.00	161.00	3	125.00	0.00	0.00	1	10.00	10.00	10.00	13	508.00	170.00	171.00	33.46	33.66	67.13
	Davao Norte***	15	2,491.00	1,488.00	1,447.00	0	0.00	0.00	0.00	4	785.00	680.00	680.00	19	3,276.00	2,168.00	2,127.00	66.18	64.93	131.11
	Misamis Oriental	24	1,228.00	781.00	893.00	7	483.00	23.00	23.00	1	80.00	80.00	40.00	32	1,791.00	884.00	956.00	49.36	53.38	102.74
	Surigao Norte	22	2,987.00	1,472.00	1,426.00	56	2073.00	1702.00	1050.00	23	554.00	397.00	20.00	103	5,614.00	3,571.00	2,496.00	63.61	44.46	108.07
	TOTAL	118	14,267.00	6,519.00	5,882.00	135	6208.00	2173.00	1432.00	84	4,004.00	1,634.00	750.00	337	24,479.00	10,326.00	8,064.00	42.18	32.94	75.13
	Davao Norte***	8	1,028.00	681.00	671.00	12	3130.00	2067.00	2027.00	20	3,311.00	2,512.00	2,435.00	40	7,469.00	5,260.00	5,133.00	70.42	68.72	139.15
	Davao Oriental	11	1,405.00	609.00	563.00	10	735.00	0.00	0.00	1	20.00	20.00	20.00	22	2,160.00	629.00	583.00	29.12	26.99	56.11
XI	Davao Sur	24	6,715.00	5,483.00	5,289.00	21	1756.00	864.00	829.00	16	4,407.00	1,180.00	1,100.00	61	12,878.00	7,527.00	7,218.00	58.45	56.05	114.50
	Surigao sur	25	2,912.00	852.00	697.00	0	0.00	0.00	0.00	0	-	-	-	25	2,912.00	852.00	697.00	29.26	23.94	53.19
	South Cotabato***	24	4,872.00	3,118.00	2,628.00	0	0.00	0.00	0.00	0	-	-	-	24	4,872.00	3,118.00	2,628.00	64.00	53.94	117.94
	TOTAL	92	16,932.00	10,743.00	9,848.00	43	5621.00	2931.00	2856.00	37	7,738.00	3,712.00	3,555.00	172	30,291.00	17,386.00	16,259.00	57.40	53.68	111.07
	Bukidnon***	21	4,495.00	3,142.00	3,050.00	12	874.00	145.00	635.00	31	2,547.00	-	1,517.00	64	7,916.00	3,287.00	5,202.00	41.52	65.72	107.24
	Lanao del Norte	26	7,274.00	5,190.00	3,373.00	14	933.00	463.00	334.00	36	1,168.00	926.00	814.00	76	9,375.00	6,579.00	4,521.00	70.18	48.22	118.40
	Lanao del Sur	9	1,237.00	647.00	402.00	0	0.00	0.00	0.00	0	-	-	-	9	1,237.00	647.00	402.00	52.30	32.50	84.80
XII	Maguindanao	47	8,690.00	3,657.00	2,450.00	8	460.00	115.00	20.00	4	225.00	-	-	59	9,375.00	3,772.00	2,470.00	40.23	26.35	66.58
	North Cotabato	43	5,899.00	4,323.00	3,623.00	15	1771.00	0.00	0.00	14	2,074.00	940.00	905.00	72	9,744.00	5,263.00	4,528.00	54.01	46.47	100.48
	Sultan Kudarat	30	9,789.00	6,994.00	5,060.00	15	1511.00	0.00	190.00	5	1,538.00	1,200.00	1,065.00	50	12,838.00	8,194.00	6,315.00	63.83	49.19	113.02
	South Cotabato***	17	2,743.00	1,993.00	1,446.00	12	1660.00	722.00	504.00	14	2,008.00	1,145.00	536.00	43	6,411.00	3,860.00	2,486.00	60.21	38.81	99.02
	TOTAL	193	40,127.00	25,946.00	19,404.00	76	7209.00	1445.00	1683.00	104	9,560.00	4,211.00	4,839.00	373	56,896.00	31,602.00	25,926.00	55.54	45.57	101.11
	GRAND TOTAL	2361	261,470.00	167,243.30	131,585.30	2522	207062.00	126976.00	80466.00	4228	182,516.00	130,744.00	82,458.00	9111	671,048.00	424,963.30	294,509.30	63.33	43.89	107.22

*** *Province divided by water resources region*

Irrigation Intensity, % = Total Irrigated Area (Wet + Dry) / Total Service Area x 100

Data do not include individual pump

Source: National Irrigation Administration

表-6　フィリピン国の包蔵水力

Grid System	Status of Scheme	Installed Capacity (MW)	(Share)	Energy Output (GWh)	(Share)
(1) Luzon	Existing	1,273	15 (%)	3,818	12 (%)
	Prefeasibility	3,444	40 (%)	14,895	47 (%)
	Feasibility	1,922	22 (%)	6,907	22 (%)
	Definite Design	1,950	23 (%)	6,185	19 (%)
	Subtotal (1)	8,589	100 (%)	31,805	100 (%)
(2) Visayas	Existing	13	3 (%)	51	3 (%)
	Prefeasibility	95	22 (%)	403	27 (%)
	Feasibility	226	53 (%)	833	55 (%)
	Definite Design	96	22 (%)	229	15 (%)
	Subtotal (1)	430	100 (%)	1,516	100 (%)
(3) Mindanao	Existing	992	30 (%)	4,571	32 (%)
	Prefeasibility	1,193	36 (%)	4,799	34 (%)
	Feasibility	1,104	34 (%)	4,768	34 (%)
	Definite Design	-	-	-	-
	Subtotal (1)	3,289	100 (%)	14,138	100 (%)
Whole Philippines	Existing	2,278	19 (%)	8,440	18 (%)
	Prefeasibility	4,732	38 (%)	20,097	42 (%)
	Feasibility	3,252	26 (%)	12,508	26 (%)
	Definite Design	2,046	17 (%)	6,414	14 (%)
	Subtotal (1)	12,308	100 (%)	47,459	100 (%)

Data source : *1996 Power Development Program by NPC*

表-7 西暦2025年に於ける水資源区毎の水資源開発可能量と水需要量の比較

i) Case 1 : High Economic Growth Scenario Based on the NEDA's Projection

No.	Water Resources Region	Water Resources Potentials (MCM/year)			Water Demand* (MCM/year)								Ratio of Potential to Demand
					M&I Water Demand			Agricultural Water Demand				Total	
		Ground-Water	Surface Water	Total	Municipal	Industrial	Subtotal-1	Irrigation	Livestock/ Poultry	Fishery	Subtotal-2		
		(1)	(2)	(4)=(1)+(2)	(6)	(7)	(8)=(6)+(7)	(9)	(10)	(11)	(12)=(9)+(10)+(11)	(13)=(8)+(12)	(4)/(13)
1	WRR I	1,248	10,100	11,348	170	120	290	2,653	16	82	2,752	3,041	3.73
2	WRR II	2,825	16,800	19,625	140	27	168	12,170	31	98	12,299	12,466	1.57
3	WRR III	1,721	10,800	12,521	955	758	1,713	12,546	72	3,837	16,455	18,168	0.69
4	WRR IV	1,410	19,700	21,110	3,101	1,929	5,030	4,184	68	770	5,022	10,052	2.10
5	WRR V	1,085	9,960	11,045	261	41	302	3,492	24	348	3,864	4,167	2.65
6	WRR VI	1,144	19,500	20,644	500	609	1,110	3,784	36	2,666	6,486	7,595	2.72
7	WRR VII	879	3,770	4,649	564	541	1,105	945	38	641	1,624	2,729	1.70
8	WRR VIII	2,557	15,900	18,457	237	196	432	1,343	28	152	1,524	1,956	9.44
9	WRR IX	1,082	16,200	17,282	381	78	458	1,491	29	2,620	4,140	4,598	3.76
10	WRR X	2,116	42,100	44,216	389	325	714	2,671	20	278	2,969	3,682	12.01
11	WRR XI	2,375	16,300	18,675	258	263	521	2,913	42	665	3,620	4,141	4.51
12	WRR XII	1,758	25,100	26,858	475	111	586	11,691	29	500	12,220	12,806	2.10
	Total	20,200	206,230	226,430	7,430	4,998	12,428	59,885	434	12,655	72,973	85,401	2.65

Notes : 1. * ; The water demand in high economic growth scenario which is estimated based on the NEDA's projection is applied.
2. The potentials of surface water were estimated on the condition that the maximum available discharge is the one with 50 % dependability.

ii) Case 2 : Low Economic Growth Scenario

No.	Water Resources Region	Water Resources Potentials (MCM/year)			Water Demand** (million m3/year)								Ratio of Potential to Demand
					M&I Water Demand			Agricultural Water Demand				Total	
		Ground-Water	Surface Water	Total	Municipal	Industrial	Subtotal-1	Irrigation	Livestock/ Poultry	Fishery	Subtotal-2		
		(1)	(2)	(4)=(1)+(2)	(6)	(7)	(8)=(6)+(7)	(9)	(10)	(11)	(12)=(9)+(10)+(11)	(13)=(8)+(12)	(4)/(13)
1	WRR I	1,248	10,100	11,348	170	93	263	2,532	9	70	2,611	2,874	3.95
2	WRR II	2,825	16,800	19,625	140	21	162	7,357	16	83	7,457	7,618	2.58
3	WRR III	1,721	10,800	12,521	955	433	1,387	9,920	35	3,276	13,231	14,618	0.86
4	WRR IV	1,410	19,700	21,110	3,101	1,154	4,255	2,423	33	658	3,113	7,368	2.87
5	WRR V	1,085	9,960	11,045	261	29	291	2,241	13	297	2,551	2,841	3.89
6	WRR VI	1,144	19,500	20,644	500	565	1,065	2,846	19	2,276	5,141	6,206	3.33
7	WRR VII	879	3,770	4,649	564	303	867	793	19	547	1,359	2,226	2.09
8	WRR VIII	2,557	15,900	18,457	237	101	337	1,164	14	130	1,307	1,644	11.22
9	WRR IX	1,082	16,200	17,282	381	40	421	944	15	2,237	3,195	3,616	4.78
10	WRR X	2,116	42,100	44,216	389	244	632	1,373	10	237	1,620	2,253	19.63
11	WRR XI	2,375	16,300	18,675	258	230	488	1,314	20	567	1,902	2,390	7.81
12	WRR XII	1,758	25,100	26,858	475	98	573	5,930	16	427	6,373	6,946	3.87
	Total	20,200	206,230	226,430	7,430	3,310	10,740	38,837	218	10,806	49,860	60,600	3.74

Notes : 1. ** ; The water demand in low economic growth scenario is applied.
2. The potentials of surface water were estimated on the condition that the maximum available discharge is the one with 50 % dependability.

表-8 水資源開発に関るダム候補リスト (1/2)

No	WRR	Name of Dam	River System	Dam CA (km²)	Dam Type	Dam Height (m)	Dam Crest Length (m)	Dam Volume (10⁶ m³)	Reservoir FWL (EL.m)	Reservoir HWL (EL.m)	Reservoir LWL (EL.m)	Reservoir Tail WL (EL.m)	Reservoir F/C Space (10⁶ m³)	Reservoir Gross (10⁶ m³)	Reservoir Active (10⁶ m³)	Reservoir Dead (10⁶ m³)	Reservoir Area (km²)	Hydroelectric power (MW)	Hydroelectric power (GWh)	Irrigation (ha)	Cost (US$ 10⁶)	Consultant/Agency	Status
1	I	Cura-Tina-Gangas	Laoag	233	Rockfill	85.0	254	1.5	188	178	140	-	-	34	33	1	1.6	6	24	8,600	140	Asiatic	F/S
2	I	Palsiguan/Nueva	Abra/Laoag	153	rockfill/Conc. gra	143.5	480	9.1	-	335	275	-		232	189	43	5	36	160	12,400	716	//JICA	F/S
3	I	Binongan/Timeg	Abra	683	Rockfill/Conc. Weir	112.0	375	3.4	383	380	350	-	9	121	79	42	4	175	718	-	468	Shawinigan/ADB	F/S
4	I	Supo	Abra	1,293	Rockfill	138.0	440	6.0	325	320	280	-	300	1,132	832	300	32	120	340	-	368	NK/JICA	Master Plan
5	II	Agbulu	Abulug/Apayao	773	Rockfill	233.0	610	22.1	373	370	310	136	-	3,424	2,164	1,260	49	360	1,479	-	994	ELC	F/S
6	II	Gened	Abulug/Apayao	1,661	Conc. Arch	175.0	472	2.0	-	180	160	-	-	2,800	1,200	1,600	63	600	1,632	-	892	New JEC	D/D
7	II	Bantay	Cagayan	742	Earthfill	64.0	320	2.6	67	62	45	-	354	1,046	1,278	368	105	40	68	-	188	NK/JICA	Master Plan
8	II	Chico IV	Cagayan	1,410	Rockfill	160.0	890	17.8	-	451	411	-	-	740	430	310	14	360	955	-	758	Lahmeyer	D/D
9	II	Abuan	Cagayan	487	Rockfill	100.0		2.6	136	131	110	-	-	250	124	126	-	60	172	610	159	Lahmeyer/NK	F/S
10	II	Mallig II	Cagayan	362+1,931	Rockfill	84.0	300	2.4	185.5	180	160	-	112	1,037	545	-	41	-	-	-	99	NK/JICA	Master Plan
11	II	Siffu I	Cagayan	630	Earthfill	58.0	240	1.7	115.5	106	97	-	115	314	93	-	19	5.4	41	-	67	NK/JICA	Master Plan
12	II	Magat	Cagayan/Magat	4,143	Rock/Gra	114.0	2,925		197	193	158	-	210	1,254	969	210	17	300	991	104,600	-	Bu.Recla US	Existing(1983)
13	II	Matuno	Cagayan/Magat	593	Rockfill	147.0	580	10.0	525	520	480	-	-	137	97	40	-	180	528	13,600	668	NK/JICA	F/S
14	II	Addalam A	Cagayan/Addalam	849	RCC	60.0									32			45	102				F/S
15	II	Ilaguen B	Cagayan/Ilaguen		RCC										31			46	102				F/S
16	II	Diduyon	Cagayan	477	Conc. Gravity	111.0	375	1.2	-	648	620	162	-	579	454	125	-	352	957	-	664	New JEC	F/S
17	III	Maikong	Amburayan	100	Rockfill	147.0	400	9.5	-	900	885	-	-	102	26	76	1.9	-	-	-	400	JICA	Map Study
18	III	Amburayan	Amburayan	135	Rockfill	137.0	400	8.0	-	760	720	-	-	104	64	40	2.1	-	-	-	400	JICA	Map Study
19	III	Boloc II	Agno	306	Rockfill	177.0	570	20.0	-	1,030	1,015	870	-	280	64	216	4.6	36	66	-	614	JICA	Map Study
20	III	Mount Cone	Agno	390	Rockfill	142.0	400	9.0	-	880	860	750	-	120	46	74	2.8	40	73	-	326	JICA	Map Study
21	III	Ambuklao	Agno	612	Rockfill	129.0	452	5.8	-	752	694	524	-	327	258	69	-	75	300	-	-	Harza	Existing(1956)
22	III	Binga	Agno	854	Rockfill	107.4	215	1.9	-	575	555	417	-	91	33	58	-	100	316	-	-	Harza	Existing(1960)
23	III	Luboy II	Agno/Luboy	48.6	Rockfill	75.0	500	5.3		818	811			13.9	3.0	10.9	0.5	-	-	-		JICA	Map Study
24	III	Tebbo	Agno	1,072	Rockfill	142.0	320	7.0	-	415	395	280	-	285	110	175	6.6	120	219	-	287	JICA	Map Study
25	III	San Roque	Agno	1,235	Rockfill	200.0	1,130	38.5	290	280	225	-	140	850	530	140	13	345	1,030	87,000	1,050	ELC	On-Going
26	III	Mahiri	Balincaguin	225	Rockfill	88.5	530	4.1	65	63	38			345	240	105	15			11,500			F/S
27	III	Balog-Balog	Agno/Tarlac	283	Rockfill	113.5	1,400	11.8	241	238	180	-	45	625	575	50	18	33	98	44,350	292	ELC	F/S
28	III	Pantabangan	Pampanga	853	Earthfill	107.0	1,615	12.0	230	221	177	128	-	2,310	1,973	337	-	100	230	102,000	-	USAID/IBRD	Existing(1977)
29	III	Abeca (Casecnan)	Cagayan/Pampanga	590	Rockfill	107.0	500	4.2	499	490	473	-	-	130	58	72	-	270	495	-	652	ELC/IBRD	On-going
30	III	Conwap (Casecnan)	Cagayan/Pampanga	1,150	Rockfill	168.5	913	19.4	394	390	375	-	-	1,207	321	888	-	-	442	66,500	591	ELC/IBRD	On-going
31	III	Angat	Pampanga/Angat	568	Rockfill	131.0	568	7.1	219	217	180	-	-	1,075	850	225	23	218	398	30,000	-	Harza/IBRD	Existing(1967)
32	III	Umiray-Angat	Umiray/Angat	160	Concrete Weir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	C.Lotti/ADB	On-going
33	III	Balintingon	Pampanga/Sumacbao	228	Rockfill	128.0	490	8.6						559	463	96	14	40	132	18,800			F/S
34	III	Bayabas	Pampanga	50	Rockfill	107.0	620	-	191	187	120	-	48	-	148	-	4.8	-	-	-	-	ELC/Asiatic/World Bank	Pre-F/S
35	III	Maasim	Pampanga	54	Rockfill	52.0	1,400	-	82	80	55	-	10	-	100	-	9.0	-	-	-	-	ELC/Asiatic/World Bank	Pre-F/S
36	IV	Laiban	Agos/Kaliwa	276	Rockfill	141.0	588	9.7	278	270	235	134	-	-	472	-	20	21		-	1,104	Electrowatt	D/D
37	IV	Kanan	Agos/Kanan	286	Rockfill	157.7	430	2.0	-	316	267	-	-	1,526	1,137	389	40	-	-	-	245	JICA	Map Study
38	IV	Caliraya	Caliraya	92	Earthfill	42.0	-	-	-	-	-	-	-	-	-	-	-	300		-	-		Existing(1947)
39	IV	Amnay	Amnay-Patric	145	Rockfill	97.0	1,400	14.0	204	200	180	98	20	155	80	75	4	15	26		445	JICA	Map Study
40	V	Sipocot	Bicol/Sipocot	447	Rockfill	64.0	600	2.3	60	57	35	-	150	1,270	870	400	52	30	55	18,000	133	JICA	Map Study
41	V	Talisay	Bicol/Talisay	100	Rockfill	58.0	400	1.2	90	85	70	-	125	315	231	84	25	4.4	8	3,000	56	JICA	Map Study
42	VI	Panay	Panay	239	Con. Gravity	52.4	160	-	75	65	57	-	-	96	31	-	-	7	31	-	40	NK/JICA	F/S
43	VI	Jalaur	Jalaur	109	Arch	145.0	405			221	158.7			370	337	33	10	20	58	22,000		ELC/NK	D/D
44	VI	Bago	Bago	402	Rockfill	125.0	605	5.3	-	300	255	-	-	-	64	-	-	183	497	-	267	Shawinigan/ADB	F/S
45	VI	Ilog No.1	Ilog-Hilabangan	1,389	Rockfill	81.0	750	5.0	80	75	55	-	110	650	370	280	25	52	95	24,000	237	//JICA	F/S
46	VII	Buhisan	Buhisan	5.9	Conc Arch	26.0		-	-	-	-	-	-	-	0.26	-	-	-	-	-	-		Existing(1910)
47	VII	Malubog	Sapang Daku	70	Rockfill	65.0	520	-	-	180	162	-	-	81	47	21	3	-	-	-	148	JICA	Map Study
48	VII	Manangа II	Manonga	68	Rockfill	90.0	240	0.5	161	154	110	-	-	48	41	7	1.5	-	-	-	130	Electrowatt/ADB	F/S
49	VII	Lusaran	Balamban	67	Rockfill	100.0	315	3.2	232	228	163	-	-	126	116	10	-	-	-	-	83	Camp Dresser/McKee	D/D
50	VII	Cebu F6 (Pulambato)	Butuanon	21	Rockfill	55.0	300	-	98	95	85	-	1	6	2	1	0.3	-	-	-	82	JICA	Map Study
51	VII	Tipolo	Inabanga	500	Con. Gravity	60.0		-	-	75	65	-	-	210	120	90	15	-	-	-	159	JICA	Map Study
52	IX	Pasonaca	Tumaga	101	Rockfill	86.0		-	-	109	95	-	-	-	13.9	30.3	1.3	-	-	-	-	JICA	Map Study
53	X	Bulanog-Batang	Cagayan de Oro	533	RCC	126.0		1.4	-	475	460	-	-	-	28.3	-	-	132	290	-	-	ELC	D/D
54	X	Tagoloan	Tagoloan	288	Rockfill	117.0	500	8.0	524	520	500	412	16	184	83.0	101	5.6	22	38		282	JICA	Map Study
55	XI	Buhonao	Tagum-Libuganon	666	Rockfill	80.0	400	2.5	129	125	100	58	150	1,020	770.0	300	40	63	100		180	JICA	Map Study

Note: Map Study in the column of Status means that the scheme was formulated in this study at a map study level.

表-8 水資源開発に関るダム候補リスト (2/2)

No	WRR	Name of Dam	River System	Dam: CA (km^2)	Type	Height (m)	Crest Length (m)	Volume ($10^6 m^3$)	Reservoir: FWL (El. m)	NWL (El. m)	LWL (El. m)	Tail WL (El. m)	F/C Space ($10^6 m^3$)	Gross ($10^6 m^3$)	Active ($10^6 m^3$)	Dead ($10^6 m^3$)	Area (km^2)	Hydroelectric power (MW)	(GWh)	Irrigation (ha)	Cost (US$ 10^6)	Consultant/Agency	Status
56	XI	Davao I	Davao	367	Rockfill	90.0	450	4.0	455	450	430	380	135	740	405	135	26	36	66	-	189	JICA	Map Study
57	XI	Davao II	Davao	820	Rockfill	112.0	350	5.0	385	380	360	285	-	436	224	212	14	100	180	-	265	JICA	Map Study
58	XI	Davao III_a	Davao	163	Rockfill	132.0	430	7.5	-	465	445	-	-	111	56	55	3.5	24	44	-	268	JICA	Map Study
59	XI	Dumulog	Bukayan-Malungun	99	Rockfill	120.0	430	6.0	384	380	350	-	45	293	193	100	9	-	-	-	200	JICA	Map Study
60	XII	Agus I	Agus(Lake Lanao)	1,645	-										1,715			80	456				Existing(1992)
61	XII	Agus II	Agus		Earthfill	29.0												180	756				Existing(1979)
62	XII	Agus III	Agus	1,844	Rockfill	58.0				524	516				0.7			225	1,065			ELC -> Lavalin	F/S
63	XII	Agus IV	Agus		Rockfill	32.0									24			158	762				Existing(1985)
64	XII	Agus V	Agus		Conc.gravity													55	265				Existing(1985)
65	XII	Agus VI	Agus(Maria Cristina)		Rockfill	12.5				203					1.2			200	1,016				Existing(1977)
66	XII	Agus VII	Agus		Conc.gravity													54	274				Existing(1983)
67	XII	Pulangi I	Mindanao/Pulangi	376	Rockfill	100.0				660	626				1,715			24	105			Sofreles	Pre-F/S
68	XII	Pulangi II	Mindanao/Pulangi	737	Rockfill	110.0				557	523				535			70	257			Sofreles	Pre-F/S
69	XII	Pulangi III	Mindanao/Pulangi	1,339	Rockfill	90.0	632	7.6	-	417	380	-	-	-	1,156	-	71	90	382	-	477	MERALCO	F/S
70	XII	Pulangi IV	Mindanao/Pulangi	3,633		115.0												255	1,012				Existing(1985)
71	XII	Pulangi V	Mindanao/Pulangi	4,652	Gravity	125.0	228			160	123				1,190			348	1,310			Sofreles	Pre-F/S
72	XII	Pulangi VI	Mindanao/Pulangi	5,216	Gravity	30.0	139											70	340			Sofreles	Pre-F/S
73	XII	Maganoy	Mindanao/Cabulanan	550	Earthfill	45.0	226		-	687	660	-	-	-	62	-	10	66	315	13,000	34	Asiatic	F/S

Note: Map Study in the column of Status means that the scheme was formulated in this study at a map study level.

表-9 将来水需給逼迫を起こし得る主要都市の選定基準

(1) Present groundwater extraction volume

Point	Sphere	Percentage of WD
4	10 MCM/year or more	2.0 %
3	5 MCM/year or more and less than 10 MCM/year	2.5 %
2	3 MCM/year or more and less than 5 MCM/year	1.7 %
1	less than 3 MCM/year	93.8 %

(2) Type of water sources

Point	Sphere	Percentage of WD
4	Only SW was developed	3.5 %
3	SW/GW were developed, & SW was larger than GW	3.7 %
2	SW/GW were developed, & GW was larger than SW	1.5 %
1	Only GW was developed	91.3 %

(3) Population (value in deviation square for the province)

Point	Sphere	Percentage of WD
4	10 or more	0.7 %
3	5 or more & less than 10	1.0 %
2	2 or more & less than 5	8.7 %
1	less than 2	89.6 %

(4) Population density

Point	Sphere	Percentage of WD
2.0	10 or more	0.5 %
1.5	5 or more & less than 10	1.2 %
1.0	2 or more & less than 5	6.0 %
0.5	less than 2	92.3 %

(5) Ratio of groundwater potential to present water demand

Point	Sphere	Percentage of WD
2.0	10% or more	0.5 %
1.5	5% or more & less than 10%	1.5 %
1.0	1% or more & less than 5%	9.5 %
0.5	less than 1%	88.6 %

(6) Ratio of groundwater potential to future water demand

Point	Sphere	Percentage of WD
2.0	10% or more	2.2 %
1.5	5% or more & less than 10%	1.2 %
1.0	1% or more & less than 5%	8.5 %
0.5	less than 1%	88.1 %

