

		INDUSTRIAL (H) GWRDP	IAL (H) G	WRDP	unit	unit; Million Peso			NDUSTR	INDUSTRIAL (L) GWRDP	WRDP	unit	unit; Million Peso
WRR	2000	2005	2010	2015	2020	2025	WRR	2000	2005	2010	2015	2020	2025
	66.3	66.3	101.4	144.3	202.8	288.6		54.6	62.4	70.2	78.0	89.7	858
Η	39.0	27.3	39.0	50.8	74.2	101.5	11	27.3	31.2	27.3	27.3	31.2	31.2
Ħ	218.1	417.0	•	150.4	654.3	577.4	Ш	160.4	352.8	,	1	320.8	250.2
<u>\</u>	,	284.0	233.3	1,151,1	202.8	329.6	2	•	152.1	304.3	958.4	284.0	243.4
>	127.0	9.69	94.2	127.0	180,3	258.1	>	73.7	90.1	61.5	9399	73.7	77.8
:>	64.1	233.2	163.2	163.2	180.7	134.1	ΙΛ	46.6	58.3	52.5	64.1	75.8	29.3
ΛΙ	65.2	431.8	203.7	505.1	211,8	130.4	N.	57.0	358.5	105.9	293.3	317.7	277.0
VIII	162.4	136,4	201.4	279.4	389.8	532.8	VIII	129.9	129.9	136.4	155.9	168.9	555
×	360.0	574.5	436.6	582.2	857.9	1,248.6	X	360.0	482.6	287.3	314.1	375.3	406.0
×	9.2	156.4	101.2	427.8	634.8	818.8	×	9.2	4.14	प "। च	216.2	248.4	262.2
×	17.7	4,14	88.6	118.2	159.5	200.9	×	17.7	29.5	59.1	65.0	70.9	53.2
X	23.9	43.1	71.8	95.7	105.3	158.0	XII	4.1	38.3	47.9	52.7	43.1	53.1
ation	1.153.1	2,481.0	1.734.5	3.805.1	3,854.3	4.778.6	Nation	0.120	1.827.2	1.193.7	2,290.6	2,099.6	1.915.0
able G-(53 MEDI	Table G-63 MEDIUM-TERM PROGRAM COST	PROGRA	M COST	FOR						i		
		IRRIGATION GWRDP	ON GWRE	· dc	tiun .	unit; Million Peso							
0.070	יייייר	31111	2010	3000	2020	3000							

	~	KKICA HON GWKDY	Z M O N O	7	אינות	anit; Million Peso
WRR	2000	2005	2010	2015	2020	2025
 -	386.5	465.1	172.6	177.3	177.0	0.181
Ħ	912.4	1,098.4	403.2	413.6	413.2	424.8
Ξ	451,4	541.4	219.0	224.8	224.8	220.2
۱۸	123.9	148.9	58.1	59.7	59.7	59.2
>	189.3	227.5	86.7	0.68	89.0	89.4
5	82.1	8.76	46.5	47.9	47.2	43.1
VII	1.61	22.9	8.6	8.6	8.6	9.3
VIII	37.8	45.4	17.1	17.6	17.6	17.6
×	32.6	38.9	17.0	17.5	17.5	16.5
×	120.6	145.1	57.2	8.88	58.3	58.3
×	24.3	28.8	11.3	9.11	6.11	11.3
XII	520.1	625.1	241.4	247.6	247.1	247.6
ation	2.900.1	3.485.2	1.340.0	1.375.5	1.373.0	1.378.4

Table G-64 O/M COST SHARED BY THE REGIONAL L-III SYSTEMS

				Z.	Sphere of Population Served	Served	:
Type of Sources			The state of the s	000	000 02200000	50.000	TotallAverage
CW SW	4		Water Resources Region				
770		,	I II II IV V VI VII VIII IX X XI XII T'A	unrt	unit	י זנתח	. Jiun
NO 018	UEU.	, UM	1 ~	682 65 1	13 21%	1 23	63 100%
>	System) i	F.	30) 197 capita	269 capita	106 capita	571 capita
	W.Katte	Peso/cum	Omegan Mero WD Mero Kildenswan WD Jole Mainland WD			766 lpcd	328 3pcd
2.0	STAN DOFFIN	,	0 0 0 2 2 0 0 1 0 0 1 0 6 System	3 50%	3 50%	%0 0	6 100%
0 1	System W Parts	D.v.	3.51 P.S. 1.000	on 12 capita	88 capita	0 capita	100 capita
	W. Kalle		Buttle WD View WD Metro Caplanta WD	۳.	140 lpcd	podi o	pod 691
	Kallor Wall	- CIVI	0 13	ţ	5 38%	1 8%	13 100%
· ·	System	,	279 4,06 5,36 - 4,04 P/Scigon	oo 29 capita	106 capita	177 capita	312 capita
	w.Kate	reso/cum				147 lpcd	150 lpcd
	Major w	- C/A	7 1 3 17 14 11 2 3 0 6 1 2 67 System	30 45%	26 39%	11 16%	67 100%
4	System W Bets	(1 A)	3,95 5,33 4,53 4,36	=	604 capita	1,397 capita	2,159 capita
	Marior WDs			,	198 lpcd	186 lpcd	190 lpcd
2	Swetem	, WD	10 15 79 30 9 30 7 9 10 6 13 17 235 System	163 69%		12 5%	235 100%
) }	W Rate	Peso/cum	4.55 5.43 4.57 4.32 4.25 5.58 4,11 5,70 5.56 5.58 4.43 4.31 4,75 P/S(1,000)	90) 663 capita	1,231 capita	979 capita	2.874 cupita
	Major WDs		Cabanatuan CWD, San Fernando WD, Angeles CWD	192 lpcd	172 lpcd	206 lpcd	188 lpcd
0 0 9	System	WD	1 0 0 7			3 43%	7 100%
, , ,	W Rate	Pesc/cum	6.11 . 5,11 3.58 3.88 . 3.33 · 4.75 P/Sti.000	co) 0 capita	113 capita	246 capita	359 capita
	Major WDs			0 lpcd	152 lpcd	176 lpcd	168 lpcd
) 0	System	dw	0 0 0 0 2 0 2 1 1 1 0 9 system			. 44%	ಕ್ರ001 o
,)	W Pare	Piveo(cum	3.86 4.76 3.33 4.55 3.62 - 4.90 P/Stroton	con 17 capita	18 capita	1,486 capita	1,521 capita
	Maior WDs		~	234 lpcd	99 lpcd	236 lpcd	234 lped
		0.00	Comment of the second s				

Source; WDs Data-Base (PMO & 1DS of LWUA: 1995), PW4SP report (DILG: 1994)

Notes: Price rate was as of 1995.
; Only public water supply Level-III systems were counted (exclusive LGU's L-III & private L-III such as ex-MWSS & Subic Water, etc.).
; Only public water supply Level-III systems were counted (exclusive LGU's L-III & private L-III such as eximated by WD's commodity charges and household's consumption. Un-acounted for water was adopted by 35 % of production.
; Regional water rate was estimated by weighted average.

WD: Water District P/St.000; Population Served (unit:1,000) UWC: Unit Water Consumption

Table G-65 GW SHORTAGE FORECASTING BY PROVINCIAL BASIS

Presumptive Present GW Shortage by Level-III Water Supply Systems

ī		Average Point	/A Production 4	product of 2 3 or more	coast; C	saline: S	Shodage
Ł	I Abra	1.00	0.000	3.01 more	inland; I	fresh, F	
1	2 Renguet	2.00	5.45%	0.11	i		
i	3 Bocos Norte	1.00	0.00%	0.00	ė	S	
ı	4 Hocos Sur	1.00	0.00%	0.00	Č		
<u> </u>	5 La Union	1.20	322.03%	3.86	Ċ	\$ \$	Ø -
2	6 Batanes		-		C	1	
2	7 Cagayan	1.00	0.064	0.00	č	Š	
2	8 liugao	-	-	•	1	-	
2	9 Isabela	1.00	300 C	0.00	C	F	
2	10 Katinga-Apayao	•			I .		
2	11 Mountain Province	•	•		1		
2	12 Nueva Vizcaya	•	•	-	1		
<u> </u>	13 Quirino	1.00	0.00%	0.00			
3	14 Batano	1.00	\$200.0	0.00	c	F	
3	15 Bulacan	1.00	0.00%	0.00	C	S	
3	16 Noeva Ecija 17 Pampanga	1.00	\$0.00°	0.00	t		
3	18 Pangasinan	1.00 1.00	F00.0	0.00	Ç	S	
3	19 Tarlac	1.00	0.009	0.00	ç	S	
, 3	20 Zambales	1.40	\$700.0	0.00	1	4.2	
-	21 Aurora	1.00	312.51%	4.38	<u> </u>	<u>\$</u>	6
4	22 Botangas	1.00	0.00% 0.00%	0.60	c	F	
3	23 Cavite	1.00		0.00	ç	E	
i	24 Laguna	1.10	0.00% 36.53%	0.00	C	S	
4	25 Marinduque	1.00	30.33% 0.00%	0.40	(C)	S	
4	26 Metro Manila	3.00	L 0.034	0.00	C	f	~
4	27 Occidental Mindoro	1.00	0.00%	50.00 0.00	c c	S	. 0
4	28 Oriental Mondoro	3.7\$	137.05%	2.40	C	t C	
4	29 Palawan	1.67	839.65%	13.92	Ċ	f S	
4	30 Quezon	1.54	5.519	0.08	č	\$. 0
4	31 Rizal	1.00	0.00%	0.00	è	ş F	
4	32 Romblon	2.00	18.70%	0.37	ċ	F	
5	33 Albay	1.00	0.00%	0.00	c		
5	34 Camarines None	1.67	31,12%	0.52	č	F	
5	35 Camarines Sur	1.00	0.00%	0.00	č	ė.	
5	36 Catanduanes	2.00	219.41%	4.39	č	r	. 0
5	37 Masbate	1.67	62.73%	1.05	č	s	
5	38 Sorsogon	1.14	13.53%	0.55	č	F	
6	39 Aklan	1.00	0.00%	0.00	C	F	
6	40 Antique	1.00	9.00%	0.00	č	F	
6	41 Capiz	1.60	285,54%	4.57	c	S	(c)
6	42 Cuimans	1.00	0.00%	0.00	C	F	
6	43 flosio	1.38	2.06%	0.03	C	S	
6	44 Negros Occidental	1.00	0.00%	0.00	<u>c</u>	F	
7	45 Bohel	1.00	\$00.0	0.00	c	F	
7	46 Cebu	1.11	441.29%	4.90	\cdot \cdot \cdot \cdot	S	· Ø
7 7	47 Negros Oriental	1.40	89.279	1.25	C	F	
3	48 Siguijor 49 Bibiran	1.00	0.003	0.00	<u> </u>	F	
8	50 Eastern Samor	1.00	4.000	0.00	C	F	
8	51 Leyte	1.00	0.003	0.00	<u>C</u>	F	_
8	52 Northern Samar	1.00	352.06%	4.99	C	S	0
8	53 Southern Legge	£.00	0.00%	0.00	Ç	F	
8	54 Western Samor	3.00	0.00%	0.00	Ç	Ę	
9	55 Basilan	1.00	1329.50% 0.00%	39.89	<u> </u>	F	<u> </u>
á	56 Sulu	1.00	0.00%	0.00	c c	f	
9	57 Tawi-Tawi	1.00	0.00%	0.00	C	F	
ģ	58 Zamboanga del Norte	1.38	7.52%	0.00 0.10	e e	F	
ŝ	59 Zaniboanga del Sur	1.40	958.37%	0.10 13.42	C C	L L F	<i>1</i>
10	60 Agusan del Norte	1.00	0.00%	0.00	<u>C</u>	<u> </u>	<u> </u>
10	61 Agusan del Sur	1.00	0.00%	0.00	ì	r	
10	62 Bukidnon	1.83	74.84%	1.37	;		
10	63 Camiguin	1.00	0.00%	0.00	Ç	F	
10	64 Misamis Occidental	1.00	0.00%	0.60	è	F	
0	65 Misamis Oriental	1.60	0.00%	0.00	ċ	F.	
10	66 Surigao del None	1.50	166.96%	2.50	Ċ	F F	
11	67 Davao del None	1.00	0.004	0.00	- c -		
11	68 Davao del Sur	1.20	2722.75%	32.61	e è	\$. 6
11	69 Davao Oriental	1.00	0.00%	0.00	č	F	14
11	70 Surigao del Sur	2,13	261.95%	\$ 57	c ·	7	6
12	71 Lanco del Norte	1.00	0.00%	0.00	 č		
12	72 Lanco del Sur	1.60	0.00%	0.00	c c	F	
12	73 Maguindanao	Lôg	0.00%	0.00	č	F	
12	74 North Cotabato	1.00	0.00%	0.00	ì	•	
12	75 Sarangani	1.00	0.00%	0.00	ċ	F	
12	76 South Cotabato	1.00	0.00%	0.00	č	r F	
12	77 Sultan Kudurat	1.00	0.00%	0.00	C	E	
age Point		zed into A as GW only. B	as SW ordy. Clas GW	SSW & Das SW-C	W by production b	anis.	
ake i opie	28 . D. C	. 16 . 4 36 . 6 36 . 6	& 4 for B respectivel	45 D 513	ay paradection by		
age r oan	THE LOWIZ OF GREW ATTENT	C 1 10FA, 2 10FC. 3 10HD	OF A LALD RELIEFERED				

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Table G-66 GW SHORTAGE FORECASTING BY PROVINCIAL BASIS

Industrial & Level-III Groundwter Demand by GDP Low Scenario

WRR	10 Province	1995	2000	2005	2010	2015	2020 MCS15 ear	2025 MCM/year
		MCM/year 1.74	MCM/year 2.57	MCMYear 3.62	MCM-year 4.90	MCM'year 6.41	MCM'year 8.06	9.85
l.	I Abra	13.09	2.57 19.24	26 85	36.19	47.50	60.98	76.51
1	2 Bengaci 3 Hocas Norte	6.25	7.93	9.90	12.17	14.67	17.37	20 27
ì	4 Bocos Sur	2.35	3.84	5.81	8.28	11.20	14,43	17.95
i	5 Ea Union	6.55	8.89	11.47	14.21	17.28	20.51 0.62	23.65 0.85
2	6 Batanes		0.06	0.15 6.24	0.29 8.36	0.43 10.79	13,49	16.35
2	7 Cagayan	3.05	4,48 0.18	0.42	0.76	1.17	1.66	2 22
2	8 Ifagao 9 Isabela	4.81	9.38	15.19	21.99	29.83	38.65	48.06
2 2	10 Katinga Apayao	-	0.50	1.30	2.47	4.04	6.02	8.47
2	11 Mountain Province	-	0.06	0.14	0.24	0.37	0.51	0.68
2	12 Nucya Vizcaya	-	1.03	2.49	4.43	6.85	9,73 3,75	12.98 5.48
	13 Quirino	0.07	0.30 42.65	0.72 58.41	1.39 76.24	2.39 95.96	116.05	134.85
3	14 Bataan	33.03 32.70	51.67	80.99	111.62	153.25	198.93	249.07
3	15 Bulacan 16 Nueva Ecija	16.96	20.84	26.04	31.72	37.87	41.33	51.06
3	17 Pampanga	73.56	165.28	15482	213.55	282.64	357.94	435.56
3	18 Pangasinan	30 25	42 53	63.28	\$9.82	123.28	163.01	208.17 63.75
3	19 Tarlac	13.09	18.18	25.56	34.21 24.81	43.97 26.71	54.33 28.69	30 64
3	20 Zambales	19.92 0.13	21.44 0.71	23.04	3.79	6.86	11.27	17.31
4	21 Autora 22 Bytopar	70.68	87.16	126.89	176.71	230.62	288.60	347.16
4	22 Batangas 23 Cavite	35.26	34.35	46.17	62.71	78 89	91.57	111.35
4	24 Laguna	65.26	78.76	120.79	177.84	136.20	162.47	187.43
4	25 Marinduque	12.21	12 68	18.23	25.59 174.69	32 59 214.43	39.30 251.84	45.78 287.2]
4	26 Metro Manila	98.93	99.86 3.59	131.87 7.5‡	13,40	21.79	33.09	45.2.
4	27 Occidental Mindoro 28 Oriental Mindoro	1.17 0.55	1.39	2.11	3.17	4.44	5.91	7.61
4	29 Palawan	1.63	2 25	3.13	4,41	6.25	8.75	12.0
4	30 Quezon	34.19	48.64	62.83	77.56	92.49	105.94	117.6
1	31 Rizal	7 21	7.12	9.56	12 66	15.74 7.60	18.81 10.72	22.6 14.5
4	32 Rembles	1.19	2.09 15.71	3.39 20.71	5.18 26.46	32.53	39.01	45.8
5	33 Alboy 34 Caparines Noste	11.69 4.89	7.32	10.16	12.67	15.51	18.63	19.6
5 5	34 Camarines Sorte 35 Camarines Sut	11.34	19.51	29.90		57.29	74.98	95.1
5	36 Catandunnes	0.87	1.10		1.94		3.54	
5	37 Masbate	0.22	3.03			4.46 13.10	6.28 15.56	
5	38 Sersogen	5.38	6.83				23.62	
6	39 Aklan	3.93 1.79	5.51 3.49					
6 6	40 Antique 41 Capiz	0.91	1.79			7.78	11.30	
6	42 Guimaras	2.21	2.96					
6	43 Hollo	1269	23.05				105.45 189.31	
6	44 Negros Occidental	69.76 1.94	85.97 5.44					
7	45 Bohol	150.40						
7	46 Cebu 47 Negros Orienial	5.20				18.22	23.43	
7	43 Siguijor	0.83	1.09	1.42				
8	49 Billinaa	1.30						
8	50 Eastern Samar	0.47						
8	51 Leyie	21.99 0.19						
8 8	52 Northern Samar 53 Southern Leyte	0.85				3 6.46	9.85	5 (1)
8	54 Western Samar	1.89	3.17	4.3				
9	55 Basilan	3.88	6.14					
9	56 Sula	4.45						
9	57 Tawi-Tawi	1.55 2.51						
9	S8. Zamboanga del Norte 59. Zamboanga del Sur	19,42			1 47.2	0 54.5	63.0	8 7!
10	60 Agusan del Norte	4.02	6.3	2 9.4	6 13.4	6 18.3.		
10	 Agusan del Sur 	1.30	3.1					
10	62 Bukidnon	33.89						
10	63 Camiguin	1.37						
10	64 Misamis Occidental 65 Misamis Oriental	5.14 40.78						5 139
10 10	65 Sungao del Norte	1.3.			5 4.0) 5,4	9 7.1	6 9
11	67 Davao del None	4.8	5 9.3	i5 14.1	7 20.1	9 28.7		
11	68 Dayso del Sur	51.1	7 51.2					
1.1	69 Davao Oriental	0.9.						
11	70 Surigao del Sur	6.0						
12	71 Lanao del Norte	1.5 1.6						
12 12	72 flanao del Sur 73 Maguindanao	6.0					7 42.5	SS 56
12	74 North Cotabato	5.7			88 201	05 27.5	is 35.:	51 44
12	75 Sarangani	0.1		2.	36 4.:	57 1.5		
12	76. South Cotabilio	5.5	5 11.0					
	77 Sultan Kodarat	1.4		04 7.	97 13.	43 20.4	15 28.3	8/

Table G-67 GW SHORTAGE FORECASTING BY PROVINCIAL BASIS

Ratio of GW Consumption (Demand Recharge) by Low Scenario

RR	ID Province	1995 St	2000 54	2005	2010	2015	2020 '4	2025
1	I Alva	0.33%	0.48%	0.67%	0.91%	1.20%	1319	i.8
l	2 Benguet	2 65%	3.939	5.53%	7.53%	10.01%	12.979	15.4
1	3 flocos None	1.33%	1.649	2 00%	2.47℃	2.99%	3.55%	4.1:
1	4 flocos Sur	0.68%	1,11%	1.65%	2.37%	3.224	4.13%	5.0
2	5 La Union 6 Butanes	3,49%	4.70%	6.164	7.74%	9.539	11.45%	133
2	7 Cagayaa	0.28%	0.24% 0.41%	0.584 0.564	1.09% 0.74%	1.63%	2.37%	3.2
ž	8 Ifugao	0.000	0.09%	0.20%	0.36%	0.969 0.569	1.19% 0.80%	1.4 1.0
2	9 Isobela	0.42%	0.804	1 25Q	1.81%	2.47%	3.15%	3.7
2	10 Katinga-Apayao	9.00€	0.084	0.214	0.39%	0.65%	0.97%	1.3
2	11 Mountain Prevince	0.00%	0.03%	0.08%	0.14%	0.21%	0.29%	0
2	12 Nueva Vircaya	\$`00.0	0.274	0.64%	1,13%	1.75%	2.47%	3.1
2	13 Quiriao	0.02%	0.09%	0.21%	0.41%	0.71%	1.11%	9.6
3	14 Baraan	23.57%	29.93%	40.24%	52.54%	66,469.	80.03%	93.
3	15 Bulacan	10.34%	15.97%	24.32%	34.02%	47.61%	62,00%	78.5
3	16 Nueva Ecija	3.66%	4.12%	4.649	5.55%	6.66%	7.49%	7.3
3	17 Pampanga	39.87%	54.44%	75.35%	106.85%	145.22%	188.46%	234.0
3	18 Pungasinan	6.679	\$.76%	11.98%	16.87%	23,42%	30.11%	35.
3	19 Tarfac	5.89%	7.80%	10.29%	13.77%		21.71%	23.6
3 4	20 Zambales	5.29%	5.664	5,994	6.45%	6.97%	7.45%	7.1
1	21 Aurora 22 Batangas	0.037	0.18%	0.47%	0.97%	1.784	2.98%	4.0
4	22 Natangas 23 Cavite	30.71% 38.34%	37.93%	55.17%	77.19%	101.46%	127.45%	152
4	24 Laguna	46.21%	35.73% 54.72%	45.37%	61.83% 122.33%	79.28%	31363	105
1	25 Marinduque	15.90%	16.47%	81.84% 23.55%	33.08%	96,29% 42,17%	114.78%	128 (
4	26 Metro Manila	190.71%	192.53%	254.25%	336.80%	413,419	50.79% 485.56%	58.1 553.8
4	27 Occidental Mindoro	0.24%	0.73%	1.529	2.75%	4.56%	7,02%	9.5
4	28 Oriental Mindoro	0.14%	0.329	0.54%	0.82%	3,16%	1.53%	1.5
4	29 Palawan	0.14%	0.19%	0.27%	0.39%	9.55%	0.84%	1.
4	30 Quezon	3.78%	5.31%	6.92%	8.58%	10.28%	11,80%	13.0
4	31 Riza)	6.00%	6.06%	8.37%	11.61%	15.33%	19.54%	25.0
4	32 Rombion	1.15%	2.01%	3.24%	4.95%	7.29%	10.28%	
5	33 Albay	3,99%	5.17%	6.50%	8.27%	10.237	12.03%	₹ <i>3</i> .
5	34 Camarines Norte	1.38%	2.06%	2.84%	3.54%	4.349	5.21%	5.5
5	35 Carnarines Sur	2.064	3.44%	5.06%	7.13%	9.74%	12.58%	15.2
5	36 Catanduanes	0.43%	0.55%	0.72%	0.96%	1.31%	1.78%	2.
5	37 Masbate	0.05%	0.70%	0.39%	0.67%	1.02%	1.44%	1.9
6	38_Sorsogon 39_Aklan	2.28%	2.84% 3.06%	3,54%	4.38%	5.34%	6.30%	1.
6	40 Anaque	0.61%	1.18%	437% 1.81%	6.41% 2.75%	9.344	13.30%	18.
6	41 Capiz	0.27%	0.53%	0.92%	1.50%	3.95% 2.30%	5.38% 3.35%	6.5 4.6
6	42 Guimaras	3.25%	4.72%	5.61%	7.52%	9.979	12.73%	15.
6	43 Boilo	2.28%	4.10%	6,45%	9.66%		18.47%	23.
6	44 Negros Occidental	6.389	7.85%	9.85%	12.14%	14.69%	17.28%	19.
7	45 Bohol	0.74%	2.05%	4,32%	7.35%	1182%	17.65%	24
7	46 Cebu	37,30%	39.00%		57.73%	68.51%	78.49%	87
7	47 Negros Oriental	1.22%	1.69%	2.39%	3 20%	4.24%	5.44%	6.
1	48 Siguijor	3.50%	4.55%	5.86%	7.53%	9.52%	11.81%	14.
8	49 Biliran	1.67%	2.30%	3.08%	4.05%	5.25%	6.62%	8.
8	50 Eastern Sansar	0.01%	0.28%		0.96%	1.42%	1.94%	2.
8	51 Leyte	3.37%	5,48%		9.11%		13.37%	15
8	52 Northern Samar	0.03%	0.29%	0.61%	1.08%		2.36%	5.
8	53 Southern Leyte	0.45%	0.85%		2.39%	3,47%	4.78%	6.
8	54 Western Saniar	0.23%	0.39%		0.67%	0.83%	1.00%	<u> </u>
9	55 Basilan 56 Satu	3.929 3.249	6.24%	9.45%		20.50€	21.83%	32
9	57 Tawi-Tawi	3.24% 1.54%	6.30% 4,28%		1481% 13.81%	20,29% 20,20%	26.41%	32.
ģ	58 Zamboanga del Norte	0.412	0.754		1.69%		27,25% 3.05%	34 3
á	59 Zamboanga del Sur	2.58%	3.80%	* ***		2,33%		
10	60 Agusan del Node	1.35%	2.10%	3.124	4,44%	6.07%	7.90%	9
10	61. Agusan det Sur	0.12%	0.28%		0.91%	1.419	2 16%	3.
10	62 Bekidnen	3.679	3.84%		5.06%	6.84%	8.89%	31
10	63 Camigein	5.95%	11.12%		25.66%		39.77%	47
10	64 Misamis Occidental	3.17%	4.95%	7.43%	10.77%	15.09%	20.29%	26.
10	65 Misamis Oriental	14.88%	18.09%			37.22%	45.11%	51.
10	66 Surigao del Norte	0.349	0.51%		1.04%	1.43%	1.86%	2.
11	67 Davao del Norte	0.47%	0.90%		1.90%	2.71%	3.65%	4.
11	68 Davao del Sur	7.53%	7.59%				9.11%	9.
14	69 Davao Osiental	0.359	0.32%		0.933	1.35%	1.83%	2.
12	70 Surigao del Sur	0.714	0.78%		1.20%	1.529	1.87%	2
	71 Lanco del None	0.54%	2.56%				32.75%	48.
12 12	72 Lando del Sur	0.65%	2,45%				19.969	25
12	73 Maguindinao 74 North Cotabato	1.729	2.78%		6.22%	8.87%	12.19%	16.
12	74 North Cotabato 75 Sarangani	0.91% 0.03%	1.43%		3.01%	4.15%	5,46%	6.
	75 Sarangani 76 South Cetabata	0.03% 1.56%	0.2\$4 3.03%		1.39% 9.05%	2.31% 13.86%	3.52% 19. 79%	5. 25
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Table G-68 GW SHORTAGE FORECASTING BY PROVINCIAL BASIS

Industrial & Level-III Groundwater Demand by GDP High Scenario

	ID Province	1995 MCM/year	2000 MCM'year	2005 MCM'year	2010 MCM-year	2015 MCM/year	2020 MCM'year	2025 MCM3.e
1	I Abra	1.74	2.57	3.62	4.90	6.41	8.06	9
(2 Benguet	13.09	19.62	27.34	37.52	50.48	66.63	87
1	3 Hocos Norte	6.25	7.95	9.93	12 23	14.80	17.63	20
1	4 Hocos Sar	2.35	3.84	5.81	8 2S	11.20	14.43	17
! -	5 La Union	6.55	9.47	12 2)	16 20	21.59	29.01	39
? ?	6 Batanes 7 Cagayan	3.05	0.06 4.48	0.15 6.24	0 29 8 36	0.43	0.62	0
2	8 Hagao	3.05	4.48 0.18	0.42	0.76	10.79 1.17	13.49 1.66	16
2	9 Isabela	481	9.87	15.51	22.82	31.60	42.06	54
2	10 Kalinga-Apayao	-01	0.50	1.30	2.47	4.04	6.02	9
?	11 Mountain Province		0.06	0.14	0.24	0.37	0.51	6
2	12 Nueva Vizcaya		1.03	2.49	4,43	6.85	9.73	12
?	13 Quirino	0.07	0.30	0.72	1.39	2.39	3,75	
3	14 Bataan	33.03	43.87	60.88	82.93	111.07	146.42	19
3	15 Bulacan	32.70	52.42	32.49	115.73	162.48	217.49	28.
3	16 Sueva Ecija	16.96	20.85	26.06	31,77	38.01	41.60	51
3	17 Pamponga 18 Pangasinan	73.56 30.25	108.79 43.71	161.87	232.84 96.32	325.88 137.85	441.85	590
3	19 Fartac	13.09	18.51	65.65 26.23	36.02	48.02	192.30 62.48	26: 7:
i	20 Zambales	19.92	21.52	23.21	25.27	27.75	30.77	3
1	21 Aurora	0.13	0.71	1.85	3.79	6.86	11.27	
4	22 Batangas	70.68	85.68	120.92	182.42	261.32	357.55	51.
1	23 Cavite	35.26	34.11	43,24	65.51	93.96	133.24	19
1	24 Laguna	65.26	78.20	113,95	184.37	171.41	252.82	37
4	25 Marinduque	12.21	12.55	16.63	27.12	40.80	60.39	8
4	26 Metro Manila	98.93	99.04	121.90	184.21	265.76	383.56	56
1	27 Occidental Mindoro 28 Oriental Mindoro	1.17 0.55	3.59	7.52	13.41	21.87	33.30	4
4	29 Patawan	1.68	1 24 2 25	2.4E 3.13	3.17 4.41	4.41 6.25	5.91 8.75	i
4	30 Quezon	34.19	48.02	62.65	17,74	93.43	108.35	12
4	31 Rigal	7.21	7.08	9.09	13.11	18.15	24.90	3
4	32 Rombion	1.19	2.09	3.39	5.18	7.60	10.72	i
5	33 Albay	11.69	15.71	20.71	26.46	32.58	39.01	4
5	34 Camarines None	4.82	8.16	10.50	13.52	17.23	21.84	2
5	35 Camarines Sur	11.34	20.38	30.26	43.13	59.09	78.34	10
5	36 Catanduanes	0.87	1.10	1.45	1.94	2.61	3.54	
5 5	37 Masbate 38 Sorsogon	0 22 5.38	3.03	1.70	2.91	4,46	6 28	
6	39 Aklan	3.93	6.83 5.51	8.66 7.97	10.76 11.62	13.10 16.76	15.56 23.62	1
6	40 Antique	1.79	3.51	5.70	8.61	12.25	16.67	2
6	41 Capiz	0.91	1.79	3.18	5.15	7.85	11.33	1
6	42 Guirnams	2 24	3.02	4.69	6.35	8.36	10.65	i
6	43 Hedo	1269	23.08	37.31	55.72	78.63	105.90	13
6	44 Negros Occidental	69.76	87.54	125,76	158.10	191.91	225.91	26
7	45 Bohol	1.94	5.47	11.79	20.05	32.12	48.22	ć
7	46 Ceba 47 Negros Oriental	150.40 5.20	159.86 7.24	237.28	262 39	340.11	441.02	55
7	48 Signifor	0.83	3.00	10.36 1.42	13.94 1.82	18.57 2.32	24.10 2.87	3
8	49 Britan	1.30	1.81	2.45	3.25	4 20	5.29	
8	50 Eastern Samar	0.47	1.96	4.01	6.62	9.74	13.35	
8	51 Leyte	21.99	40.25	53.81	73.31	100.24	137.73	15
S	52 Northern Samar	0.19	1.68	3.61	6.35	9.71	13.86	3
8	53 Southern Leyte	0.85	1.61	2.85	4.43	6.45	8.85	Ī
9	54 Western Samur	1.89	3.54	4.76	6.56	9.07	12 62	
9	55 Basilin 56 Sulu	3.88 4.45	6.14	9 28	13.94		26.66	
9	57 Tawi-Tawi	4,45 1.5\$	8.63 4.28	13.82 8.31	20.16 13.68	27.53	35.72	4
9	58 Zamboanga del Norte	2.51	4.26	8.31 6.76	9.80	19.95 13.45	26.80 17.66	
9	59 Yamboanga del Sur	19.42	28.93	42.77	52.38	65.21	83.70	
10	60 Agusan del None	4,02	6.32	9.48		18.32	24.05	
10	61. Agusan del Sur	1.39	3.18	6.00		16.15	24.18	
10	62 Bukidnen	33.89	35.95	46.07	54.88	79.80	114.85	R
10	63 Camiguin	1.32	2.47	4.02		7.94	8.74	- 1
10	64 Misamis Occidental	5.14	8.02	12.14		24.48	32.98	4
10 10	65 Misanis Oriental 66 Suriana dal Norte	40.78	49.65	65.66			(32.81	l:
11	66 Surigno del None 67 Duvao del None	1.33 4.85	1.98	2.93			7.55	
11	68 Daviso del Sur	4.83 51.17	9.35 51.05	14.23 53.55			39.57	:
11	69 Davao Oriental	0.93		3,74		65.74 8.66	74.62 11.75	5
ii	70 Surigao del Sur	6.05		8.35			20.52	
12	71 Lango del Norte	1.54		16.52			74.03	10
12	72 Canao del Sur	1.66		13.43			50.48	•
12	13 Maguindaruo	6.05	9.74	15.13			41.18	,
12	14 North Cotabato	5.79	9.17	14.00	20.36	28.19	37.68	
12	75 Sarangani	0.11	0.92	2.36		7.52		
12 12	76 South Cotabato	\$.56		20.52		53.29	77.33	10
	77 Seltan Kedarat	1.42	4.03	8.01	13.53	20.64	29.23	3

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Table G-69 GW SHORTAGE FORECASTING BY PROVINCIAL BASIS
Ratio of GW Consumption (Demand Recharge) by High Scenario

VRR	1D Province	1995 - G	2000 - 4	2005 - Q	2010	2015 12	2020	2025
ī	1 Abra	0.33%	0.48%	0.674	0.91%	1.20%	1.51%	<u>`</u>
j	2 Benguer	2.659	4.014	5.64%	7.81%	10.62%	14.(8%	18,7
1	3 Booos Norte	1.33%	1.65%	2.017	2.48%	3.01%	3.60%	4.2
Ĺ	4 Recos Sur	0.684	1.11%	1.65%	2.37%	3.22%	4.13%	5.0
<u> </u>	5 La Union	3.49%	5.01%	6,56%	8.82%	11.91%	15.19%	22.1
2	6 Batanes	0.00€	0.24%	0.58%	1.094	1.63%	2.37%	3.2
2	7 Cagayan	0.28%	0.41%	0.56%	0.74%	0.964	1.19%	3.4
2	8 Ifugao	0.00%	0.09%	0.20%	0.35%	0.56%	0.80%	1.0
2	9 Isobeta	0,42%	0.84%	1.27%	1.87%	2.629	3.43%	4.2
2	10 Kalinga-Apayao	9.00%	9:20.0	0.21%	0.394	0.65%	0.97%	1.3
2	11 Mountain Province	0.00%	0.03%	0.08%	0.149	0.214	0.29%	0,4
2	12 Noeva Vizcaya	0.00%	0.27%	0.64%	1.13%	1.75%	2.479	3.1
2	13 Quirino	0.02%	0.09%	0.21%	0.41%	0.71%	1.11%	1.6
3	14 Batana	23.57%	30.85%	4194%	57.18%	76.92%	100.98%	132
3	15 Butacan	10.34%	15.20%	24.78%	35.28%	50.48%	67.78%	89.0
3	16 Nueva Feija	3.66%	4.12%	4,64%	5.56%	6.68%	7.53%	7.8
3	17 Pampanga	39.87%	56.25%	73.79%	116.50%	167,43%	234 2374	321.
3	18 Pangasinan	6.67%	9.00%	12,43%	18.097	26.19%	35.51%	44.6
3	19 Tartoc	5.89%	7.94%	10.55%	14.50%	19.61%	2195%	29
3	20 Zambales	5.29%	5.65%	6.019	6.57%	7.24%	7.92%	8.8
4	21 Aurora	0.03%	0.18%	0.479	0.97%	1.78%	2.98%	4.0
4	22 Batangas	30.73%	37.72%	52.57%	79.68%	115.00%	162.33%	225.
4	23 Cavite	38.34%	35.43%	42.50%	61.59%	94,42%	132.79%	182
4	24 Laguna	46.21%	5434%	17.21%	125.83%	121.17%	178.62%	257
4	25 Marinduque	15.90%	16.30%	21.49%	35.05%	52.81%	78.04%	115
4	26 Metro Manila	120.74%	190.96%	235.04%	355.16%	512.43%	739.52%	1086
4	27 Occidental Mindoro	0.24%	0.73%	1.52%	2.75%	4.5\$%	7,07%	9.
4	28 Oriental Mindoro	0.14%	0.32%	0.54%	0.824	1.16%	1.53%	í.
4	29 Palawan	0.149	0.19%	0.27%	0.39%	0.58%	0.84%	j.,
4	30 Quezon	3.78%	5.319	6.90%	8.60%	10.39%	12.07%	13.
4	31 Rizal	6.00%	6.02%	7.96%	13.024	17.68%	25.97%	39.
4	32 Rombton	1,15%	2.01%	3 24%	4,95%	7.29%	10.28%	13.
5	33 Albay	3.90%	5.17%	6.50%	8.27%	10.23%	12,03%	13.
5	34 Camarines Norte	1.38%	2.299	2.93%	3.78%	4.82%	6.11%	7.0
5	35 Camariaes Sur	2.06%	3.59%	5.12%	7.28%	10.04%	13.15%	16
5	36 Catanduanes	0.43%	0.55%	0.72%	0.96%	1.31%	1.78%	2.
5	37 Maskate	0.05%	0.70%	0.394	0.67%	1,02%	1.41%	1.5
5	38 Sorsogon	2.28%	2 849	3.513_	4.38%	5.34%	6.30%	7
6	39 Aklan	2.20%	3.064	4.37%	6.41%	9.34%	13.30%	19
6	40 Antique	0.61%	1.18%	1.89%	2.85%	4.08%	5.53%	7.1
6	41 Capiz	0.27%	0.53%	0.93%	1.52%	2.324	3.37%	4.0
6	42 Guimaras	3.25%	4.30%	6.51%	8.79%	11.57%	14.58%	17.0
6	43 Hode	2.28%	4119	6.51%	9.75%	13.87%	18.60%	2).
6	44 Negros Occidental	6.35%	1.99%	17.44%	14.4192	17.54%	20.62%	23.0
7	45 Bobel	0.74%	2.06%	4.39%	7.50%	12.129	18.229	25
7	45 Cetu	37.30%	32.59%	58.93%	65.43%	85.20%	110.74%	1461
7	47 Negros Oriental	1.224	1.69%	2.41%	3.24%	4.33%	5.60%	7.0
ż	48 Siquijor	3,509	4.55%	5.86%	7.53%	9.59%	11.8156	
8	49 Biliran	1.679	2.30%	3.08%	4.05%	5.25%	6.62%	14.
8	50 Eastern Samar	0.07%	0.28%	0.58%	0.96%	1.42%	1.94%	2.:
8	51 Leyte	3.37%	6.08%	1.96%		14.91%		
8	52 Northern Samar	0.03%	0.29%	0.61%	1.08%	1.66%	20.50% 2.36%	28:
8	53 Southern Leyte	0.45%	0.25%	1.529	2.39%	3.47%	2.30% 4.78%	5.
8	54 Western Samar	0.23%	0.43%	0.58%	0.80%	1.11%	4.78% 1.55%	6.
9	55 Basilan	3.92%	6.24%	9.48%	1434%	20.50%	27.83%	2
ģ	56 Sutu	3.24%	6.30%		14.81%	20.30%		32.
9	57 Tawi Tawi	1549	4.28%	8 36%	13.81%	20.20%	26.41% 27.25%	32
ý	58 Zamboanga del Norte	0.41%	9.28% 0.75%	1.17%	1.69%	2.33%	3.05%	34
9	59 Zamboonga del Sur		3.80%	5,54%	6,78%	8.47%		3. 14.
10	60 Agusan del Norte	2.58% 1.35%	2.10%	3.12%	4.45%	6.09%	7.91%	
	AN AUXILIANI MELITARATE	1.35's	0.28%	0.53%	0.91%	1.44%		9.
	61 Agusta del Sur						2.16%	3.
10	61 Agusan del Sur 62 Retidoso	951.0 3630		407//			1.6 (1.6)	17.
10 10	62 Bukidnon	3.679	3.85%	4.87%	5.80%	8.41%		
10 10 10	62 Bukidnon 63 Camiguin	3.679 5.959	3.854	18,06%	26.66%	36.06%	39.77%	
10 10 10 10	62 Bukidnon 63 Camiguin 64 Misamis Occidental	3.679 5.959 3.179	3.85G 11,129 4.95G	18,06% 7,47%	26.66% 10.83%	36.06% 15.22%	39,77% 20,56%	26
10 10 10 10	62 Bakidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Oriental	3.679 5.959 3.179 14.88%	3.859 11,129 4.959 18.11%	18,06% 7,47% 23,80%	26.66% 10.83% 30.16%	36.06% 15.22% 39.18%	39,77% 20,56% 49,05%	26. 59.
10 10 10 10 10 10	62 Bukidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 66 Surigao del Norte	3.679 5.959 3.179 14.889 0.349	3.859 11,129 4.959 18.11% 0.519	18,06% 7,47% 23,80% 0,75%	26.66% 10.83% 30.16% 1.66%	36.06% 15.22% 39.18% 1.43%	39,77% 20,56% 49,05% 1,96%	26. 59. 2
10 10 10 10 10 10	62 Bukidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 66 Suripao del Norte 67 Davão del Norte	3.679 5.959 3.179 14.88% 0.349 0.47%	3.85% 11,12% 4.95% 18.11% 0.51% 0.90%	18.06% 7,47% 23.80% 0.75% 1.34%	26.66% 10.83% 30.16% 1.06%	36.66% 15.22% 39.18% 1.43% 2.74%	39,77% 20,56% 49,05% 1,96% 3,71%	26. 59. 2.
10 10 10 10 10 10 10	62 Bukidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 66 Surigao del Norte 67 Davao del Norte 68 Davao del Sur	3.679 5.959 3.179 14.889 0.349 0.479 7.639	3.859 11,129 4.959 18.11% 0.519 0.909 7.57%	18,06% 7,47% 23,80% 0.75% 1,34% 7,91%	26.66% 10.83% 30.16% 1.06% 1.91% 8.72%	36.06% 15.22% 39.18% 1.43% 2.74% 9.77%	39,77% 20,56% 49,05% 1,96% 3,71% 11,07%	26. 59. 2 4) 12:
10 10 10 10 10 10 10 11	62 Bukidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 65 Surigao del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao Ociental	3.679 5.959 3.179 14.88% 0.349 0.479 7.639 0.15%	3.859 11,129 4.959 18.14% 0.519 0.90% 7.57% 0.324	18,06% 7,47% 23,80% 0,75% 1,34% 7,91% 0,58%	26.66% 10.83% 30.16% 1.06% 1.91% 8.72% 0.93%	36.06% 15.22% 39.18% 1.43% 2.74% 9.77% 1.35%	39,77% 20,56% 49,05% 1,963 3,71% 11,07% 1,83%	26. 59. 2 4. 12. 2
10 10 10 10 10 10 10 11 11	62 Bukidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 65 Surigao del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao Ociental 70 Surigao del Sur	3.679 5.959 3.179 14.88% 0.479 7.639 0.159 0.159	3.854 11,129 4954 18.11% 0.90% 7.57% 0.324 0.77%	18,06% 7,47% 23,80% 0.75% 1.34% 7,91% 0.58% 0.97%	26.66% 10.83% 30.16% 1.06% 1.91% 8.72% 0.93% 1.34%	36.06% 15.22% 39.18% 1.43% 2.74% 9.77% 1.35% 1.81%	39,77% 20,56% 49,05% 1,963 3,71% 11,07% 1,83% 2,41%	26. 59. 2. 4. 12: 2. 3.
10 10 10 10 10 30 11 11 11 11	62 Bukidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Ocidental 66 Surigao del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao Ociental 70 Surigao del Sur 71 Lanao del Norte	3.679 5.959 3.179 14.889 0.319 0.479 7.639 0.159 0.719 0.519	3.854 11,129 4954 18.11% 0.904 7.57% 0.324 0.774 2.544	18,06% 7,47% 23,80% 0,75% 1,34% 7,91% 0,58% 0,97% 6,21%	26.66% 10.83% 30.16% 1.06% 1.91% 8.72% 0.91% 1.31% 12.14%	35.05% 15.22% 39.18% 1.43% 2.74% 9.77% 1.35% 1.81% 20.92%	39,71% 20,56% 49,05% 1,967 3,71% 11,07% 1,83% 2,41% 32,93%	26. 59. 2. 41. 12. 2. 3. 43.
10 10 10 10 10 10 30 11 11 11 11 12	62 Bukidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Occidental 65 Surjapo del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao Occional 70 Surjapo del Sur 71 Lanao del Norte 72 Lanao del Sur	3.679 5959 3.179 14.88% 0.34% 7.63% 0.15% 0.71% 0.51% 0.65%	3.854 11.124 4.954 18.11% 0.514 0.90% 7.57% 0.324 0.774 2.544 2.464	18,06% 7,47% 23,80% 0,75% 1,34% 7,91% 0,58% 0,97% 6,21% 5,26%	26.66% 10.83% 30.16% 1.06% 1.91% 8.72% 0.93% 1.31% 12.14% 9.22%	35.06% 15.22% 39.18% 1.43% 2.74% 9.77% 1.35% 1.81% 20.92% 14.23%	39,71% 20,569 49,056 1,967 3,719 11,07% 1,839 2,41% 32,97% 19,969	26. 59. 2. 4. 12. 2. 3. 43. 25.
10 10 10 10 10 10 10 11 11 11 11 12 12	62 Bukidnon 63 Camiguin 64 Misamis Oricidental 65 Misamis Oricintal 65 Surigao del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao Oricintal 70 Surigao del Sur 71 Lanao del Sur 73 Maguindano	3.679 5959 3.179 14.88% 0.34% 7.63% 0.15% 0.71% 0.51% 0.65% 1.72%	3.85% 11,12% 4.95% 18.11% 0.51% 0.90% 7.57% 0.32% 0.77% 2.54% 2.46% 2.75%	18.06% 7.47% 23.80% 0.75% 1.34% 7.91% 0.58% 0.97% 6.21% 5.26% 4.23%	26.66% 10.83% 30.16% 1.06% 1.91% 8.72% 0.91% 1.31% 12.14% 9.22% 6.31%	35.06% 15.22% 39.18% 1.43% 2.74% 9.77% 1.35% 1.81% 20.92% 14.23% 9.07%	39,71% 20,564 49,05% 1,967 3,719 11,07% 1,839 2,41% 32,93% 19,967 12,56%	26. 59. 2. 4. 12. 2. 3. 43. 25.
10 10 10 10 10 10 30 11 11 11 11 12 12 12	62 Bukidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Ocidental 65 Misamis Oriental 66 Surigao del None 67 Davao del None 68 Davao del Sur 69 Davao Ocional 70 Surigao del Sur 71 Lanao del Sur 73 Maguindanao 74 North Cotabato	3.679 5.959 3.179 14.88% 0.349 0.479 7.639 0.159 0.719 0.519 0.519 0.659 0.699	3.85% 11,124 4.95% 4.95% 18.11% 0.51% 0.90% 7.57% 0.32% 0.77% 2.54% 2.46% 2.75% 1.41%	18.06% 7.47% 23.89% 0.75% 1.34% 7.91% 0.58% 0.97% 6.21% 5.26% 4.23% 2.11%	26.66% 10.83% 30.16% 1.06% 1.91% 8.72% 0.93% 1.34% 12.14% 9.22% 6.31% 1.06%	36.06% 15.22% 39.18% 1.43% 2.74% 9.77% 1.35% 1.81% 20.92% 14.23% 9.07% 4.25%	39,77% 20,56% 49,05% 1,96% 3,71% 11,07% 1,83% 2,41% 32,95% 19,96% 12,56% 5,63%	26. 59. 2. 4. 12. 2. 3. 43. 25.
10 10 10 10 10 10 30 11 11 11 12 12 12 12	62 Bukidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 65 Surjapo del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao del Sur 69 Davao del Sur 70 Surjapo del Sur 71 Lanao del Norte 72 Lanao del Sur 73 Magaindanao 74 North Cotabato 75 Sarangani	3.679 5.959 3.179 14.88% 0.34% 7.63% 0.15% 0.75% 0.51% 0.65% 1.72% 0.91% 0.03%	3.85% 11,12% 4.95% 18.11% 0.51% 0.90% 7.57% 0.32% 0.77% 2.54% 2.46% 2.75%	18.06% 7.47% 23.80% 0.75% 1.34% 7.91% 0.58% 0.97% 6.21% 5.26% 4.23%	26.66% 10.83% 30.16% 1.06% 1.91% 8.72% 0.91% 1.31% 12.14% 9.22% 6.31%	35.06% 15.22% 39.18% 1.43% 2.74% 9.77% 1.35% 1.81% 20.92% 14.23% 9.07%	39,71% 20,564 49,05% 1,967 3,719 11,07% 1,839 2,41% 32,93% 19,967 12,56%	26- 59.0 2.5 4.8 12.5 2.3 43 25.8 16.0
10 10 10 10 10 10 30 11 11 11 11 12 12 12	62 Bukidnon 63 Camiguin 64 Misamis Occidental 65 Misamis Ocidental 65 Misamis Oriental 66 Surigao del None 67 Davao del None 68 Davao del Sur 69 Davao Ocional 70 Surigao del Sur 71 Lanao del Sur 73 Maguindanao 74 North Cotabato	3.679 5.959 3.179 14.88% 0.349 0.479 7.639 0.159 0.719 0.519 0.519 0.659 0.699	3.85% 11,124 4.95% 4.95% 18.11% 0.51% 0.90% 7.57% 0.32% 0.77% 2.54% 2.46% 2.75% 1.41%	18.06% 7.47% 23.89% 0.75% 1.34% 7.91% 0.58% 0.97% 6.21% 5.26% 4.23% 2.11%	26.66% 10.83% 30.16% 1.06% 1.91% 8.72% 0.93% 1.34% 12.14% 9.22% 6.31% 1.06%	36.06% 15.22% 39.18% 1.43% 2.74% 9.77% 1.35% 1.81% 20.92% 14.23% 9.07% 4.25%	39,77% 20,56% 49,05% 1,96% 3,71% 11,07% 1,83% 2,41% 32,95% 19,96% 12,56% 5,63%	47.6 26.5 59.0 2.5 43. 43. 25.8 16.0 7. 5.0 27.