表-10 将来水需給逼迫を起こし得る主要都市の選定結果

WRK	Province	Water District	DW	P-1	SP	Q: GW	Q: SW	P-2	Q WD	S/Area	Pop'95	Rainfall	Potential	Cons.'95	P-5	Cons.'25	P-6	UWC	Pop.'95	P/sqdev	P-3	PD/sqdev	P-4	Cover	Total-P
-	-	-	MCM/year	-	MCM/year	MCM/year	MCM/year	-	MCM/year	sq. km	cap/ita	mm/y	MCM/year	%	-		-	lpcd	capita	%	-	%	-	%	-
4	Metro Manila	MWSS	26.88	4	0.00	26.88	949.10	3	975.98	636.0	7,291,480	1,631	1,037.3	2.59%	1.0	2.59%	1.0	366.72	11,425,000	-	4	-	2.0	63.82%	15.0
7	Cebu	Metro Cebu WD	51.97	4	0.00	51.97	0.67	2	52.64	489.3	300,000	1,585	775.5	6.70%	1.5	6.70%	1.5	480.73	1,157,470	11.016	4	2.393	1.0	25.92%	14.0
3	Pampanga	Angeles City WD	19.05	4	0.00	19.05	0.00	1	19.05	60.3	92,710	1,692	102.0	18.67%	2.0	67.68%	2.0	563.05	234,010	2.147	2	2.992	1.0	39.62%	12.0
10	Misamis Oriental	Cagayan de Oro City WD	26.72	4	1.91	28.63	0.00	1	28.63	412.8	365,100	1,535	633.6	4.52%	1.0	7.14%	1.5	214.83	428,310	9.962	3	2.414	1.0	85.24%	11.5
9	Zamboanga del Sur	Zamboanga City WD	15.49	4	0.00	15.49	8.73	2	24.21	1,414.6	321,000	1,705	2,411.9	0.64%	0.5	0.64%	0.5	206.66	511,140	12.012	4	0.785	0.5	62.80%	11.5
1	Benguet	Baguio City WD	8.24	3	2.54	10.77	0.00	1	10.77	48.9	172,000	3,714	181.6	5.93%	1.5	13.15%	2.0	171.63	226,880	4.874	2	8.276	1.5	75.81%	11.0
11	Davao del Sur	Davao City WD	37.91	4	0.00	37.91	9.86	2	47.76	2,211.3	793,970	2,104	4,652.6	0.81%	0.5	0.81%	0.5	164.81	1,006,840	8.567	3	0.399	0.5	78.86%	10.5
6	Negros Occidental	Bacolod City WD	16.09	4	0.70	16.78	0.00	1	16.78	156.1	130,460	2,757	430.4	3.90%	1.0	9.98%	1.5	352.56	402,350	4.289	2	4.981	1.0	32.42%	10.5
6	Iloilo	Metro Iloilo WD	5.86	3	1.67	7.54	0.00	1	7.54	407.6	113,830	2,357	960.7	0.78%	0.5	2.72%	1.0	181.41	472,590	7.413	3	10.266	2.0	24.09%	10.5
4	Batangas	Batangas City WD	11.83	4	0.00	11.83	0.00	1	11.83	283.0	76,270	1,453	411.2	2.88%	1.0	8.45%	1.5	424.95	211,880	3.343	2	0.203	0.5	36.00%	10.0
4	Cavite	Dasmarinas WD	6.04	3	0.20	6.24	0.00	1	6.24	50.4	151,000	1,526	76.9	8.12%	1.5	20.44%	2.0	113.29	262,410	2.748	2	0.844	0.5	57.54%	10.0
3	Pangasinan	Dagupan City WD	5.35	3	0.00	5.35	0.00	1	5.35	37.2	93,190	1,691	62.9	8.50%	1.5	10.44%	2.0	157.17	126,210	1.781	1	4.585	1.0	73.84%	9.5
8	Leyte	Leyte Metro WD	0.00	1	0.00	0.00	9.51	4	9.51	531.5	177,130	2,282	1,212.9	0.00%	0.5	0.00%	0.5	147.12	314,080	3.761	2	4.431	1.0	56.40%	9.0
4	Laguna	San Pedro WD	2.41	1	0.00	2.41	0.00	1	2.41	22.1	43,840	1,608	35.5	6.79%	1.5	63.66%	2.0	150.80	199,330	2.482	2	6.342	1.5	23.16%	9.0
6	Capiz	Roxas City WD	0.00	1	0.00	0.00	2.34	4	2.34	218.4	45,000	2,572	561.7	0.00%	0.5	0.00%	0.5	142.58	157,840	2.232	2	2.515	1.0	28.51%	9.0
3	Nueva Ecija	Cabanatuan City WD	8.22	3	0.00	8.22	0.00	1	8.22	192.7	151,070	1,738	334.9	2.45%	1.0	1.36%	1.0	149.04	201,030	3.272	2	1.650	0.5	75.15%	8.5
4	Batangas	Lipa City WD	7.01	3	0.31	7.32	0.00	1	7.32	267.9	120,590	1,453	389.3	1.88%	1.0	3.67%	1.0	166.22	222,390	2.647	2	0.365	0.5	54.22%	8.5
3	Pampanga	San Fernando WD	5.44	3	0.00	5.44	0.00	1	5.44	81.2	107,700	1,692	137.4	3.96%	1.0	10.19%	2.0	138.35	193,030	1.596	1	1.445	0.5	55.79%	8.5
4	Laguna	Calamba WD	4.79	2	0.60	5.39	0.00	1	5.39	144.8	74,510	1,608	232.6	2.32%	1.0	14.74%	2.0	198.28	218,950	3.027	2	0.296	0.5	34.03%	8.5
9	Sulu	Jolo Mainland WD	0.00	1	4.45	4.45	0.00	1	4.45	13.5	32,410	1,758	23.7	18.74%	2.0	29.98%	2.0	375.87	76,950	1.583	1	8.273	1.5	42.12%	8.5
12	Lanao del Sur	Marawi City WD	1.66	1	0.00	1.66	0.00	1	1.66	22.6	18,000	1,752	39.6	4.20%	1.0	28.18%	2.0	252.94	114,390	4.605	2	7.233	1.5	15.74%	8.5
10	Surigao del Norte	Metro Surigao WD	0.05	1	0.11	0.16	1.13	3	1.29	245.3	44,550	2,842	697.1	0.02%	0.5	0.02%	0.5	79.19	104,910	5.643	3	1.258	0.5	42.46%	8.5
8	Western Samar	Calbayog City WD	0.00	1	0.00	0.00	0.28	4	0.28	903.0	9,160	2,874	2,595.2	0.00%	0.5	0.00%	0.5	82.86	129,220	4.700	2	-0.104	0.5	7.09%	8.5
3	Tarlac	Tarlac WD	6.50	3	0.00	6.50	0.00	1	6.50	856.5	60,200	1,504	1,288.2	0.50%	0.5	1.06%	1.0	295.68	230,460	3.386	2	-0.558	0.5	26.12%	8.0
5	Camarines Sur	Metro Naga WD	4.31	2	0.96	5.27	0.00	1	5.27	129.5	71,090	2,091	270.8	1.94%	1.0	3.43%	1.0	202.97	162,650	2.297	2	3.050	1.0	43.71%	8.0
8	Western Samar	Catbalogan WD	0.08	1	0.00	0.08	0.57	3	0.65	187.5	18,000	2,874	538.9	0.01%	0.5	0.01%	0.5	98.67	91,810	2.367	2	2.990	1.0	19.61%	8.0
4	Quezon	Quezon Metro WD	0.00	1	29.57	29.57	0.00	1	29.57	557.8	105,720	2,079	1,159.7	2.55%	1.0	4.19%	1.0	766.17	291,800	3.739	2	7.602	1.5	36.23%	7.5
3	Bataan	Balanga WD	5.33	3	0.00	5.33	0.00	1	5.33	165.6	33,430	2,041	338.0	1.58%	1.0	3.64%	1.0	437.18	60,910	0.487	1	-0.228	0.5	54.88%	7.5
3	Bataan	Mariveles WD	5.04	3	0.00	5.04	0.00	1	5.04	153.9	56,330	2,041	314.1	1.61%	1.0	2.77%	1.0	245.32	76,630	0.871	1	-0.023	0.5	73.51%	7.5
4	Palawan	Pto. Princesa City WD	1.15	1	0.09	1.24	2.48	3	3.72	1,295.0	33,210	1,576	2,040.9	0.06%	0.5	0.06%	0.5	306.68	129,580	3.855	2	0.105	0.5	25.63%	7.5
11	Surigao del Sur	Bislig WD	0.00	1	1.00	1.00	1.31	3	2.31	331.8	44,590	3,759	1,247.2	0.08%	0.5	0.08%	0.5	142.07	103,670	3.180	2	1.774	0.5	43.01%	7.5
10	Bukidnon	Malaybalay WD	0.00	1	0.00	0.00	1.82	4	1.82	835.2	26,520	2,318	1,936.0	0.00%	0.5	0.00%	0.5	188.46	112,280	1.627	1	-0.387	0.5	23.62%	7.5
3	Zambales	Masinloc WD	0.00	1	0.00	0.00	0.89	4	0.89	256.0	12,620	2,029	519.4	0.00%	0.5	0.00%	0.5	192.24	34,940	-0.141	1	-0.476	0.5	36.12%	7.5
4	Oriental Mindoro	Pinamalayan WD	0.00	1	0.00	0.00	0.75	4	0.75	277.3	10,140	1,734	480.8	0.00%	0.5	0.00%	0.5	202.47	65,900	0.624	1	0.444	0.5	15.39%	7.5
11	Surigao del Sur	Tandag WD	0.00	1	0.00	0.00	0.43	4	0.43	316.2	11,300	3,759	1,188.6	0.00%	0.5	0.00%	0.5	104.87	39,220	0.581	1	0.102	0.5	28.81%	7.5
4	Quezon	Tagkawayan WD	0.00	1	0.00	0.00	0.34	4	0.34	647.0	7,800	2,079	1,345.1	0.00%	0.5	0.00%	0.5	118.97	40,870	0.090	1	-0.791	0.5	19.08%	7.5
4	Romblon	San Agustin WD	0.00	1	0.00	0.00	0.22	4	0.22	122.4	2,720	1,527	186.9	0.00%	0.5	0.00%	0.5	223.90	20,160	0.401	1	-0.177	0.5	13.49%	7.5
6	Iloilo	Miagao WD	0.00	1	0.00	0.00	0.22	4	0.22	132.9	2,400	2,357	313.2	0.00%	0.5	0.00%	0.5	249.67	52,280	0.315	1	-0.226	0.5	4.59%	7.5
9	Zamboanga del Norte	Dapitan City WD	0.00	1	0.00	0.00	0.19	4	0.19	215.0	2,530	1,893	407.0	0.00%	0.5	0.00%	0.5	204.74	63,000	1.207	1	0.695	0.5	4.02%	7.5
11	Surigao del Sur	Lingig WD	0.00	1	0.00	0.00	0.07	4	0.07	256.9	2,100	3,759	965.7	0.00%	0.5	0.00%	0.5	95.24	23,480	-0.530	1	-0.191	0.5	8.94%	7.5
8	Western Samar	Basey WD	0.00	1	0.00	0.00	0.05	4	0.05	520.1	2,370	2,874	1,494.8	0.00%	0.5	0.00%	0.5	52.32	40,110	0.770	1	-0.518	0.5	5.91%	7.5
6	Iloilo	Ajuy WD	0.00	1	0.00	0.00	0.02	4	0.02	193.4	2,370	2,357	455.8	0.00%	0.5	0.00%	0.5	28.27	38,420	-0.034	1	-0.608	0.5	6.17%	7.5
12	Maguindanao	Cotabato City WD	2.56	1	2.56	5.12	0.00	1	5.12	176.0	103,530	1,449	255.0	2.01%	1.0	2.50%	1.0	135.43	146,780	2.447	2	2.750	1.0	70.53%	7.0
1	Ilocos Norte	Ilocos Norte WD	3.85	2	0.64	4.49	0.00	1	4.49	891.8	67,120	2,771	2,471.2	0.18%	0.5	0.20%	0.5	183.27	187,900	3.210	2	2.546	1.0	35.72%	7.0
7	Negros Oriental	Dumaguete City WD	0.67	1	0.00	0.67	2.96	3	3.63	55.8	71,250	1,573	87.8	0.77%	0.5	0.77%	0.5	139.76	92,640	1.259	1	4.970	1.0	76.91%	7.0
5	Albay	Legaspi City WD	3.69	2	1.13	4.82	0.00	1	4.82	153.7	39,870	2,296	352.9	1.37%	1.0	1.37%	1.0	331.40	141,660	1.536	1	1.244	0.5	28.14%	6.5
3	Bulacan	Baliuag WD	4.06	2	0.00	4.06	0.00	1	4.06	45.0	34,640	2,409	198.4	3.74%	1.0	3.74%	1.0	320.73	103,050	0.386	1	0.671	0.5	33.61%	6.5
1	La Union	Metro La Union WD	2.22	1	0.16	2.37	1.08	2	3.46	504.1	65,340	2,515	1,267.8	0.19%	0.5	0.19%	0.5	144.90	222,050	2.078	2	0.752	0.5	29.43%	6.5
10	Agusan del Norte	Butuan City WD	3.06	2	0.00	3.06	0.00	1	3.06	526.3	80,790	2,304	1,212.6	0.25%	0.5	0.25%	0.5	103.94	247,070	4.763	2	0.890	0.5	32.70%	6.5
4	Cavite	Gen. M. Alvarez WD	1.58	1	0.00	1.58	0.00	1	1.58	13.3	21,230	1,526	20.3	7.77%	1.5	7.77%	1.5	203.49	86,820	0.240	1	1.312	0.5	24.45%	6.5
5	Catanduanes	Virac WD	0.00	1	0.20	0.20	1.01	3	1.21	157.4	25,000	2,671	420.4	0.05%	0.5	0.05%	0.5	132.68	49,910	1.712	1	1.139	0.5	50.09%	6.5
5	Camarines Norte	Paracale WD	0.24	1	0.00	0.24	0.97	3	1.20	194.8	6,090	3,358	654.1	0.04%	0.5	0.04%	0.5	542.06	43,820	0.198	1	-0.232	0.5	13.90%	6.5
4	Gov. Camins, Zambo.	Infanta-Gen.Nakar WD	0.00	1	0.31	0.31	0.83	3	1.14	1,477.9	4,040	2,079	3,072.6	0.01%	0.5	0.01%	0.5	769.80	60,890	0.060	1	-0.022	0.5	6.63%	6.5
8	Leyte	Metro Carigara WD	0.00	1	0.35	0.35	0.61	3	0.96	397.0	18,100	2,282	906.0	0.04%	0.5	0.04%	0.5	144.96	101,390	0.204	1	0.461	0.5	17.85%	6.5
1	Benguet	La Trinidad WD	0.15	1	0.08	0.23	0.36	3	0.59	61.4	18,680	3,714	228.0	0.10%	0.5	0.10%	0.5	86.08	63,000	0.633	1	1.055	0.5	29.61%	6.5

表-１１　選定された主要都市に対する水需要予測結果

(1/9) Metro Manila (Unit : MCM/year)

	Municipal (MWSS)	Industrial (Private)	Total
1995	976.0	91.5	1,067.5
2000	1,259.0	91.7	1,350.7
2005	1,480.0	115.9	1,595.9
2010	1,746.0	182.0	1,928.0
2015	1,993.0	268.5	2,261.5
2020	2,074.0	393.5	2,467.5
2025	2,299.0	584.2	2,883.2

(2/9) Metro Cebu (Unit : MCM/year)

	Municipal (MCWD)	Industrial (Private)	Total
1995	40.8	18.2	59.1
2000	58.9	18.3	77.2
2005	92.9	22.5	115.4
2010	151.2	23.4	174.6
2015	194.8	27.6	222.4
2020	245.3	33.3	278.6
2025	300.6	41.6	342.3

(3/9) Davao City (Unit : MCM/year)

	Municipal (DCWD)	Industrial (Private)	Total
1995	48.7	1.6	50.2
2000	54.2	1.5	55.7
2005	58.2	1.8	60.0
2010	72.9	2.5	75.4
2015	90.4	3.3	93.7
2020	113.5	4.5	118.0
2025	146.3	6.2	152.5

(4/9) Baguio City (Unit : MCM/year)

	Municipal (BWD)	Industrial (Private)	Total
1996	12.0	-	12.0
2000	29.4	-	29.4
2005	37.8	-	37.8
2010	50.0	-	50.0
2015	61.1	-	61.1
2020	73.7	-	73.7
2025	87.3	-	87.3

(5/9) Angeles City (Unit : MCM/year)

	Municipal (AWD)	Industrial (Private)	Total
1995	11.1	0.0	11.1
2000	13.0	0.1	13.1
2005	14.7	0.5	15.2
2010	16.5	0.6	17.1
2015	20.2	0.6	20.8
2020	24.3	0.6	24.9
2025	30.6	0.6	31.3

(6/9) Bacolodo City (Unit : MCM/year)

	Municipal (Bacolodo	Industrial (Private)	Total
1995	16.1	20.5	36.6
2000	22.0	20.9	42.9
2005	31.9	28.9	60.8
2010	40.5	32.1	72.6
2015	49.5	34.8	84.3
2020	59.4	36.9	96.3
2025	72.3	38.4	110.7

(7/9) Metro Iloilo (Unit : MCM/year)

	Municipal (MIWD)	Industrial (Private)	Total
1995	7.5	1.5	9.0
2000	28.7	1.5	30.2
2005	31.7	1.8	33.5
2010	33.2	2.0	35.2
2015	37.1	2.1	39.1
2020	40.9	2.2	43.1
2025	44.4	2.2	46.6

(8/9) Cagayan de Oro City (Unit : MCM/year)

	Municipal (CCWD)	Industrial (Private)	Total
1995	28.7	0.5	29.2
2000	47.1	0.5	47.6
2005	58.0	0.6	58.6
2010	72.6	0.6	73.3
2015	84.7	0.9	85.6
2020	93.4	1.3	94.7
2025	96.4	1.9	98.3

(9/9) Zamboanga City (Unit : MCM/year)

	Municipal (ZCWD)	Industrial (Private)	Total
1995	24.2	3.2	27.5
2000	38.5	9.0	47.5
2005	54.7	17.5	72.2
2010	74.4	22.5	96.9
2015	97.9	29.3	127.1
2020	123.7	39.6	163.3
2025	148.0	55.0	203.0

表-12　マニラ市水供給候補プロジェクトの主要諸元 (1/3)

Item Number	Name of City/ Project/ Structure	Conditions
	Metro Manila	
1 - 1	**Kanan-Umiray Transbasin Project (KUTP Scenario-2)**	
	(Kanan Dam)	
	- Type of Dam	: Rockfill (2,200,000m^3)
	- Height of Dam	: 157.7m
	- Length of Dam	: 430m
	- Crest Elevation	: 317.7m
	- Storage Volume	: 1,526 x 10^{6}m^3(gross)
	(Diversion Tunnel)	
	- Type of Tunnel	: Pressure
	- length of Tunnel	: 1,000m
	- Diameter of Tunnel	: 5m
	(Intake Shaft)	
	- Diameter of Shaft	: 3.5m
	- Height of Shaft	: 60m
	- **(Surge Tank)**	
	- Diameter	: 20m
	- Height	: 55m
	(Hi-pressure Tunnel)	
	- Diameter	: 3m
	- Length	: 170m
	(Powerhouse)	
	- Generating Capacity	: 90,000kW
	- Number of Unit	: 2nos
	(Water Conveyance Tunnel)	
	- Design Discharge	: 18m^3/sec
	- Type of Tunnel	: Circular
	- Diameter of Tunnel	: 3.2m
	- Length of Tunnel	: 14km
	(Inspection Tunnel)	
	- Width and Height	: 2.5m(w) x 2.0m(h)
	- Length	: 40m
	(Follow Jet Valve)	
	- Design discharge	: 18m^3/sec
	- Diameter	: 2m
	- Numbers	: 1nos
	(Access Road)	
	- Length	25,000m

Item Number	Name of City/ Project/ Structure	Conditions
	Metro Manila	
1 - 2	**Kanan-Umiray Transbasin Project (KUTP Scenario-3)**	
	(Kanan Dam)	
	- Type of Dam	: Rockfill (2,200,000m^3)
	- Height of Dam	: 157.7m
	- Length of Dam	: 430m
	- Crest Elevation	: 317.7m
	- Storage Volume	: 1,526 x 10^{6}m^3 (Gross)
	Diversion Tunnel(Hi-pressure Tunnel)	
	- Type of Tunnel	: Pressure
	- Length of Tunnel	: 800m
	- Diameter of Tunnel	: 5m to 3.5m
	(Inteke Gate Shaft)	
	- Type	: Vertical Shaft
	- Height of Gate	: 3.5m
	- Width of Gate	: 3.5m
	- Design Discharge	: 17m^3/sec
	(Power Station)	
	- Generating capacity	: 21,000kW
	- Number of Unit	: 1
	Water Conveyance Tunnel to Umiray	
	- Design Discharge	: 18m^3/sec
	- Diameter	3.2m
	- Numbers	: 1
	- Length	: 14km
	Water Conveyance Tunnel(Headrace tunnel)	
	- Type of Tunnel	: Pressure
	- Diameter of Tunnel	: 2m
	- Design Discharge	: 5m^3/sec
	- Length of Tunnel	: 20km
	(Surge Tank)	
	- Height of Shaft	: 60
	- Diameter of Shaft	: 15m
	(Hi-pressure Tunnel)	
	- Length of Tunnel	: 120m
	- Diameter of Tunnel	: 3m to 2m
	(Kanan- Kaliwa Power Station)	
	- Generating Capacity	3,900kW
	- Number of Unit	: 1
	(Access Road)	
	- Length	50,000m

表-12　マニラ市水供給候補プロジェクトの主要諸元 (2/3)

Item Number	Name of City/ Project/ Structure	Conditions	Item Number	Name of City/ Project/ Structure	Conditions

Metro Manila

2 - 1 Maasim Dam Project

(Maasim Dam)

- Type of Dam : Rockfill (2,402,400m^3)
- Height of Dam : 52m
- Length of Dam : 1,400m
- Crest Elevation : 87m
- Storage Volume : 100 x 10^{6}m^3 (Active)
- Design Discharge : 3.05 m^3/sec

(Diversion Tunnel)

- Type : Pressure
- Diameter : 5.0m
- Length : 300m

(Hi-pressure Tunnel)

- Diameter : 1.2m
- Length : 300m

(Powerhouse)

- Installed Capacity : 4,500kW

(Access Road)

- Length : 3,000m

2 - 2 Bayabas Dam Project

(Bayabas Dam)

- Type of Dam : Rockfill (8,500,000m^3)
- Height of Dam : 107m
- Length of Dam : 620m
- Crest Elevation : 197m
- Storage Volume : 148 x 10^{6}m^3 (Active)
- Design Discharge : 1.95 m^3/sec

(Diversion Tunnel)

- Type : Pressure
- Diameter : 5.0m
- Length : 500m

(Hi-pressure Tunnel)

- Diameter : 1.0m
- Length : 550m

(Powerhouse)

- Installed Capacity : 7,600kW

(Access Road)

- Length : 5,000m

3 Kaliwa-Cogeo Water Supply Project

(Kaliwa Gated weir)

- Type of Weir : Concrete Gated Weir
- Height of Weir : 35m
- Length of Weir : 350m
- Crest Elevation : 212m

(Intake)

- Design Discharge : 7.5m^3/sec
- Height of Inlet : 2.6m
- Width of Inlet : 2.6m

(Water Conveyance Tunnel)

- Type of Tunnel : Non-pressure
- Length of Tunnel : 14km
- Diameter of Tunnel : 2.6m

(Water Pond)

- Width of Pond : 180m
- Height of Pond : 180m
- Depth of Pond : 10m

(Desanding Basin)

- Width of Basin : 10m
- Depth of Basin : 5m(means)
- Length of Basin : 70m

(Main Pumping Station)

- Pump Capacity : 13,800kW
- Numbers : 3

(Booster Station)

- Numbers : 4

(Water Supply Pipe Line)

- Length of Pipe Line : 11km
- Diameter of Pipe Line : 1.2m

(Water Treatment Plant)

- Storage Volume : 216,000m^3 (7.5m^3/sec x 8^{hrs})

(Regulating reservoir)

- Storage Volume : 650,000m^3/day

(Access Road)

- Length : 2,000m

表-12　マニラ市水供給候補ﾌﾟﾛｼﾞｪｸﾄの主要諸元 (3/3)

Item Number	Name of City/ Project/ Structure	Conditions	Item Number	Name of City/ Project/ Structure	Conditions

Metro Manila

4 Pampanga-Novaliches Transbasin Project

(Gated weir)

- Type : Concrete Gated Weir (11,500m^3)
- Height of Weir : 10m
- Length of Weir : 300m
- Crest Elevation : 18m

(Intake)

- Design Discharge : 7.5m^3/sec
- Dimension : 3.6$m^{(w)}$ x 3$m^{(h)}$ x2^{1one}

(desanding Basin)

- Width of Basin : 10m
- Depth of Basin : 5m (means)
- Length of Basin : 70m

(Main Pumping Station)

- Pump capacity : 9,200kW
- Numbers : 3

(Booster Station)

- Numbers : 15

(Water Supply Pipe Line, Water Treatment Plant and Reservoir)

- Length of Pipe Line : 65km
- Diameter of Pipe Line : 1.8m
- Storage Volume of WTP : 216,000m^3 (7.5m^3/sec x 8^{hrs})
- Reservoir (to be extended or newly construction)

(Access Road)

- Length : 5,000m

表-13　セブ市水供給候補プロジェクトの主要諸元　(1/3)

Item Number	Name of City/ Project/ Structure	Conditions

Metro Cebu

1 - 1 Bohol-Cebu Water Supply Project

(Inabangan-I Gated Weir)

- Type of Weir : Concrete Gated Weir (30,800m³)
- Height of Dam : 10m
- Length of Dam : 150m
- Crest Elevation : 18m

(Intake and desanding Basin)

- Design Discharge : 1st Stage=1.5m³/sec
- Width of Basin : 5m
- Depth of Basin : 5m (means)
- Length of Basin : 40m

(Water Treatment Plant)

- Storage Volume 1st Stage : 130,000m³/day

(Main Pumping Station)

- Pump Capacity : 1,300kW
- Design discharge : 1.5m3/sec (1st: 1.5m³/sec, 2nd: 3.01m³/sec Total= 4.51m3/sec)
- Numbers : 3

(Water Conveyance Pipe Line)

- Length of Pipe Line : 31.5km
- Diameter of Pipe Line : 1.4m
- Numbers(Lane) : 1

(Regulating reservoir)

Storage Volume : 300,000m³

(Access Road))

- Length : 4,000m

1 - 2 Tipolo Dam Project

(Tipolo Dam)

- Type of Dam : Rockfill (694,000m³)
- Height of Dam : 40m
- Length of Dam : 300m
- Crest Elevation : 80m
- Storage Volume : 210 x 10⁶m³ (Gross)

(Diversion Tunnel)

- Type of Tunnel : Pressure
- Length of Tunnel : 100m
- Diameter of Tunnel : 5m

(Intake)

- Design Discharge 2nd Stage : 3.01 m³/sec
- Height : 1.5m
- Width : 1.6m

(Hi-pressure Tunnel)

- Length of Conduit : 70m
- Diameter : 2.1m

(Power Station)

- Generating Capacity : 11,000kW
- Number of Unit : 1

(Water Treatment Plant)

<Extension>

- Storage Volume 2nd Sta : 259,000m³/day

(Main Pumping Station)

- Pump Capacity : 2,600kW
- Numbers : 3

(Access Road))

- Length : 12,000m

Metro Cebu

2. Malubog-Mananga Transbasin project (MMTP)

2 - 1 Malubog Dam Project

Malubog Dam(Main)

- Type of Dam : Rockfill (3,411,200m³)
- Height of Dam : 65m
- Length of Dam : 520m
- Crest Elevation : 185m
- Storage Volume : 81 x 10⁶m³ (Gross)

(Saddle Dam)

- Type of Dam : Rockfill (312,000m³)
- Height of Dam : 10m (means)
- Length of Dam : 1,500m
- Crest Elevation : 185m
- Storage Volume : 81 x 10⁶m³ (Gross)

(Diversion Tunnel)

- Type of Tunnel : Pressure
- Length of Tunnel : 100m
- Diameter of Tunnel : 5m

(Intake)

- Design Discharge : 1.43m³/sec
- Height : 1.3m
- Width : 1.5m

表-13　セブ市水供給候補プロジェクトの主要諸元　(2/3)

Item Number	Name of City/ Project/ Structure	Conditions
	Hi-pressure Tunnel (Water Conveyance Tunnel)	
-	Type of Tunnel	: Pressure
-	Length of Tunnel	: 10.5km
-	Diameter of Tunnel	: 2m
	(Inspection tunnel)	
-	Height and Width	: $2.5m^{(h)}$ x $2m^{(w)}$
-	Length	: 40m
	(Powerhouse)	
-	Installed Capacity	: 2,100kW
	(Access Road))	
-	Length	: 7,000m
2 - 2	**Mananga Dam Project**	
-	**(Mananga Dam)**	
-	Type of Dam	: Rockfill ($2,956,800m^3$)
-	Height of Dam	: 90m
-	Length of Dam	: 240m
-	Crest Elevation	: 160m
	Storage Volume	: 48.2 x 10^6m^3 (Gross)
-	**(Diversion Tunnel)**	
-	Type of Tunnel	: Pressure
-	Length of Tunnel	: 170m
-	Diameter of Tunnel	: 5m
	(Intake)	
-	Design Discharge(1.39m3/sec	: $2.82m^3$/sec
	($1.43m^3$/sec + $1.3m^3$/sec9 =$2.82m^3$/sec)	
-	Height	: 1.7m
-	Width	: 2.5m
	(Hi-pressure Tunnel and Water Conveyance Tunnel)	
-	Type of Tunnel	: Pressure
-	Length of Tunnel	: 3.5km
-	Diameter of Tunnel	: 2m
	(Intake weir)	
-	Type of Dam	: Concrete Gravity
-	Height of Dam	: 5m
	(Powerhouse)	
-	Installed Capacity	: 2,800kW
-	Number of Unit	: 2nos
	(Concrete Weir)	
-	Type	: Cocrete Gravity
-	Height	: 5m
-	Length	: 50m
	(desanding Basin)	
-	Width of Basin	: 6m
-	Depth of Basin	: 5m (means)
-	Length of Basin	: 30m
	(Water Treatment Plant)	
-	Storage Volume	: $244,000m^3$/day
	(Pump Station)	
-	Pump Capacity	: 800kW
-	Numbers (nos)	: 3
	(Regulating Reservoir)	
-	Storage Volume	: $300,000m^3$
	(Access Road))	
-	Length	: 5,000m
3.	**Lusalan-Pulambato Water Supply Project (LPTP)**	
3 - 1	**Lusaran Dam project**	
	(Lusalan Dam)	
-	Type of Dam	: Rockfill ($4,233,400m^3$)
-	Height of Dam	: 100m
-	Length of Dam	: 300m
-	Crest Elevation	: 235m
-	Storage Volume	: 126 x 10^6m^3 (Gross)
	(Diversion Tunnel)	
-	Type of Tunnel	: Pressure
-	Diameter of Tunnel	: 5m
-	Length of Tunnel	: 500m
	(Intake)	
-	Type	: Inclined Type
-	Design Discharge Normc	: $2.05m^3$/sec
		Pe : $8.2m^3$/sec
	(Headrace Tunnel)	
-	Type of Tunnel	: Non-pressure
-	Diameter	: 2.4m
-	Length of Tunnel	: 10km
	(Surge Tnak)	
-	Height of Shaft	: 100m
-	Diameter of Shaft	: 15m
	(Hi-pressure Tunnel)	
-	Diameter	: 2.0m
-	Length	: 550m

表-13　セブ市水供給候補プロジェクトの主要諸元 (3/3)

Item Number	Name of City/ Project/ Structure	Conditions	Item Number	Name of City/ Project/ Structure	Conditions

(Power Station)
- Type of Powerhouse : Open-air Type
- Generating Capacity(6ho : 4,200kW
- Number of Unit : 1

(Access Road))
- Length : 8,000m

3 - 2 Pulambato Dam Project

- **(Pulambato Dam)**
- Type of Dam : Rockfill (1,274,200m^3)
- Height of Dam : 55m
- Length of Dam : 300m
- Crest Elevation : 100m

Storage Volume : 5.6 x $10^6$$m^3$ (Gross)

- **(Diversion Tunnel)**
- Type of Tunnel : Pressure
- Diameter of Tunnel : 5m
- Length of Tunnel : 130m
- **(Intake)**
- Type : Pressure Type
- Design Discharge(0.416m : 2.47m^3/sec (Total)
- Height : 1.5m

Width : 2.5m

(Hi-pressure Tunnel)
- Diameter : 2m
- Length : 100m

(Power Station)
- Type : Open-air Type
- Installed Capacity (12hou : 1,600kW
- Number of Unit : 1
- **(Intake weir)**
- Type of Dam : Concrete Gated Weir (700m^3)
- Height of Dam : 10m
- Length of Dam : 80m

(Desanding Basin)
- Width of Basin : 6m
- Depth of Basin : 5m(mean)
- Length of Basin : 30m

(Water Treatment Plant)
- Storage Volume : 213,400m^3/day

(Main Pumping Station)
- Pump Capacity : 600kW
- Numbers : 3

(Booster Station)
- Numbers : 1

(Water Supply Pipe Line)
- Length of Pipe Line : 3.8km
- Diameter of Pipe Line : 1m
- Numbers(Lane) : 1

(Regulating reservoir)
- Storage Volume : 300,000m^3

(Access Road))
- Length : 8,000m

表-14　　バギオ市水供給候補プロジェクトの主要諸元

Item Number Name of City/ Project/ Structure	Conditions	Item Number Name of City/ Project/ Structure	Conditions

Baguio City

1. Laboy Dam Water Supply Project

(Rockfill Dam)
- Type of Dam : Rockfill (5,290,000m^3)
- Height of Dam : 75m
- Length of Dam : 500m
- Crest Elevation : 826m
- Storage Volume : 8.6 x 10^6m^3 (Gross)

(Diversion Tunnel)
- Type of Tunnel : Pressure
- length of Tunnel : 370m
- Diameter of Tunnel : 5m

(Intake)
- Design Discharge : 2.5m^3/sec
- Height : 1.5m
- Width : 2.5m

(Main Pumping Station)
- Installed Capacity : 20,300kW
- Pump Numbers : 3

(Booster Station)
- Numbers : 4
- **(Water Supply Pipe Line)**
- Length of Pipe Line : 10.3km
- Diameter of Pipe Line : 1.1m
- Numbers(Lane) : 1

(Water Treatment Plant)
- Storage Volume : 216,000m^3/day

(Regulating reservoir)
- Storage Volume : 72,000m^3

(Access Road))
- Length : 8,000m

(Intake) : 0.83m^3/sec (mean)
- Design Discharge : 2.5m^3/sec (Max)
- Height of Inlet : 1.5m
- Width of Inlet : 2.5m

(Desanding Basin)
- Width of Basin : 6m
- Depth of Basin : 5m (mean)
- Length of Basin : 30m
- **(Main Pumping Station)**

Pump capacity : 7,200kW

Numbers : 3

(Booster Station)
- Numbers : 3
- **(Water Supply Pipe Line)**
- Length of Pipe Line : 6.3km
- Diameter of Pipe Line : 0.9m

Numbers(Lane) : 1

(Water Treatment Plant) : 72,000m^3/day (Min.)
- Storage Volume : 216,000m^3/day (Max.)

(Regulating reservoir)
- Storage Volume : 11,000,000m^3

(Access Road))
- Length : 4,000m

Baguio City

2. Laboy Weir and Pond Water Supply Project

(Gated Weir)
- Type of Dam : Concrete Gated Weir (16,900m^3)
- Height of Dam : 10m
- Length of Dam : 300m
- Crest Elevation : 910m

表-15 主要都市の水供給プロジェクトの建設費

Metro Manila	(Unit: US$)
1. Kanan- Umiray Transbasin Project (KUTP)	
(1-1) KUTP (Scenario-2)	253,024,508
(1-2) KUTP (Scenario-3)	383,403,019
(2-1) Maasim Dam Project	42,871,037
(2-2) Bayabas Dam Project	121,977,929
2. Maasim Bayabas Project	164,848,966
3. Kaliwa-Cogeo Water Supply Proje	275,620,173
4. Pampanga Water Conveyance F	396,897,311

Metro Cebu	(Unit: US$)
(1-1) Malubog Dam Project	99,583,161
(1-2) Mananga-II Dam Project	122,377,573
1. Malubog-Mananga-II Transbasin Project (M	221,960,734
(2-1) Lusaran Dam Project	95,557,859
(2-2) Pulambato Dam Project	97,504,773
2. Lusaran-Pulambato Transbasin Project (LPTI	193,062,632
(3-1) Bohol-Cebu Water Supply Project	187,671,275
(3-2) Tipolo Dam Project	229,834,650
3. Bohol-Mactan Water Supply Project including Tipolo Dam Project	417,505,925

Baguio City	(Unit: US$)
1. Laboy Dam Water Supply F	180,866,931
2. Laboy Weir Water Supply Pi	151,841,073

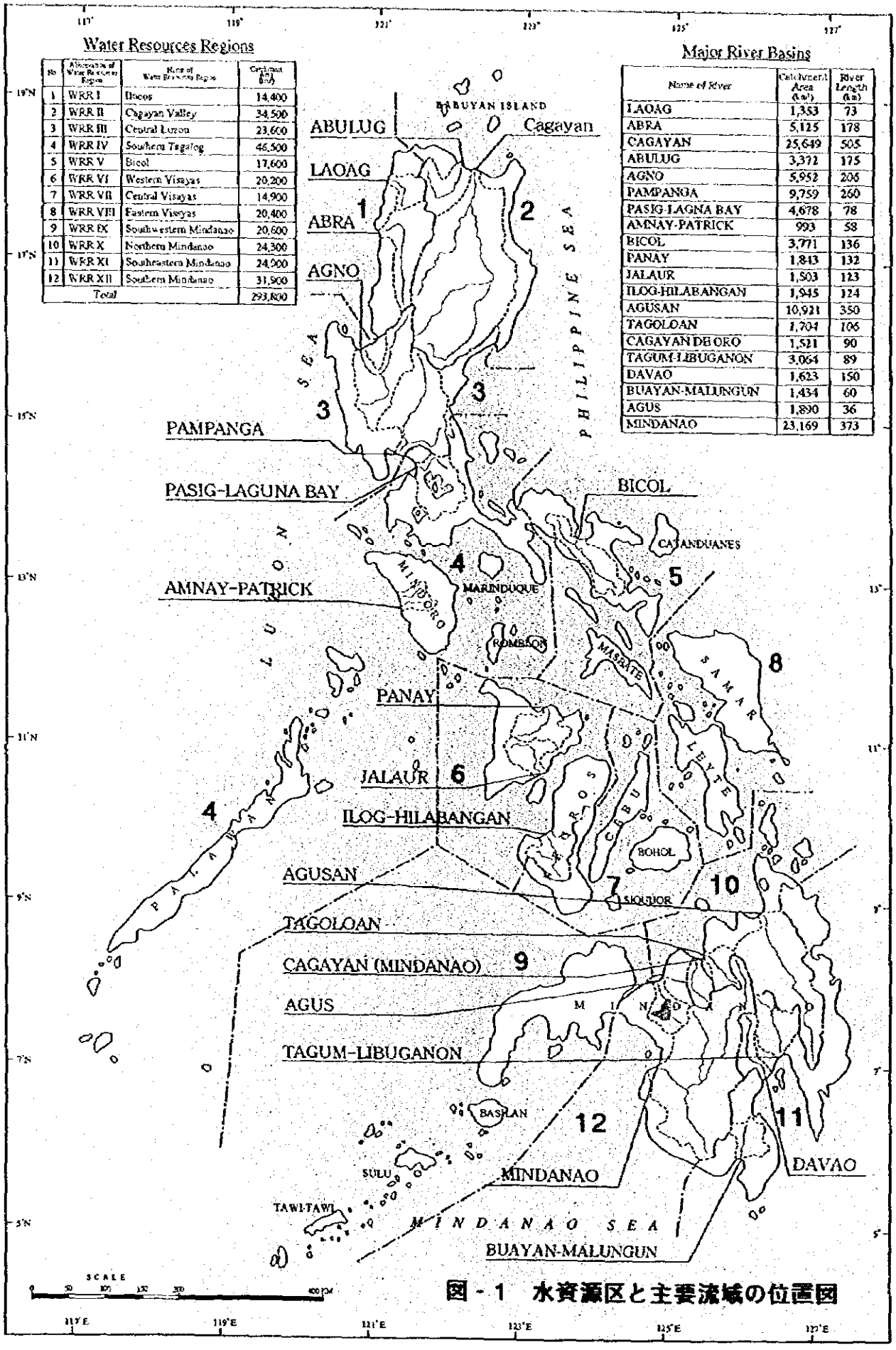
表-16 水供給プロジェクトに対する社会及び自然環境インパクトの評価結果

Major City	Name of Water Supply Project	Type of Development (Name of Dam/Reservoir or Weir)	Social Impact			Natural Impact			
			Agricultural Land to be Inundated	Influence on Indigenous People	Resettlement of Inhabitants	NIPAS Protected Area	Mineral Deposits	Rare or Endangered Species	Water Quality
Metro Manila	Kanan-Umiray Transbasin	Kanan	D	D	B	+	Not Reported	Reported	Expected to be A
	Massim Dam	Massim	B	D	B	-	Producing/Abandoned	---	A
	Bayabas Dam	Bayabas	C	D	C	-	Producing/Abandoned	---	A
	Kaliwa-Cogeo Water Supply	Weir	C	D	D	-	Not Reported	---	---
	Pampanga-Novaliches Water Supply		D	D	D	-	Not Reported	---	---
Metro Cebu	Bohol Cebu Water Supply	Tipolo	A	D	A	-	Not Reported	---	B
	Malubog-Mananga Transbasin	Malubog	D	D	B	-	Producing/Abandoned	---	A
		Mananga II	C	D	C	+	Producing/Abandoned	---	B
	Lusaran-Pulanbato Transbasin	Pulanbato	D	D	C	---	---	---	---
		Lusaran	D	D	C	-	Producing/Abandoned	---	A
Baguio City	Laboy Dam	Laboy Dam	D	C	D	---	---	---	---
	Laboy Weir	Weir	D	C	D	---	---	---	---

Notes

1. The degree of social adverse impact on agricultural land was measured based on the area of agricultural lands to be inundated by the creation of dam/reservoir area as follows:
   - A: Over 10 km^2
   - B: 10 - 5 km^2
   - C: 1 - 5 km^2
   - D: Less than 1 km^2
2. The degree of impact on "indigenous people" and "Resettlement of Inhabitants" was measured based on the number of inhabitants as follows:
   - A: more than 1,000
   - B: 1,000 - 500
   - C: Less than 500 - 100
   - D: Less than 100
3. For NIPAS Protected Area, "+" means the existence of the protected area in the dam/reservoir area, and "-" means the non-existence.
4. For Water Quality, "A" means the Public Water Class II, and "B" means the Recreational Water Class I, in the Classification of Waters table.
5. "---" means that no data and information thereon are available.

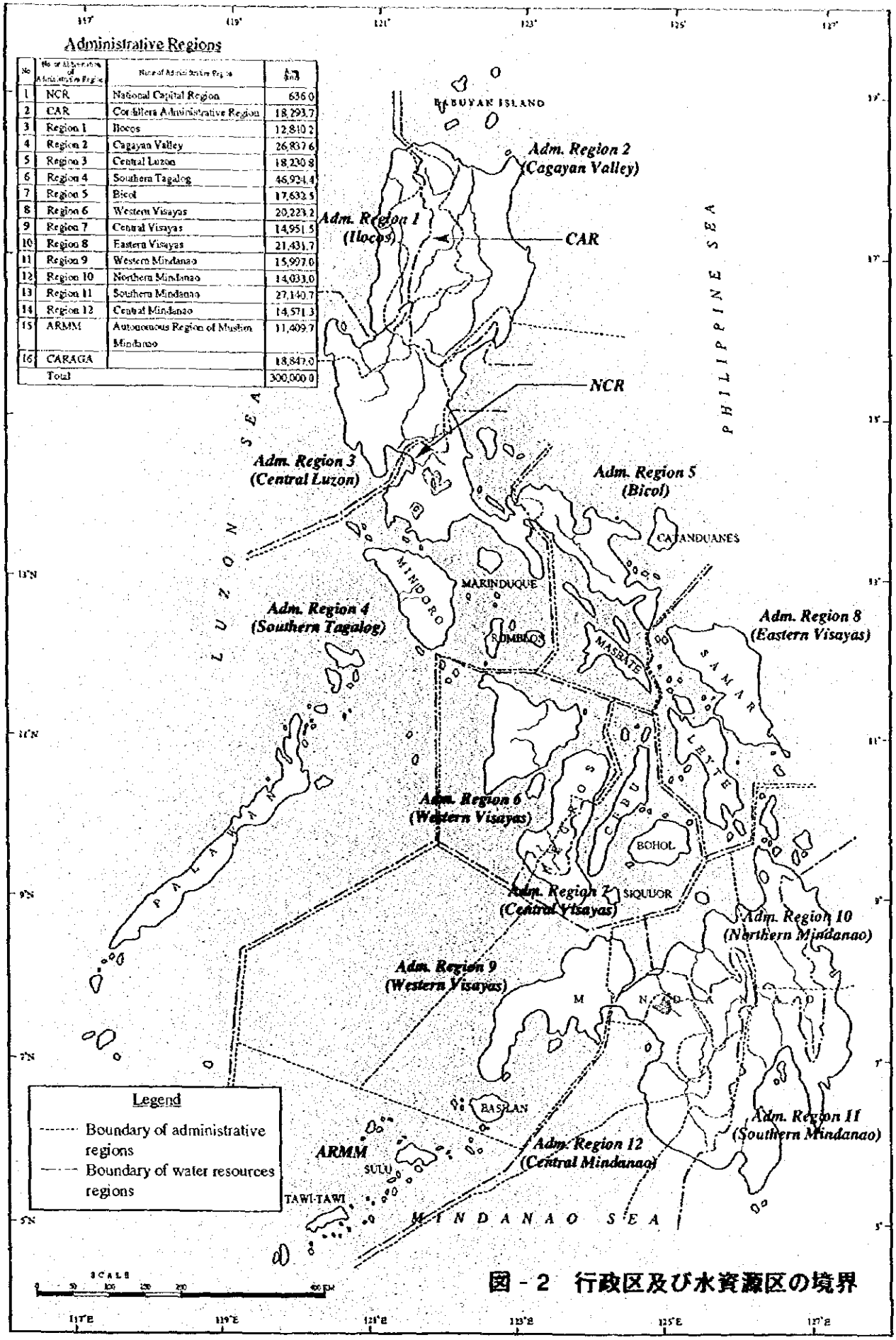
附図



No	Abbreviation of Water Resources Region	Name of Water Resources Region	Catchment Area (km²)
1	WRR I	Ilocos	14,400
2	WRR II	Cagayan Valley	34,500
3	WRR III	Central Luzon	23,600
4	WRR IV	Southern Tagalog	46,500
5	WRR V	Bicol	17,600
6	WRR VI	Western Visayas	20,200
7	WRR VII	Central Visayas	14,900
8	WRR VIII	Eastern Visayas	20,400
9	WRR IX	Southwestern Mindanao	20,600
10	WRR X	Northern Mindanao	24,300
11	WRR XI	Southeastern Mindanao	24,900
12	WRR XII	Southern Mindanao	31,900
Total			293,800

Name of River	Catchment Area (km²)	River Length (km)
LAOAG	1,353	73
ABRA	5,125	178
CAGAYAN	25,649	505
ABULUG	3,372	175
AGNO	5,952	206
PAMPANGA	9,759	260
PASIG-LAGNA BAY	4,678	78
AMNAY-PATRICK	993	58
BICOL	3,771	136
PANAY	1,843	132
JALAUR	1,503	123
ILOG-HILABANGAN	1,945	124
AGUSAN	10,921	350
TAGOLOAN	1,704	106
CAGAYAN DE ORO	1,521	90
TAGUM-LIBUGANON	3,064	89
DAVAO	1,623	150
BUAYAN-MALUNGUN	1,434	60
AGUS	1,890	36
MINDANAO	23,169	373

図 - 1　水資源区と主要流域の位置図



No	No. of Corresponding Administrative Region	Name of Administrative Region	Area (km²)
1	NCR	National Capital Region	636.0
2	CAR	Cordillera Administrative Region	18,293.7
3	Region 1	Ilocos	12,840.2
4	Region 2	Cagayan Valley	26,837.6
5	Region 3	Central Luzon	18,230.8
6	Region 4	Southern Tagalog	46,924.4
7	Region 5	Bicol	17,632.5
8	Region 6	Western Visayas	20,223.2
9	Region 7	Central Visayas	14,951.5
10	Region 8	Eastern Visayas	21,431.7
11	Region 9	Western Mindanao	15,997.0
12	Region 10	Northern Mindanao	14,033.0
13	Region 11	Southern Mindanao	27,140.7
14	Region 12	Central Mindanao	14,571.3
15	ARMM	Autonomous Region of Muslim Mindanao	11,409.7
16	CARAGA		18,847.0
	Total		300,000.0

図－2　行政区及び水資源区の境界

Map of the Philippines
1995

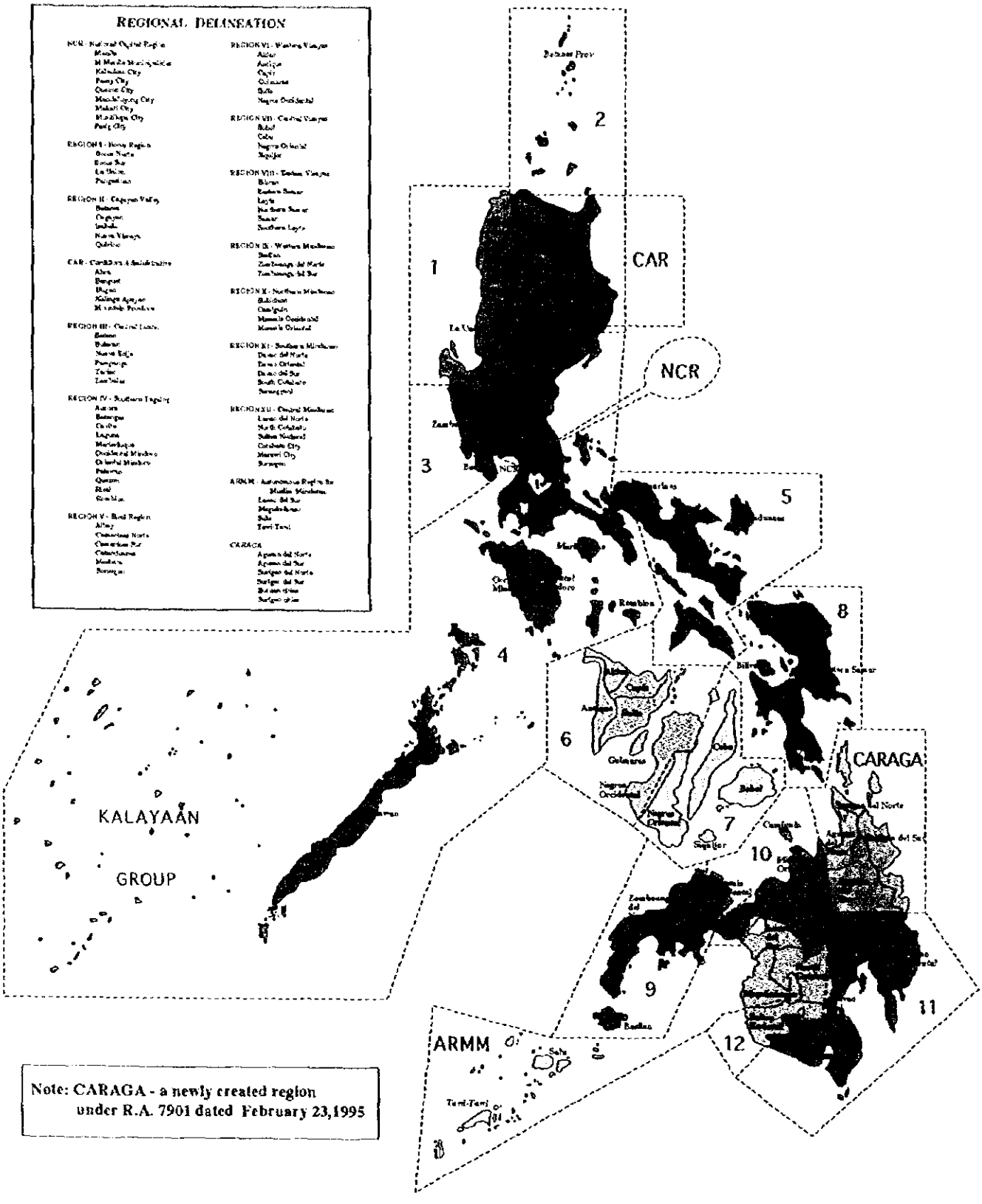
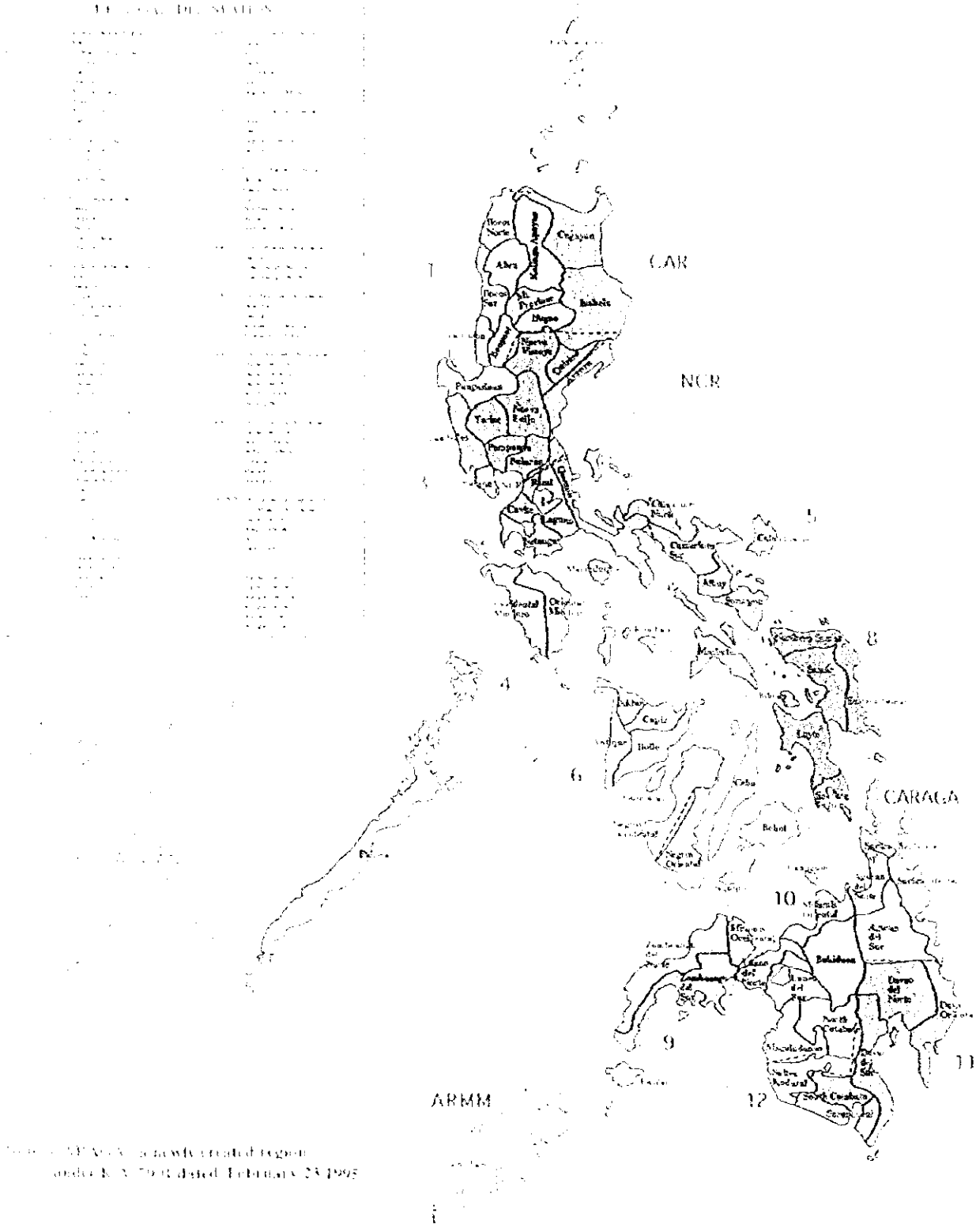
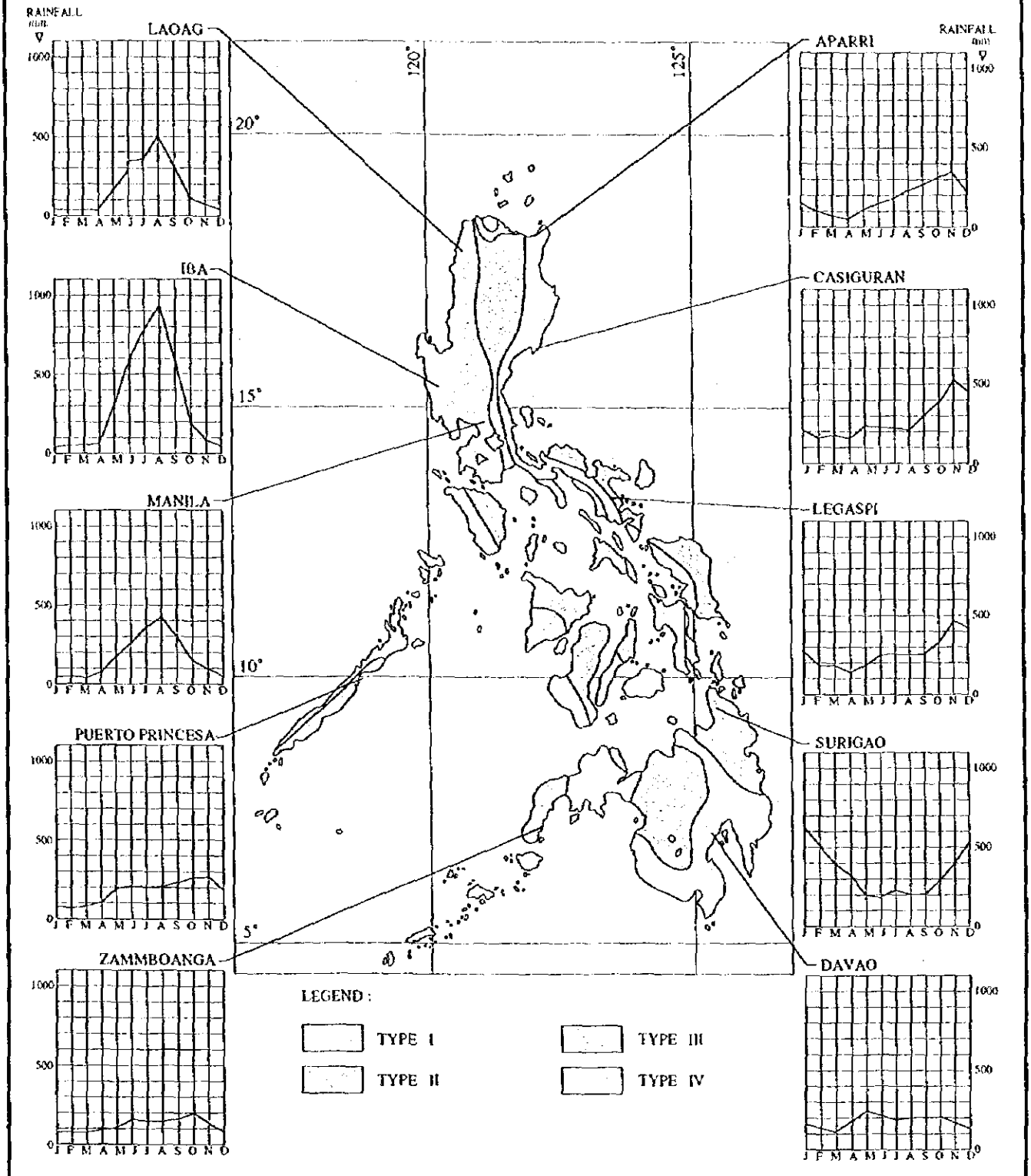