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Table G-70 GW SHORTAGE FORECASTING BY PROVINCIAL BASIS

Urban Population

RR	ID Province	1995 capito	2000 capita	2005 capita	2010 capita	2015 capita	2020 capita	2025 capita
<u> </u>	1 Abra	41,741	46,228	\$1,295	55,900	60,204	63,407	65,92
i	2 Benguet	310,916	394,301	487,926	592,821	707,817	828,612	955,13
ì	3 Bocos Norte	137,556	151,214	163,437	174,996	184,318	191,941	198,36
i	4 Bocos Sur	128,166	141,592	159,824	174,605	186,325	194,344	199,95
i	5 La Union	157,727	185,064	215,643	244,236	270,370	292,654	308.33
<u>:</u>	6 Bataries	5,332	6,828	7,709	9,078	9,591	10,589	11,59
2	7 Cogayan	143,210	154,842	167,721	181.082	193,308	203,720	211,49
2	8 Ifogao	15,857	19,624	22,391	25,301	27,824	30,001	32,0
2	9 Isabela	294,827	355,706	413,014	467,620 🦎	\$10,751	545,879	571,34
2	10 Kalinga-Apayao	44,708	53,960	66,486	79,730	93,080	105,693	118,3
2	11 Mountain Province	6,015	6,323	6,978	7,705	8,356	8,751	9,32
2	Nueva Vizcaya	97,476	109,431	124,637	139,967	154,254	167,109	177,41
2	13 Quiñoo	32,649	38.238	45,343	52,583	60,094	67,052	73,5
3	14 Bataan	345,501	402,143	466,757	527,274	578,767	621.396	655,2
3	15 Bulacan	1,452,560	1,681.671	2,000,213	2,332,664	2,574,841	2,713,807	2,961,0
3	16 Nueva Ecija	412,720	476,679	526,811	569,864	607,437	637,864	662,3
3	17 Pampanga	1,189,222	1,467,249	1,696,067	1,915,039	2,120,435	2,304,949	2,472,3
3	18 Pangasinan	910.590	1,078,241	1,271,058	1,472,368	1,677,254	1,880,422	2,079,1
3	19 Tarlac	273,343	324.943	378.679	430,533	476,658	\$16,100	5-19,0
3	20 Zamboles	318,793	383,114	416,047	446,528	472,459	495,114 ½	515.0
4	21 Aurora	67,200	90.511	114,035	139,767	169,590	200,305 1,703,854	232,0 1,845,7
4	22 Bulangas	830,955	1,006,567	1,185,191	1,314,7]1	1,523,112	2,199,838	2,456,0
4	23 Cavite	1,180,384	1,293,713	1,427,053	1,663,294			3,718,6
4	24 Laguna	1,345,659	1,679,905 30,852	2.105,089 33,415	2,539,840 35,604	2,995,688 37,990	3,352,638 39,981	
4	25 Marinduque	27,988 9,454,190	10,369,987	11,243,097	11,964,236	12,525,987	12,954,059	13,272.8
4	26 Metro Manila 27 Occidental Mindoro	177,722	224,069	286,414	358,703	411,417	538,922	614,4
4		91.294	108,234	122,414	136,468	150,774	164,324	178.2
*	28 Ociental Mindoro 29 Palawan	229,937	290,350	368,590	462,400	578,738	711,623	865,
4	30 Quezon	498,236	585,095	561.571	733,023	812,161	887,624	963,2
4	31 Rizal	1,257,384	1,493,956	1,801,645	2,142,016	2,543,004	2,984,655	3,471,0
4	32 Rombion	49,421	62,112	73,859	\$6,696	101,402	117,050	132,
5	33 Albay	262,391	298.201	337,091	373,360	402,095	424,760	444,1
5	34 Camarines None	118,134	136,996	155,118	173,879	191,531	208,647	224,7
5	35 Cantarines Star	501,417	613,678	719,454	832,519	945,700	1,056,684	1,151,2
5	36 Catanduases	55,273	63,904	78,420	94,975	113,275	134,788	151,
ŝ	37 Masbate	131,426	141,901	152,843	163,315	172,238	178,001	182,9
Š	38 Sorsogon	152,127	156,670	168,332	179,491	189,772	197,352	201,0
6	39 Aklan	114,131	141,963	178,312	220,069	266,630	315,790	367,
6	40 Antique	123,471	141,951	167,840	191,870	216,081	240,536	264,
6	41 Capiz	206,078	263,339	334,471	417,222		607,547	7117
6	42 Guimaras	47,553	61,181	71,959	83,262	94,327	104,429	113,0
6	43 Hollo	657,844	849,738	997,611	1,149,966	1,298,383	1,437,092	1,563,
-6	44 Negros Occidental	1,209,809	1,402,944	1,603,737	1,786,146	1,931,703	2,036,075	2,124
7	45 Bohol	251.595	328,064	410,294	504,805	61),751	729,360	851,
7	46 Cebu	1.708,896	1,992,810	2,299,993	2,610,103	2,901,394	3,169,556	3,362,
7	47 Negros Oriental	326,033	376,074	438.251	505,309	574,030	642,086	709,
	48 Siguijer	11,653	13,729	15,245	16,812	18,517	19,764	21.
8	49 Biliran	36,358	42,779	50,777	58,732	67,372	75,982	84.
8	50 Eastern Samar	117,394	131,427	149,343	165,668	179,562 961,388	191,451	199,
8	51 Leyte	518,367	611,500	726,142	840,201	216,063	235,106	1,202, 245,
8	52 Northern Saniar	136,259	157,737	170,918	194,822 113,825	128,889	144,170	243, 158,
8	53 Southern Leyte	62,878 138,504	83,542 163,646	98,334	234,339	275,042	318,854	350.
9	54 Western Samar 55 Basilan	139,213	162,646 174,748	197,155 210,293	258,235	303,042	313,205	374
9	55 Salu	146,385	186,648	224,623	264,544	304,749	343,826	380
9	57 Tawi-Tawi	83,490	106.295	138,310	174,388	210,206	245,772	276
9	58 Zamboanga del None	143,351	164.267	189,867	214,222	237,156	258,116	276
9	59 Zamboanga del Sur	739,762	973,750	1,259,917	1,575,804	1,519,418	2,258,753	2.554
10	60 Agusan del Norte	227,920	258,703	290.378	319,726	345,012	365,011	379
10	61 Agusan del Sur	124.053	152,345	189,805	232,807	283,784	338.804	398
	62 Bukidnon	338,550	471.876		766,612	927,906		1,222
10						80.306	85,102	89
10 10		40.619	50,446	00/331	11.372			
10	63 Camiguin	40,619 139,985	50,446 166,717	60,951 197,120	71,392 229,395	261.894	293,892	
10 10	63 Camiguin64 Misamis Occidental	139,985		197,120			293,892	
10 10 10	63 Camiguin		166,717 784,659	197,120 937,579	229,395	261.894	293,892 1,393,368	1.439
10 10 10 16	63 Camiguin 64 Misamis Occidental 65 Misamis Oriental	139,985 681,654 172,018	166,717	197,120	229,395 1,099,896	261,894 1,265,580	293,892 1,393,368 279,510	1,439 288
10 10 10 10	63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 66 Surigoo del Norte	139,985 681,654	166,717 784,659 203,627	197,120 917,579 227,492	229,395 1,099,896 249,374	261.894 1,265.580 267.122	293,892 1,393,368 279,510 618,257	1,439 288 672
10 10 10 16 11	63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 66 Surigoo del Norte 67 Davao del Norte 68 Davao del Sur	139,986 681,654 172,018 324,077 848,704	166,717 784,659 203,627 430,762 908,703	197,120 937,579 227,492 467,092 1,031,482	229,395 1,099,896 249,374 501,685 1,153,989	261,894 1,265,580 267,122 562,547 1,241,297	293,892 1,393,368 279,510 618,257 1,318,280	1,439 288 672 1,373
10 10 10 16 11 11	63 Camiguin 64 Misamis Occidental 65 Misamis Offental 66 Surigao del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao Oriental	139,986 681,654 172,018 324,077 848,704 114,534	166,717 784,659 203,627 430,762 908,703 132,321	197,120 937,579 227,492 467,092 1,031,482 151,362	229,395 1,009,896 249,374 501,685 1,153,989 168,433	261,894 1,265,580 267,122 562,547 1,241,297 179,994	293,892 1,393,368 279,510 618,257 1,318,280 188,180	1,439 288 672 1,373
10 10 10 16 11 13	63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 66 Surigoo del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao Ocarotal 70 Surigao del Sur	139,986 681,654 172,018 324,077 848,704 114,534 203,588	166,717 784,059 203,627 430,762 908,703 132,321 248,717	197,120 937,579 227,492 467,092 1,031,482 151,362 297,052	229,395 1,099,896 249,374 501,685 1,153,989	261,894 1,265,580 267,122 562,547 1,244,297 179,994 392,510	293,892 1,393,368 279,510 618,257 1,318,280 188,180 434,013	1,439 288 672 1,373 194 472
10 10 10 16 11 11 11	63 Camiguin 64 Misamis Oxeidental 65 Misamis Oxeidental 65 Surigoo del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao Ocional 70 Surigao del Sur 71 Lanco del Norte	139,985 581,654 172,018 324,077 848,764 114,534 203,588 211,997	166,717 784,059 203,627 430,762 908,703 132,321 248,717 291,880	197,120 937,579 227,492 467,092 1,031,482 151,362 297,052 392,666	229,395 1,099,896 249,374 501,685 1,153,989 168,433 348,263 507,109	261.894 1,265,580 267,122 562,547 1,244.297 179,994 392,510 628,588	293,892 1,393,368 279,510 618,257 1,318,280 188,180 434,013 748,984	1,439 288 672 1,373 194 472 862
10 10 10 16 11 13 11 11	63 Camiguin 64 Misamis Oxedental 65 Misamis Oxedental 65 Surigoo del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao Oxedata 70 Surigoo del Sur 71 Lanao del Norte 72 Lanao del Sur	139,985 681,654 172,018 324,077 848,704 114,534 203,588 211,997 239,680	166,717 784,659 203,627 430,762 908,703 132,321 248,717 291,860 300,256	197,120 937,579 227,492 467,092 1,031,482 151,362 297,052 392,666 379,179	229,395 1,099,896 249,374 501,685 1,153,989 168,433 348,263 507,109 463,708	261.894 1,265,580 267,122 562,547 1,241.297 179,994 392,510 628,588 542,643	293,892 1,393,368 279,510 618,257 1,318,280 188,160 434,013 748,984 609,533	1,439 288 672 1,373 194 472 862 655
10 10 10 16 11 13 11 11 12 12	63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 65 Surigoo del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao del Sur 70 Surigao del Sur 71 Tanao del Norte 72 Lanao del Sur 73 Maguindarao	139,986 681,654 172,018 324,077 848,704 114,541 203,588 211,997 239,680 275,859	166,717 784,059 203,627 430,762 908,703 132,321 248,717 291,880	197,120 937,579 227,492 467,092 1,031,482 151,362 297,052 392,665 379,179 421,639	229,395 1,099,896 249,374 501,685 1,153,989 168,433 348,263 507,109 463,708	261.894 1,265,580 267,122 562,547 1,241.297 179,994 392,510 628,588 542,643	293,892 1,393,368 279,510 618,257 1,318,280 188,180 431,013 748,984 609,533 664,351	1,439 288 672 1,373 194 472 862 658 748
10 10 10 16 11 13 11 11 12 12 12	63 Camiguin 64 Misamis Oxidental 65 Misamis Oxidental 65 Misamis Oxidental 66 Surigoo del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao Oxidental 70 Surigao del Sur 71 Lanao del Sur 72 Lanao del Sur 73 Maguindanao 74 North Coabato	139,885 681,654 172,018 324,077 848,704 114,534 203,588 211,997 239,689 275,859 202,730	166,717 784,659 203,627 430,762 908,703 132,321 248,717 291,880 300,256 349,584 254,158	197,120 937,579 227,492 467,092 1,031,482 151,362 297,052 302,666 379,179 421,639 306,148	229,395 1,099,896 249,374 501,685 1,153,989 168,433 348,263 507,109 463,708 499,153 362,509	261,894 1,265,880 267,422 562,547 1,244,297 179,994 392,510 628,588 542,643 579,340 418,127	293,892 1393,368 279,510 618,257 1318,280 188,180 434,013 748,984 609,533 664,351 473,714	1,439 288 672 1,373 194 472 862 658 748 527
10 10 10 16 11 13 11 11 12 12	63 Camiguin 64 Misamis Occidental 65 Misamis Oriental 65 Surigoo del Norte 67 Davao del Norte 68 Davao del Sur 69 Davao del Sur 70 Surigao del Sur 71 Tanao del Norte 72 Lanao del Sur 73 Maguindarao	139,986 681,654 172,018 324,077 848,704 114,541 203,588 211,997 239,680 275,859	166,717 784,659 203,627 430,762 908,703 132,321 248,717 291,880 300,256 349,584	197,120 937,579 227,492 467,092 1,031,482 151,362 297,052 392,665 379,179 421,639	229,395 1,099,896 249,374 501,685 1,153,989 168,433 348,263 507,109 463,708 499,153 362,509 397,413	261.894 1,265.580 267.122 1,244.297 1,79.994 392.510 628.588 542.643 579.340 418.127 469.896	293,892 1,393,368 279,510 618,257 1,318,280 188,160 431,013 748,984 609,533 664,531 473,714 544,782	194 472 862 658 748 527 608

shidow (500,000 (capita) or more

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Table G-71 GW SHORTAGE FORECASTING BY PROVINCIAL BASIS Population Density

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NRR	ID Province	1995 c/są km	2000) oʻsa km	2005 oʻsqilar	2010 c/sq km	2015 c/sq.km	2020 c/sq km	2025 c/sq.km
1	l Abra 2 Benguet	49	52	55	59	61	63	
í	3 flocos None	204 142	235 154	266	297	327	356	3
i	4 flocos Sur	211	226	165 240	175 253	184	191	į.
i	5 La Union	400	432	469	503	265 535	273 565	
2	6 Baranes	68	81	\$6	95	95	100	
2	7 Cagayan	103	111	120	129	137	143	i
2	8 Ifugao	60	71	79	87	94	100	i
2	9 Isabela	107	\$21	134	144	152	159	
2	10 Kalinga Apayao	35	37	4)	44	47	48	
ž	11 Mountain Province 11 Nueva Vircaya	62	64	69	75	\$0	83	
2	13 Quirino	86 43	93 48	103	113	123	132	1
	14 Bataan	358	391	55 429	463	491	74	
3	15 Bulacan	680	730	815	89)	981	514 - 7,057	1,
3	16 Nueva Ecija	282	297	322	313	350	373	
3	17 Pampanga	750	872	953	1,025	1 034	1,133	1.1
3	18 Pangasinun	406	442	481	518	550	578	
3	19 Tarlac	359	353	383	409	432	449	
3 -	20 Zarobali s	153)81	199	213	225	235	
4	21 Aurora	4)	61	70	80	92	103	
4	22 Batangas	524	.550	634	685	738	786	
1	23 Cavite 24 Laguna	1,336 929	1,412	1,506	1,699	1.915	2,134	2
i	25 Marinduque	208	227	1,307 242	1,506 254	1,705	1,939	2,
4	26 Metro Manila	14,865	16,305	17,678	18,812	268 19,695	278 20,368	. 20,1
4	27 Occidental Mindoro	57	63	71	79	87	96	. 20,0
4	28 Oriental Mindora	139	165	186	206	227	248	
4	29 Palawan	43	50	59	68	80	92	
4	30 Quezon	177	204	226	248	271	291	
4	31 Rizal	1.003	3.141	1,376	1,637	1.943	2,280	2 (
4	32 Rombion	180	207	221	246	267	287	
5	33 Albay	391	428	467	503	534	560	
., 5	34 Camarines Norte 35 Camarines Sur	208 272	243 311	273 342	30S 372	336	366	1
5	36 Catandonnes	134	15)	167	184	400	425	
5	37 Mastate	163	167	173	179	199 183	214 185	; i
5	38 Sorsogon	276	279	291	303	313	320	
6	39 Aklan	225	242	263	284	30-1	322	
6	40 Antique	171	190	207	226	243	260	
6	41 Capiz	237	258	281	304	324	3 12	
6	42 Guimaras	209	246	267	288	308	324	:
6	43 floito 44 Negros Occidental	371	437	174	510	54)	571	
7	45 Bohot	<u>307</u>	331 276	363 304	391	414	435	
7	46 Cebu	574	636	702	330 764	355	379	
7	47 Negros Oriental	190	198	210	222	820 231	. 870 239	
7	48 Signijor	215	238	242	261	272	278	3
8	49 Biliran	238	264	296	324	355	383	
8	50 Fastern Samar	83	89	98	105	110	115	
8	51 Leyte	265	293	328	361	394	425	
8	52 Northern Samar	130	140	14i	151	158	162	
8	53 Southern Leyte	183	232	261	290	319	346	
8	54 Western Sansor 55 Basilan	104	111	124	136	143	160	
9	56 Sulu	245 343	253 406	263 456	285	303	318	
ý	57 Tawi-Tawi	343 231	406 236	456 ° 252	504 267	546	584	•
9	58 Zamboanga del None	127	140	157	173	278 183	287 202	
9	59 Zambounga del Sor	196	225	254	280	305	327	
10	60 Agusan del Norte	199	219	240	258	275	288	
10	61 Agusan del Sur	57	68	81	27	115	135	
10	62 Bukidnon	lis	141	161	180	199	217	
10	63 Camiguin	235	321	3.17	373	391	407	
10	64 Misamis Occidental	237	253	270	284	296	303	;
10	68 Misamis Oriental 66 Surigao del Norte	285	298	326	351	373	300	-
10	6) Davao del None	161	182	195	207	215	219	
] }	68 Davao del Sur	147 264	192	205	218	242	265	3
ii	69 Davao Oriental	80 704	276 89	307	338	359	376	
ii	70 Sarigao del Sur	89 104	89 118	98 132	107 146	111	315	!
12	71 Lanno del Norte	242	270	301	330	156 356	165 378	
12	72 Lanao del Sur	204	220	246	272	330 296	378 316	-
12	73 Maguindanao	167	198	222	243	290	284	-
12	74 North Cotabata	132	153	172	189	205	219	
12	75 Sarangani	9)	106	127	148	165	182	
12						17.7	11:2	
12	76 South Cotabato	253	272	325	379	125	469	5