図 - 3　各行政区内の州

Map of the Philippines
1995



図－3　各行政区内の州



SOURCE : PAGASA

図 - 4　気候区分図

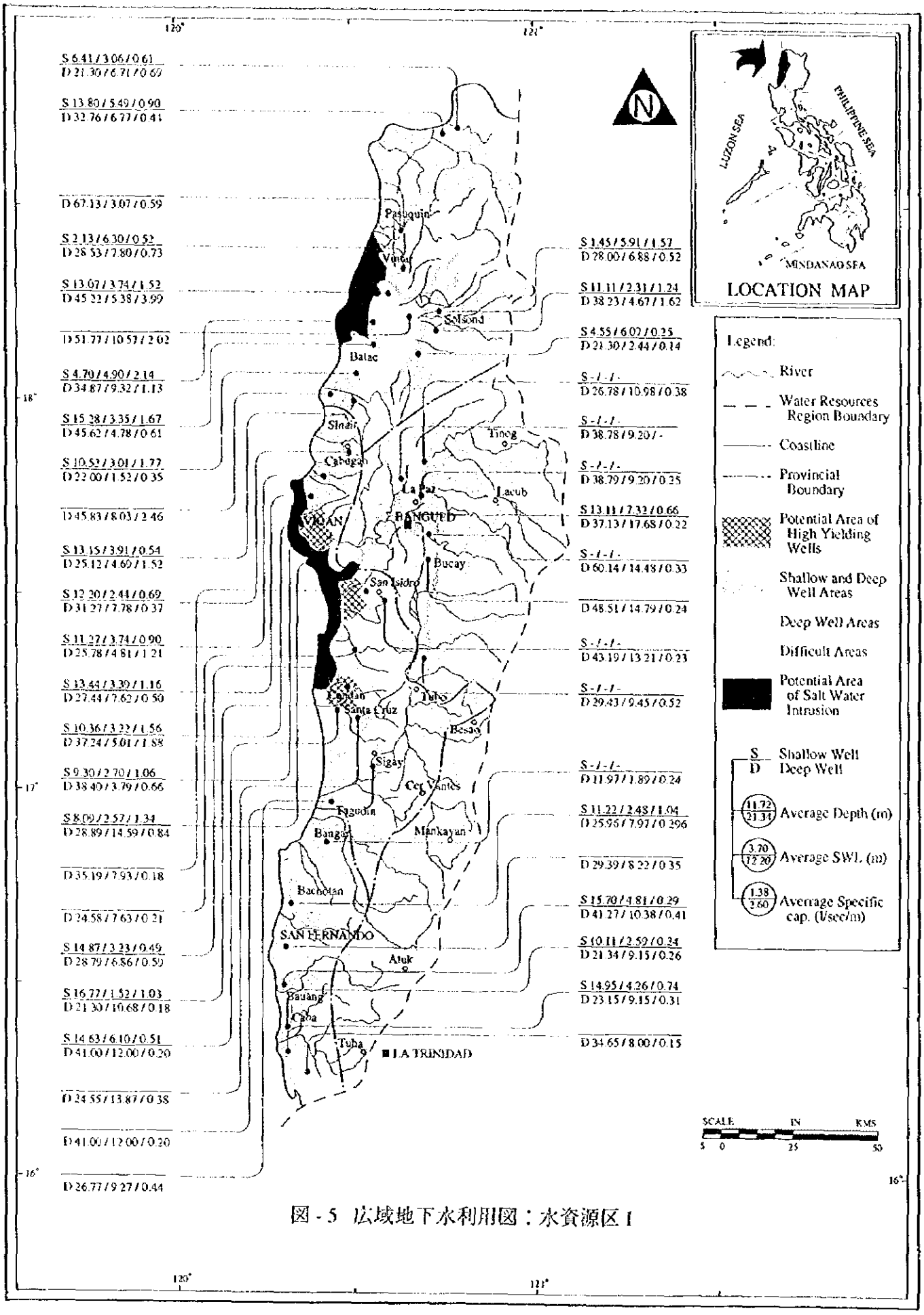


図 - 5 広域地下水利用図：水資源区 I

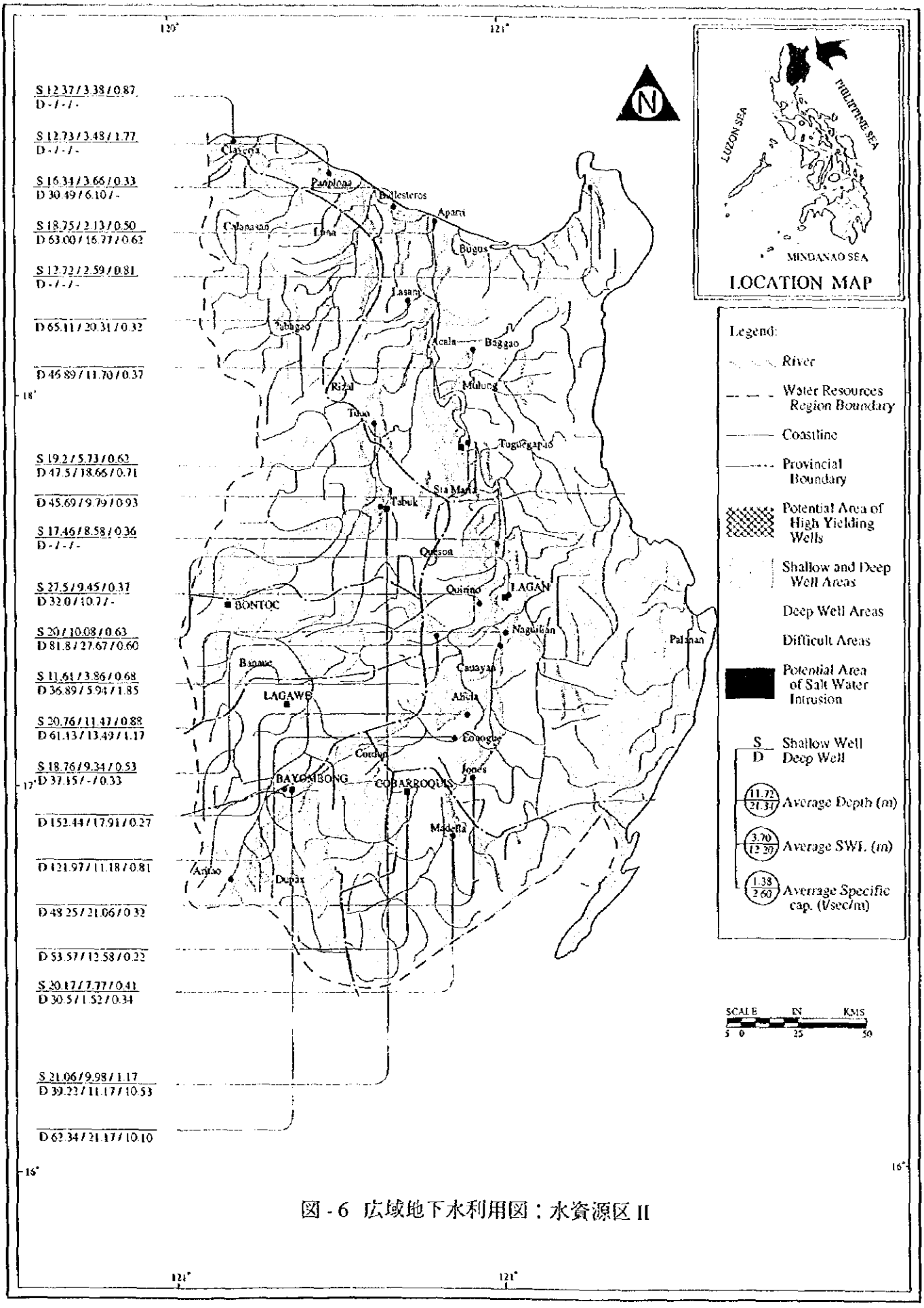


図 - 6 広域地下水利用図：水資源区 II

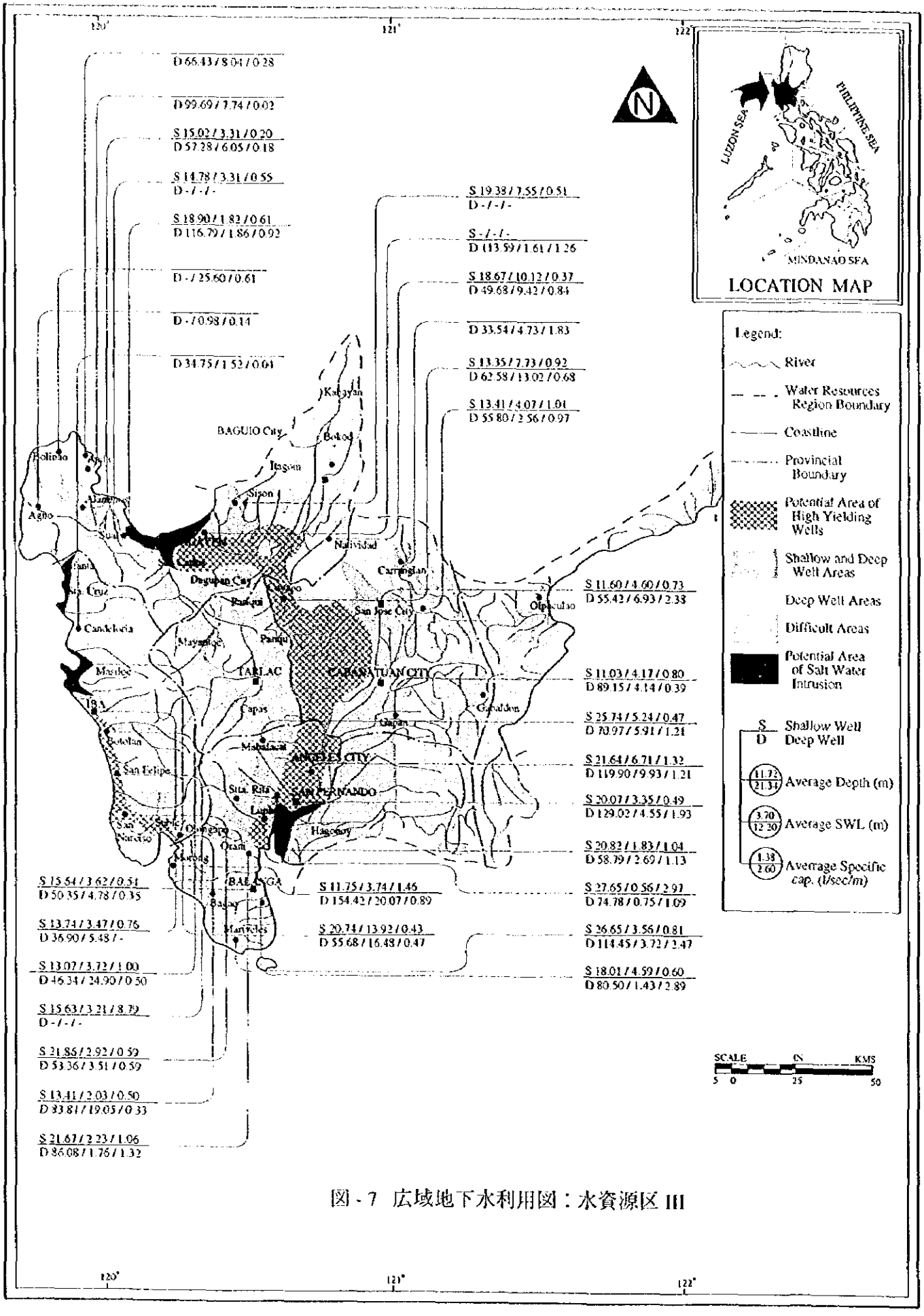


図 - 7　広域地下水利用図：水資源区 III

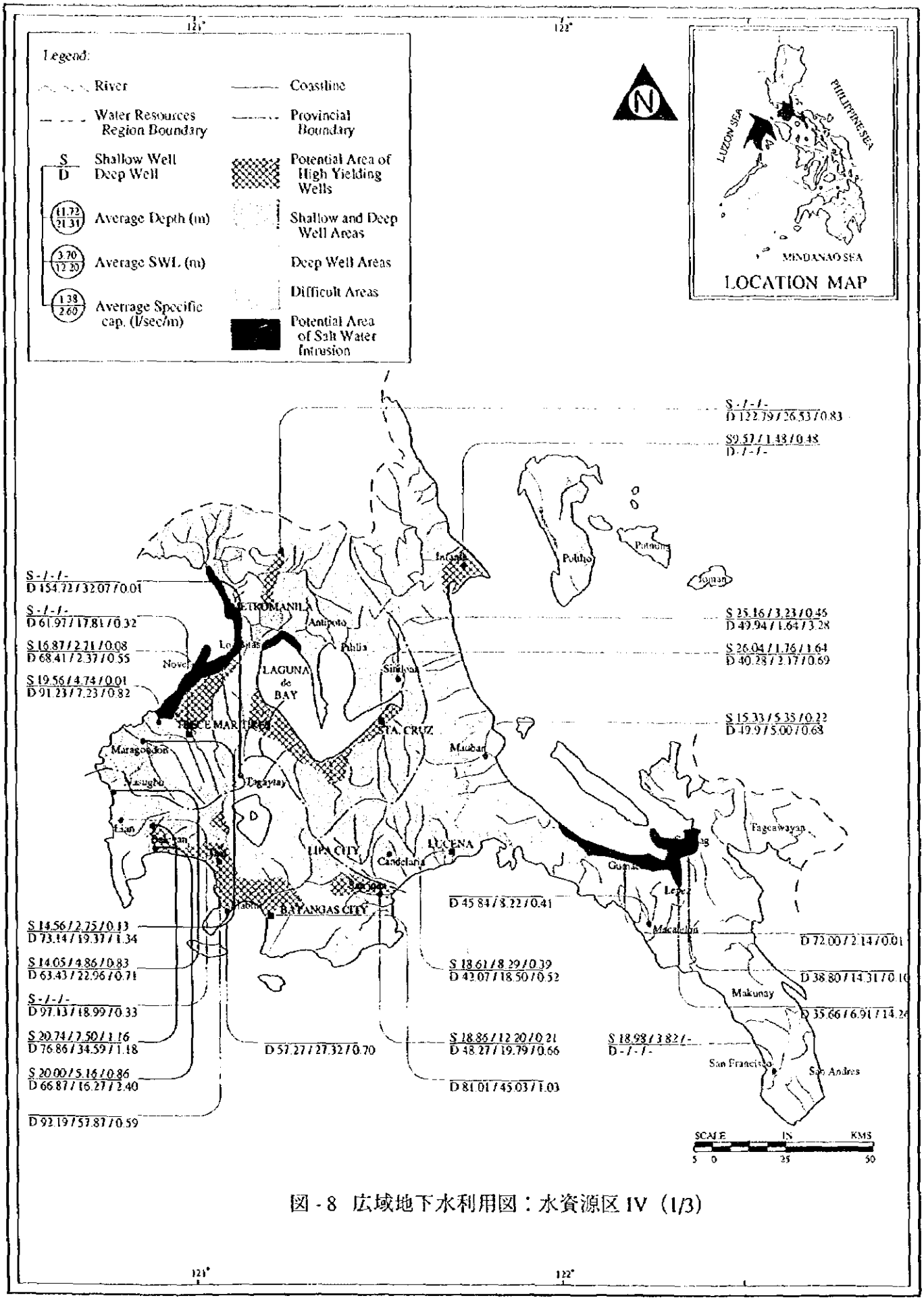
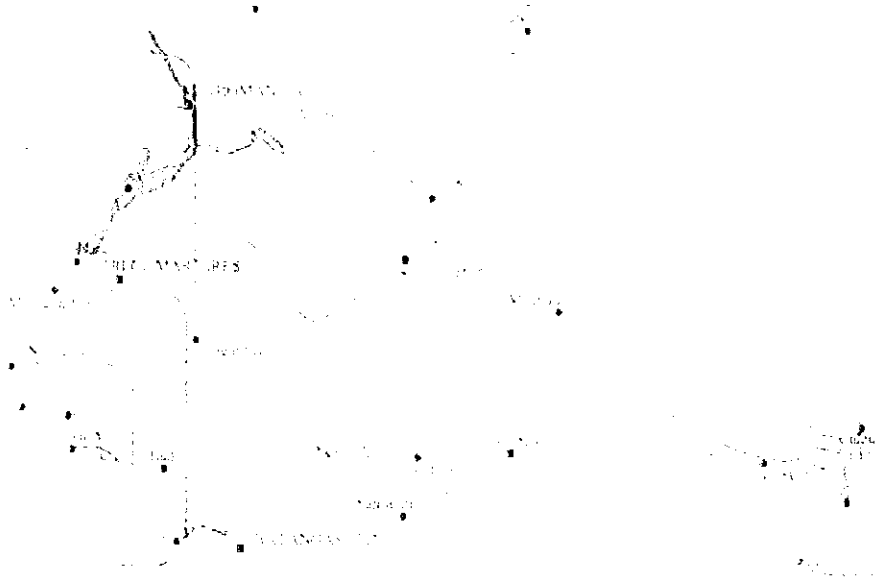


図 - 8 広域地下水利用図：水資源区 IV（1/3）



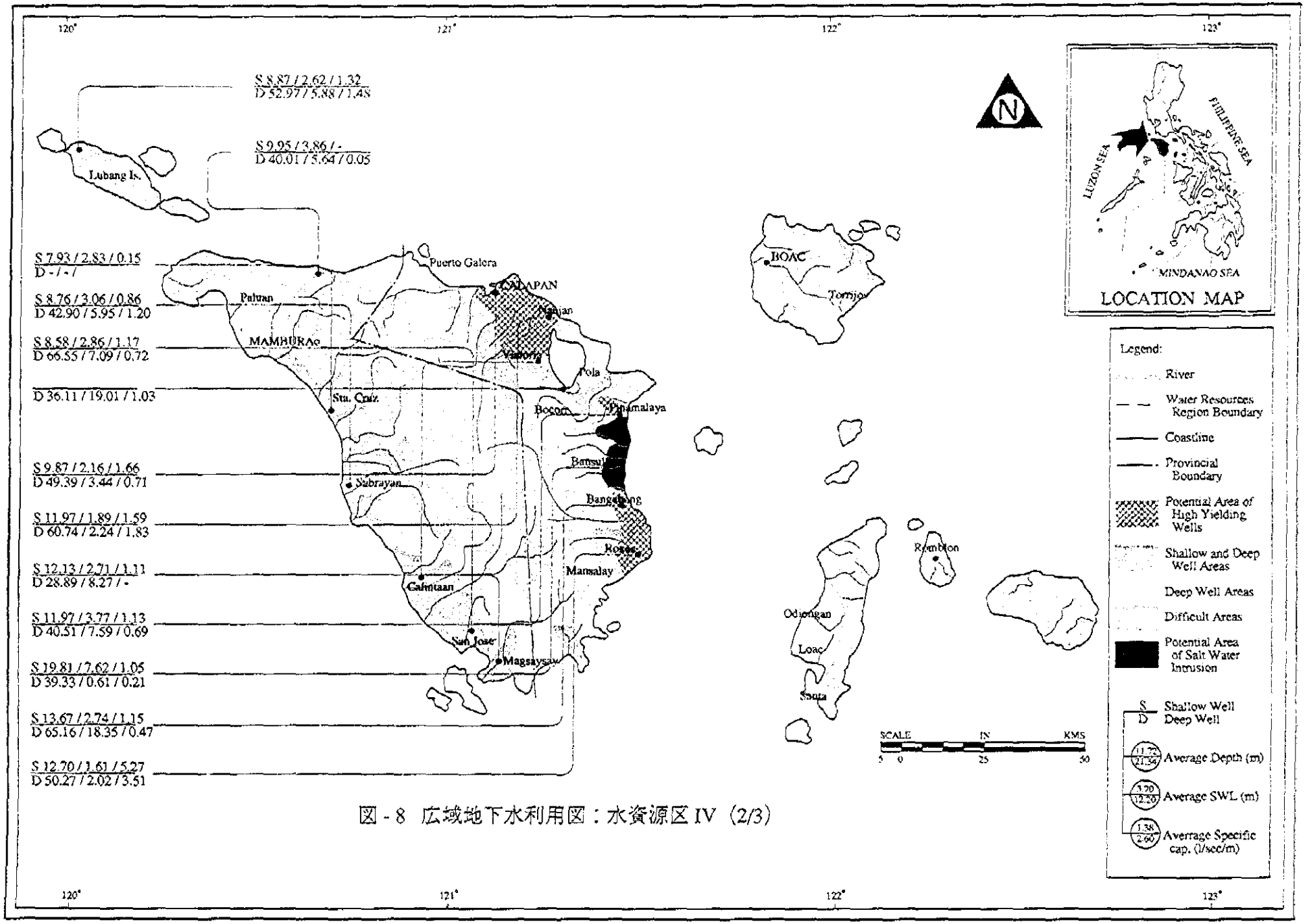


図 - 8　広域地下水利用図：水資源区 IV（2/3）

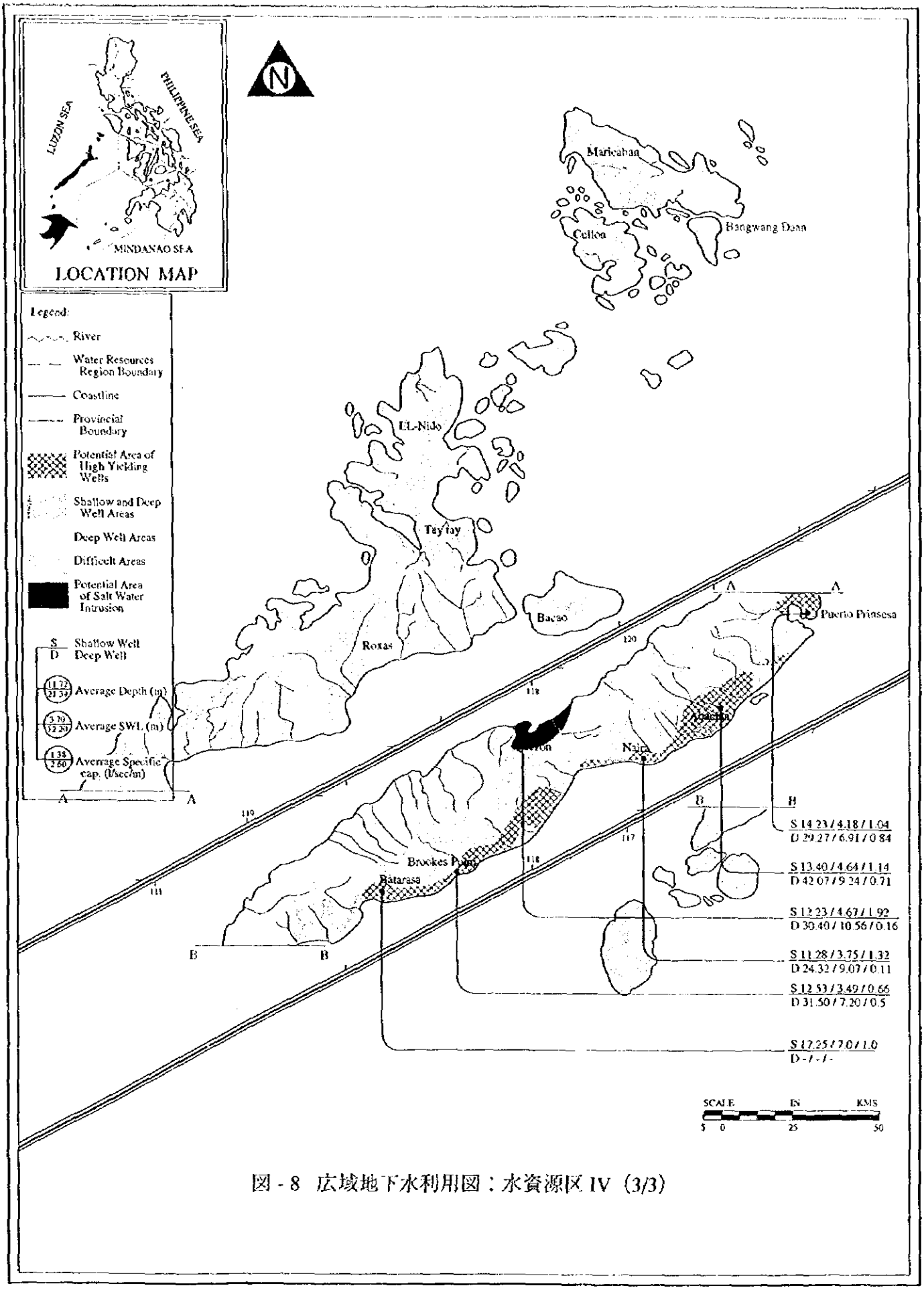


図 - 8 広域地下水利用図：水資源区 IV (3/3)

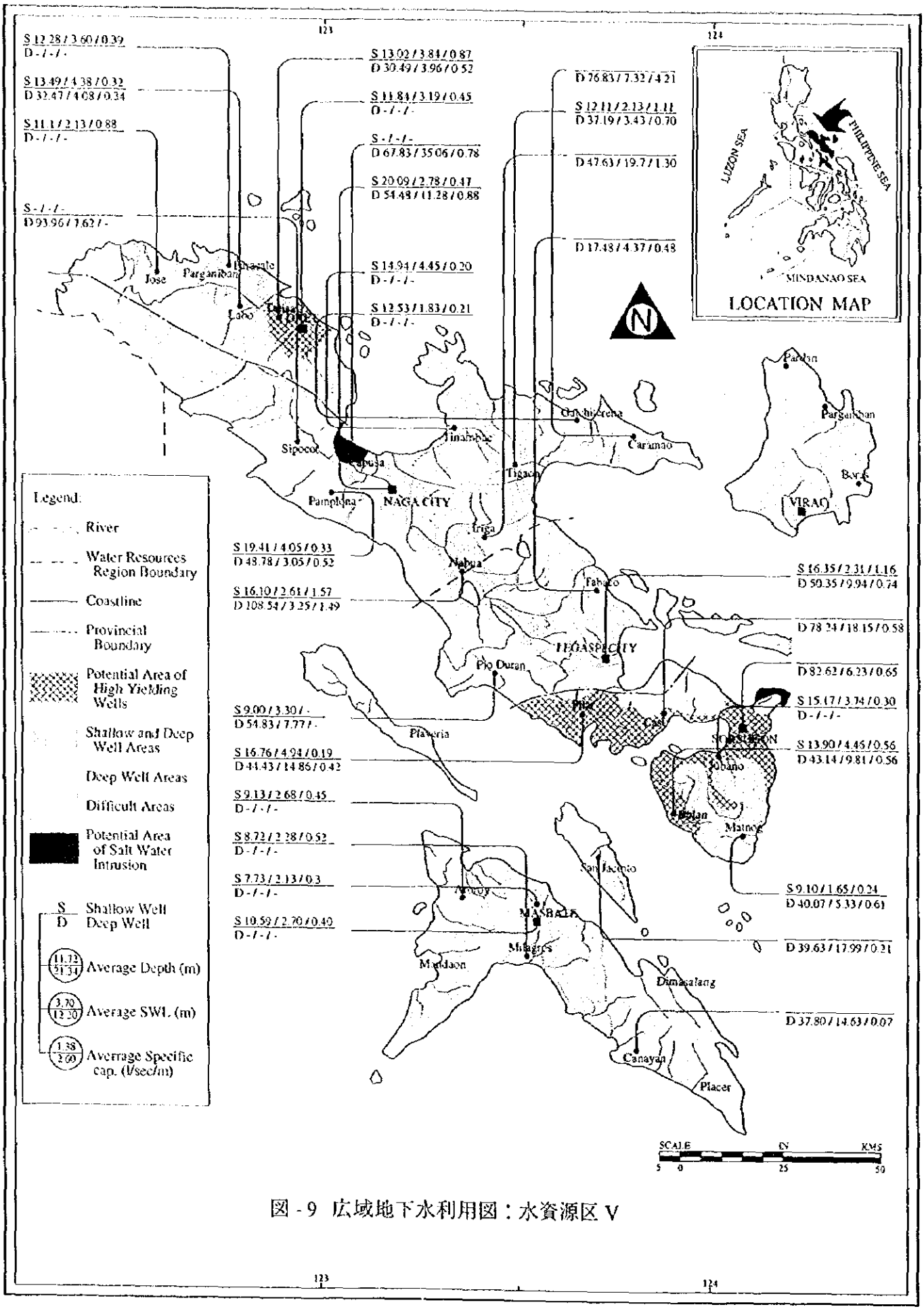


図 - 9　広域地下水利用図：水資源区 V

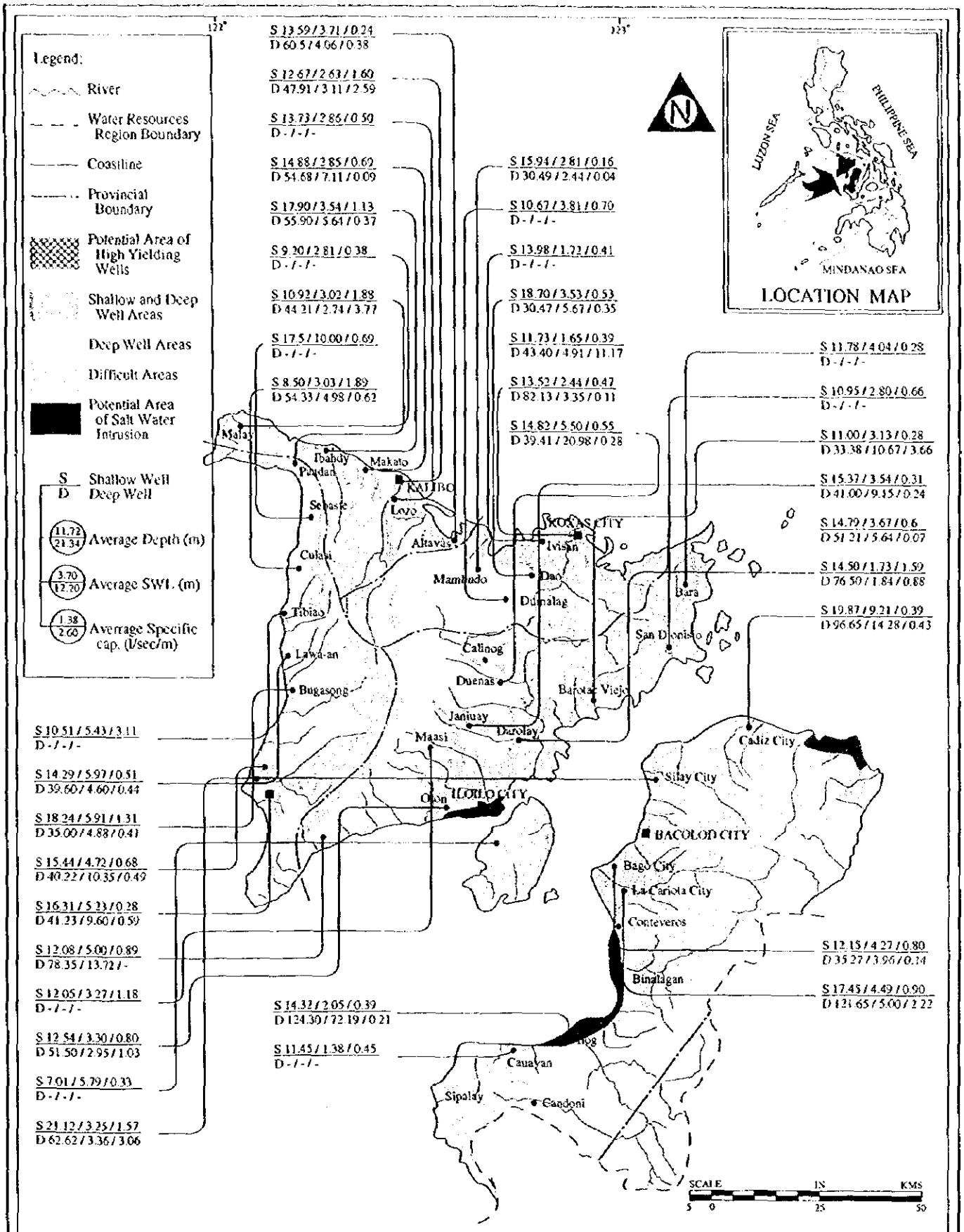


図 - 10 広域地下水利用図：水資源区 VI

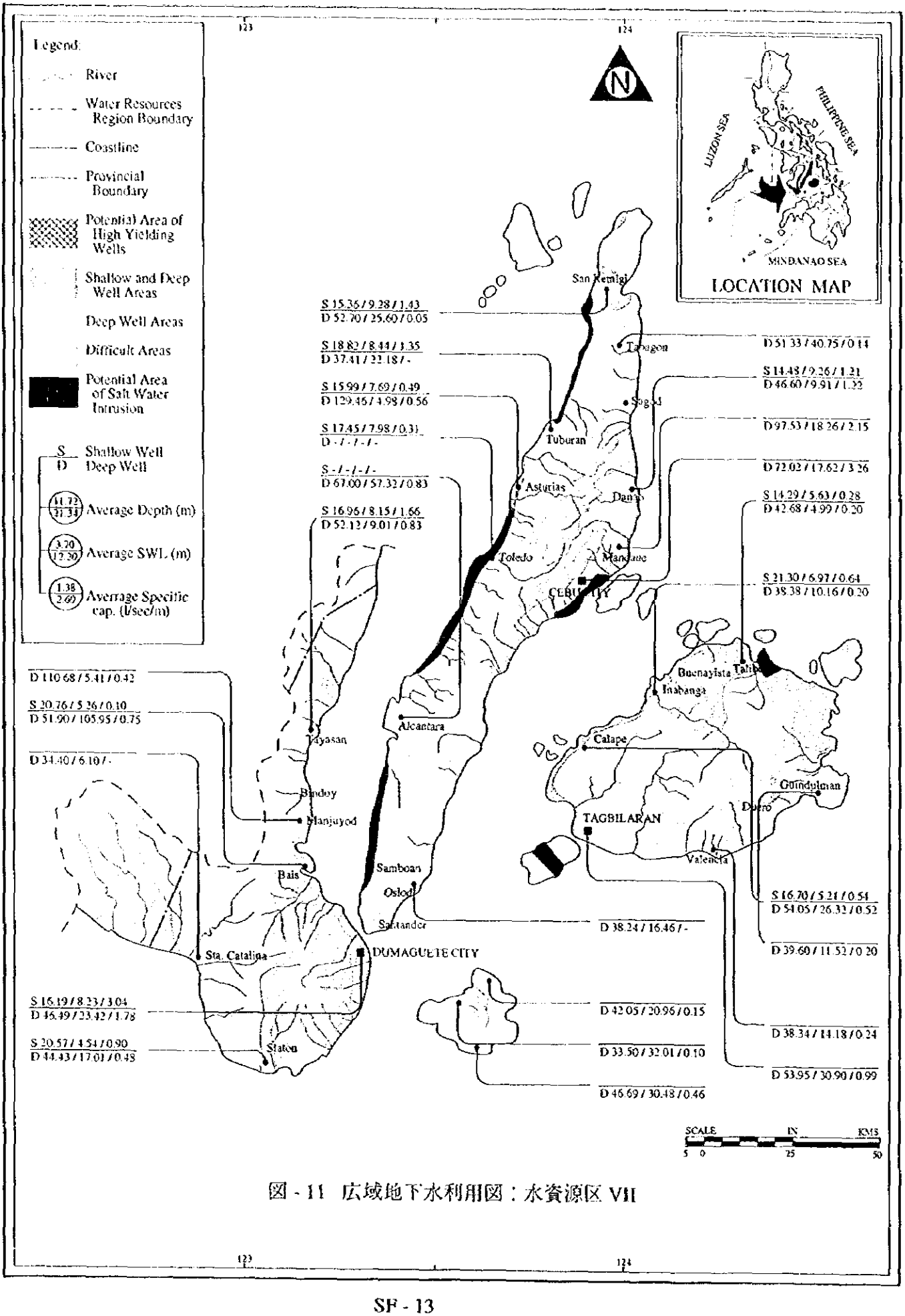


図 - 11 広域地下水利用図：水資源区 VII

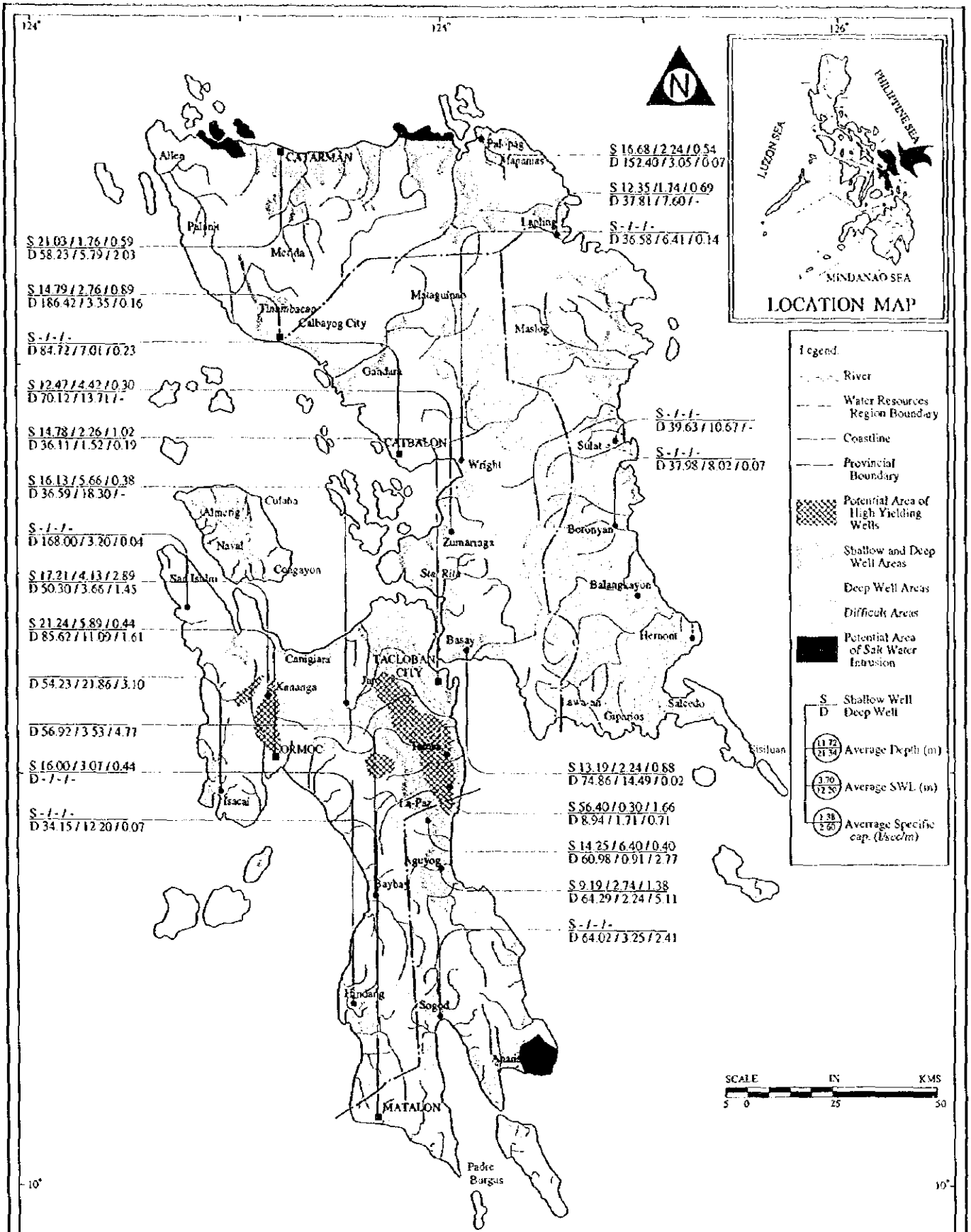


図 - 12 広域地下水利用図：水資源区 VIII

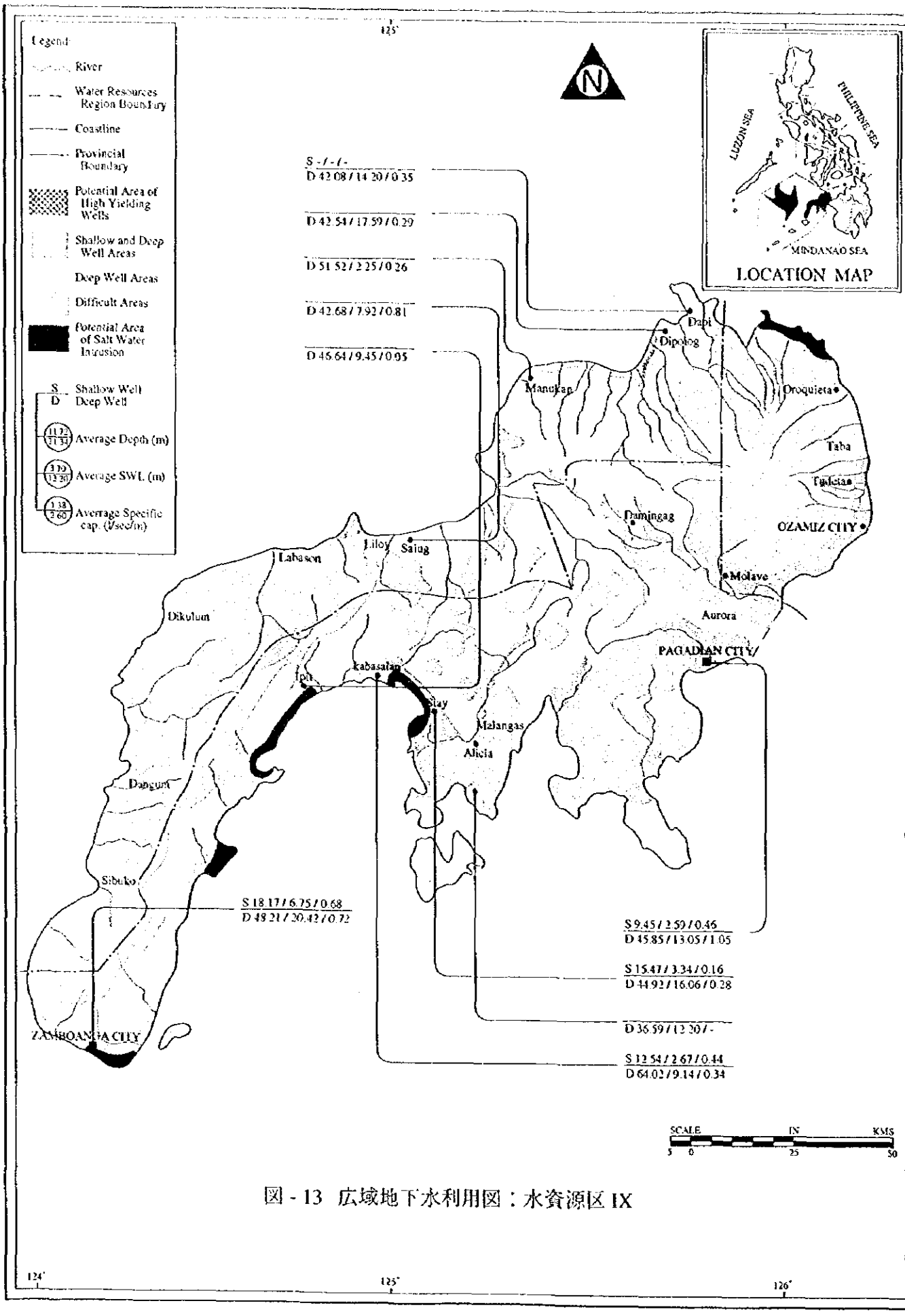


図 - 13 広域地下水利用図：水資源区 IX

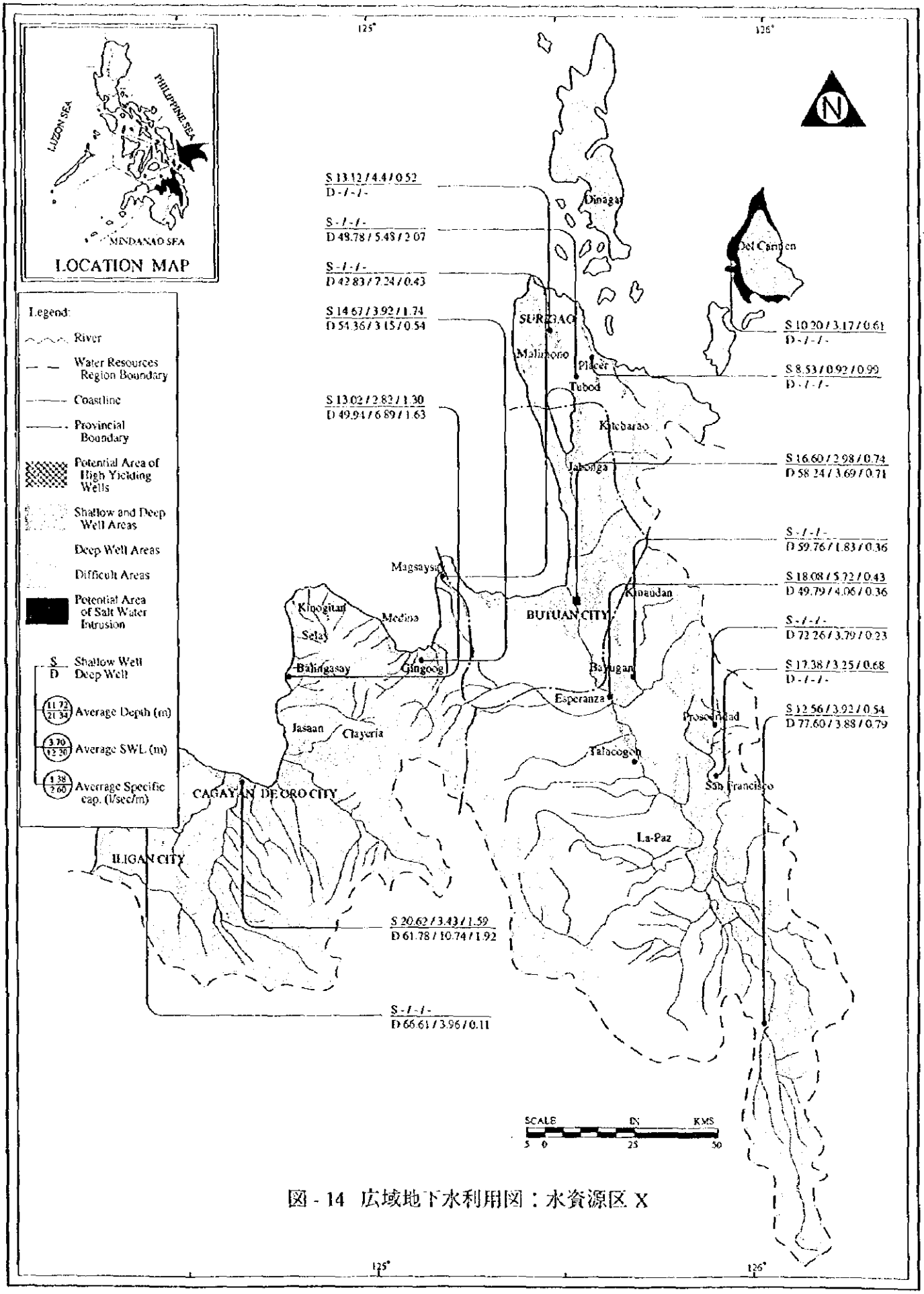


図 - 14 広域地下水利用図：水資源区 X

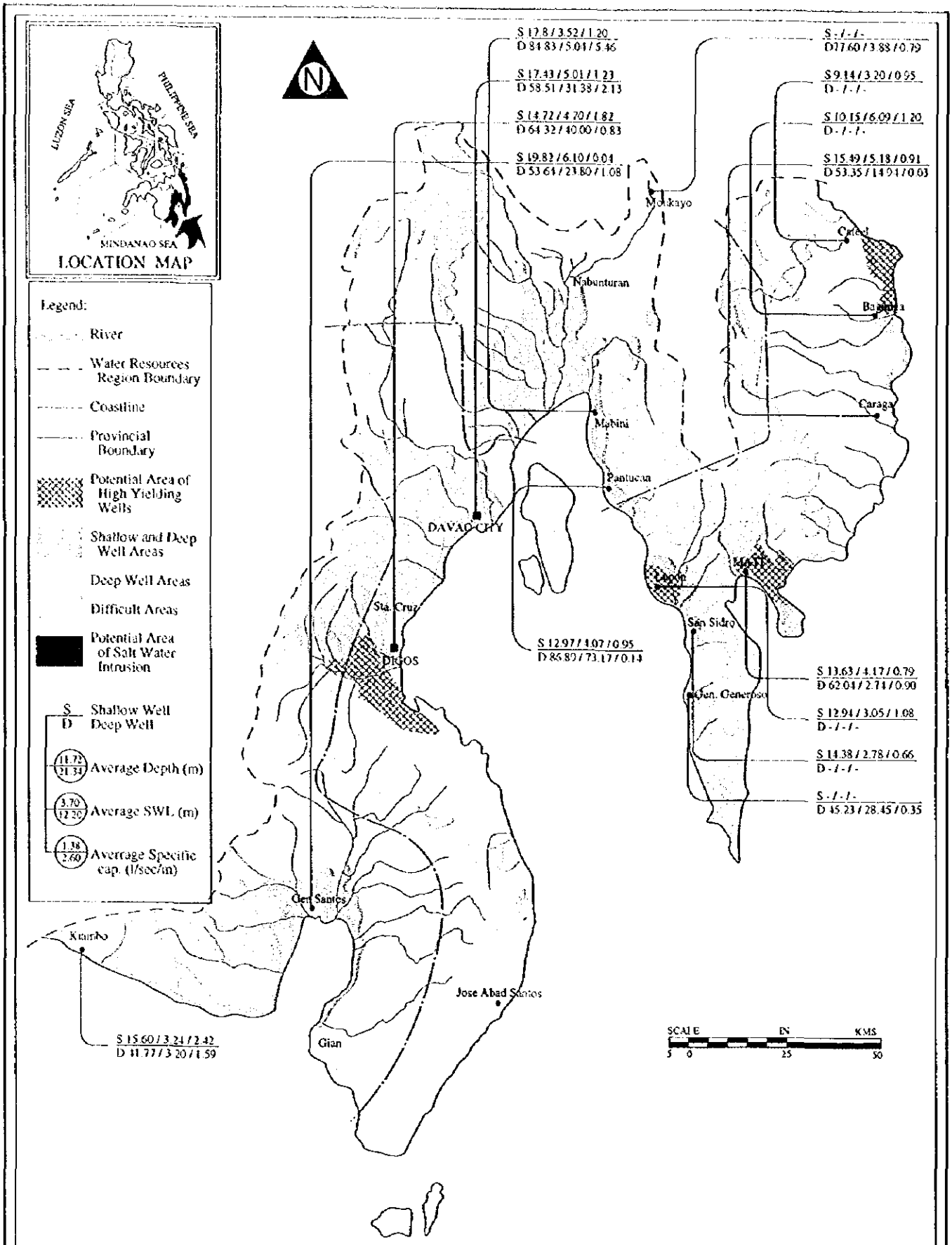


図 - 15 広域地下水利用図：水資源区 XI

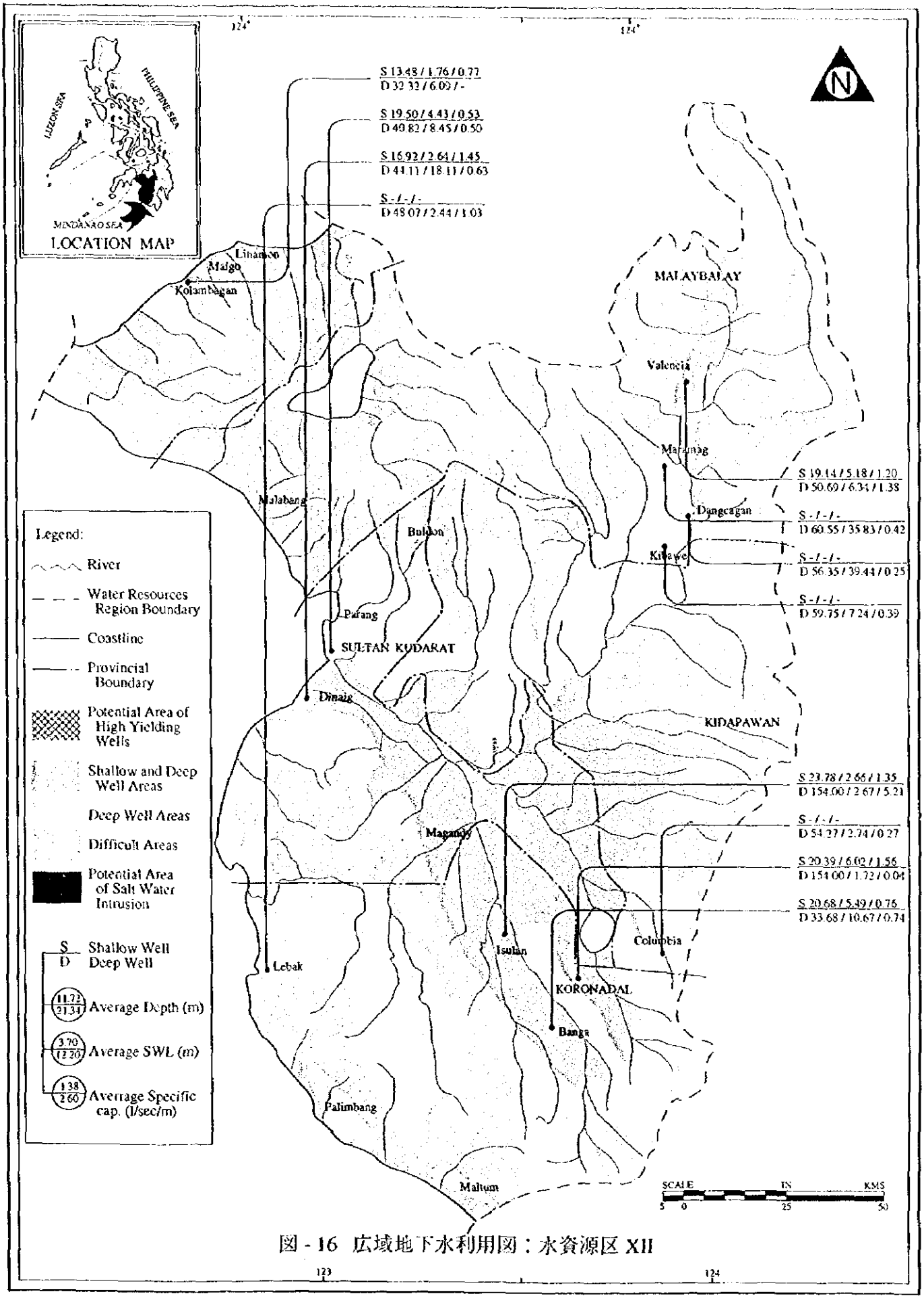


図 - 16 広域地下水利用図：水資源区 XII

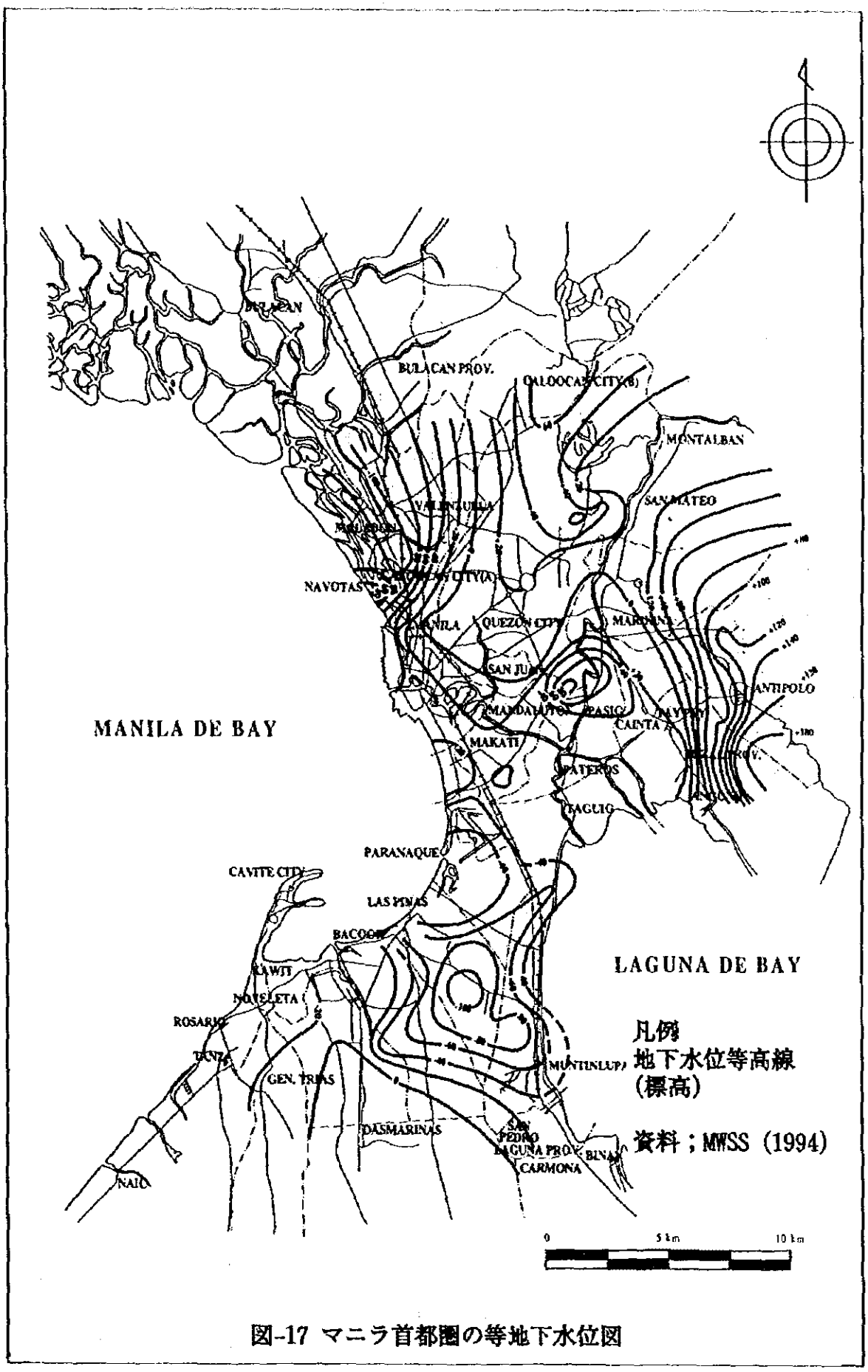


図-17 マニラ首都圏の等地下水位図

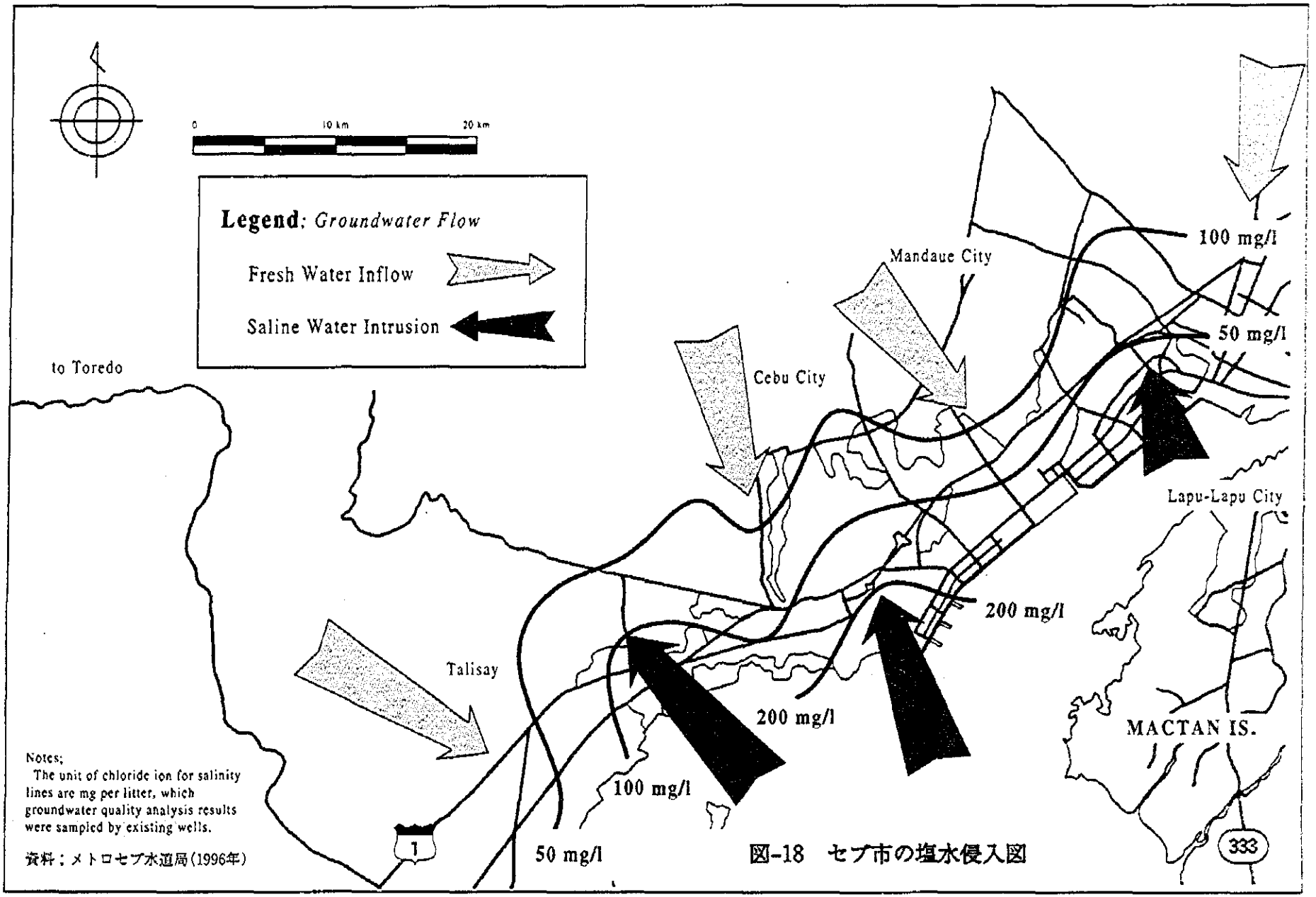


図-18　セブ市の塩水侵入図

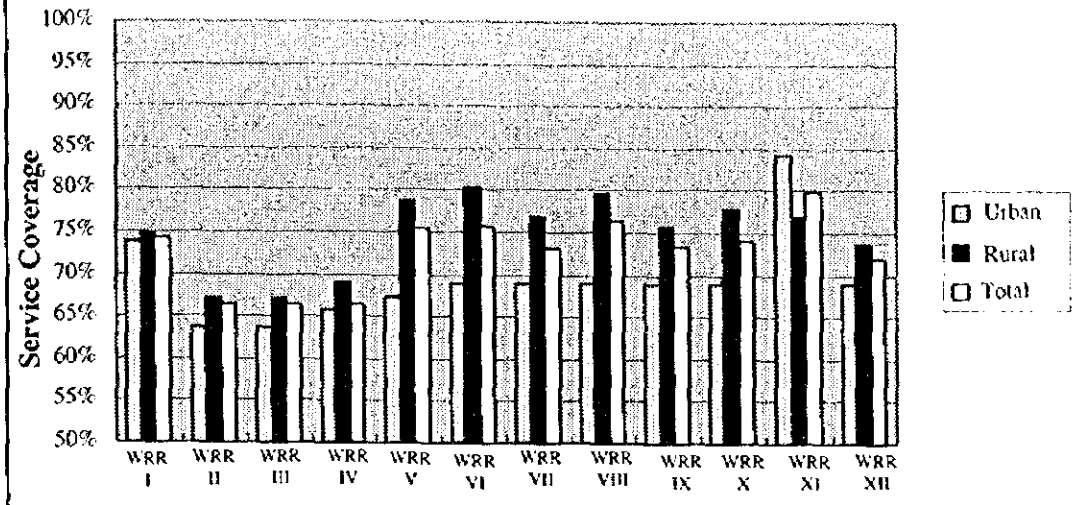


図-19　現在の公共水道普及率（1995年）

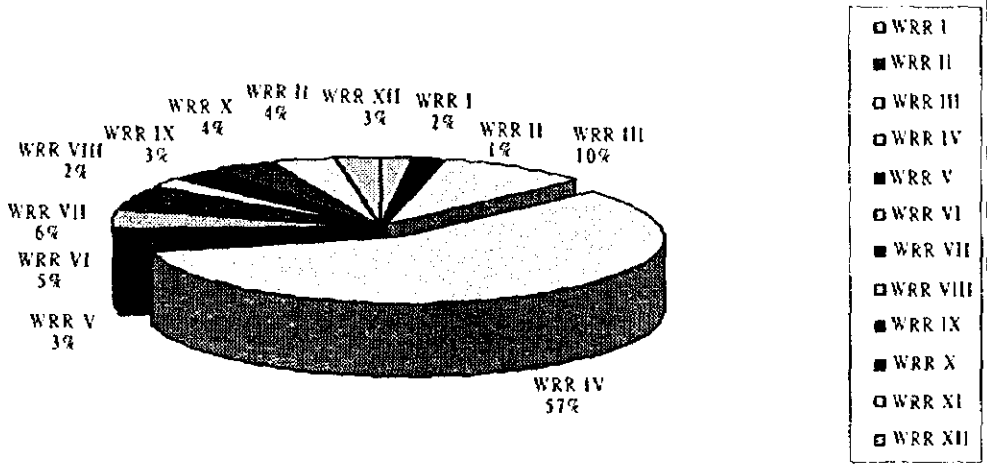


図-20　各水資源区の公共水道水生産量（1995年）

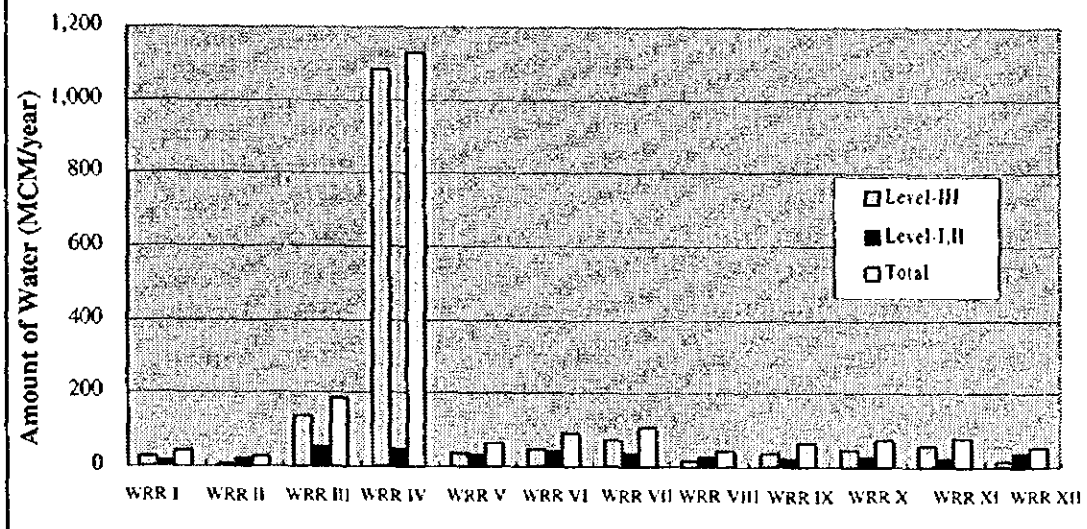


図-21　現在の公共水道用水需要量（1995年）

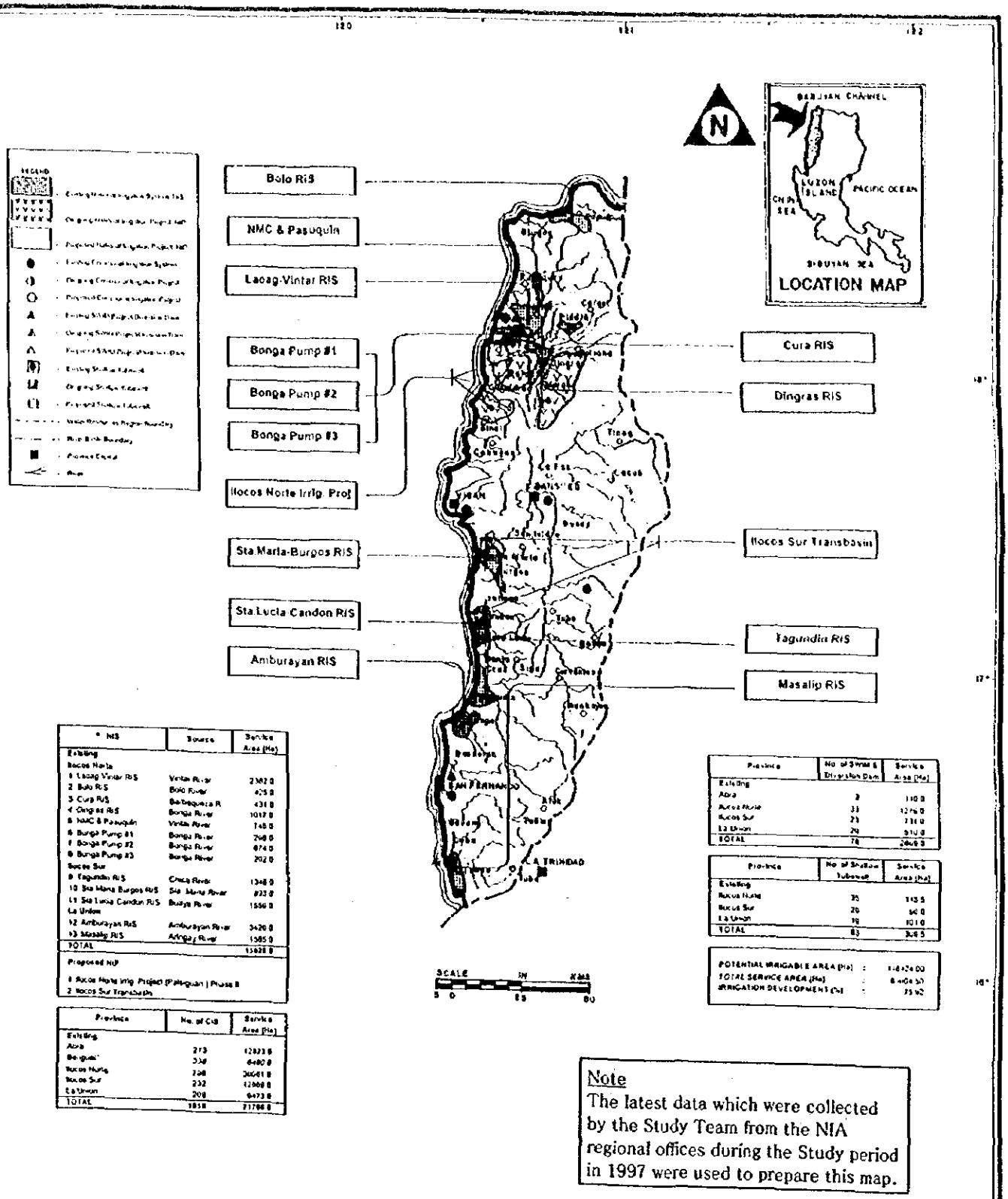
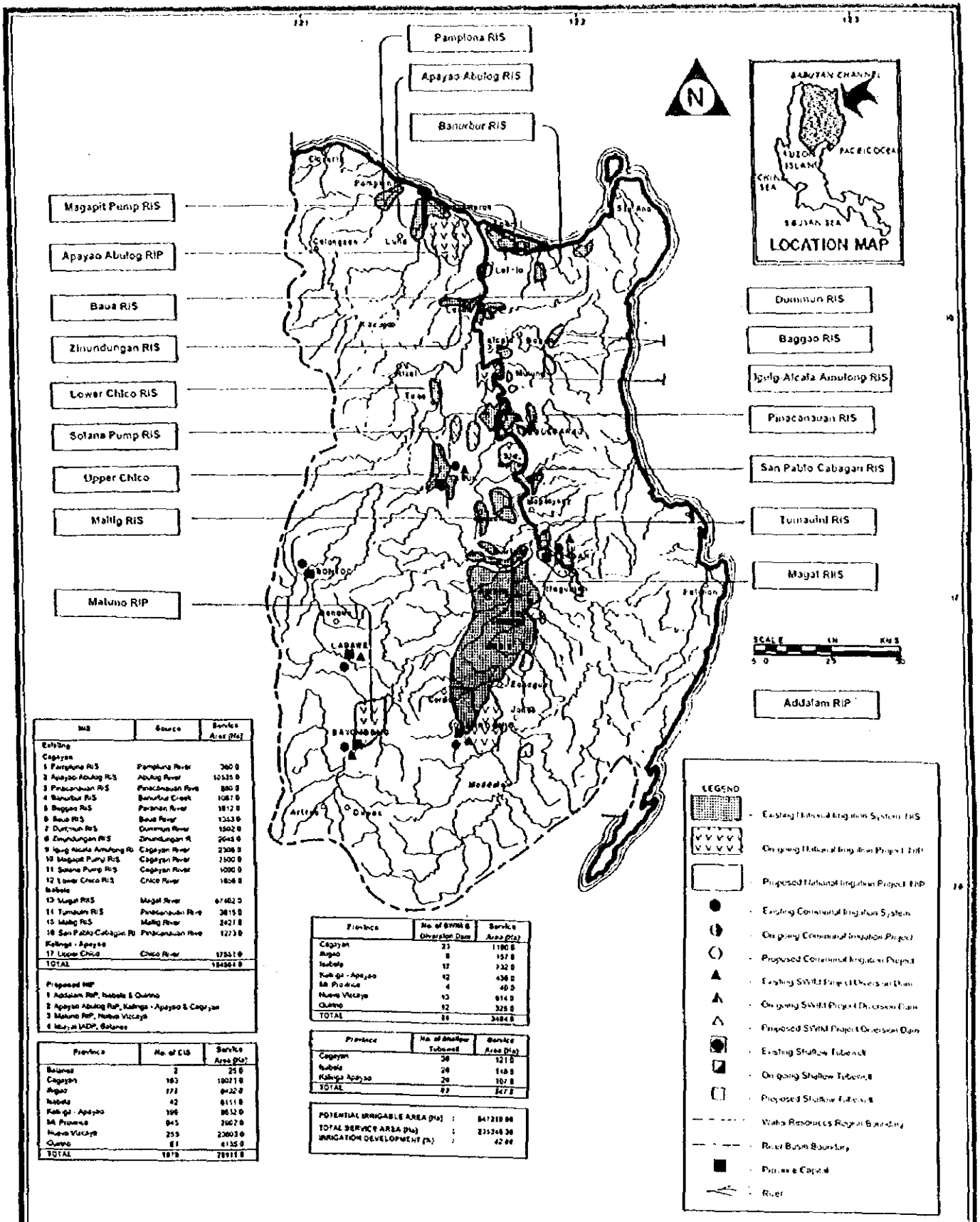


図-22　灌漑開発計画の位置図：水資源区 I



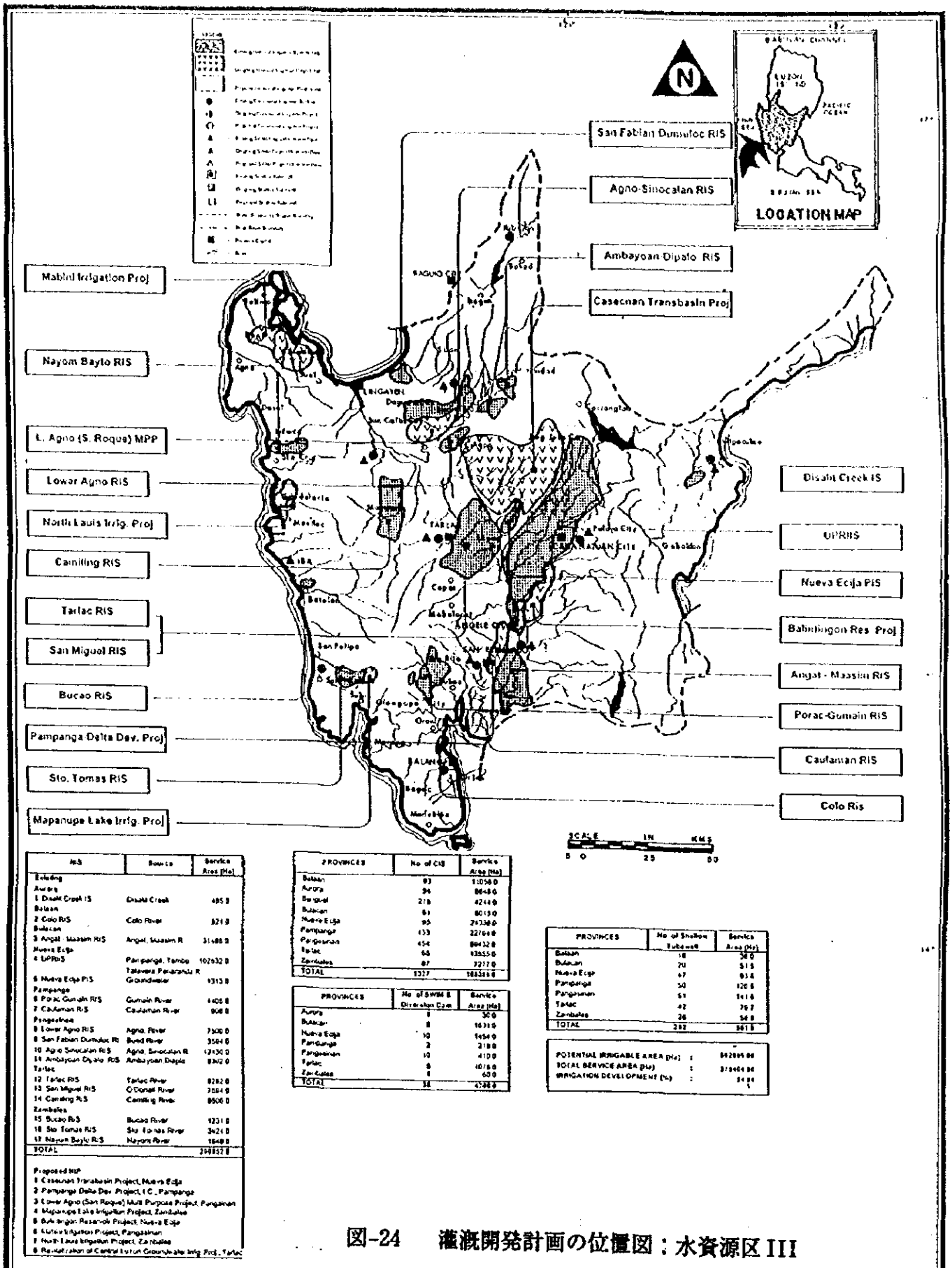
Province	No. of CIS	Service Area (Ha)
Batanes	3	25 0
Cagayan	183	19071 0
Ifugao	173	6432 0
Isabela	42	6111 0
Kalinga - Apayao	199	8652 0
Mt. Province	845	2667 0
Nueva Vizcaya	253	23603 0
Quirino	81	6135 0
TOTAL	1879	78911 0

Province	No. of SWIP & Diversion Dam	Service Area (Ha)
Cagayan	23	1180 0
Ifugao	8	157 0
Isabela	17	732 0
Kalinga - Apayao	12	436 0
Mt. Province	4	40 0
Nueva Vizcaya	13	814 0
Quirino	12	325 0
TOTAL	89	3484 0

Province	No. of Shallow Tubewell	Service Area (Ha)
Cagayan	50	121 0
Isabela	28	146 0
Kalinga Apayao	29	102 0
TOTAL	83	347 0

POTENTIAL IRRIGABLE AREA (Ha)	:	847210 00
TOTAL SERVICE AREA (Ha)	:	235246 30
IRRIGATION DEVELOPMENT (%)	:	42 00

図-23　灌漑開発計画の位置図：水資源区 II



RIS	Source	Service Area (Ha)
Existing		
Aurora		
1 Disabi Creek IS	Disabi Creek	485.0
Bataan		
2 Colo RIS	Colo River	821.0
Bulacan		
3 Angat - Maasim RIS	Angat, Maasim R.	31,688.0
Nueva Ecija		
4 UPRIS	Pampanga, Tambo, Talavera, Penaranda R.	102,632.0
5 Nueva Ecija PIS	Groundwater	9313.0
Pampanga		
6 Porac Gumain RIS	Gumain River	4405.0
7 Caufantan RIS	Caufantan River	908.0
Pangasinan		
8 Lower Agno RIS	Agno River	7500.0
9 San Fabian Dumalfoc RI	Bued River	3584.0
10 Agno Sinocalan RIS	Agno, Sinocalan R.	12,130.0
11 Ambayoan Dipalo RIS	Ambayoan Dagda	8362.0
Tarlac		
12 Tarlac RIS	Tarlac River	8282.0