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Table G-72 GW SHORTAGE FORECASTING BY PROVINCIAL BASIS Level-III Population Served

RR	1D Province	1995	2000	2005	2010	2015	2020 capita	2025 Capita
 -	1 Abra	capita 17,460	24,779	capita 33,703	capita 41,012	55,589	67,657	capita 80,090
1	2 Benguet	120,680	264,543	354,598	463,917	593,416	740,934	908,329
i	3 Ilocis None	100,290	123,584	145,431	171,930	199,563	228,026	257,182
;	4 Hocos Sur	43.140	66,034	93,751	126,017	161,146	196,995	233,097
i	5 La Union	83,590	117,290	151,482	198,495	248,229	301,586	354,451
2	6 Butanes		180,1	2,441	4,312	6,074	8,333	11,01
2	7 Cogayan	51,660	72,184	95,928	122,833	151,899	182,163	212.24
2	8 Ifagas		2,911	6,717	11,385	16,691	22,568	28.84
2	9 Isabela	74,450	128,024	195.688	276,530	363,854	455,967	548.31
2	10 Kalinga-Apayao		8.364	20,611	37,102	57,709	81,912	110,02
2	11 Mountain Province		1,001	2,210	3,660	5,292	6.928	8.86
2	12 Nueva Vizcaya	-	17,326	39,468	66,485	97,695	132,295	168,54
2	13 Quiráno	2,810	8,737	16,866	27,261	40,068	54,775	71.17
3	14 Bataan	149,120	209,581	286,307	374,250	468.472	566,217	664,75 2,812,96
3	15 Bulacan	378.010	634,457	988,561	1 331 814	1,795,422	2,284,640	656.92
3	16 Nucya Ecija	303,340	350,265	412,411	171,806	537,561	598,296 1,895,766	2,305.50
3	17 Pampanga	325,640	562,051	835,707	1,153,907	1,510,753	1,647,138	2,037,55
3	18 Pangasiaan	353,310	517,137	222,687	990,211 293,752	370,627	450,822	521,57
3	19 Tartae	(10,370	160,889 306,684	354,980	405,901	457,240 🕄	509,198	561.64
<u> </u>	20 Zambales	245,770 4,300	18,631	40,411	70,689	111,707	162,875	221.72
4	21 Autora	296,710	458,284	660,570	890,967	1,170,687	1,492,185	1,818,0
4	22 Batangas	697,840	844,624	1,019,766	1,288,469	1,611,304	1,977,556	2,361,2
1	23 Cavite 24 Laguna	318,500 (594,373	925,633	1,511,121	94,054	100,321	108,5
1	24 Fayana 25 Marinduque	13,870	18,755	24,452	30,782	37,930	45,522	53.2
i	26 Metro Manda	5,862,000	7,673,791	8,991,478	10,528,528	11,899,688	12,306,356	12,609.2
4	27 Occidental Mindoro	18,890	51,959	110.457	189,381	298,410	439,760	593.7
3	28 Oriental Mindoro	18,220	35,210	55,688	79.956	108,217	139,756	175,3
4	29 Palawan	38,750	85,458	157,750	258,572	399,937	586,038	827,8
4	30 Quezon	171,650	261,651	367,040	487,342	629,895	787,939	963.8
4	31 Rizal	990,390	1,194,931	1,495,187	1,841,976	2,263,148	2,745,809	3,297,5
4	32 Romblon	14.340	24,174	37,729	55,521	78,561	107,005	140.4
5	33 Albay	136,260	176,496	224,530	277,250	330,252	382.895	436,2
5	34 Camarines Norte	68.070	83.218	112,127	140,386	171,960	206,956	208.9
5	35 Camarines Sur	161,920	261,146	385,254 :	539,785	722,423	911,299	1,161,3
5	36 Catanduanes	37,710	47,828	62,543	\$2,823	109,451	144,416	181,2 177,3
5	37 Mashate	9.670	119,267	56,706 118,734	84,942 144,913	115,331 173,039	145,880 201,286	228,1
5	38 Sorsogon 30 Aktaa	75,680 72,780	94,946 95,188	129,245	177,312	241,645	322,781	421,8
6	40 Antique	19,740	45,266	72,889	110,878	155,591	210,164	270.9
6	4) Capis	54,040	97,931	162,732	252,636	370,267		695,7
6	42 Guimaris	9,200	18,887	31.987	48,749	68,940	91,873	117.1
6	43 Hoilo	177,870	318,459	494,696	713,689	971,902	1,263,011	1.580,9
6	44 Negros Occidental	362.340	573,721	833,027	1,127,067	1,436,222	1,744,228	2.061,4
7	45 Bohol	14,170	66,113	141,096	253,952	401,613	591,581	823,3
7	46 Cetu	369,220	676,305	1,066,815	1,538,319	2,075,910	2,673,763	3,2615
7	47 Negros Oriental	124,420	179,281	250,648	337,248	438,055	551,569	677,5
7	48 Signifier	8,520	10,624	13,348	16,520	20,243	24,166	28,
8	49 Billima	20,000	26,959	35,611	45,673	57,429	70,548	84.9
8	50 Eastern Samar	7.080	27.889	54.372	85,772	120,803	158.646	196,
8	SI Leyte	256.850	351,260	477.380	628,943	811,343	1,021,543	1,257, 419,
8	52 Nonheru Samar	500	25,457	54,542	92.898	137,105	185,270	419. 151.
8	53 Southern Leyte	13,100	23,701	41,002	62.630 138,815	88,094 197,258	117,750 268,777	339.
8	54 Western Sansor 55 Basilan	31,220 51,740	56,456 83,354	92,421 121,478	175,913	241,041	314,343	355,
9	55 Sula	32,410	63,989	104,285	154,943	215,498	284,883	361,
9	57 Tawi-Tawi	\$,800	25,630	52,598	91,634	141,930	203,370	271,
9	58 Zamboanga del Norte	33,320	63,191	95,387	133,388	176,599	224,024	274.
9	59 Zamboanga del Sur	353,930	544,458	799,852	1,125,710	1,522,702	1,997,905	2,433,
10	60 Agusan del None	108,790	145,379	188,573	236.536	287,272	338,531	388,
10	61 Agosan del Sar	20,470	44,672	\$0,644	130,841	199,383	286,815	395
10	62 Bukidnon	87.310	173,608	295,767	460,932	658,788	912,253	1,177
10	63 Camiguin	8,560	16,547	27,861	42,471	59,421	68,164	85.
10	64 Misamis Occidental	47,530	73,787	108,812	153,132	296,394	268,099	336
10	65 Misamis Oriental	389,890	428.016		837,724	1,044,247	1,234,645	1,367
10	66 Surigao del Norte	54,000	85,637	120,766	160,194	201,688	242,794	283
11	67 Davoo del Norte	88,210	164,544	233,167	309,441	412,667		651
11	68 Daveo del Sur	827,140	885,040	1,003,136	1,121,106	1,208,334		1,333
11	69 Davao Oriental	21,560	42,207	68,522	99,408	131,676	164,617	197
	70 Surigao del Sur	91.520	131,775	184,410	250,564	324,246	406,437	496 819
12	71 Lango del Norte	9,630	57,263	136,236	252,394 237,674	407,623	598,617 490,177	625
12	72 Lanao del Sur	18.000	66,331	139,057		357,258 439,390		023 711
12	73 Maguindanao	103,530	164,683	239,013 161,677	330,764 230,915	312,525		
12	74 North Cotabato 75 Sarangani	64.370 3,040	106,996 21,471	47,454	80,717	118,712		211
		3.53413	21,4/1	47,434				
12	76 South Cotabato	35.120	116,003	241,430	422,362	640,291	907,857	1,184

		TANK MINING SERVICE AND ADDRESS OF THE PERSON NAMED AND ADDRES			Popu	lation	Control of the Contro	PORTER AND REAL PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PR
WRR	Province	Municipality	Population	average	ave.dev.	ave.dev.ratio	deviation	sq deviratio
			capita	capita	capita	%	Ð	-
972	amboanga del Sur	Zamboanga City	311,147	39,282	25,728	65.5%	18.34	12.01
7 C	ebu	Cebu City	662,310	55,117	40,980	74.4%	14.82	£1.02
10 M	lisamis Oriental	Cagayan de Oro City	428,321	39,072	34,347	87.9%	11.33	9.96
H D	avao del Sur	Dayao City	1,006,856	105,246	112,866	107.2%	7.99	8.57
12 La	anao del Norte	Rigan City	273,008	31,035	25,147	81.0%	9.62	7.80
6 116	oilo	Hoilo City	334,544	39,763	19,568	49.2%	15.06	7.41
10 St	origao del Norte	Surigao City	104,911	15,793	8,622	54.6%	10.34	5.64
1 Be	enguel	Baguio City	226,887	38,623	31,837	82.4%	5.91	4.87
10 A	gusan del Norte	Butean City	247,078	42,874	35,896	83.7%	5.69	4.76
8 W	estern Samar	Calbayog City	129,218	22,668	15,473	68.3%	6.89	4.70
12 La	anoa del Sur	Marawi City	114,391	20,407	7,808	38.3%	12.04	4.61
6 N	egros Occidental	Bacolod City	402,351	76,069	40,685	52.7%	8,14	4.29
L A	bra	Bangued	35,451	7,258	4,328	59.6%	6.51	3.88
4 Pa	อไรเหลด	Puerto Princesa City	129,579	26,687	16,251	60.9%	6.33	3.86
8 LI	tyle	tacloban City	167,313	33,146	17,778	\$0.6%	1.45	3.16

Table G-74 LARGE SQ. DEVIATION RATIO OF MUNICIPAL POP. DENSITY

					Populatio	n Density		
WRR	Province	Municipality	Pop.Density	average	ave.dev.	ave.dev.ratio	deviation	sq.dev.ratio
			c/sg km	c/sq.km	c/sq-km	K	θ	•
_7 C	ebu	Mandaue City	16,645	881.3	832.0	94.4%	18.95	17.89
6 11	oilo	Hoilo City	5,974	507.8	334.3	65.8%	16.35	10.77
1 B	enguet	Baguio City	4,640	500.2	666.8	133.3%	6.21	8.28
9 S	นใน	Jolo	5,700	614.7	589.6	95.9%	8.62	8.27
4 Q	uezon	Lucena City	2,595	301.7	204.0	67.6%	11.24	7.60
12 L	anoa del Sur	Marawi City	5,062	614.9	475.7	77.4%	9.35	7.23
4 R	izal	Cainta	19,760	2,575.2	2,620.1	101.7%	6.56	6.67
7 B	ohol	Tagbiliran City	2,201	289.4	129.3	44.7%	14.78	6.60
4 L	aguna	San Pedro	8,567	1,166.8	923.8	79.2%	8.01	6.34
	arlac	Victoria	4,135	609.1	402.0	66.0%	8.77	5.79
3.2	ambales	Olongapo City	1,740	259.6	227.3	87.5%	6.51	5.70
8 E	astem Saniar	Guiuan	838	126.6	82.7	65.3%	8.60	5.62
6 A	ntique	San Jose	1,677	263.3	169.2	64.3%	8.35	5,37
6 N	egros Occidental	Bacoled City	2,578	431.1	258.7	60.0°E	8.30	4.93
7 N	egros Oriental	Dumaguete City	1,660	278.0	162.8	58.5%	8.49	4.97
3 P.	angasinan	Dagupan City	3,393	607.2	398.7	65.7%	6.99	4.59
8 L	eyte	Tacloban City	1.658	305.3	151.8	49.7%	8.91	4.43
	avite	Kosano	15,024	2,823.4	2,951,2		4.13	4.32

Table G-75 LARGE GW FED L-III WATER SUPPLY SYSTEMS

			Intake	Туре		Water Su	oply Index	
WRR	Province	Water District	Wells	SPs	GW	Q	Pop.Served	UWC
			numeric	numerac	M.cum/y	M.cum/y	capita	ioco
7	Cebu	Metro Cebu WD	19	-	51.97	52.64	300,000	480.73
11	Davao del Sur	Davao City WD	33		37.91	47.76	793,970	164.81
4	Quezon	Quezon Micro WD	-	5	29.57	29.57	105,720	766.17
10	Misamis Oriental	Cagayan de Oro CWD	14	ŧ	28.63	28.63	365,100	214.83
4	Metro Manila	MWSS	109	-	26.88	975.98	7,291,480	366,72
3	Pampanga	Angeles City WD	12		19.05	19.05	92,710	563.05
6	Negros Occidental	Bacolod City WD	23	i	16.78	16,79	130,460	352.56
9	Zamboanga del Sur	Zamboanga City WD	3	-	15.49	24.21	321,000	206.66
3	Zambales	Olengapo City WD	5	ì	14.10	14.20	173,430	224.35
4	Batangas	Batangas City WD	13		11.83	11.83	76,270	424.95
1	Benguet	Baguio City WD	39	12	10.77	10.77	172,000	171.63
3	Nueva Ecija	Cabanatuan City WD	11		8.22	8,22	151,070	149.04
6	Heilo	Metro Iloilo WD	7	2	7.54	7.54	113,830	181,41
4	Batangas	Lipa City WD	135	6	7.32	7.32	120,590	166.22
3	Tarlac	Tarlac WD	9		6.50	6.50	60,200	295.68
4	Cavite	Dasmarinas WD	30	1	6.24	6.24	151,000	113.29
3	Pampanga	San Fernando WD	12	•	5.44	5.44	107,700	138.35
4	Laguna	Calamba WD	8	J	5.39	5.39	74,510	198.28
3	Pangasinan	Dagupan City WD	15		5.35	5.35	93,190	157.17
	Bataan	Balanga WD	9		5.55	3.55	33,430	437.18

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Table G-76 PROVINCIAL GW SHORTAGE & COUNTERMEASURE

< SW Develo	pment >					
1995	2000	2005	2010	2015	2020	2025
Bataan	Camiguin	Sulu	Leyto	Benguet	Aklan	
Carite			Rizal	La Union	Siquijor	
Marinduque			Basilan	Zamboanga del Sur	Bukidnon	
Metro Maxila			Tawi-Tawi	Lanco del Sur		
Cebu			Misamis Occidental			
Misamis Oriental						
< Improvem	ent of GWRD >					
1995	2000	2005	2010	2015	2020	2025
		Tarlac		Albay	Rombion	
		Negros Occidental		Camarines Sur	Maguindanao	
				Guimaras		
				Bohol		
< SW Devel	opment &/or In	provement of G	WRD >			
1995	2000	2005	2010	2015	2020	2025
Pampanga		Pangasinan	Lanso del None	Quezon	Davao del Sur	
Botangas						
Bulacan				Heilo		
Laguna				South Cotabato		

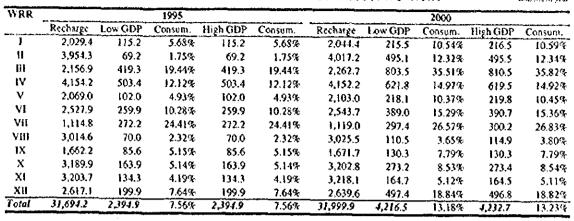
Notes: There is(are) large scale water supply system(s) (5 M cum'y or more) in BOLD & ITALIC province.

Table G-77 L-III WATER SUPPLY SYSTEMS IN GW SHORTAGE PROVINCE

1995	2000	2005	2010	2015	2020	2025
Balanga WD		<u></u>	Misamis Occi. WD	Baguio CWD	Davao CWD	
Mariveles WD				Zamboanga CWD		
MWSS						
Metro Ceba WD						
Cagayan de Oro CWD						
Improvement of	CIUDD (Co.	Actobled CW	Palanas Evaluati	inni		
<i>1тр</i> гочетені ој	OHADOO	raeianea On L	salance Esaluan	(UII)		
1mprovement of 1995	2000	2005	2010	2015	2020	2025
1995					2020 Cotabato CWD	2025
1995		2005		2015		2025
1995 Angeles CWD		2005 Tarlac WD		2015 Metro Naga WD		2025
1995 Angeles CWD San Fernando WD		2005 Tarlac WD Bacolod CWD		2015 Metro Naga WD		2025
Angeles CWD San Fernando WD Dasmarinas WD		2005 Tarlac WD Bacolod CWD		2015 Metro Naga WD		2025

Table G-78 L-III WATER SUPPLY SYSTEMS FOR SW DEVELOPMENT

Water District	Source Type	Province	Major River Basin
Balanga WD	GW	Bataan	others
Mariveles WD	GW	Bataan	others
MWSS	SW>GW	Metro Manila	Pasig-Laguna River Basin
Metro Cebu WD	GW>SW	Cebu	-
Cagayan de Oro City WD	GW	Misamis Oriental	Cagayan de Oro River Basin
Zamboanga City WD	SW>GW	Zamboanga del Sur	-
Davao City WD	GW	Davao del Sur	Davao River Basin
Misamis Occidental WD	GW	Misamis Occidental	-
Baguio City WD	GW -	Benguet	others



WRR			2005					2010		
	Recharge	Low GDP	Consum.	High GDP	Consum.	Recharge	Low GDP	Consum.	High GDP	Consum.
i	2.056.8	318.4	15.48%	319.7	15.54%	2,043.9	338.2	16.55%	341.6	16.71%
!!	4,106.0	923.7	22.50%	924.0	22.50%	4,107.0	941.1	22.92%	942.0	22.94%
111	2,406.1	1,228.7	51.06%	1,242.9	51.66%	2,409.5	1,370.8	56.89%	1,409.7	58.51%
W	4,156.3	825.5	19.86%	797.6	19.19%	4,105.8	972.8	23,69%	999.5	24.34%
ν	2,149.7	333.8	15.53%	334.5	15.56%	2,152.4	362.6	16.84%	364.3	16.92%
VI	2,569.4	527.9	20.55%	546.7	21.28%	2,564.1	584.7	22.80%	611.3	23.84%
VII	1,125.5	382.1	33.95%	397.4	35.31%	1,122.9	399.3	35.56%	430.7	38.36%
VIII	3,040.5	150.5	4.95%	155.4	5.11%	3,037.3	172.3	5.67%	185.2	6.10%
1X	1,684.7	179.5	10.66%	181.6	10.78%	1,683,8	203.1	12.06%	208.3	12.37%
X	3,222.1	394.4	12.24%	401.5	12.46%	3,217.1	440.0	13.68%	449.6	13.98%
XI	3,237.8	195.1	6.03%	196.9	6.03%	3,236.1	206.3	6.37%	210.9	6.52%
_XII	2.668.6	810.0	30.35%	810.8	30.38%	2,650.8	873.7	32.96%	875.6	33.03%
Total	32,423.5	6,269.7	19.34%	6,309.0	19.46%	32,330.6	6,854.9	21.23%	7,028.8	21.74%

WRR			2015					2020		
	Recharge	Low GDP	Consum:	High GDP	Consum.	Recharge	Low GDP	Consum.	High GDP	Consum,
3	2,030.1	360.7	17.77%	368.0	18.13%	2,021.7	384.6	19.02%	399.1	19.74%
H	4,037.8	960.6	23.50%	962.3	23.54%	4,119.1	980.5	23.80%	983.9	23.89%
131	2,384.2	1,537.2	64.41%	1,624.5	68.14%	2,424.5	1,713.7	70.68%	1,889.3	77.93%
١٧	4,031.5	1,123.1	27.86%	1,267.1	31.43%	3,974.6	1,250.6	31,46%	1,620.1	40.76%
V	2,144.0	394.7	18.41%	398.3	18.58%	2,159.7	428.4	19.84%	435.0	20.14%
VI	2,551.3	650.7	25.50%	684.1	26.81%	2,554.7	723.2	28.31%	762.4	29.84%
VII	1,117.8	448.5	40.13%	516.2	46.18%	1,117.3	491.6	43.99%	622.2	55.68%
VIII	3,029.4	196.4	6.48%	223.5	7.38%	3.026.8	220.1	7.27%	272.5	9.00%
ВX	1,679.4	228.9	13.63%	239.6	14.27%	1,682.1	255.9	15.22%	276.6	16.44%
X	3,205.9	504.9	15.75%	525.9	16.40%	3,208.7	574.8	17.91%	616.9	19.23%
ΧI	3,229.9	217.8	6.74%	227.6	7.05%	3,236,4	227.2	7.02%	245.6	7.59%
XII	2,621.1	951.1	36.29%	955.0	36.44%	2,615.3		39.81%	1.048.4	40.09%
Total	32,712.4	7,574.4	23.59%	7,992.1	24.89%	32,140,9	8,291.8	25.80%	9.172.0	28.54%

WRR			2025			Ratio (19	95/2025)
	Recharge	Low GDP	Consum.	High GDP	Consum.	Low GDP	High GDP
1	2,020.0	410.5	20.32%	437.2	21.64%	3.56	3.79
11	4,227.8	1,001.9	23.70%	1,008.1	23.84%	14.49	14.57
Ш	2,550.8	1,895.5	74.31%	2,221.1	87.07%	4.52	5.30
۱V	3,949.0	1,426,4	36.12%	2,201.2	55.74%	2.83	4.37
v	2,198.9	462.5	21.03%	474.3	21.57%	4.53	4.65
VI	2,580.6	805.4	31.21%	849.5	32.92%	3.10	3.27
VII	1,123.7	529.2	47.10%	767.8	68.33%	1.94	2.82
VIII	3,023.8	245,7	8.12%	340.7	11.27%	3.51	4.86
łX	1,684.7	281.6	16.71%	319.5	18.96%	3.29	3.73
X	3,232.8	650.3	20,12%	731.4	22.62%	3.97	4.46
XI	3,259.1	236.2	7,25%	269.1	8.26%	1.76	2.00
XII	2.647.4	1,142.1	43,14%	1,155.0	43.63%	5,71	5.78
Total	32,498.5	9,087.3	27.96%	10,774.8	33.15%	3.79	4.50

Notes: The volumes of Recharge & Demand (Low & High GDP) column are estimated by the Study Team.

Consumption is calculated by Demand Recharge.