13 San Miguel RIS	O'Donnell River	7084.0
14 Camiling RIS	Camiling River	8506.0
Zambales		
15 Bucao RIS	Bucao River	1231.0
16 Sto Tomas RIS	Sto. Tomas River	3424.0
17 Nayom Bayto RIS	Nayom River	1848.0
TOTAL		204852.0

Proposed MP
1 Casecnan Transbasin Project, Nueva Ecija
2 Pampanga Delta Dev. Project, I C., Pampanga
3 Lower Agno (San Roque) Multi Purpose Project, Pangasinan
4 Mapanuga Lake Irrigation Project, Zambales
5 Bulo Irrigation Research Project, Nueva Ecija
6 Mabini Irrigation Project, Pangasinan
7 North Luzon Irrigation Project, Zambales
8 Rehabilitation of Central Luzon Groundwater Irrig. Proj., Tarlac

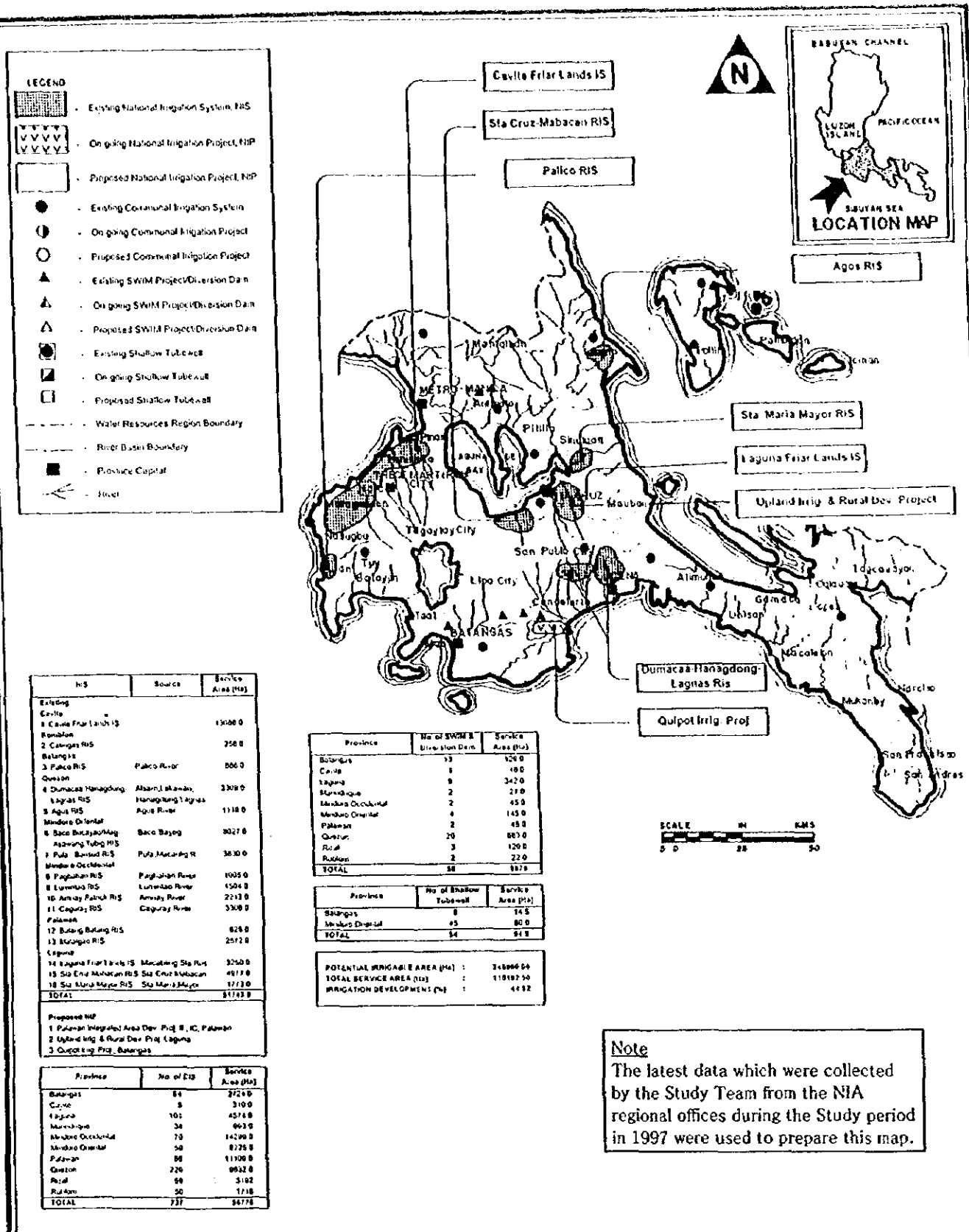
PROVINCES	No. of CIS	Service Area (Ha)
Bataan	93	11,058.0
Aurora	94	8648.0
Bengual	278	42,448.0
Bulacan	61	8013.0
Nueva Ecija	95	24,358.0
Pampanga	133	22,704.0
Pangasinan	454	89,432.0
Tarlac	66	13,855.0
Zambales	87	7277.0
TOTAL	1327	188,368.0

PROVINCES	No. of SWIM S Diversion Dam	Service Area (Ha)
Aurora	1	50.0
Bulacan	8	16,310.0
Nueva Ecija	10	14,540.0
Pampanga	3	2180.0
Pangasinan	10	4100.0
Tarlac	9	10,150.0
Zambales	1	650.0
TOTAL	56	47,980.0

PROVINCES	No. of Shallow Tubewell	Service Area (Ha)
Bataan	18	540.0
Bulacan	70	515.0
Nueva Ecija	67	804.0
Pampanga	50	1200.0
Pangasinan	61	1414.0
Tarlac	42	787.0
Zambales	26	541.0
TOTAL	392	6611.0

POTENTIAL IRRIGABLE AREA (Ha)	:	842,845.00
TOTAL SERVICE AREA (Ha)	:	375,464.00
IRRIGATION DEVELOPMENT (%)	:	44.54

図-24　灌漑開発計画の位置図：水資源区 III



Province	No. of SWIM & Diversion Dam	Service Area (Ha)
Batangas	33	529.0
Cavite	1	48.0
Laguna	9	342.0
Marinduque	2	27.0
Mindoro Occidental	2	45.0
Mindoro Oriental	4	145.0
Palawan	2	45.0
Quezon	20	883.0
Rizal	3	120.0
Romblon	2	22.0
TOTAL	80	1807.0

Province	No. of Shallow Tubewell	Service Area (Ha)
Batangas	8	14.5
Mindoro Oriental	46	80.0
TOTAL	54	94.5

POTENTIAL IRRIGABLE AREA (Ha)	:	346866.56
TOTAL SERVICE AREA (Ha)	:	118197.50
IRRIGATION DEVELOPMENT (%)	:	44.92

Province	No. of Elg	Service Area (Ha)
Batangas	84	2724.0
Cavite	3	310.0
Laguna	101	4576.0
Marinduque	34	963.0
Mindoro Occidental	73	14290.0
Mindoro Oriental	58	8726.0
Palawan	88	11900.0
Quezon	229	9632.0
Rizal	69	3182
Romblon	50	1718
TOTAL	737	56778

Note
The latest data which were collected by the Study Team from the NIA regional offices during the Study period in 1997 were used to prepare this map.