Table G-80 GW DEMAND & CONSUMPTION BY MRB

																				(Cod: M	CM year)
N.F.R	MRB			1995					2000					2005					2010		
		Rocharge		Cocsum	High	Conson.	Recharge		Consum	High	Consum.	Recharge		Consum.		Consum.	Resharge		Consum.		Consum.
			CLP		GDP			COP		605			CCAP		GOP			GEP		GDP	
	Vp/3	350	4.1		41		12.5	76		7.7		729	11.3		11.3		72.5	120		121	
	Laren	16.0	9.0		0.5		161	+ 1		1.7		16.2	2.5		2.5		161	2.3		27	
	Others	1,941 5	110	-	1102		1,955 8	206 1		101.1		1,967.6	30 4 €		305.\$		1,955.3	323.5		336 8	
	Total	2.029.4		5 5 66 %	1152	5 68 3	2,044.4		10.54%	A	10 59%	2.0561		15.48%		15 5 14	2,643.9		16 55%	341.6	16.719
	Cagayan	3,479 7	60 9		60.9		3,535.1	435 6		4361		3,613.3	5121		B13 (3,8341	828 2		8189	
	Abulug	0.0	0 (0.0		0.5	0.0		0.0		0.0	0.0		0.0		0.0	0.0		0.0	
	Otters	474.5	. 8)		6.3		482 1	59.4		39.5		4927	110.0		(10.9		492.6	1119		113.0	
	Total	1,954.3	69		69.2		4,0173		75.33.4		12.34%	4,1060		25.04		22.504	4,107.0		22 92 9		72943
	Panipanga	1.291 6	251.1		251 1		1.355 0	451 1		4854		1,410.9	135 (744.3		1,442.9	8,10 9		644 2	
	Arm	265 1	31.3		51.5		278 1	98.1		99 6		295.7	15t-0		152.7		296 1	168 3		173 2	
	Oneis	600 2	116		1167		629 7	223.6		225.6		669.6	341.5		343.9		670 5	381.5		392.3	
	Total	2,156.9		3 19.44%		19.449	2,262.7		35.51%		35.32			51 069		51 (6%			5689%		
	Padg Laguna Bay	2.798 6	3 39.1		339.4		2,797 2			417.3		2,800 0	5561		537.3		2,765.9	655.3		673.3	
	Amnay Painck	11	0		01		11	01		0.2		11	0		0.3		1.3	0.1		0.3	
	Others	1,354.5	164.1		164.1		1,353.8	202 1		202.0		1,355 2	269	-	260 €		1,338.7	3171		335.9	
	Total	4,154.2		<u> </u>	503.4		4,152.2		11.914		(1924	4,1563		19864		19 199	4.105 8		23 699.		24 149
	Bicol	866 5	42		42.7		830 6	91.4		921		900 3			140 8		901.4	151 (1526	
	Others	1,202 5	59		593		1.222.2			1278		1,249.4			194.4		1,250 9	\$101		2117	
-	Total	2.049.0		0 4937	1020		2.103 0		10.37%		10.45%	2,149.7		15.534		15.56%	2,152.4		16 947		16.92%
	Panay	49	0.		0.5 65.4		5.0	0.1	-	0.6		50	£ (11		5.0	11		1 2	
	llog Hilahangan	636 4	63. 1.		1.3		640.4	97.5		95.4		646 B	1923		137.6		64,5 5	147.7		133.9	
	Jalaur Cut	16.5	192				166	2 :		26		163	3.4		3.0		168	3.0		4.0	
	Others	1,870 1		-	192.3		1,881 8	287.1		289 0		\$.900 8	390		404.4		1,896.9	433.4		452.3	
	Total Total	2,527.9		9 10 28 7 2 24 41 %		10.28%	2,543.7		15.29%		15.365	2,569.4		20.55		21 28°F	2.564.1		22 50%		23.847
		1,114.6 3,014.6		0 2327	700		1.119.6		1 26 57% 3 3 65%	114.9	26 837	1,125.5	383			35.314	1,122.9		35.56%		38.369
	Total	1,662.2		6 5.15%	83.6		3,025.3		3 7.797	130.3		3,040 5 1,694 7	150		135.4		3,037.3	172		185.7	
	Total	1.1			0.2		4.1	1.79		0.4				5 10 667		10 787	1,683.8		12 063		12379
	Agusian Esgiliun	1,1719		-	60 3		1.177.6			100.5		4.1 1,184.7	145	-	0.5 147.6		4.1	0.0	-	0.6	
	Cagayan De Oro	1,252 0		-	64.3		1.257.1	107	-	107.3		F,264.6	154.1		157.6		1.182.9	161.1	-	165.3	
	Others	760 9	19	•	39.1		764.0	65.		65.2		768.6	94		95.5		1,263.1 367.4	172		176 5	
	Total	3.1829		9 514%	163.9		3,202.8		2 853%	273.4		3.2221		4 32245) 	3,217.4		P D 1366%	107 1	: i 13.95%
^_	Tagan Libuganon	57.9			2 4		58 2			3.0		58 6	3.3		3.0		56.5	3.		3.8	
	Burgan-Mafungun	795.9			33.4		799.4	43		40.9		804.3	48 :		48.5		803.9	51.		52.4	
	Davao	806.6			338		8:0 2	41	-	4) 4		815.4	49		49 (814.7	51.5	-	53.1	
	Others	1.543.4			647		1.550.3	79.		79.2		1,559.8	94.		945		1.559.0				
57	Total	3,203 3		3 4195			3,215 1		, 7 5127e			3,237.8		0 1 603%	196 9		3,2361	99.	• 3 6.37%	210.9	
	Mindana	1,757			134		1,772 2			333.5		1.791 7	543.		544.6		1,779 B	586		587.5	
	Agus	193.5			139		1840	34.		34.6		1561	56		56.		154.6	50.1		357.9 61 1	
	Others	677.5			51.1		683.4			128 6		620.9		•	209.		685.3			226.7	
VH	Total	2,617,1					2,639 6		4 18.84%		18 82%	2.668 6		0 3935%		7 3 30,38%	2.650.8		4 7 32 96 9		, 5 33.039
	Nation			9 7.16%					5 13.187			32,423.5				19,162					21747

WRR MRB			2015					2029					2025			Raão (195	5-2025)
	Recharge	Low	Consum	High	Consum.	Recharge	Low	Consum	High	Сопашт	Recharge	Low	Consum.	1 Egh	Consum.	Lew	Mich
		CLP		COP			COP		COP			CDP		CEP		COP	GDP
Aba	72.0	3) (8	131		73.7	13.6		14.2		71.6	146		15.5			
Lacug	160	2 9	\$	2 9		15 9	3.0	+	3.6		(5.9	3 2		3.4			
Others	1,9421	345.	0	3523		1,934.1	367.9		381.8	i	F.932 S	392.7		416.3	ı		
t Total	2,030 1		7 17.77%	363 0		2,021.7	384.6	19 02%	399.1	19.74%	2,039 0	410.5	20.324	437.2	21.64%	3.56	3.8
Caga; an	3,597.3	B-45.		846 9		3,624 6	662 8		645.6		3,720 5	881.7		887.1			
Abulug	0.0	0	0	0 0		0.0	0.0	•	0.0	•	0.0	. 00)	0.0)		
Others	4795			115.5		494.3	117.7		1181		597.3	120.2	!	\$21 Q	•		
II Total	4.087 B		6 23 500	952 3		4,119	982 5	23 80%	983.5	23.89%	4.2278	1.001 5	23,797	1.608.1	23 84%	14.49	14.6
Pan panga	1,427.1	9.70	5	972		3,451 9	1,026		1,131.4		3.527.5	1,135.1		1,330 (
Agao	293 0	158.	9	199		297.9	210.0	•	232 7	!	313.5	232 9	1	272 5	;		
Others	663.5	427.		452 1		674.7	475.5	•	\$25.6	:	799.8	121	i	618 1			
(ii Tetal	2,3842	1.507.	2 54.47%	1,624.3	68 1 4%	2,424.5	1,713.7	70 684	1.657	77.93	2,550 8	1.895.	74.31 €	2,221 3	87.07%	+ 52	5.3
Pang Laguna Bay	2,715.9	7.56	6	853 6	i i	2,677.6	842	5	1.091.4	i	2,660.3	960.5	}	1,482	ī		
Annay Patrick	1.1	0	•	0.3	0	1.1	0.	3	0.4	l .	1.1	€.	ı	. 00	5		
Others	1,314.5	366	3	4131		1,295.9	407.1	3	520 (•	1,287.6	465.0		217.3	1		
IV Total			1 27.867	1.267	31.43%	3,974.6	1,256 (31.467	1,630	49.76%	3.549 0	1,426.4	36 12%	2.201 1	53.74%	2 83	4.4
Bacol	897.9			166.1		9-34 5	179.		182	2	920.9	193.	,	198 (5		
Others	1,246 (229.	4	231.5		1,255.2	249.)	252.1	3	1.278.0	268.1	3	275 (5		
V Total	2,1840		7 13.419		18.56%	2,159.7	428.	1 19 84 7	435.6	20142	2,195.9	452	21 03%	474.	21 57%	4.50	46
Panty	5 0	•		F.3		50	i L	ŧ	t.	5	5 D	1.0	5	13	;		
Hog Kilabangan	642.3			172 2		643.1	182		191		649.6	202 (3	213.5	•		
laia:ur	16.7	4.		4.5		16.7	4.		51)	16.9	5.	3	5 (5		
Oders	9,887.4			506.1		1,889 9	\$35.	D	564.1) ·	1,909.0	595.	8	6.8.	ι .		
VI Total	2,551.3		7 25 50%		26 81 %	2,554.7		28 31 %		€ 29 54%	2,580.6		31.214	8 49	32 924	3 10	. 33
VR Total	1,117.8		5 40 137	5:67		3,317.3		6 43 99%		2 55.68 7	1,123.7	529	2 47.10%	767.	68 33%	94	2 0
VIII Total	3,029.4		4 6.45%	223.		3.026 8	230		272		3,023.6	245.	7 8.12·2	340	7 11 22%	3.51	4.9
IX Tetal	1,679.4		9 13 53%		11277	1.683.1		9 15 22%		6 16.41%	1.684.7		6 16.71%	319.	\$ 13.96%	3.29	3.7
Agussas	4.1	0		0		4.1	0		0	-	4.)			0.	9		
Tagnisan	€,178 6		-	193.4		1,179.8			226		1.169.7			268.1	9		
Cagayan Ex Oro	₹,256.3			106		1,259.4			243		1,268.8			287	I		
Orbers	764.7			125.		765.4			£47		771.1			174.	5		
X Total	3,2054		9 15.75%		15.47%	3,208.7		17.915		9 19 239.	3,232,8		3 2012%		4 22 62-2	3.97	4.5
Tagun-Libugarea	58.4					58 5		•	4.		58.9			4.	9		
Buayan Malungun	602 4			56.		604.0			61		809.6		7	66	8		
Daviso	B13.1	_	_	57.	-	614.8			61		820 5			67.	7		
Others	1.556 0			109		1,559.1			118		1,570.0			\$29.	5		
X) Total	3.229.9		8 6 744			3,136.4		2 7.02%			3.259 1		2 7.252	269.		1.76	2.0
Mindanso),7598			641		1,755.9			7G3.		1,777.4			175.	5		
A 4ms	1927			65		1823			- 33		194,6			8-0.	5		
Others	678.6			247		677.0			271.		685.4	295	7	299	0		
XII Total	2.621.1		36 297		36.44%			2 39.81%		4 49.09%		1.742		9,155	0 43.639	5 72	5.
Nation	32,112.4	7.574	\$ 23.59%	7,9-2	24.82%	32.140.0	8,291.	# 25.80%	9,172	0 28547	37,498,5	9,047	27.462	10.774	8 37.15%	3.79	1.

DISTRICTS
WATER
ON OF MAJOR WA
SELECTION
Table G-81

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WRR Pri	Privince	Water District	WC	7	3		S. SW	ç	OW.O	SiAreu	Popts	Runfall F	mental Co	d (4.84	5 Cons.	2	J. C.WC	ca du A	Pristole	V P-5	PUISAGE	3	Course	deliate!
			MCMivear	-	MCMIYACIF	MCMINENT	MCMINA	•	4CMINEUS	SQ Kee	confto	WW/* W	JU NOCIA	į			,J.C.	Copula	*	1	,	ŀ	,	
4 Metro Manua	anda	MWSS	2 5	4	5	77	444	٠. ١	55	6.0	7251480	ě	31	> 6	- ,	د د	#. \$ → #	_	. :	7 -	. •	٠.	- c	<u> </u>
<u>چ</u> د د		Metro Cebu WD	X :	4.	0	24 5	(٠.	2.5	693	0000	2 5	2 5	5 6	-1 <	٠.	3 3		2.5	e			> <	ž č
	g (Angeles City WD	2 (4	3 (2 2	> (2 6	8 ;	2 2	2 3	70.	>	٧.	- <	7. 6		2.5	40			.	3 5
	Chentai	Charles de Oro Crey WD	77	4	~ (2	۰ د	٠,	Ñ.	-	20100	0 1	•	> •		.	· ·		2 9	. ·	٠,	٠.		• •
V Zamboang	Zamboanza del Sur	Zamboanga City WD	S	7	0	<u>.</u>	٠.	71	4.	1415	32.125	<u> </u>	7 0.	э (٠ د د	~ :		3	* *		- 1		7 :
Benkuel		Baguio City WD	•• ;		~.	= ;	9	- (Ξ!	3	2200	4 2	361	> <	Α.	. .	- 1		200			٠, -		= :
	ung t	Davao City WD	20	4	φ.	×!	0.	-+	\$:	721	0/0/6	\$ 5	\$ 5	> <		· > ·	<u>~</u> }		3	~ ·	> ·		- «	. :
6 Negros Occidental	Accidental	Bacolod City WD	2 4	7 (<u>.</u>	ه د		<u>-</u> 2	8 5	2000	1212	9 6	>		0	ζς 7	907020	38	4 6	<u>-</u> م	~ -	5 C	= =
Olioli		Metro Houlo W.D	; 	1		, ,	اد ا	-		1	00000	1							\$ 1			ľ	\ 	= =
e datangas		Garangas City W.D	_	4 -	> <	4 4	> <	. .	7 4	g S		9 5	<u> </u>	> <		· ·	4 5		2	40	> -		> -	2 5
* Caville		Casharaga wo	٥,	٠. :	•	۰.	0		٠,	2 5	3000	0761	- :	> <	• «		4.5		25		- •			? 5
Pangasinan	ร	Dagupan City WD	r. (٠	5	n ·	3	٠, ٠	٠,	? . }	36.5	è	5	> 0	, .				2	(٠.			2 (
S Leyke		Leyte Metro WD	0	-	>	⇒	2	4	0	25.5	0.177	787	·.	0		, S	<u> </u>		2			~ (~ •	۰ ۵
4 Laguna		San Pedro WD	rı	_	0	ra	٥	_	7	23	43840	8	χ.	0	rı.	_			2		\$	٠.	0	0
Capiz		Roxas City WD	0	-	0	0	٠,	ಶ	r4	512	4,4000	2572	262	0	_	0	7.		3	••	۳.		0	•
3 Nucva Ectia	3.0	Cabanatuan City WD	×	۳,	0	×	0	-	ЭÇ	66	151070	1738	335	a	_	0	7,		30	c.	C-1			J
4 Batangas		Liga Cary WD	4	₹,	0	7	0		۲-	268	120590	145.3	389	٥		0	2		ς. Σ	4	٥	-		Ö
3 Partitiones		San Fermando WD	•	~	0	•	Q	-	v	5	107,000	1602	137	c	_	0	13		92	~	-	_		9
d lange	•	C. Lands W.D.	. •	• ົ	·	. •	• =	-	. •	14.6	74510	1608	1,7	• ¢			2			٠٠.			C	•
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And A	1	John Smallings with	۰ د		2 (0	٠.	• ‹	: :	0000	0,71	į	> <	4.		÷ ;		38	۰.	יו כ	4 6	> <	٠.
	- No.	Marawi City WD	4		> (-4 (· c	- •	4	3	2000	701	₹ ;	۰ د			4		? ` ? !	· ·			> 6	
lo Sungao del None	Se Norte	Metro Sungao WD	>	_	0	9		٠,		647 143	30.30	7.87	8	۰.	_	٠.	_ :		2	· ·	- '	-	> +	.
8 Western Samar	Samar	Calbayos City WD	0		0	0	٥	4	0	Š	916	2874	7.65	0	_	0			8	~	٥	_	0	<u>.</u>
3 Tarter		Tarlac WD	ø	м,	0	\$	0	_	9	883	00200	\$	1288	0	-	۰	~		8	r+	-		0	æ
S Camarines Sur	5%.7	Metro Naga WD	4	¢ŧ	-	v.	٥		٠.	9.	71090	2091	5	0		•	2 -		8	د،		-	0	æ
8 Western Samar	Samar	Calbatogan WD	٥	-	0	0	-	۳.		8	18000	2874	5.30 0.50	0	-	0	·-		20	٠,	r.	~	0	æ
4 Ourzon		Owner Mem WD	- 0	-	2	9	0		۶	X.	105720	2070	091	C		0	76		00	٠,	36	e s	C	ж
3 Haraan		Ralanum W.D.			Ç		c	-	v	ž	0.77	Š	352	•			4		020		C	-	-	i po
T DateMail			-, w	, ,	> <	·, 4			, .	3 3	0.000		2	> <	. .	> ~	iè		2 6		3 6	-		: 3
		Marvers w D	٠.	,	۰ د	٠	9 (- ,	٠,	7.	200	3	1	> •	٠.		•		2 9	- (> <		- «	
Cawaler 4	:	Mo, Princesa City WD	1	-	э.	-	•	٠. ،	d (S	35210	9		۰ د		- ·	* :		2 i		> 4		> 1	e;
-	F 25	Bishig WD	0		~ .		_	۳,	CT :	332	250	17.0	1247	0		0	₹ :		0.		ra i	-	0	эn :
10 Bukidnon	:	Malaybalay WID	0	_ -	0	0	rı	₹	7	835	26520	2318	9.0	0		•	×		80		0	~	0	×
3 Zambales		Masinloc WD	0	-	0	0	-	4	-	335	12620	2029	51 9	0	_	-	-		ð	_	0	-	0	œ
4 Onental Mindono	Mindono	Pinamalayan WD	0	-	0	0	-	4		233	3,101	1734	,	0		0	۲. ۲.		- 8	-	0		0	SC.
11 Sungao del Sur	- Log 12	CW gabraT	0	-	0	0	٥	۳3	0	316	38	9,77	1189	0	_	0	2		2	_	٥	-	0	×
4 Ouezon	1	Tagkawayan WD	0		0	0	0	4	0	647	7800	502	1345	0	_	0	=		9	_	7	~	ં	æ
4 Rombion	•	San Agustin WD	0	_	0	0	0	4	0	12	2720	1527	Si	0			77		8	_	0	-	0	e e e
6 Iloilo		CAN OPPORT	•		. 0	Ó	0	4	0	2	2400	2357	-	0			· * ?		80	_	0	-	0	20
	Zambranea del Norie		· c	-	c	c	•	4	c	572	3530	1803	5	. =			5		8		-	-	ت	×
11 Suchasordel Sur	, in 15, in		· c		o	•	• 0	7	· c	Ş	3	0,41	š						9			-	-	×
Northern Same		Harry W.D.	•			• <	• <	. •		ę,	0.55	Y COL	Ş	, <							, -	-	. c	· ~
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WANTED STATE	Office		٠,	- 1	٠	r, •	•		٠.	2 5	0000	ì	G ;	> (·	٠.	29		26			٠.	- (٠,
I lione home	יונ	Jiocos Norte W.D	.	٠.	- (4	0 6	- •	•	74.	67120		247	۰ د	_	۰.	× :		3:		٠. ١		۰ د	~ (
Vekros Grens	High Market	Dumagnete City WD			٥	-	٠. ،		4	×	71230	27.3	20 20	0	_		₹.		9:	-	r.	-	• 1	_
> Albay		Leyaspi City WD	7	r +	_	v.	0	-	v,	Ž.	39870	38	53	o		~ o	Ε.		8	-	_	-	Φ.	r ~
3 Bulacan		Balisag WD	4	۲,	0	4	0	_	4	Ţ	34545	26	š	0	•	~	2		50	_	~	-	0	_
1 La Union	_	Metro La Union WD	-5	-	0	64		۲4	٠.	4	65340	2515	1268	0	_	~	7		20			-	0	ر
10 Agusandel Norte	el Norte	Butuan City WD	۳.	۲,	٥	٣,	0	-	٠-,	ŝ.	80790	230	1213	0			<u>e</u>		8			-	0	,
L Cavite		Gen. M. Alvanez WD	re	-	¢	re	a	-	F 4	5	21230	1526	ឧ	0		0	200		0	_			٥	~
5 Catamduanes	5	Virac WD	0	-	O	0	-	۳,	-	157	25000	1671	410	0	_	1			2 2	~	-	••	-	۲-
5 Camarines None	's None		0	-	\$	0	-	۳.		٧.	8	3358	654	0	_	-	Ž.		o e	-	0	-	0	,
£ 0.03	Gov. Camins, Zambo,		0	-	٥	0	-	m	-	1478	999	202	3073	0	_	٠.	Ę		8	_	0	٠.	o	t-
% Leyfe		Mrero Carigan WD	0	~	0	0	**	ď,	-	362	18100	2382	8	0	_	_	4		8	_	0	-	0	7
1 Benyaet		La Trinidad WD	С	-	c	c	c	۲.	-	19	13680	3714	22K	c		_	8		8	-	~	٠	¢	r
				İ										l										