図-25　灌漑開発計画の位置図：水資源区 IV（1/3）・・・

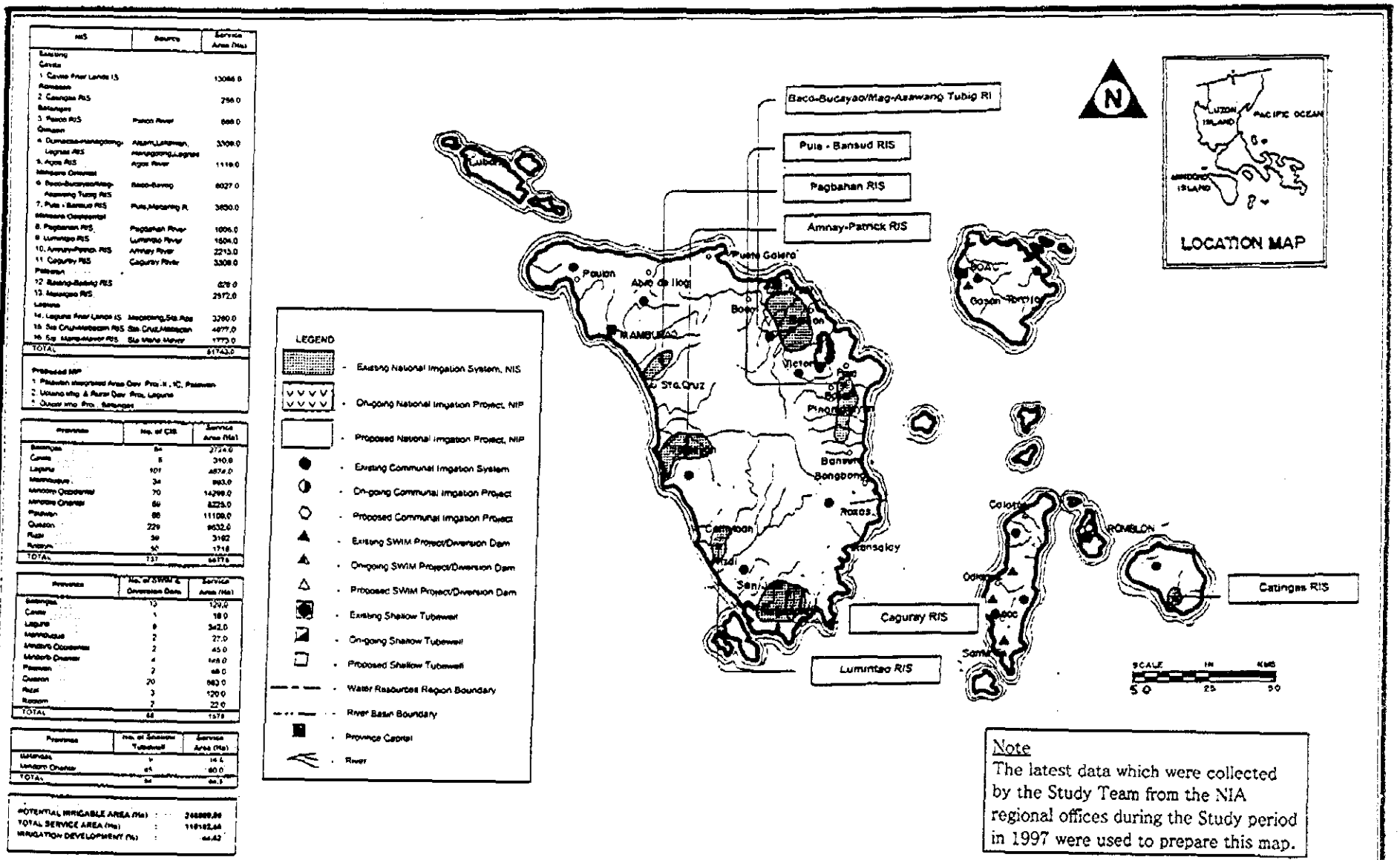


図-25　灌漑開発計画の位置図：水資源区 IV（2/3）

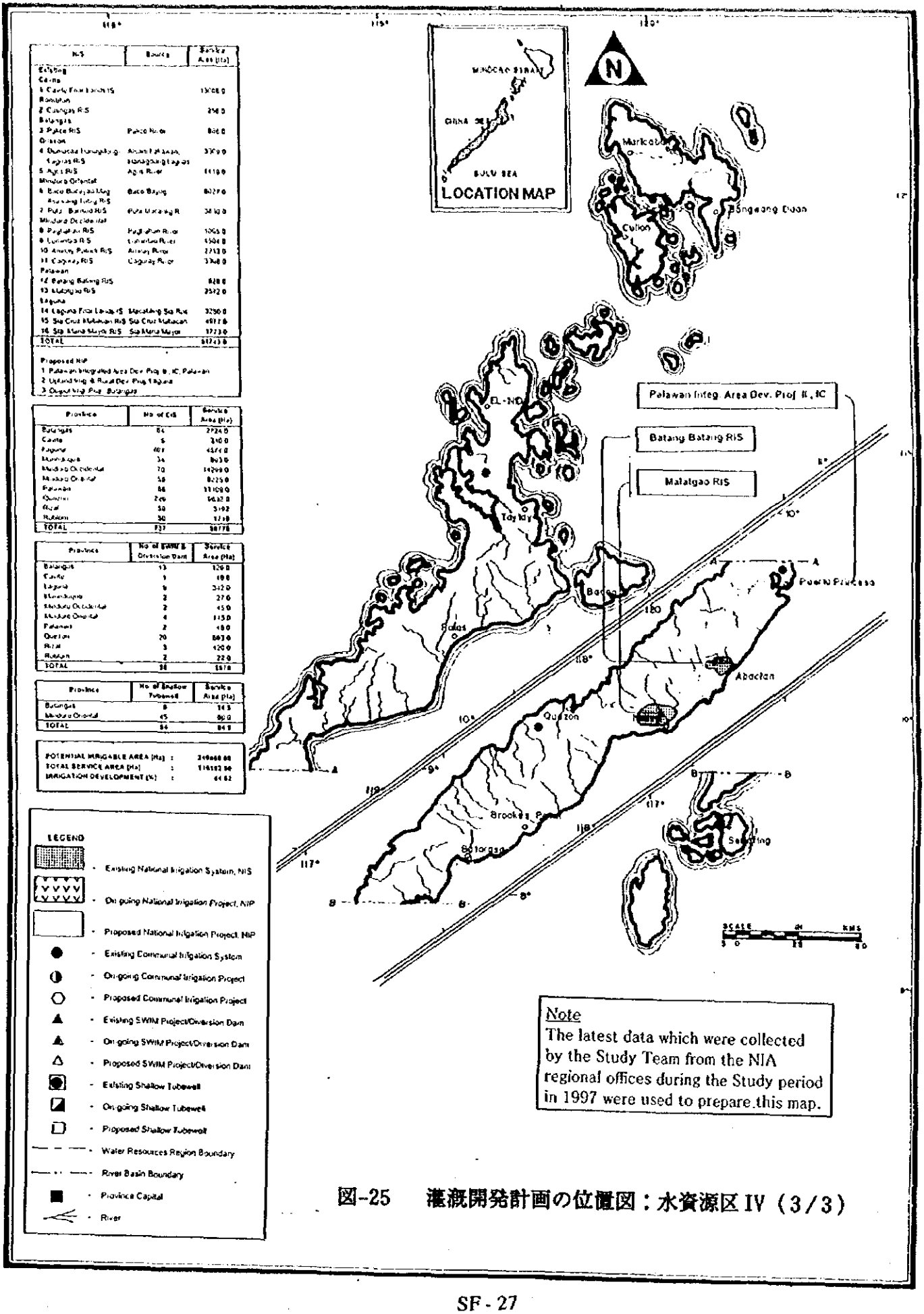


図-25　灌漑開発計画の位置図：水資源区 IV（3/3）

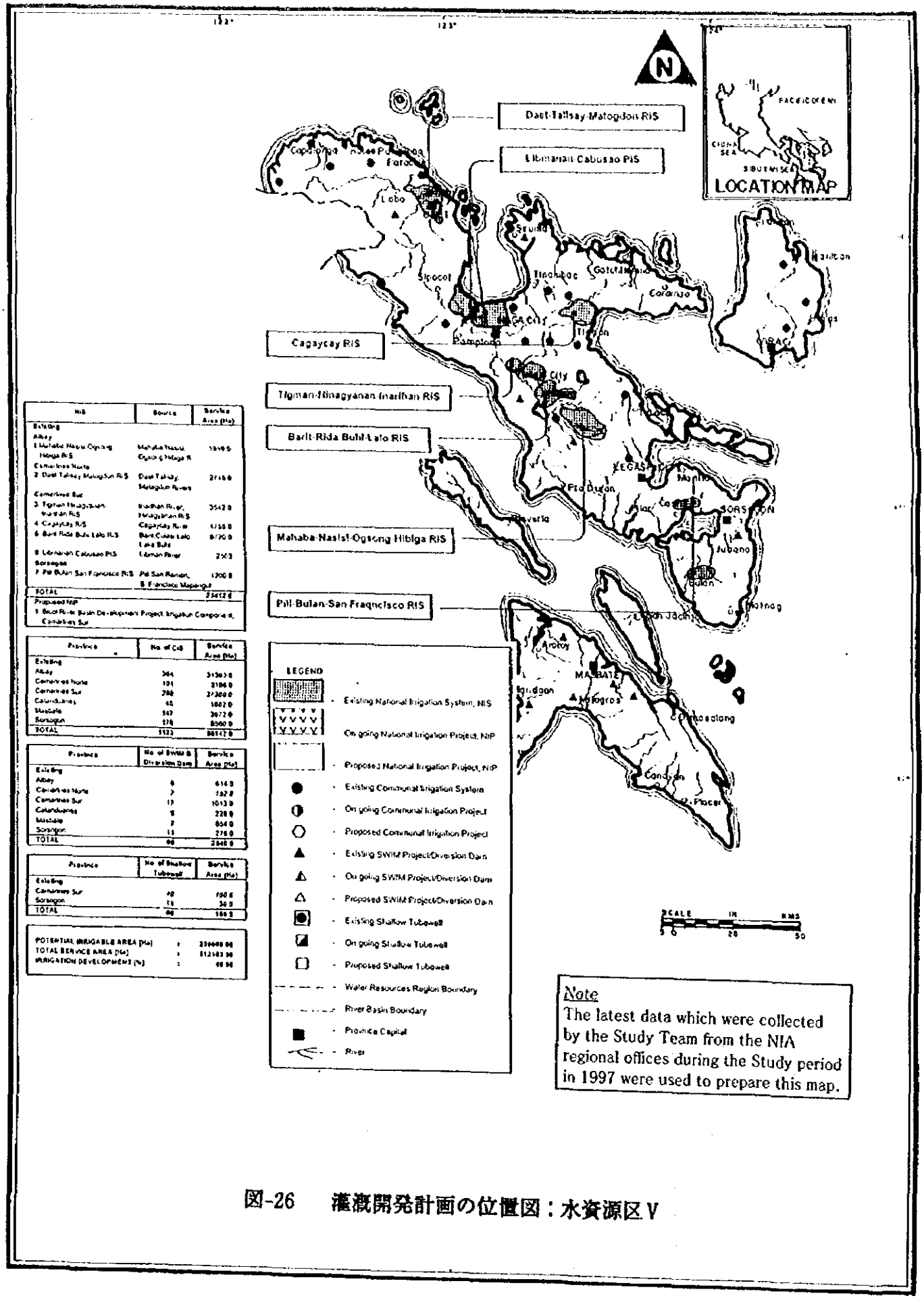
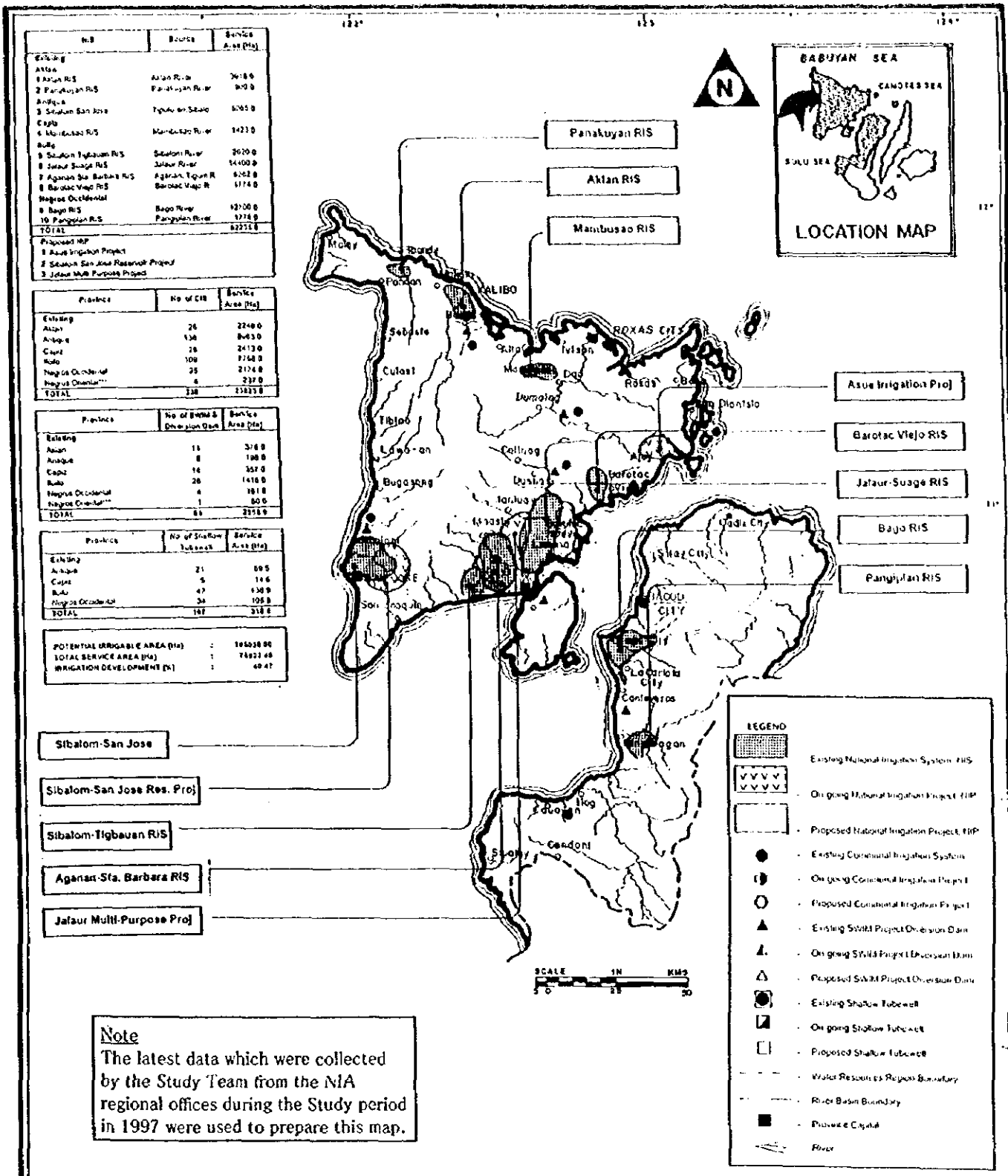
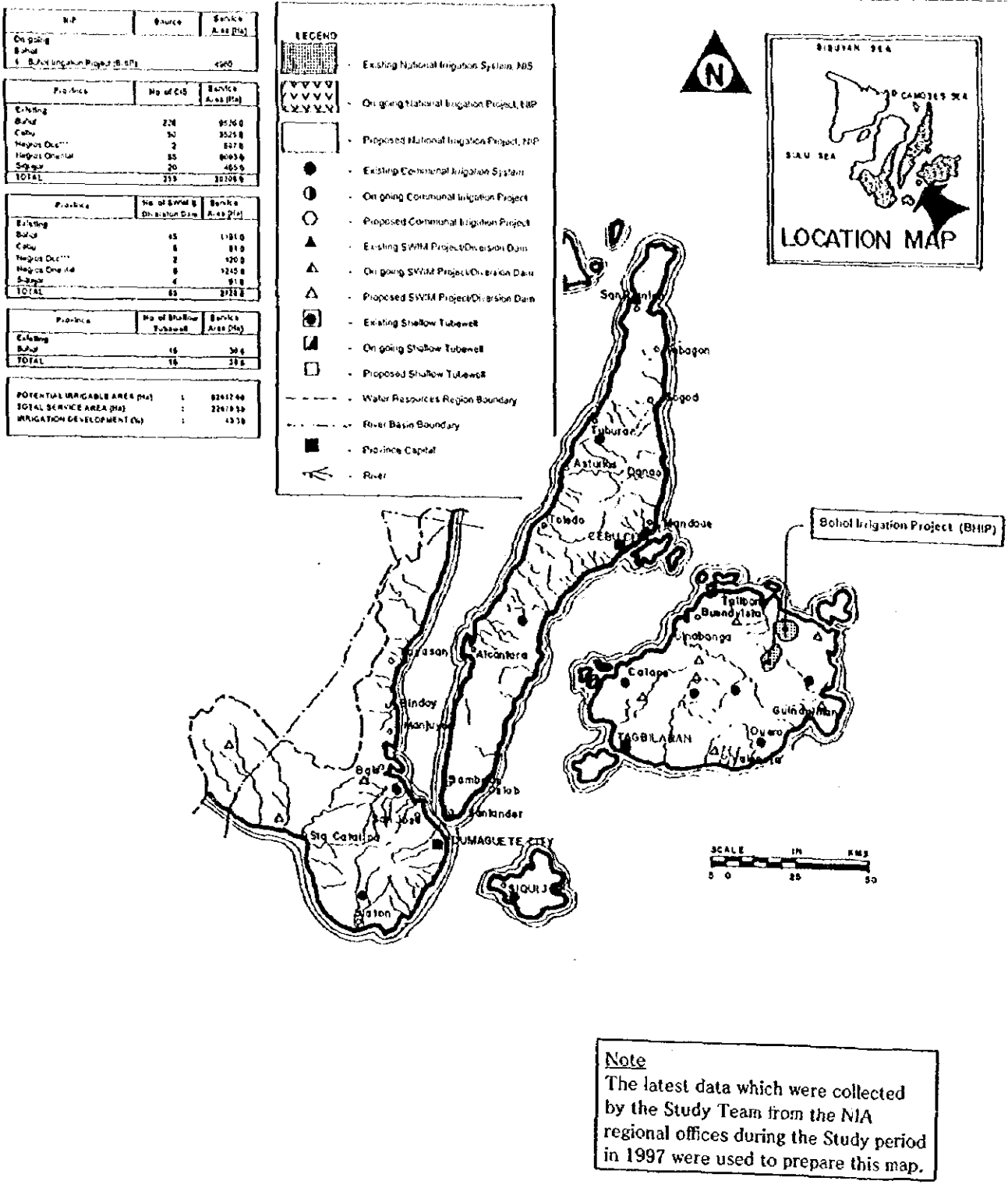


図-26　灌漑開発計画の位置図：水資源区Ⅴ



Note
The latest data which were collected by the Study Team from the NIA regional offices during the Study period in 1997 were used to prepare this map.

図-27　灌漑開発計画の位置図：水資源区VI



Note
The latest data which were collected by the Study Team from the NIA regional offices during the Study period in 1997 were used to prepare this map.

図-28　灌漑開発計画の位置図：水資源区 VII

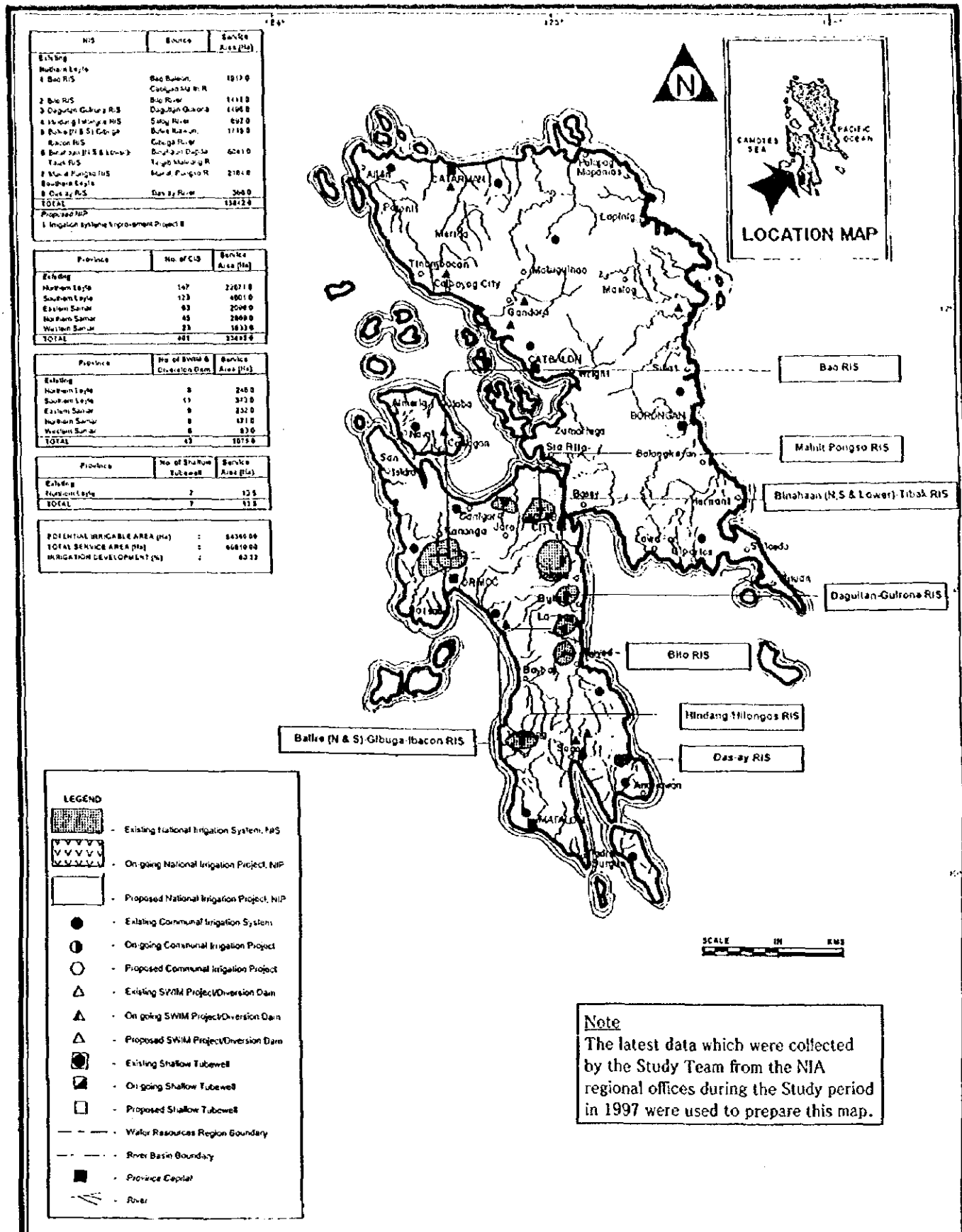


図-29　灌漑開発計画の位置図：水資源区VIII

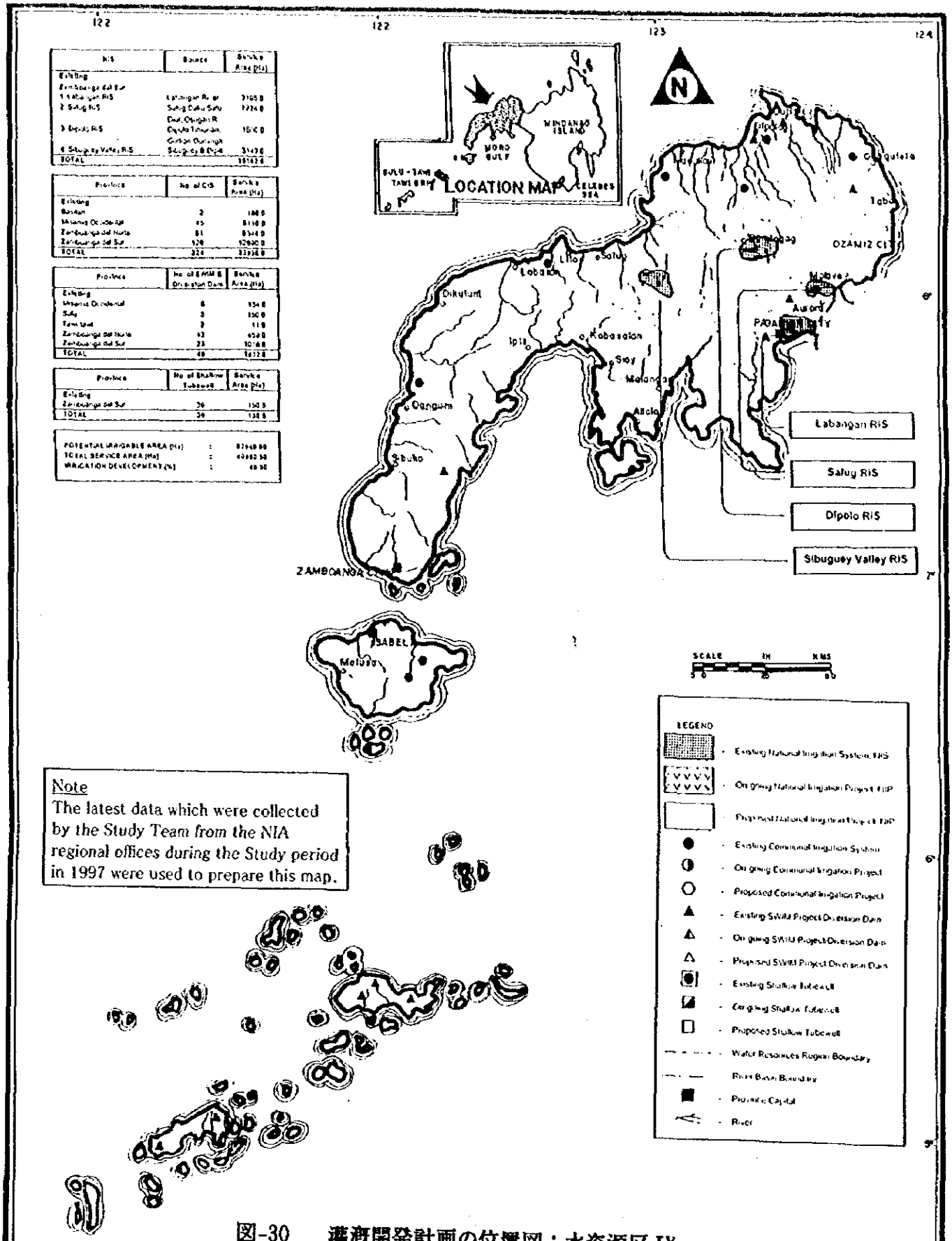


図-30　灌漑開発計画の位置図：水資源区 IX

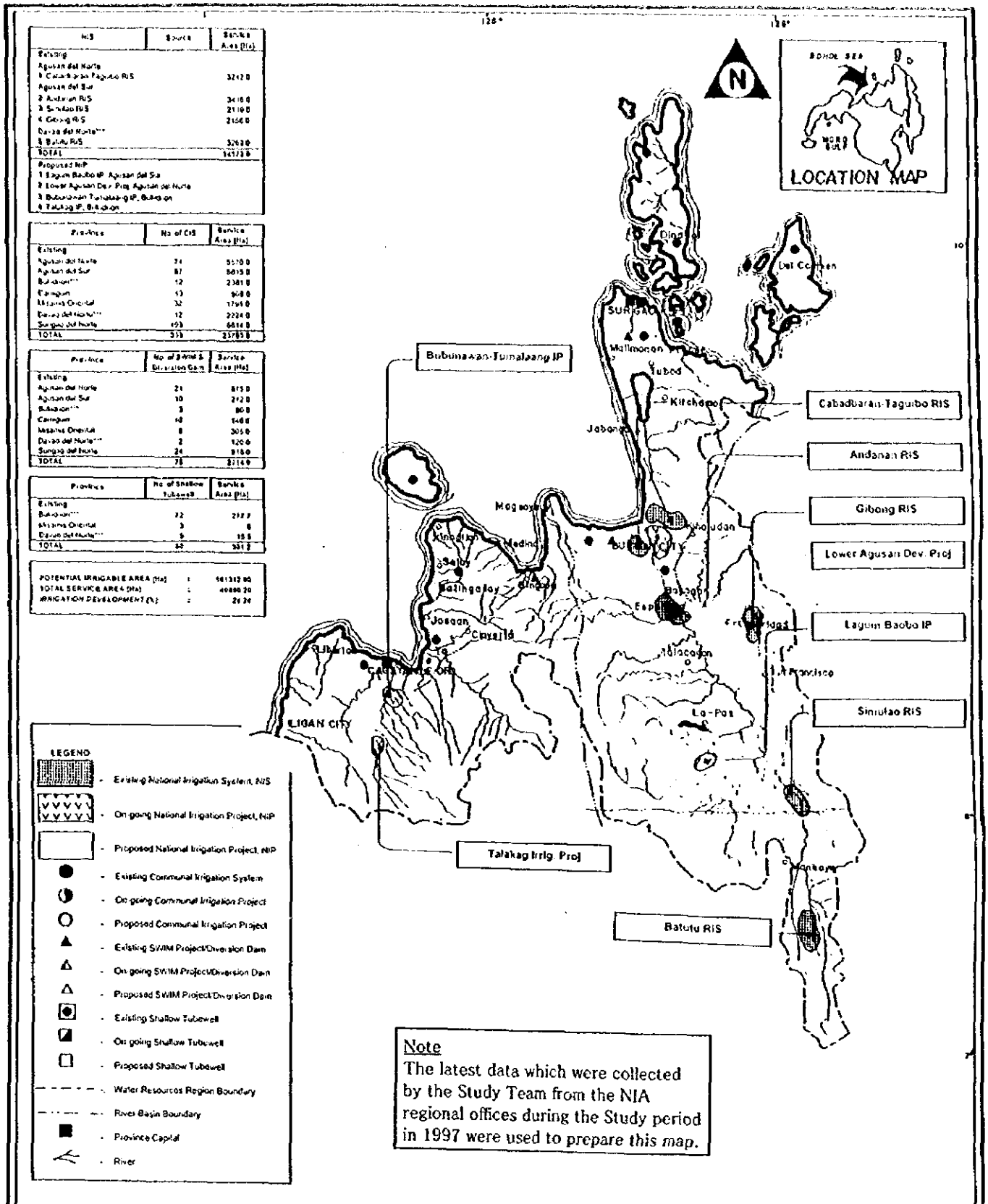


図-31　灌漑開発計画の位置図：水資源区X

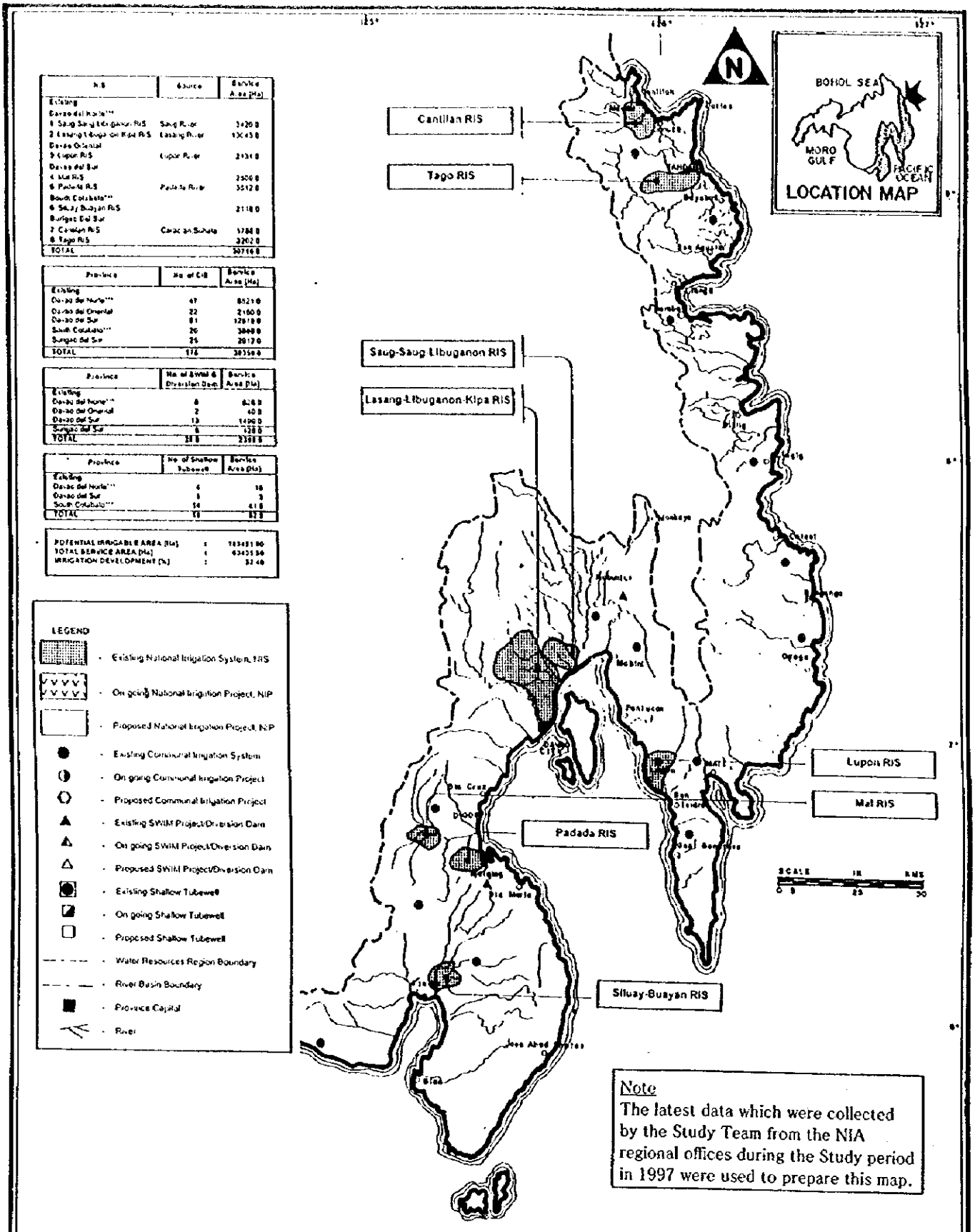


図-32　灌漑開発計画の位置図：水資源区XI

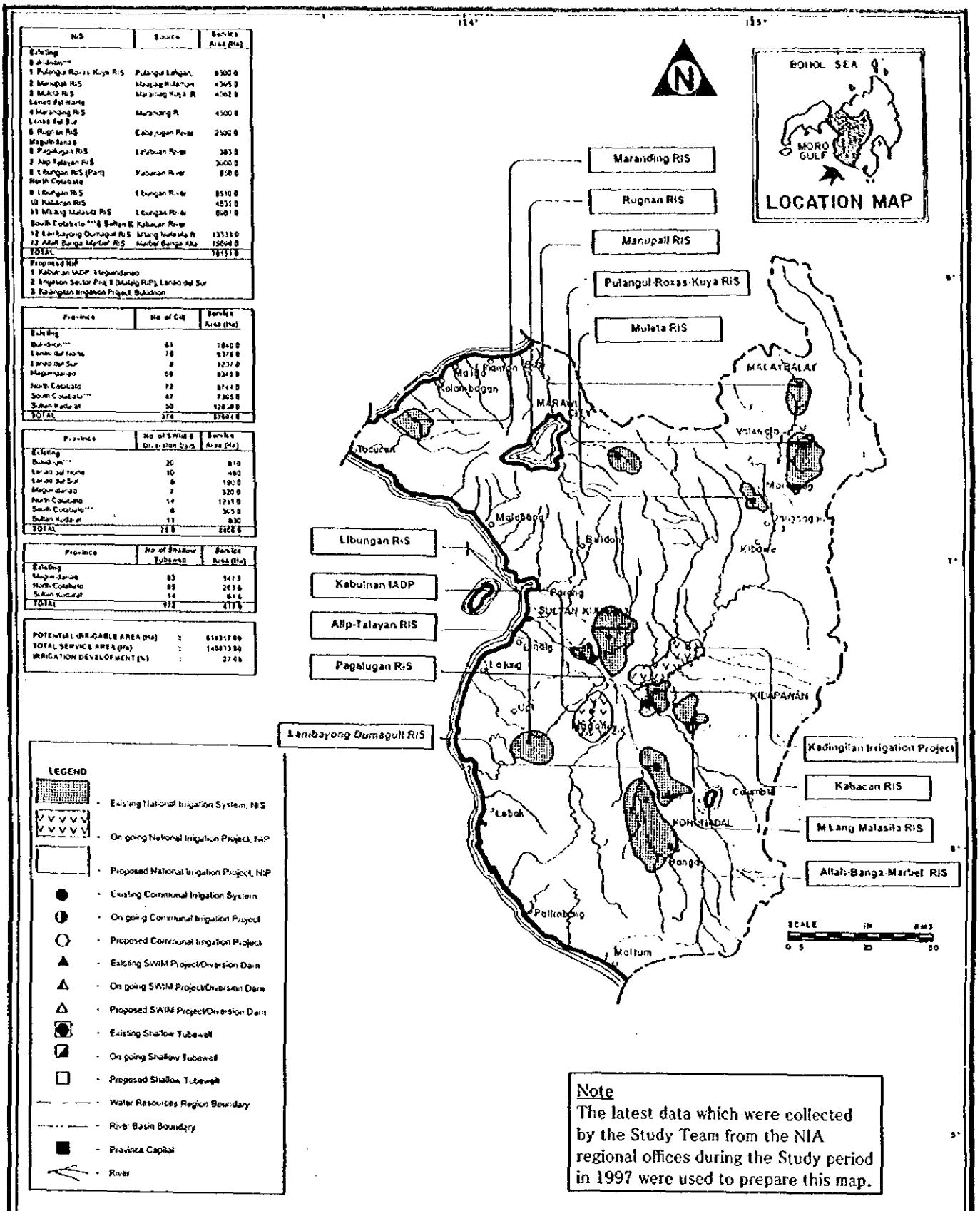
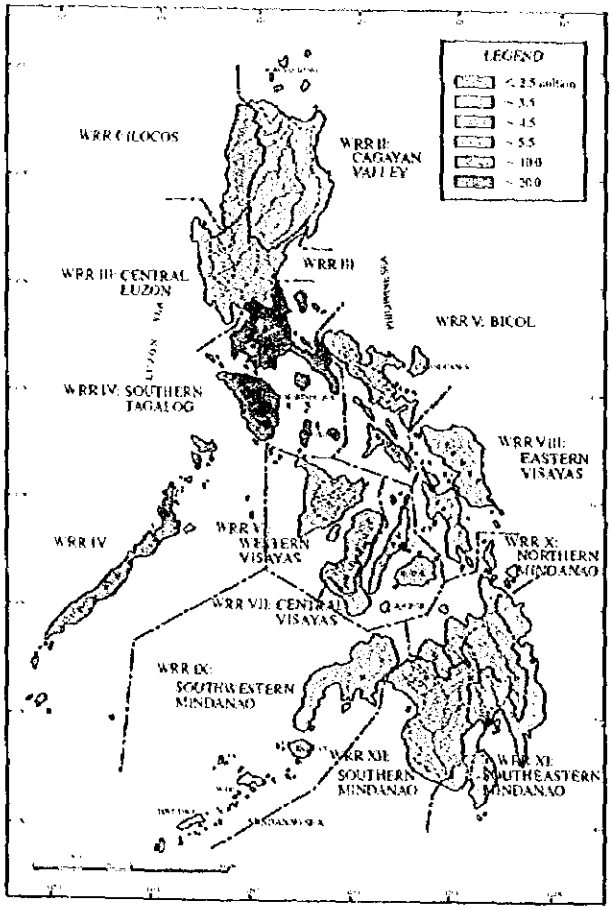
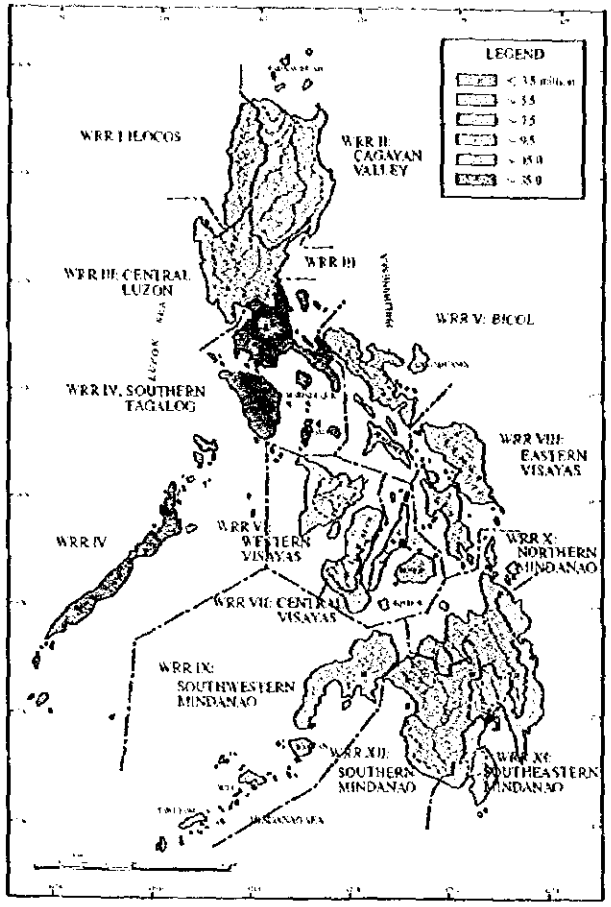


図-33　灌漑開発計画の位置図：水資源区XII



POPULATION BY WATER RESOURCES REGION IN 1995



POPULATION PROJECTION BY WATER RESOURCES REGION IN 2025

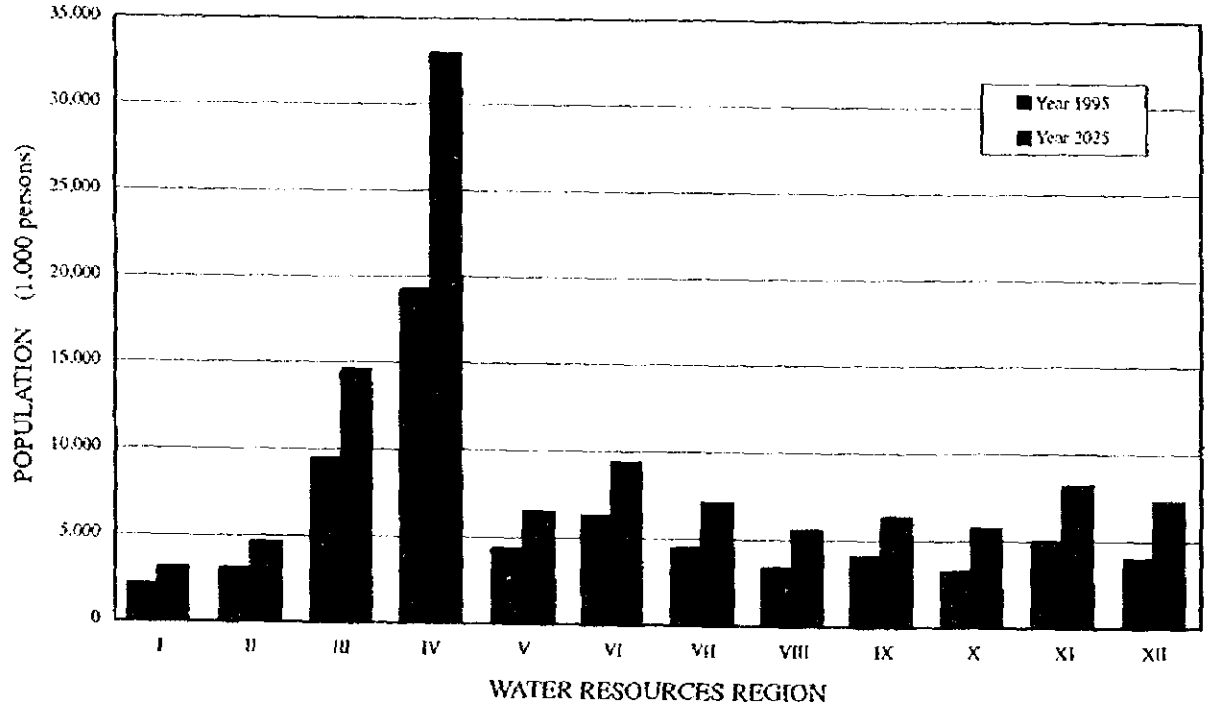
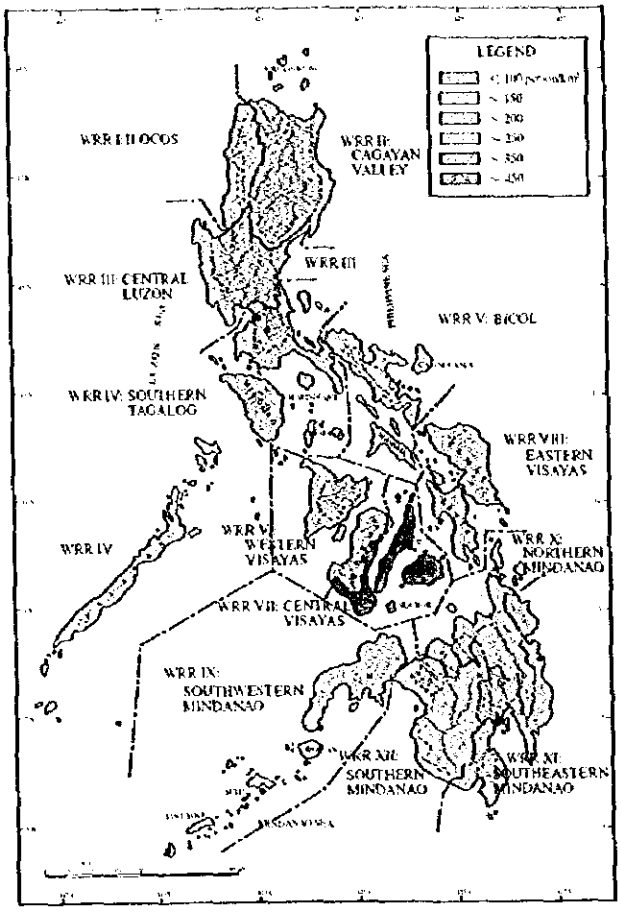
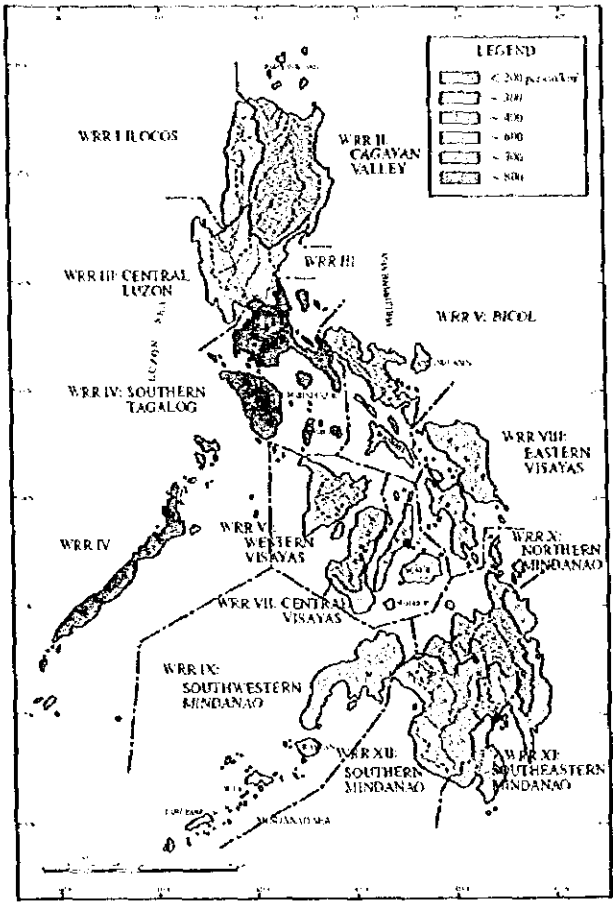


図-34　各水資源区の人口予測



POPULATION DENSITY BY WATER RESOURCES REGION IN 1995



POPULATION DENSITY PROJECTION BY WATER RESOURCES REGION IN 2025

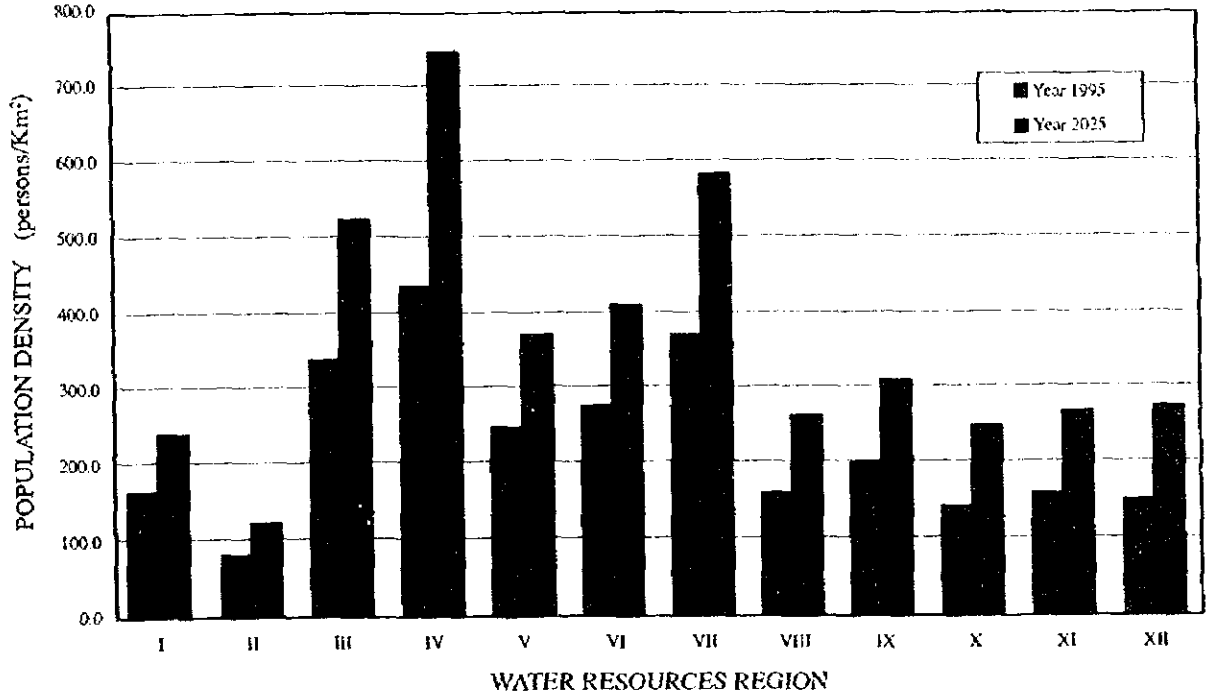
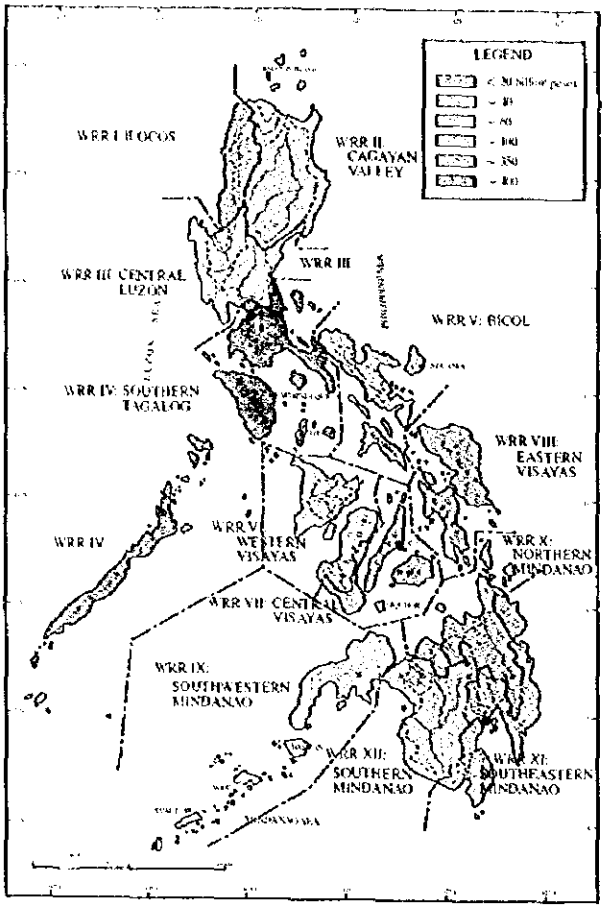
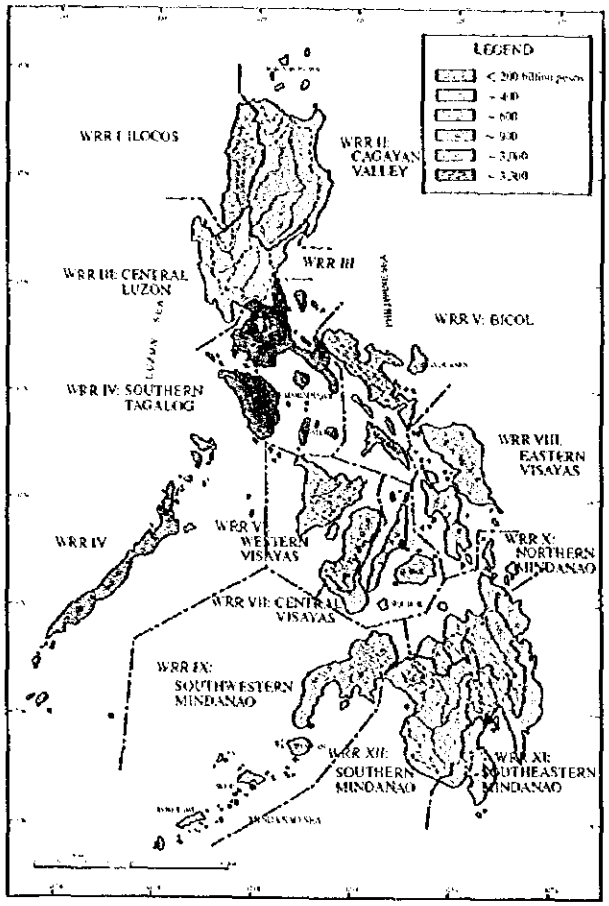


図-35　各水資源区の人口密度予測



GRDP BY WATER RESOURCES REGION IN 1995



PROJECTED GRDP BY WATER RESOURCES REGION IN 2025 (HIGH ECONOMIC GROWTHSCENARIO)

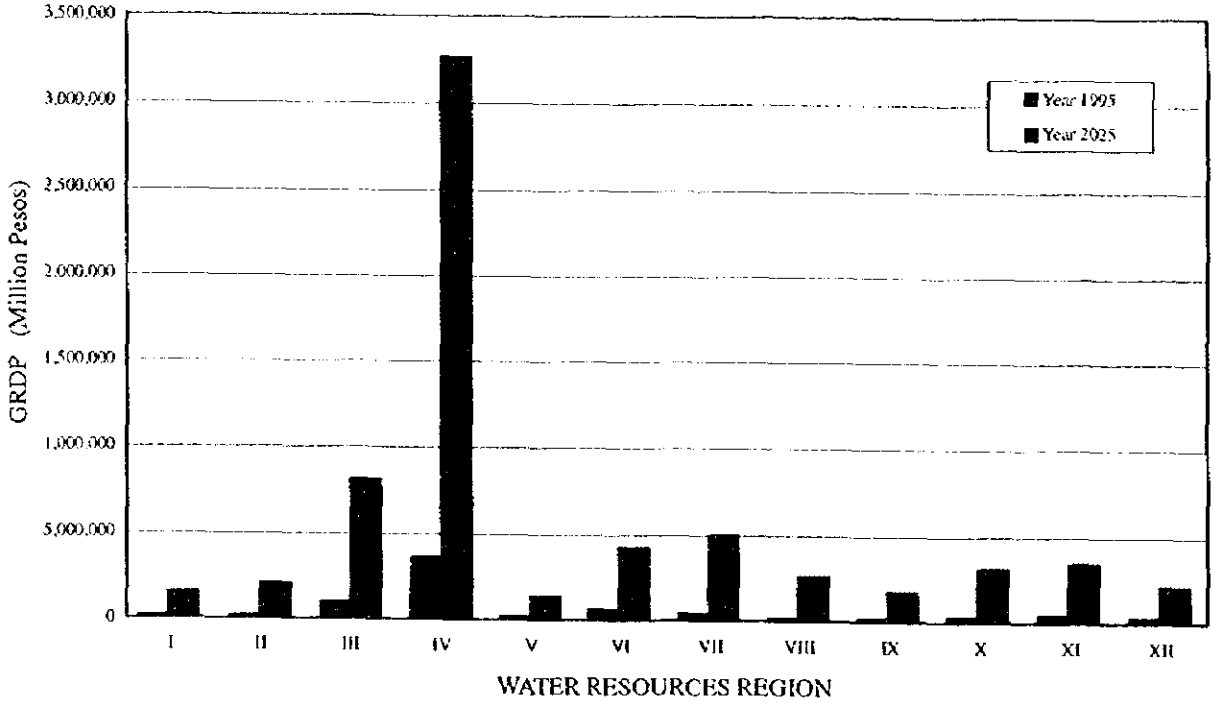
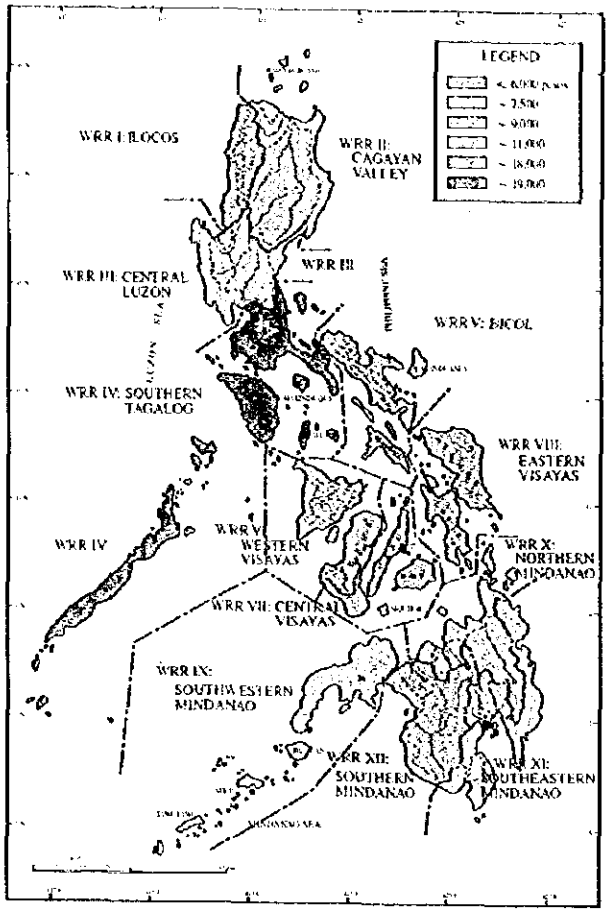
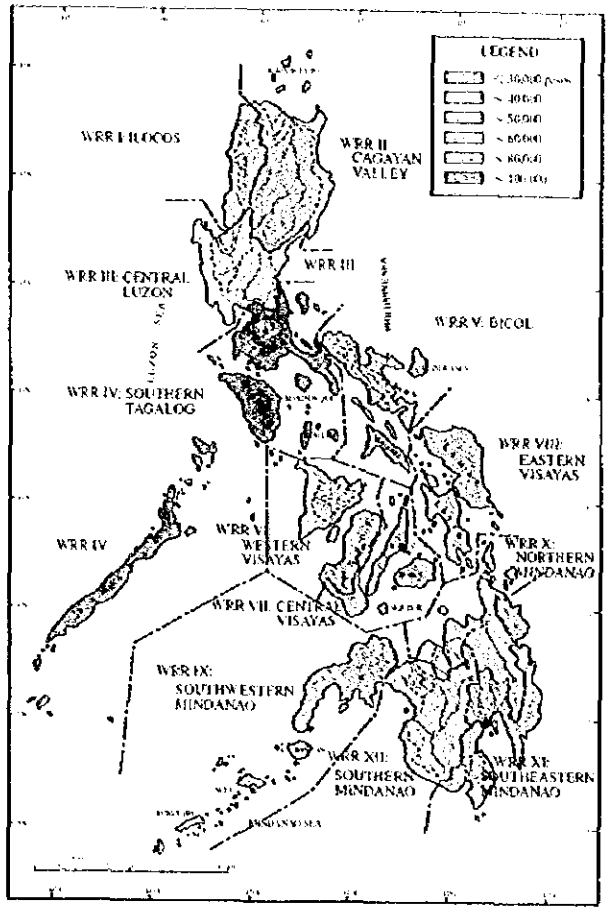


図-36　各水資源区の地区総生産予測 (高位経済成長ケース)



PER CAPITA GRDP BY WATER RESOURCES REGION IN 1995



PROJECTED PER CAPITA GRDP BY WATER RESOURCES REGION IN 2025 (HIGH ECONOMIC GROWTH SCENARIO)

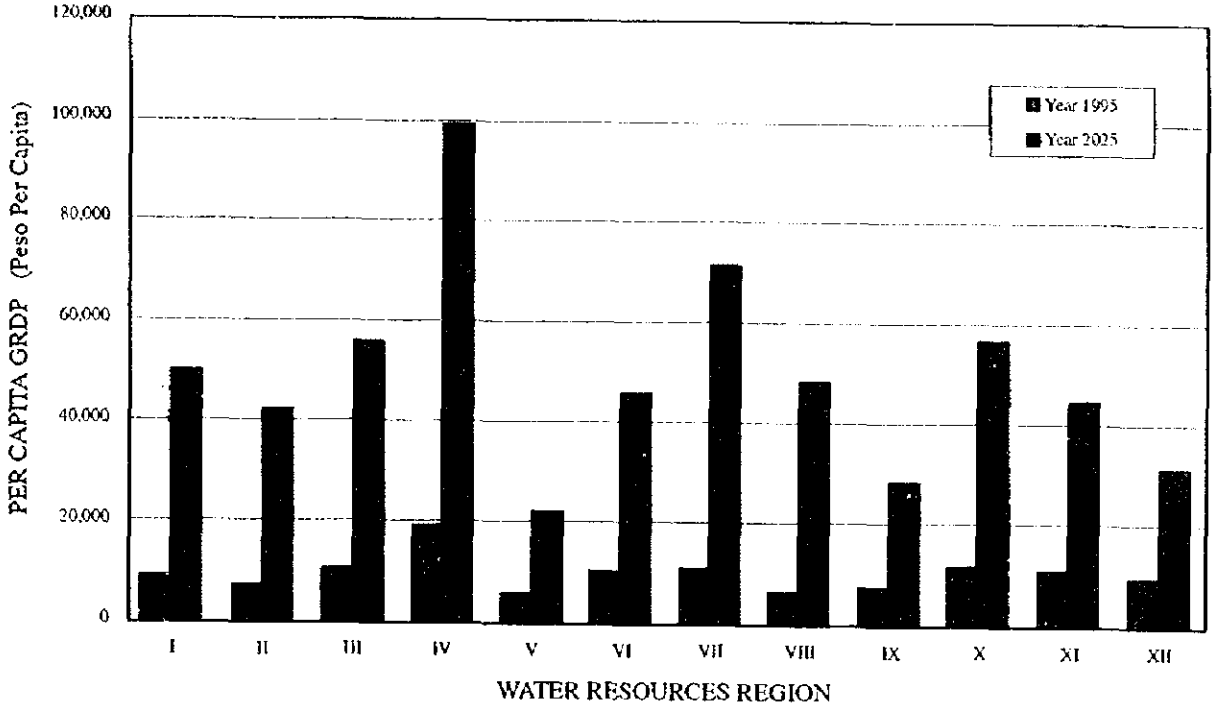


図-37　各水資源区の一人当たりの地区総生産予測 (高位経済成長ケース)