Table G-82 M/I DEMAND & SOURCES AVAILABILITY FOR MAJOR CITIES

Service Area	Water Use	Service Level	Source	1995	2000	2005	2010			
Ex-MWSS;	Municipal	Level-III	Demand	976.0	1,250.0	1,480.0	2010 1,746.0	1,923.0	2020	2025 Remarks 2 299.0
đajr∄si Watq			GW	27.0	25.0	20.0	15 0	100	10.0	10.0 na Relubitication
keras Conjury Strika)	344	R	SW.	949.0	1,234.0	1,460.0	1,731.0	1,983.0	2,064.0	2,289.0
le ta Willer	Industrial (High GDP)	Private	Demand GW	91.5 76.4	91.7 75.6	115.9	182.0	268.5	393.5	584.2
~₹ _a uzy	(11)		SW	15.1	15.t	100.8 15.1	166.9 15.1	253.4 15.1	378.4 15.1	569.1 May 181 MCM year
rock and	Total		Demand	1,067.5	1.350.7	1,595.9	1,928.0	2,261.5	2,467.5	2.883.2
eves			GW	103.4	101.6	120.8	131.9	263.4	388.4	579.1 GPL: (9) MCM year
detro Cebu	Manicipal	Level III	SW.	964.1	1,249,1	1,475.1	1,746.1	1,998.1	2,079.1	2,304.1
ND	sumopa	e ever mi	Demand GW	40.8 40.8	58.9 52.9	92.9	151.2	194.8	245.3	300.6
			SW	0.0	5.0	52.9 43.0	52.9 95.3	52.9 141.9	52.9 192.4	52.9 247.7
	Industrial	Private	Demand	18.2	18.3	22.5	23.4	27.6	33.3	41.6
	(High GDP)		GW	5.5	5.5	9.8	10.7	14.9	20.6	28.9 Mail 7.2 MCM/year
	Total		S W	12.7	12.7	12.7	12.7	12.1	12.7	12.7 Recycle
	1(43)		Demand GW	59.1 46.3	77.2 58.4	115.4 62.7	174.6	222.4	278.6	342.3
			SW.	12.7	18.8	52.7	63.5 111.0	67.7 154.7	73.4 205.2	81.8 GPL; 60.1 MCM year 260.5
Angeles City	Municipal	Level-til	Demand	11.1	13.0	14.7	16.5	20.2	24.3	30.6
ND.			GW	11.1	13.0	14.7	16.5	20.2	24.3	30.6 Capa =13.6 MCM year
	Industrial	Private	SW Demond	0.0	0.0	0.0	0.0	0.0	0.0	0.0 (year 3025)
	(High GDP)	rovse	Demand GW	0. 0 0. 0	0.1 0.1	0.5 0.5	0.6	0.6	0.6	0.6
			SW.	0.0	0.0	0.0	0.6 0.0	0.6 0.0	0.6 0.0	0.6
	Total		Dumand	11.1	13.1	15.2	17.1	20.8	24.9	31.3
			GW	11.1	13.1	15.2	17.1	20.8	24.9	31.3 OPL: 130 MCM year
Cagayan de Oro	Municipal	Level (III	SW	0.0	0.0	0.0	0.0	0.0	0.0	00
City WD	venneilen	TEAN III	Demand GW	28.7 28.7	47.1	58.0	72.6	84.7	93.4	96.4
•		(BOT=36.5)	SW	0.0	33.8 13.3	33.7 24.3	33.7 39.0	33.4 51.3	33.0 60.4	32.4 Capa =34.0 MCM year
	Industrial	Private	Domand.	0.5	0.5	0.6	0.6	0.9	4.3	64.0 1.9
	(High GDP)		C₩.	0.5	0.5	0.6	0.6	0.9	1.3	1.9
	Total		- 20.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10001		Demand GW	29. 2 29. 2	47,6 34,3	58.6 34.3	73.3 34.3	85.6	94.7	99.3
		_	SW'	0.0	13.3	24.3	39.0	34.3 51.3	34,3 60,4	34.3 GPL: 343 MCM year 64.0
Zamboanga	Municipal	Level III	Demand	24.2	38.5	54.7	74.4	97.9	123.7	148.0
City WD			Q.M.	1.0	4.3	20.5	40.2	63.6	89.5	113.8 De-satination
	(redustria)	Private	SW Demand	23.3 3.2	34.2	34.2	34.2	34.2	34.2	34.2 (diluted water)
	(High GDP)	111.10	G%.	1.0	9.0 6.8	17.5 15.2	22.5 20 2	29.3 27.0	39.6	55.0
	- -		SW:	2.2	2.2	5.5	2.2	2.2	37.3 2.2	52.8 Recepte 2.2
	Total		Demand	27.5	47.5	72.2	56.9	127,1	163.3	203.0
			GW.	2.0	11.1	35.8	60.4	90.7	126.8	166.5 GPL; 53.0 MCM year
Baguio City	Monicipal	Level-III	SW Demand	25.5 12.0	36.5 29.4	36.5	36.5	36.5	36.5	36.5
ďΨ		(Aus; 2.5?)	CA.	12.0	14.5	37.8 14.5	50.0 t 4.5	61.1 14.5	73.7 14.5	87.3 14.5
		(BOT=18.3)	SW	0.0	14.9	23.3	35.6	46.5	59.2	72.9
	(ndustria)	Private	Demand	0.0	0.0	0.0	0.0	0.0	0.0	O.O supplied by 8WD
	(High GDP)		2M. CM.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total		Demand	12.0	29.4	37.8	50.0	0.0	0.0	0.0
			GW	12.0	14.5	14,5	14.5	61.1 14.5	13.7 14.5	87.3
	Gov. Camies.		SW.	0.0	14.9	23.3	35.6	46.5	59.2	34.5 GPL: 14.53(CNL)ear 72.9
Bacolod City WD	Manicipal	Cesel-III	Demand	16.1	22.0	31.9	40.5	49.5	59.4	72.3
		(add; 9.5)	2M. Q.M.	16.1	22.0	31.9	40.5	49.5	59.4	72.3 deeperagusfer
	Industrial	Private	5 v Demand	0.0 20.5	0.0 20.9	0 .0 28.9	0.0	0.0	0.0	0.0 Bown River 1
	(High GDP)		GW	20.5	20.9	28.9 28.9	32.1 32.1	34.8 34.8	36.9 36.9	38.4
			SW	0.0	0.0	0.0	6.0	0.0	0.0	38.4 Rocycle 0.0
	Total		Domand	36.6	42.9	60.8	72.6	84.3	96.3	110.7
			GW SW	36.6	42.9	60.8	726	84.3	96.1	110.7 GPL: 1933 MCM-year
Metro Boilo	Manicipal	Level-III	Deciand	7.5	28.7	31.7	0.0	0.0	0.0	0.0
W.D			6W	0.2	21.3	24.3	33.2 25.9	37.1 29.7	40.9 33.6	44.4 37.1
			SW	7.3	7.3	7.3	7.3	7.3	7.3	7.3
	Industrial	Private	Demand	1.5	1.5	3.8	2.0	2.1	2.2	2.2
	(High GDP)		GW.	0.9	0.9	3.2	1.4	1.5	1.6	1.6
	Eoral		SW Demand	9.0	30.2	0.6	0.6	0.6	0.6	0.6
			GW.	1.1	22.2	33.5 25.6	35.2 27.3	39.1 31.2	43.1	46.6
			SW.	7.9	7.9	7.9	7.9	7.9	35.2 7.9	38.7 GPL: 799MCM.jear 7.9
Duvao City	Manicipal	Level-III	Demand	43.7	54.2	58.2	72.9	90.4	113.5	146.3
AD.		(add; 8.0)	GM.	48.7	0.0	0.0	0.0	6.4	29.6	62.4
	Industrial	(BOT-840) Private	SW Declared	0.0	54.2	58.2	72.9	84.0	84.0	84.0
	(High GDP)		GW	1.6 1.6	1.5 1.5	1.8 1.8	2.5	3.3	4.5	6.2
			5W	0.0	5.0	0.0	2.5 0.0	3.3 0.0	4.5 0.0	6.2
	Total		Demand	50.2	55.7	60.0	75.4	93.7	118.0	152.5
			GW	50.2	1.5	8.1	2.5	9.7	34.1	68.6 GPL; 84.45(CV2) car
			2M.	0.0	54.2	58 2	72.9	84.0	84.0	84.0



CORDS	(1001)
Table G-83 WELL PRODUCTION RECORDS	TOOL A TO A TOWNER OF A CASE
-83 WELL)	C. 100
Table G	

1

	Table G-83 WELL PRODUCTION RECORDS IN MWSS SERVICE AREA (1991)	B3 WE	ILL H	WELL PRODUCTION RECORDS IN MWSS SERVICE AREA (1991)	COL	S A	REC EA (38DS (1991)	_			Table G-84 DISTRIBUTION OF WELL DEPTH OPERATED BY MWSS (1995)	-84 D	34 DISTRIBI OPERATED		JTION OF WELL BY MWSS (1995)	F WE SS (19	11.0% 11.0%	EPIT			
Province	Monicipality	Amount of Production MCMiyear	MCM year	μοιιου	EM.	Number of Wells Numeric		V V	Ave, Well Capacity MCMiyeur	A)	Province	Municipality	, j	an delta	telene S	S/ 10 100	Sun Sun tot	Runge of Well Depth (m.) torin 150 151 m 200 201 m	Depth (m) Septh (m)	961 or 196	tos ever tot	1 Total
ALC: Appropri	Valentatelia	12.	\$ G	12.4	127	N. M.	G:	0.10	3	0.10	M.Manila	Valenzuera	1								304.8	30k
	2 Navotas	\$::	0.0	Ž	<u>.</u>	2	ô.	8 6	0.02	90.0		2 Navotas	i 3								304.8	- ×
	3 Malabon	6.7	0.2	6.9	69	r.	5	0.10	0.07	0.10		3 Malabon	, A									
	4 Outron (C)	33.3	7	38.5	Š	9	323	0.11	0.32	0.12		4 Ouezon (C)		٠.					9. 5.44 5.8	3875 3875	3048	24°5
	5 Calendan (C)	10.0	٠.	10.0	114		4	60'0		80		5 Caloocan (C)										
		5.0		5.0	38		8	0.14		9.14		6 Mankina										
		9,4		4.6	46		49	60.0		600		7 Manila (C)	, , , , , , , , , , , , , , , , , , ,									
	S Nan Juan	0.2		0,2	"		7	0'0		80.0		8 San Juan	. 1									
		3.3		7.	ž,		Ξ.	0.1		0.11		9 Mandaluvon										•
	10 Pasig (C)	22.7	00	27.7	197	7	8	0.14	0.0	0.14		10 Pasig (C)	A 44	7								٠
	11. Makati (C)	9.2	4.	10.6	æ	=	8	0.09	0.12	0.10		1; Makatı (C)	2	4						5 283.3	304.8	274.6
	12 Page (C)	6.6	9,	×	4	٣,	8	9.14	45.0	0,16		12 Pasav (C)	; ; ;					192.0	- 240×2	८१ ३६		74
	13 Pauros	0.6		9.0	64		. 2	0.32		0.72		ň										
	14 Taguig	24.2	60	24.5	5	۳.	124	07.0	90.0	0.20		14 Taruis	Ave	•					213	1 4 4 571.3		
	15 Paranague	25.6	0.4	26.0	278	×	283	0.09	0.0 8	0.09		15 Paranague	Ave.	-					245.4	256.0	- 204. - 304.8	.x 262.9
	16 Las Pinas	29,9	90	30,4	157	r+	\$	613	0.28	91.0		16 Las Pinas	Ave						25.	25.0	4	243.8
	17 Muntiniupa (C)	33.4	₹.	35.6	182	7	86	0.18	0.30	0.13		17 Muntinluos (C)	2						240.5	200	X 201	
	sub total	233.9	13.6	245.9	1,832	57	68871	0.13	0.21	0.13		sub rotal	Ave.	22		. !		10.01	ر د ادر	ر ا ا	کرد ج	X 262.7
Kupa	Montalban	67	Ė	F	ŀ		9.	í.	5	0.10	Russi	Nontalban	*					0.281		14.0%		203.
	2 San Mateo	1.3	1.7	3.1	Ξ	٧.	91	0.12	9.34	61'0		2 San Makeo	× ×	۲,			137.2			(13Ę		285 385 385 385 385 385 385 385 385 385 3
	3 Antipolo	1.91	4.2	20.4	5	₹:	0.30	9.14	82.0	0.16		3 Anibolo	۸۷۲.	€*	- X,	2 4 ii			2	- 4		
	4 Cainta	17.71	4.	16.1	£	ĸ	Ş	0.23	0.28	0.23		4 Cainta	Ave.					627.				172.
	5 Taytav	13.7	7,4	0.91	29	4	69	0.22	0,74	0.23		5 Taylav	Δvc				131	1070	202.7	- 5-		167,4
	lator due	\$1.8	10.9	62.7	Š.	≿ .	72	0.18	0.31	6.0		Sub total	Avr.	ć I	8 89	9:3	138	8 891				
Mile.	i Bacoor	5.1	1	1,11	7	c	2	57.0) (1)	5.0	3/45	Baroor	Avc.				2921			264.4	206. X-40.	702 787
	Go Imus	1.6	9.0	2.2	o.	4	=	0.18	0.30	0.20		2 Imas	A VC							295.7	- C-	
	3 Kawit	<u>0.</u>	9.	2.6	4	77	æ	0.26	0. 8	0.33		3 Kawit	Ave	1						284.3		
	4 Cavite (C)	9'1	Š	4.0	=	ž.	×	0.14	0.16	0.16		4 Cavite (C)	Ave	•				183.5	3 236.5	3 276.9		
	5 Noveleta	ī.i	2.6	4.7	×	ø	71	0.26	0.20	0.27		5 Noveleta	, ,	-							304.8	e se
	6 Roseno	3.1	9.3	A.K.	5	_	ŗ.	0.19	0,72	0.20		6 Rosario	\ \						-	72 35 1	-	1
	sub total	21.2	8.0 8.0	31.0	\$6	₽.	7.1	0.23	0.25	0.23		sub total	Ave	-	•	.	\$ 00.7	5 231 3	2.44.5		0 to 20 0	7 275.4

Source, Specifications of MWSS Deepwell Stations, as of 24 June 1996 (MWSS)

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Source, Metro Manila Groundwater Development Project, Nov. 1991 (JICA)

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Table G-86 EXISTING WELLS OPERATION BY BAGUIO CITY WD

No. Cord Name	ope.				Dec	1997 until	Opera November		arly avera	ce)				duity
	Q	Dec	Jan	Feb	Mar	Vr	May	Jun	Jul	Aug	Sco	Q.	Nov	are.
1 Апраю3	hr đay m3 đay	23.10 8.212	24,17 8,794	23.82 8.855	23.81 7,594	23,73 7,656	23.73 6.364	23.73 6,373	7,006	23.73 8,034	•	-		23. 7,64
2 Amparo 5	hr day m l day	-	-	5.64 210	19.90 1,311	12.89	17.89	12 89	12.89	12.89		• • • • • • • • • • • • • • • • • • • •	· · · · · · · · · · · · · · · · · · ·	(2)
J Camp 7	hr'day					1.500	1,289	1.290_	_1,335	1,440	· · · · · · · ·			1.22
4 Milo	m3/day hr day			19,43	21.68	20.57	2037	20.57	20.57	20.57				20:
5 Balsigan	m3'day hr'day	-	-· -	754	1,864	2,064	2.064	2,000	2,010	2,687		.:	· · · · · · · · · · · · · · · · · · ·	1,85
	m day_	<u>.</u>		20.00	:				-	:	:	-	:	20.0 2.01
6 MRR	hr'day m3'day	17.52 475	19.07 410	19.43 1,291	330	19.57 357	19.57 341	19.57	19.57 393	19.57 429			-	19. 49
7 Labsan	hr day m3 day	22 65	23.23	23.82	24.00	23,43	23.43	23.43	23,43	23,43	· ·		· - · · · · · · · · · · · · · ·	23.
8 City Camp	hr day	18.74	692 19.07	19.54	629 18.61	628	18.74	<u>557</u> 18.74	18.74	13.74			· :	65 18.
9 Lower Que zon Hat	m Malay hr day	472	427	20,00	346	4 16	416	451	466	607		*	:	4.3
10 Tacay	m3'day	<i>:</i>		229		<u> </u>	<u> </u>	<u>.</u>		- 	<u>-</u>		·	20. 22
	he'day m3'day		_ :	20.00 97		:	:	-	÷		-	:		30.
H Dominican	he'day m wday			20.00	-						-	<u>-</u>		20
12 Harrison	he'day	22.00	24.00	15.11	18.00	19.80	19.80	19.80	19.80	19.80	- :		:-	<u>14</u>
13 Market	m3'day hriđay	582 8.52	<u>672</u> 22.90	21.64	23.61	19.23	716 19.2)	1923	19.23	787 19.23	:	:	:	66 19
14 Hilliop	m.Vday hr'day	364 23.06	- 940 24.00	542	99.2	998	1,007	1,011	1,080	1,070	··			59 27
	m Votay	457	479	22.89 .387	22.03 300	23.00 327 21.82	23.00	23.00 327	23.00 435	23.00 545		-		22. 39
15 P. Burgos	br day m Vday	19.39 196	20.37 159	23.50 178	24.00	21.82 139	21.82 106	21.82 119	21.82 159	21.82 146			•	21.
16 Asin/Shangrila	hr day	23.61	24.00	23.82	24.00	23.86	23.85	23.86	23.86	23.85	÷			23.
(7 Skoting Rink	m3'day hr'day	167	156	- <u>.56</u> 20.00		16 03	16.03	16.03	176	261 16.03	···-			13
18 Kisad	m3 day hr day			<u>-25</u> 20.00	70 5,94	137	12.85	12.85	162	12.85	:.		-	13:
	m3 day			47	48	195	120	425	385	524		<u>.</u>	· <u>-</u>	12. 25
19 Ramsey	hr day m3 day		-	11.50 668	14.10 782	12.82 1,332	12.82 1,315	12.82 1,034	12.82 1,262	12.82	•	-	-	17.
20 Riverwell	hriday m.kiday					•				12710		· · · · · ·		2.52
21 Athletic Bowl	tir day	;		21.14	23.97	22.58	22.58	22.58	22.58	22.58			:	
22 Sio Rosario	m3'day hr'day	: -		482	- 467 -	468	531	417	442	293		:	_ <u> -</u> -	41
2) Filam	m3'day he'day	.						.	-		<u>.</u>			<u>.</u>
	m 3 day			·				-		:	-		-	
24 STRB Amilang	hriday m3'day	•	-	-		-	-		•				-	-
25 Stage I	hr/day m3/day			20.07	22.23					·				21.7
26 QM	hr'day	:		3,093 22.11	19.94		:		<u>:</u>		· <u></u>	:		2 <u>58</u> .
21 Camp 8	m J'day br'day	<u></u>		19.00	16.97	17.97	17.97	17.97	17.97	17.97	<u>:</u>		:	160 17.5
28 Cabinet Hill	m Mday br day		:	1.942	1,734	2,452	2.489	2,431	2,074	2,506		<u>.</u>	<u>:</u>	2,235
	m3'day	<u>-</u>	·	23.45 892	23.68 790	23.57 800	23.57 641	23.57 524 22.42	23.57	23.57 732	-	-	-	23.5 740
29 Happy Glein	hr'day m3√day	-	:	21.21	23.58 593	22.42 604	22.42 633	22 42 635	22.42 661	22.42 683				22. 62
30 MPW18	hr day m3/day						Yun-							
31 Bonifacio	hr day	:	~ -		<u>:</u>	<u>:</u>	<u>:</u>	· · · - -	 -	 .	:	:		
32 Ambione I	m3'day hr'day	22.61	23,17	23.04	23.58	23.10	23.10	23 (0	23.10	nio			-	23.0
	m.Vday	1,106_	893	1,177	1,309	1,332	1,223	1,141	1,236	1,313	<u> </u>			2,19.
33 Ambiong 2	hr'day m3/day	22.94 1,439	24.77 1.500	23.32 1.299	23,48 1,215	23.64 1,242	23.64 1,119	23,64 1,090	23.64	23.64 772		-	:	23. 1.19
34 Gibraltar	hr day m3 day	22.58 325	24.8Q 323	₹3.96 343	23,74 348	23.78	23.78 391	23,78	23.78 442	23.78	-	•		23.
35 Perstal	hc day	325 1471	13.37	19.82	17.87	- 352 17,45	17.45	- <u>436</u>	17.45	17,45	 -		- · · · - -	38.
36 Amsing	hr day	7.23	236	282	21.52	407 19.42	406 19.42	19.42	19.42	673 39,42	: -		:	42
37 Idisan	m Yday In day	17.42	18.23	121 10.39	8.52	130 13.64	200 13.64	153	137	-				113
	m3 day	748	811	521 20,43	441	1,242 20.04	1.227	13,64	13.64 1,223	13.64 1,267				13 c 97c
38 Evangelista	hriday <u>mFday</u>	11.06 74	24.50 185	20,43	23.90 101	20.04 101	20.04	1,276 20.04 176	· · · · · · · · · · · · · · · · · · ·					20.0
39 Wright Park	hr'day m3'day	0.71	0.50	0.75	2.26	1.06	1.06	1.06	1.06	1.06		:-		1.1
40 M. Roxas I	hr day	5	<u>-</u> 5-	23.25	21.7)	22.47	- <u>200</u> 22.47	27.47	22.47	22.47	 -		:	14/ 22.4
41 M. Rouas 2	m3'day hr'day			- 1.57 <u>0</u> 23.71	- 1,459 23.81	<u>1,613</u> - 23,26	1.623 23.76	-1.621 23.76	23.25	1,618 23.76			-	1.59
42 Buyog	m3/day			1.380	1,132	1,140	996	933	1,121	1,333				1,15
	hr day m3'day			21.14 697	13.32 776	19.71 1,017	19.71 743	19.71 744	19.71 813	19.71 737	-	•	-	19.9 790
43 Teachers Camp	hr day m3 day			21.57	23.77	22.69	22.69	22.69	22.69	22.59				22
44 (BL	hr day	:	:		13.94	7.33	7.33	7.33	776_	911	:			81 7.
45 Guisad	m3'day hr'day	····-	<u>:</u>	<u>6</u> 15.04	12.29	287 13.64	288	<u>290</u> 13.64	13.64	13.64				210
	m3:day	· <u> </u>		169	141	275	193	471	483	411	· :	- 	· 	13.0 30
46 Ferguson	hr'day m3'day	<u>:</u>	-	23.36 589	23.87 524	23.62 527	23.62 549	23,62 613	23.62 625	23.62 622	:		-	23.5 57.
47 Pinsao	he'day m 3'day			21.95	24.06 684	23.03	23.03	23.03	23.03	23.93		-	<u>-</u>	22.5
48 Easter	hr day	<u>:-</u>	- -	<u>633</u> 23.57	24.03	23.81	- <u>693</u> 23.81	705 23.81	715 23.81	23.81	· · · · · · · · -			23.
	m Vday District (199	<u> </u>	· .,	296	304	304	308	109	304	303		<u> </u>		30

Table G-87 WATER QUALITY OF EXISTING WELLS IN BAGUIO CITY WD

Column	Location	Sampling		돐	vsical A	Physical Analysis			ご	Chemical Analysis	4 naivai			E.	Major Cations	SHO			, And	200			Trace Each	
PACEDAN PACE	ŧ	date	T		rcu	Odnr	Sar	23		HL	Alka.	cid.	No	×	Z,	MK	total	ŝ	НСОЗ	Ü	Š	total	ķe	Ma
1994 1995		(m/d/y)						ттрс					μSm	1/3/11	1/Xm		Ilpom	<i>1/8m</i>	7/3 m	llym	1/3/11	וואכלון	1/2111	liga.
100 100	PNSDW	į g	•	5>			>005		6.5 2 8	300>	,		•	2002		,		•		2002	250>		^	V.5.9
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100,000,000 100,000,000	Comp 7	02/1/561	22				3			8	91				F:	v ,		0 1	च र	23			5 6	2 7
Company	Nilo.	1995/7/20	5				8			8	2				77	=		0	<u>¥.</u>	£.			- -	Ē
100,000,000	S Palsican														;	•		•	Ş	3			Ċ	7
1000,000 133 134 135	6 MRR	1995/3/20	7.				213			5	8				ક્:	×; ·		O (2 2	ŧ Ç			3 6	Č
100,000 100,	7 Labsan	05/1/5661	52				<u>8</u>			Ξ	6				4)	~. •		> <	5 3	i :			ć	ě
100,000	N City Camp	1995/3/20	173				<u>\$</u>			2	2				ê:	Ð		>	<u>.</u>	<u>.</u>			}	
1990,000 1990,000	9 LOWER QUEZON																							
13	10 Taray																							
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1995/07/21 273 155	10 Parental	1005/001	25				8			65	136				9.	<u>~</u> .		٥	<u>¥</u>	Fi.			ō;	ē :
1999/10/21 27 27 27 27 27 27 27	20 Simples	1006/3/21	: 63				<u> </u>			8	7,				73	æ		0	8	٠ :			- -	Ē
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1 1995/N20 26 122 99 84 N3 4 9 9 12 99 13 13 99 14 13 99 14 13 99 14 13 99 14 13 99 14 13 13 13 13 13 13 13	31 Bootlann																							
1995/3720 27 22 22 23 24 25 25 25 25 25 25 25	17 Ambione 1	1005/3/20	52				<u> </u>			8	\$				Σ.	4		0	8	15			- - -	3
1995/AV20	33 Ambiong 2	1995/3/20	R				Ë			:	4				ይ ;	m :		IJ c	×.	= 3			3 6	2 7
1995/701 27 1995/702 28 29 29 29 29 29 29 2	34 Gibraltar	05/2/3/661	23				75.			25	6.5				3 -	<u> </u>		> <	÷ 2	- 1			3 2	! Z
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state 1995/AVED 27 18 36 84 67 17 38 26 15 60 1 ack 1995/AVED 25 167 137 46 2 0 167 174 0.1 Comp 1995/AVED 25 167 173 46 2 0 167 174 0.1 Comp 1995/AVED 25 11 40 4 0 123 11 0.1 Comp 1995/AVED 25 10 40 4 0 123 11 0.1 Comp 1995/AVED 25 10 40 4 0 123 11 0.1 0.1 Comp 1995/AVED 25 10 40 4 0 123 11 0.1 11 Comp 1905/AVED 25 10 17 17 17 17 17 17 17 17 17 17	36 Amsing	1995/3/20	ec s F4 6				j :			3 3					? ??			0	8	•			0.0	ž
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Camp 1995/320 24 0 0 17 11 0.1 Camp 1995/320 25 15 10 0 17 11 0.1 Camp 1995/320 25 15 12 0 17 11 0 1 11 0 1 12 12 0 1 11 0 1 11 11 11 11 11 11 11 11 11 1	AS WINGELFARK	005/2/20	\$				223	-		167	137				71	ă		0	167	7.			7.0	0
Camp 1995/170 23 13 13 0.1 no 1995/170 23 13 0.1 no 144 105 49 5 0.1 no 158 23 0.1 no 1995/170 23 208 167 137 208 167 137 0.1 no 167 13	41 M. Roxas 2	02.4.756	24				8			129	36 36				\$	< a		0	8	Ξ			ö	oi O
Camp 1995/3/20 23 156 114 111 40 4 4 5 6 174 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	42 Buyog														4	•		<	Š	-			<	•
1995/A720 28 129 94 95 15 17 95 17 95 17 95 17 95 17 95 95 95 95 95 95 95 9	43 Teachers Camp	02/2/3/00	ž;				8:			<u>+</u> :	Ξ;				₹ -	4 6		> <	្ន	: 3			; ē	7
1995/370 23 141 84 105 49 5 0 128 21 0.1 1995/370 27 208 167 137 42 105 42 11 0 167 13	44 CBL	02/1/20	28				2:			53	2 8				, ,	^ =		•	} <u>*</u>	2 5			ō	2
1995/3/20 27 42 11 0 167 15 1995/3/20 25 167 17	45 Cuited	965/3/10	52				<u>.</u>			ġ.	<u>د</u> ج				: 4	: *		· c	2	! 7			6	ě
25 CONVOCAL TO THE TOTAL TO THE	46 Ferguson	00%/366	F (5 8			1	3 5				7	· =		C	19	Y.				
	47 Pintao	05.7.76	্ব				90.7			à	-				ż	•		,						

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Table G-88 EXISTING WELLS PERFORMANCE IN ANGELES CITY WD

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	Total November	2	M.	Well Structure	Concor		Water Maile	- 1	e core	7-upper/or	Pural-lowe	() Bun	Dumn	2005	2025 (Cesion year)	2025 (design year) Remarks
No.	completion year	Dia.	Den.	trom	10	length	Stafic	1.	> .	T Sp.Cup.	Sp.Can.		70	0.	,	7.0
-	Mabini	300	122.0)Squ	180111	1	6.10	13.70	45.00	Roberta	3.28	24.00	3.888	2.9	30.0	2,365
61	San Nicolas	150	93.0				15.00	,	38.98			1	ļ ,	28.5	20.0	2,049 Stand-by
	Rizal 1972								38.98		,			28.5	20.0	2,049 Stand-by
4	Kuliat 1972							,	38.98		,	,		28.5	20.0	2,049 Stand-by
8	Sta. Teresita	250	110.0				8.38	,	38.98					28.5	20.0	2,049 Stand-by
	Magalang av. 1972	500	122.0				5.03	17.29	34.00		16.1	24.00	2.938	24.8	20.0	1.787
	Pampang Road	200	81.0				7.08	10.33	29.73		2.88	9.4	1,498	21.7	20.0	1,562
, ,	Belen Homesite	250	183.0				6.10	12.20	75.68		6.20	15.00	4.087	55.2	20.0	3,978
6	Mac Arthur	250	0.16				7.33		38.98					28.5	20.0	2.049 Stand-by
0	Lourdes NW 1972	200	137.0				5.84		38.98					28.5	20.0	2,049 Stand-by
=	Old Pampang	400	137.0				9.14	36.56	25.23		0.69	24.00	2,180	18.4	20.0	1.326
22	Barong Bayan	300	86.0	51.8	86.0	34.2	6.80	24.90	27.76		[E:	21.00	2,099	20.3	20.0	1,459
~	13 Town & Country	200	200.0	104.2	188.0	59.0	15.00	18.50	35.48		1.92	16.00	2,043	25.9	20.0	398';
14	Central #1 1006	300	100.0				00.9	17.00	40.00		2.35	24.00	3,456	29.2	20.0	2,102
15	Central #2	200	200.0				14.00	21.00	20.00		0.95	24.00	1.728	14.6	20.0	1,051
9	16 Central #3	300	0.00	34.0	76.0	42.0	\$.00	17.00	20.00		2.94	24.00	4.320	36.5	20.0	2,628
1	17 Central #4	200	200.0				5.00	15.50	25.00		1.61	24.00	2,160	18.3	20.0	1,314
×	18 Central #5	300	0.001	41.0	83.0	42.0	90.9		35.30		·	,		25.8	20.0	1.855 Stand-by
6	19 Central #6	250	200.0	:28.0	194.0	54.0	16.00	24.00	18.00		0.75	24.00	1,555	13.1	20.0	976
0	20 Central #7 1996	300	100.0				2.00	18.00	16.00		0.89	24.00	1,382	11.7	20.0	841
	Total								51,196			21.69	33,334			37,373 each unit

Table G-89 EXISTING WELLS PERFORMANCE OF CAGAYAN DE ORO CITY WD

Name Casing Streen Str	Water Level " water Level 24.7 2.00 15.2 10.25 57.0 18.3 3.35 9.1 0.82 9.1 0.82 73.0 2.09 60.0 84.0	20.00 20.00 5.53 7.93 10.60 14.50	4 Hydraules 4 Security 4 Security 117.7 2,782 5,874 103.2 2,483 18.66 180.0	385.2 6.41 389.4 387 389.4 387 4.863 389.4 389.4 380.0	Kun 1 15.0 15.0 15.0 15.5	Pump 70 70 70 70 70 8,058 8,058 7,379 7,379 6,048 6,048	2025.6 47.3 109.5 109.5 82.2 82.2 82.2 87.1 90	2025 (design year) 70 hr/l 20.0 6,188 Teles 3 20.0 5,424 5 20.0 7,884	Kemasts 70 camid 6,188 Telescope type 5,424
Completion year Dig., Dig.			3.2 2.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	19.0 14.2 14.2 14.9 15.5 15.8 15.8 15.8	70 runtid 8,008 5,292 7,379 6,048 6,048 90	8 8 2 6	20.0 20.0 20.0 20.0 20.0	nid 6,188 Telescope type 5,424
PW#1 400 121.9 230.5 255.2 PW#2 250 198.1 230.5 255.2 PW#2 400 211.0 211.0 226.2 PW#3A 450 85.0 111.0 198.0 PW#4 450 85.0 111.0 198.0 PW#4 1991 30 204.0 192.6 210.9 PW#4 1975 250 210.9 96.5 66.5 10.0 PW#5 1976 250 75.6 191.0 198.0 PW#7 198.4 200 66.0 74.0 191.0 PW#7 198.4 200 250.0 191.0 PW#1 198.6 300 255.0 250.0 PW#11 198.6 300 230.0 68.0 68.0 68.0 PW#12 400 55.8 55.8 148.9 PW#12 400 55.8 55.0 144.6 PW#12 400 <td< th=""><th>2 0 0 0 0 0 0 0 0</th><th></th><th>3.1 (2.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0</th><th>2 2 2 1 1 4 4 4 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1</th><th>19.0 14.8 14.9 15.5 15.0 15.8 15.8</th><th>\$.058 \$.292 7.379 \$.048 2.845</th><th>85.9 75.3 82.2 87.1 97.1</th><th>0.0</th><th>6,188 Telescope type 5,424</th></td<>	2 0 0 0 0 0 0 0 0		3.1 (2.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	2 2 2 1 1 4 4 4 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1	19.0 14.8 14.9 15.5 15.0 15.8 15.8	\$.058 \$.292 7.379 \$.048 2.845	85.9 75.3 82.2 87.1 97.1	0.0	6,188 Telescope type 5,424
PW#2 400 211.0 211.0 PW#3A 1976 250 226.2 111.0 PW#4 1991 300 204.0 111.0 PW#4 1975 250 210.9 192.6 PW#5 1976 250 210.9 192.6 PW#6 1976 250 200.9 74.0 PW#7 108.4 200 66.0 74.0 PW#10 1986 300 255.0 68.0 PW#11 1986 250 123.0 68.0 PW#12 1986 250 123.0 68.0 PW#11 1986 250 123.0 67.0 PW#12 400 55.8 55.8 PW#14 1990 250 153.0 PW#15 1990 250 53.0 PW#15 1997 250 150.0 PW#15 1997 250 150.4 250 104.1 250 104.1		16.75			14.2 14.8 15.5 15.0 15.0 15.0 15.0 15.0	5,292 7,379 6,048 2,845	75.3 109.5 82.2 37.1 0.0		5,424
PW#3A 450 89.0 11.10 1 PW#45 1991 300 204.0 192.6 2 PW#5 1975 250 103.9 66.5 66.5 PW#5 1976 250 75.6 74.0 1 PW#7 450 200.0 74.0 1 PW#7 450 200.0 73.0 2 PW#8 400 235.0 68.0 2 PW#10 400 235.0 68.0 1 PW#11 1986 300 235.0 1 PW#12 1986 250 133.0 68.0 1 PW#12 1986 250 133.0 67.0 1 PW#14 1997 250 151.9 67.0 1 PW#15 1997 250 150.0 1 1 PW#15 1997 250 150.0 1 1 PW#15 1997 250 150.0		16.75 7.93 10.66 14.50			14.8 15.5 19.0 19.0 19.8 19.8 19.8	6.048	82.2 82.2 37.1 0.0		
PW#44 1975 400 192.6 192.6 2 PW#5 250 210.9 66.5 66.5 PW#6 1976 250 75.6 66.0 74.0 PW#7 450 66.0 74.0 2 PW#8 400 73.0 75.0 2 PW#10 1986 300 255.0 2 2 PW#10 1986 300 238.0 55.3 1 PW#11 1986 300 238.0 13 6 1 PW#12 1986 300 55.8 55.8 1 1 PW#12 1986 300 55.8 55.8 1 PW#12 1990 55.0 55.0 1 PW#14 1997 250 150.0 1 PW#15 1997 250 150.0 1 PW#15 1994 250 104.1 50.0 6		10.55			14.9 15.5 8.0 19.0 13.8	2.845	37.1	l	7,884
PW#5 300 66.3 66.5 PW#6 250 75.6 66.0 PW#7 450 66.0 74.0 1 PW#7 1984 200 200.0 74.0 1 PW#8 1986 300 273.0 75.0 2 PW#10 400 278.0 68.0 2 PW#11 1986 300 278.0 1 PW#11 1986 250 41.0 48.0 1 PW#12 400 55.8 55.8 1 PW#12 400 56.0 67.0 1 PW#14 1997 250 150.0 1 PW#15 1997 250 150.0 1 PW#15 1994 250 160.1 60.0 60.0		10.66			19.0	2.845	0.0		5,917
PW#6		10.8%			19.0	8	0.0	20.0	2,671
PW#7 450 66.0 74.0 PW#8 200 200.0 74.0 PW#8 300 255.0 75.0 PW#9 400 68.0 68.0 PW#10 400 41.0 48.0 PW#11 1986 300 236.0 48.0 PW#12 400 55.8 55.8 55.8 PW#12 400 50.0 67.0 67.0 PW#14 400 58.7 62.0 62.0 PW#15 400 58.7 62.0 62.0 PW#15 400 53.7 59.0		13.85			19.0		67.2	20.0	planywoi -
PW#8 400 73.0 75.0 PW#9 300 255.0 75.0 PW#10 400 45.0 68.0 68.0 PW#10 400 41.0 48.0 48.0 PW#11 1986 250 153.0 55.8 55.8 PW#12 400 55.8 55.8 55.8 PW#12 400 50.0 67.0 PW#14 400 58.7 62.0 PW#15 400 58.7 62.0 PW#15 400 53.7 59.0 PW#15 400 52.7 59.0		14.50			13.8	6.305	;	20.0	4,836
PW#9 400 68.0 68.0 PW#10 300 23.60 68.0 PW#10 400 41.0 48.0 PW#11 400 123.0 48.0 PW#12 400 55.8 55.8 PW#12 400 36.0 67.0 PW#14 400 36.0 67.0 PW#15 400 38.7 62.0 PW#15 400 52.7 59.0 PW#15 400 52.7 59.0		14.50			12.4	7,473	5.601	20.0	7,884
PW#10 400 41.0 48.0 PW#11 400 123.0 48.0 PW#11 400 55.8 55.8 PW#12 400 50.0 67.0 PW#14 400 58.7 62.0 PW#15 400 58.7 62.0 PW#15 400 58.7 62.0 PW#15 400 52.7 59.0		14.50				7,341	120.5	20.0	8.672
PW#11 400 \$5.8 \$5.8 PW#12 400 \$5.8 \$5.8 PW#14 400 \$5.0 \$7.0 PW#14 400 \$2.0 \$7.0 \$7.0 PW#15 400 \$8.7 \$6.0 PW#15 400 \$2.7 \$9.0 PW#15 400 \$2.7 \$9.0		13.85			17.2	4:170	49.3	20.0	3.548
PW#12 400 50.0 67.0 PW#14 1990 250 139.0 PW#14 400 58.7 62.0 PW#15 1997 250 150.4 PW#15 400 52.7 59.0					21.3	9.607	516	20.0	6,570
PW#14 400 58.7 62.0 PW#15 250 150.4 59.0 PW#15 400 52.7 59.0 1994 250 104.1	43.0 6.90	23.10	75.7 40	406 3.28	6.6	2,705	55.3	20.0	3,979
PW#15 400 52.7 59.0	54,4 9,80	 3	94.6 81	817 8.25	6'81	6.435	1.69	20.0	4,972
	30.3 12.13	23.20	75.0 27	270 3.23	18.6	5,025	54.8	20.0	3,947
\$661	60.4 10.86	12.67	85.5 61	614 6.75	16,4	5.063	52.4	20.0	4,494
	8.82		50.5 2,279	6/			36.8	20.0	2,653 under construction by OECF fund
PW#18	28.43	21,42	50.8 502	2.37		4	37.1	20.0	2,670 under construction by OECF fund
	61.9	4.44	0.18	13.74			2.4.		3,206 under construction by OBCF fund
DM#50	6.80	15.3	64.0 5.059	9 11.57	,		46.7	20.0	3,364 under construction by OECF fund
20 Malayar SP			4.6		24.0	395	4.6	24.0	395 no seasonal
Total			909.1			84,829		58	89,268 each unit

Table G-90 EXISTING WELLS OPERATION BY ZAMBOANGA CITY WD

Well Location							(Operation	1					
No. Cord Name	ope.				May	1996 w	ntil April	1997 (n.	ontly av	erage)				daily
	Q	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	are.
Putik DW	hr'd.g	•	-	•	-	•	•			-	-	-		
	mA-d.	585	1,146	771	1,160	•	1,242	1,239	1,288	1,459	1,466	1,501	1,535	1,215
2 Ramos DW	hr/day		-	•	-	-		•	•			•		•
	al de				-	-	•	-				754	366	761
3 Carrins DW	ter dus	•	-		-	-	•	•	•	-	-	•		•
	m ⁿ s.				-	-		-		643	1,166	528	1,087	1,154
4 Baliwasan DW	lu/day		-	-	•	-	•	•	•	-		-		
	m) di					_	-				-		390	1,171
5 Guiwan DW	hrduj			•	•		•	-	•		•	•	-	
•	ಗಡೆಸು	-	-		•		829	565	115	695	1,232	1,305	1,363	1,360
6 Matasiga DW	far day	•		-				•			•		-	
·	m? de		-	•	-	-	-	•		-	•	-	•	•
7 Ayals DW	hr'd±ş	-	-	•	•				•	•	-			•
	m3-3t	-	-	_	_			-	-		-		-	

Table G-91 EXISTING WELL PERFORMANCE OF ZAMBOANGA CITY WD

Well Location		W	'ell Strocti	are		O	peration	(1997)	We	II Capac	ities
	Ca.	sing		Screen		Water Lev					year)
Cord Name	Dia. mm	Dep. m	from mbgl		length m	static mbgl	t hr.td	TQ cum'd	Q lps	7	TQ cum/d
I Putik DW					·-··			1,215			887
2 Ramos DW								764			557
3 Camins DW		80.5	65.6	76.9	0 11.0	. ~~		1,154			842
4 Baliwasan DW		· · · · · · · · · · · · · · · · · · ·						1,171			854
5 Guiwan DW		70.0	28.0	67.	0 12.0)		1,360			993
6 Malasiga DW								1,416			1,03
7 Ayala DW								1,416			1,034
								8,494			6,201
								3.1			2.3

Table G-92 WATER QUALITY OF EXISTING WELLS IN ZAMBOANGA CITY WD

	Location	Sampling		Ph	sical	Analy	rsis			(h	mical.	Analy	y sis			Maj	or Ca	tions	 	Ma	jor A:	ions		τ	race E	le.	
No.	Cord Name	đạte m/d/y			TCU -	Odor -	TDS mg1		-		1H ngt							-					total Linequ			Ma mg T	
	ne National Su king Water	indard -1994		5>	5 >	unobj	500>	÷	6.5 se 8.5		300>		•	-	-	200>	-		-	-	2:00>	250:		i>		05>	
J Pu	tik, Zamb. City	Feb.95	_	0.5				370		2.0		110		200		430		28	 		350	, ,	5		0.0		0.2
2 Ra	mos DW ov. Rankos, Zan	Feb.95	~	0.9				170		8.0		90		170		190	:	5-5	 		200	1	1		0.0		0.4
	mins DW	Feb.95 mbo. Cky		1.0				250		8.0		180		180		290	(60	 		250	1	4		0.1		0.3
	ifiwasan DW iliwasan, Zamb	Feb.95 io. City		0.7				290		7.9		150		260		290		36			250) ,	5		0.0		0.4
	uiwan DW Idena de Amor	Feb.55 Zanibo, City		4.7				270		9.0		110		270		320		20	 		•	2	₹		0.0		0.0
М.	alasiga DW alasiga, Zambo	ı. City																									
-	jala DW yala, Zambo, C	ity																									

Data Source : Zamboanga City Water District

Table G-93 EXISTING WELL PERFORMANCE OF BACOLOD CITY WD

Well Location		1 - 111				940	Operation (1997-upper/original-lower)	/original-lo	WCT)			W.C.I.	Well Capacities	
		į	Well Structure		,	Water I avail	Hydr	aulies	Run	Pump	2025 (2025 (design year	2	Remarks
Cord Name	Casing Dia.		from	lo 10	length	static sw	T	T Sp.Cap.	- !	2	Ø.	- 1	27	
	шш		mbel	mhal	ш	mbel m	pimbs sall	msc.	23.00	Cumia	3	0.00	842 36	8.42 Telescope type
Mabini No.1	003	9.40	57.9	109.7	18.3		5.83	,	W.C.7	110.1				
2 Paglaum No.2	1	7.71	,	Ĭ.			20.28		24.00	1.752	14.80	20.0	900	
1 Loveov No.4	007	0.09	65.5	0.96	15.2		23.06		24.00	1.992	16.83	20.c	1,212	
4 1 overy No.5	200 200 200 200 200 200 200 200 200 200	1810	67.1	107.9	34.9		8.89		24.00	768	6.49	20.0	467	
	250 400	73.2	79.6	143.9	19.1		16.67		24.00	1,440	12.17	20.0	876	
Loveov No.7	250 400	147.2	100.1	176.2	61.1		13.89		24.00	1.200	10,14	20.0	730	
7 Loveov No.9	250 600 600	76.2	9.89	96.0	20.7		14,44		23.00	1.1%	10.54	20.0	759	
8 Loveov No. 10	250 400	76.2	9:001	175.3	61.1		20.56		23.00	1.702	15.01	20.0	080':	
	250 500 500 500	178.4	128.6	166.4	23.3		22.22		23.00	1.840	16.22	20.0	1,168	
	250	76.2	57.9	179.8	60.2		25.56		23.00	2.116	18.66	20.0	1.343	
i	250	182.9					11.11		23.00	920	8.11	20.0	584 181	584 sand pumping
1980							35.83		24,00	3.096	26.16	20.0	1.883	
- 1	002	0.06	49.5	193.0	93.7		26.67		24.00	2.304	19,47	20.0	1.402	
	 	200.9	0'09	192.0	73.6		33.61		24.00	2,904	24.54	20.0	1.767	
- }	300	198.0 96.5	61.1	180.0	68.5		28.89	!	24.00	2.496	21.09	20.0	1.518	
	80 gg	180.0	47.0	178.0	\$1.2		18.06		24.00	1.560	13.18	20.0	949	
	88	181.0	48.0	163.0	57.0		41.94		24.00	3.624	30.62	20.0	2,205	
18 Capital Subd No 21	88	0.00 0.00 0.00]			31.39		24.00	2,7,2	22.91	20.0	1.650	
1	300	152.0		,			23.61		24.00	2,040	17.24	20.0	1,241	
- 1	200	160.0					55.56		24.00	4.800	40.56	20.0	2.920	
- 1							23.61		24.00	2,040	17.24	20.0	1,241	
							511.67		23.71	43.813	373.52	20.0	26.893 0	each unit
lotal							16.14			14.99	11.78			M: Micear

Source; Bacolod City Water District

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1 EXISTING WELL OPERATION BY METRO II OH O WD
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Well Location										Operation	tion									
No. Cord Name	upe.	966/												1661						dans
		Jan	Feb	Mer	Apr	May	- 1	Jul	Aug	Sep	00	Nov	Dec	Jan	Fob	Mar	Apr	Mav	Jun	W.
1-84-1	hr/day	20.58	22,00	20,87	20.22	19,74	20.47	19.78	20.96	21.20	21.69	16.02	21.39	20.48	18.50	21.59	21.74	21.35	18.26	20.7
	m3/day	2,012	2,160	1.969	1,895	1,847	1.988	1.931	2,012	2,035	2,072	2,151	2.091	2,008	1,724	1,8%2	1.750	1.902	1.513	1.94
2 PS-2	hr/day	•	14.99	21.33	8,84	20.91	21.60	21.09	21,60	21.75	16.91	68.81	20,15	21.64	2:.81	21.90	22.01	21.63	2:.65	19.5
- 1	m3/day	,	<u>ē</u>	1,211	1,105	1,350	1,529	1.527	.608	1.463	1.22.1	1,284	1.450	1.412	336	1.297	1,538	1.519	1.645	.30
3 PS-3A	hr/day	22.57	23.57	21.98	21.85	21.47	22.23	21.83	22.35	22.86	20.74	20.38	21.00	20.94	21.03	20.96	20,90	21.02	51.8	21.6
- Commercial Commercia	m3/day	2,353	2,304	1,999	2,011	1,968	2.028	1.970	2,009	2,093	1.587	1,639	1.626	1.865	1,834	1,781	1.712	1.629	1,730	1.897
4 PS-7	vcb/td	13.07	14.89	12.39	12,79	15.01	16.81	16.95	13,23	9.54	16.91	10.77	5.15	18.99	16.37	19.71	20.76	20.22	20.83	14.9
	m3/day	755	778	753	652	38	21.5	842	669	547	\$65	430	204	286	955	1,114	8	805	967	78
s PS-8	hr/day	22.59	23,38	22.66	22,23	22.57	22.84	22,82	22,12	22.42	22.56	21.78	21,71	21.57	21.76	22.37	22.49	21.23	18,41	22.1
	m3/day	2.147	2,173	2:032	1.907	1.865	1.871	1.837	.725	1.762	1.766	1,715	1,707	1,783	606.	1.933	1.911	1.782	1.582	1.856
6-84-9	hr/day -	21.95	22.19	21.53	22,03	21.61	22.56	21.82	21.92	22.72	23.17	17.40 0	20,97	19.46	18.12	22.76	23.47	18.70	21.35	21.6
	m3/day	2,229	2,2,7	2.121	2.107	2.072	2,005	1.971	1,854	1.762	1,469	1.210	941	Ş	1.200	1,145	1.157	1.529	1.848	25.
7 25-10	hr/day	22.50	21.75	22.83	22.60	22.07	23.37	15.82	22.55	22.49	22.95	21.90	22.07	21.81	22.76	22.59	23,40	21.47	22.58	22.
	m3/day	1.835	1,628	1.605	1,564	1,499	1.550	021	1,956	1.969	2.176	2,261	2,235	2,230	2,176	2,320	2,420	2,206	2.355	 \$ \$
Total		17.61	20.39	20.51	20.08	20.48	21,41	20.02	20.68	20.42	20.28	19.57	18.92	20,70	20.05	21.70	22.11	20.80	20.59	20.4
		11,331	12,270	069'11	11.240	11.306	11.643	10,209	11,862	11.630	10.886	10,690	10.255	10.288	11,154	11,472	1.299	17.11	1,641	11,235
			Tab	le G-9	Table G-95 WAT		UALL	ry OF	EXIS	ER QUALITY OF EXISTING WELLS IN METRO ILOILO WD	WELL	SIN	ÆTR	0110	LOW	Q				
Location	Sampling		SAU	Physical Analysis	SISA		2	hemical /	Analysis			Major Cations	thons			a jor	Amions		Trace File.	F.lc.
No. Cord Name	date	T	NTU	TCU	Odor	sa.t		TH	Alku.	Acid.	Na	×	73	ŀ	300	HCO3	ũ	S04	1.6	Mn
	(m/d/y)	Ç	,	•	•	<i> \Su</i>]/Siu	1/3111	ng/l	1/821	mg/l	1/311	1/311	1/311	11811	[/Xw	1/8ш	1/814	1/Xm
			,	,		Ş	6.5				•	9						(-	,
PNSDW	6001	•	<u>۸</u>	٨	mobj.	>00>	9 °	5005 <	•			200>			,		^007	\$	^	0.5>
	+44-						S C										ŀ			
- PS-1					ī		7.6	56	410	9						Š	77			
2 ps.2					lia		7.6	759	368	84						677	\$1			
3 PS-3A					Cia		7.6	78	446	0%						544	155		la la	
4 PS-7					lin		7.6	20	380	58						282	0.		la	İ
S PS-S					Te de		7.6	%	416	8						808	61			
6 PS-9					ē		97	76	446	52						\$42	36		Ē	
7 PS-10					lia		9.4	\$2	434	04						529	23		Ta .	
Source: Metro Horlo Water District	lo Water Di	sfriet																		İ
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Part – G
Figures

Sectoral Present Condition lection (Central Government Level) Home Work Stage Fieldwork Fieldwork Fieldwork Home Work Stage Sectoral Present Condition lection (Central Government Level) lection (Central Government Level) sistent of Collected Data/Information s Results Results Results Results Stage Study on GW Availability GWRDPs stion GWRDPs stion GWRDPs strong Water Supply Systems T Domestic Water Supply Syst	1997	
Work Work	April May June July August Schemen Uctober November Lecember June	January regulary
Work		
Description of Tasks 1. Basic Investigation for the Sectoral Present Condition a. Data/Information Collection (Central Covernment Level) b. Data/Information Collection (Local Districts Level) c. Review/Analysis Result c. Review/Analysis Results e. Field Recommissance & Request Questionnation d. Extraction of Analysis Request Questionnation d. Extraction of Analysis Request Questionnation e. Field Recommissance & Request Questionnatic 2. Study on the Nation Sectoral GWRDPs a. Groundwater Consumption/Shortage Forecasting b. Balancing & Recycling Study on GW Availability c. Set Up of the Nation GWRDPs for Water Supply Systems a. Selection of the Nation GWRDPs 3. Study on the Urgent GWRDPs 6. Supplemental Data Collection from the Major WDs c. Set Up of the Urgent GWRDPs d. Finalization of the Urgent GWRDPs d. Finalization of the Urgent GWRDPs d. Finalization of Reports on the Interim Study Results a. Progress Report (IT/R) b. Interim Report (IP/R-1) c. Progress Report (IP/R-1) d. Dath Final Report (IP/R-1) d. Dath Final Report (IP/R-1) d. Dath Final Report (IP/R-1) d. Dath Final Report (IP/R-1) S. Steering Committee Moetting with the Concerned Agencies a. Progress Report-1 (P/R-1)		2nd Stage
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5. Steering Committee Meeting with the Concerned Agencies a. Progress Report-1 (P/R-1)		
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b. Intenim Report (IT/R)		
c. Progress Report-2 (P/R-2)		

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Figure G-01 WORK SCHEDULE FOR THE GWRDPs

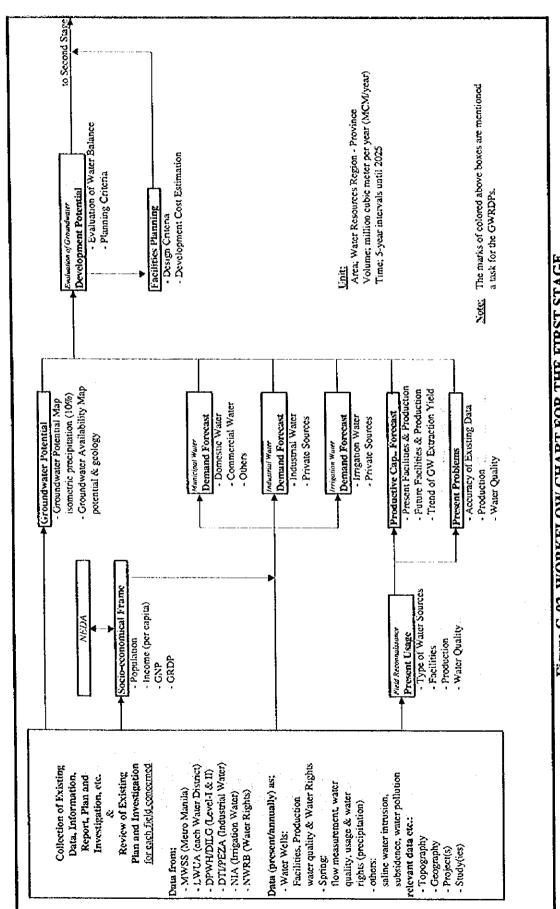
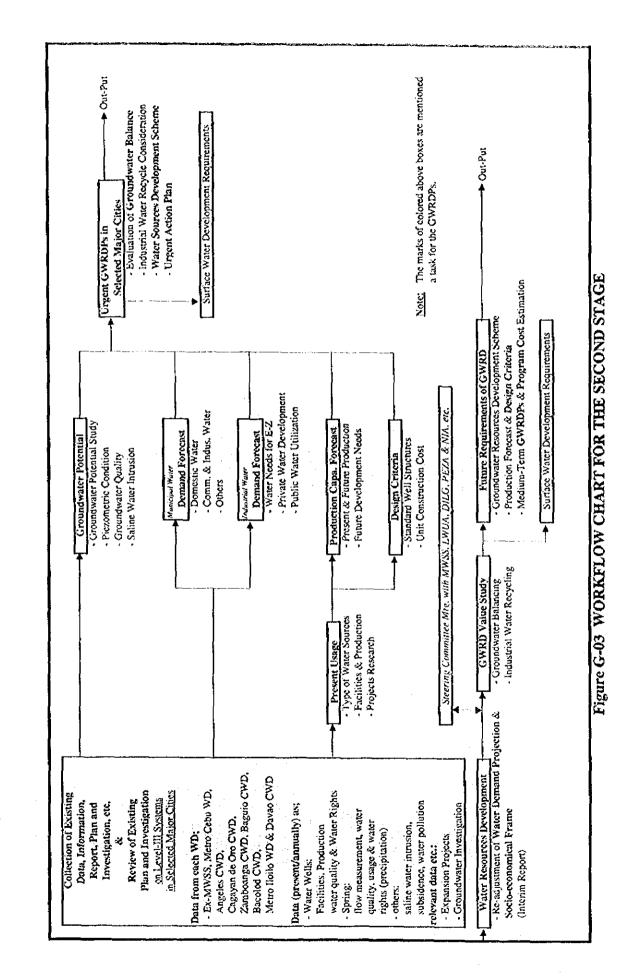


Figure G-02 WORKFLOW CHART FOR THE FIRST STAGE



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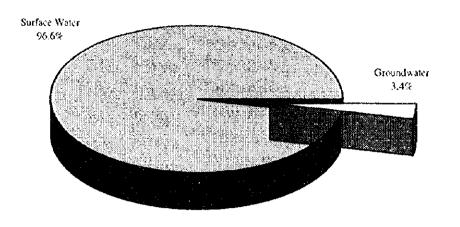


Figure G-04 AMOUNT RATIO OF SOURCE WRs (NWRB)

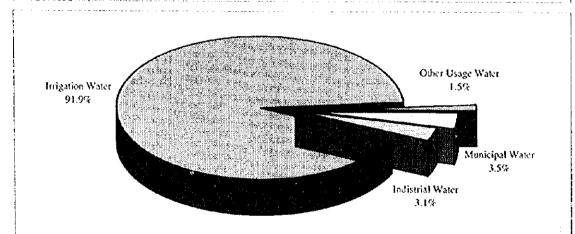


Figure G-05 AMOUNT RATIO OF USAGE WRs (NWRB)

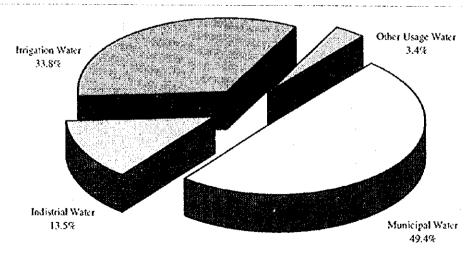
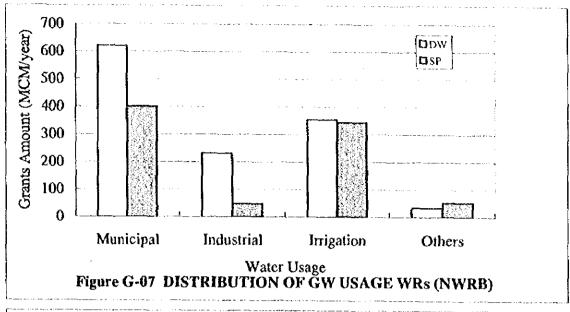
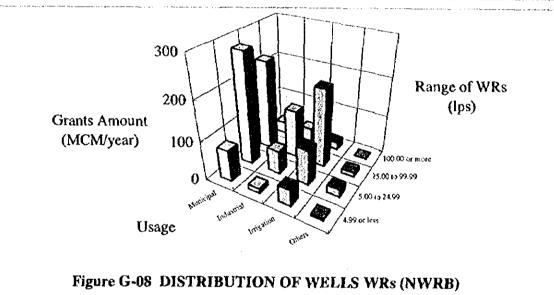
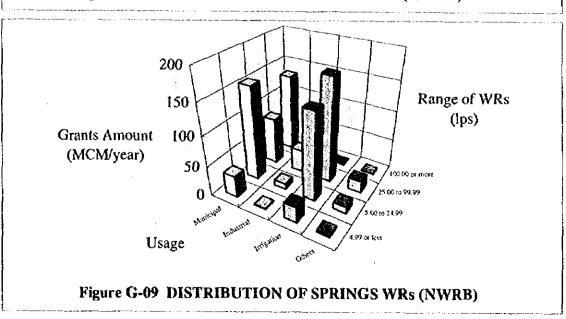


Figure G-06 AMOUNT RATIO OF GW USAGE WRs (NWRB)









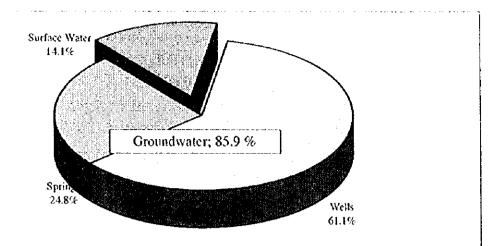


Figure G-10 AMOUNT RATIO OF MUNICIPAL WATER WRS

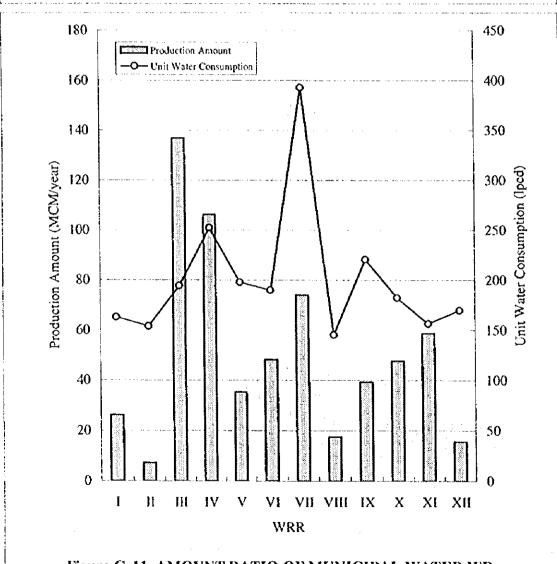
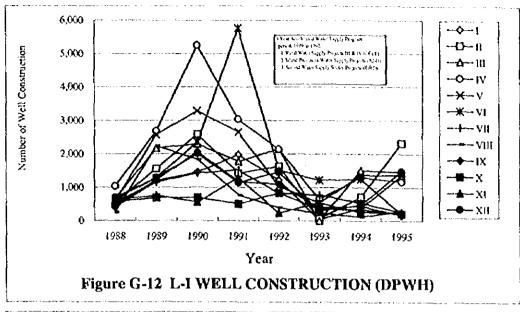
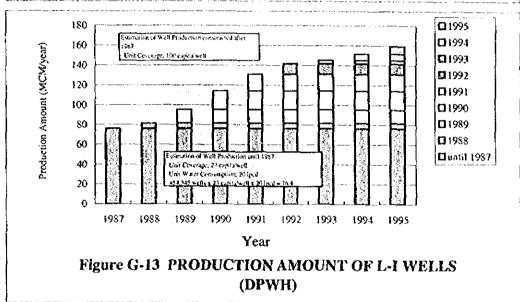
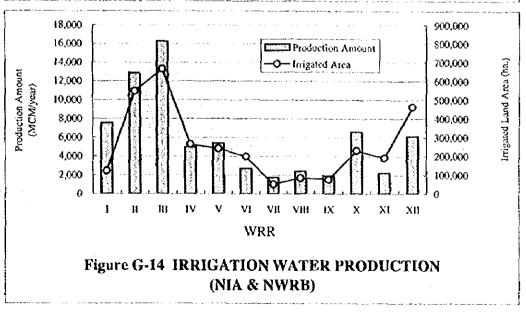


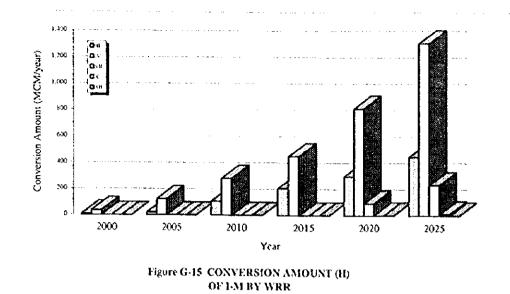
Figure G-11 AMOUNT RATIO OF MUNICIPAL WATER WRS (LWUA)

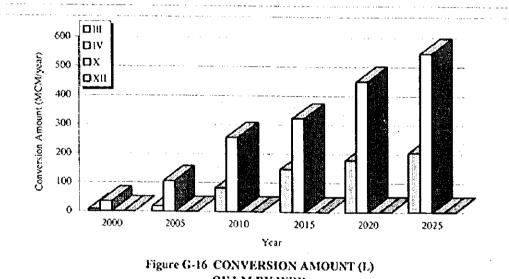


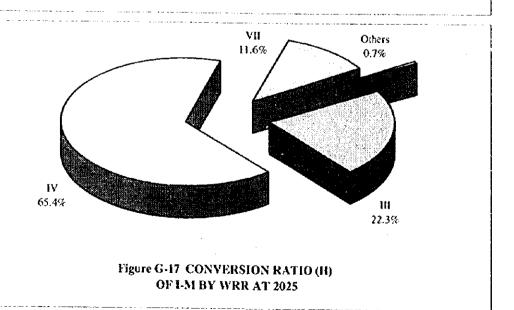
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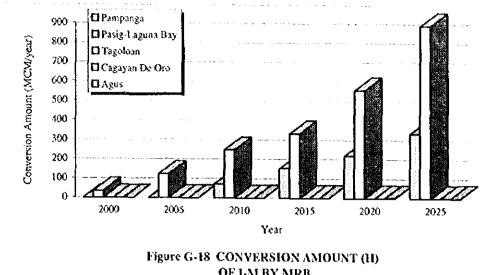






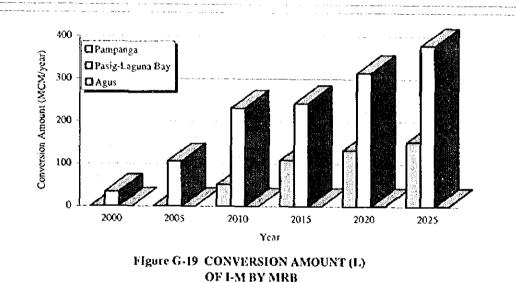


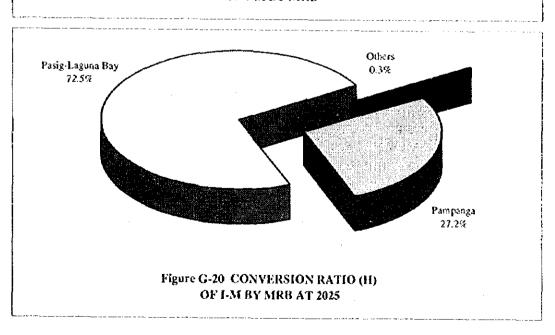


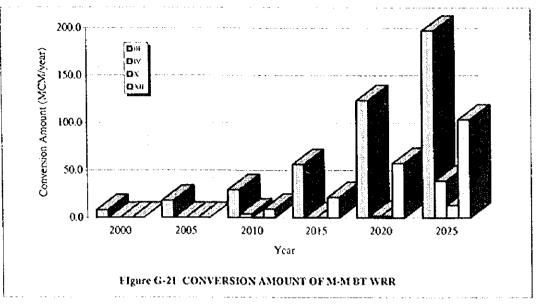


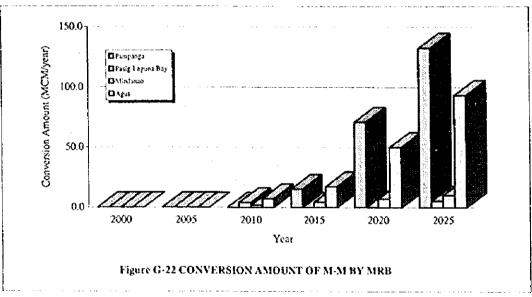
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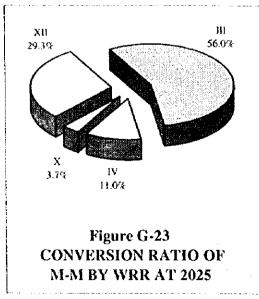
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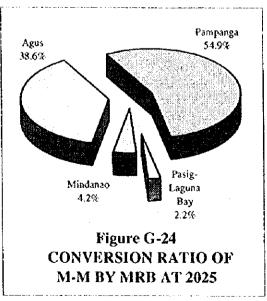


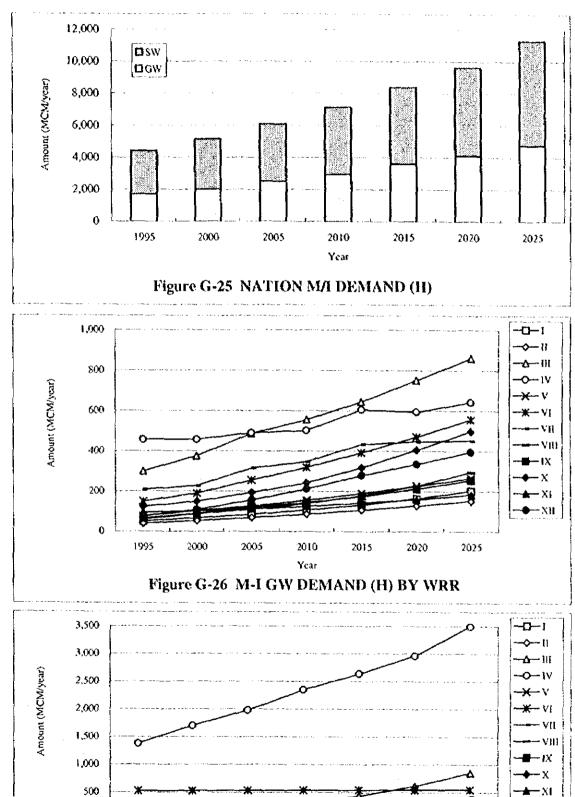


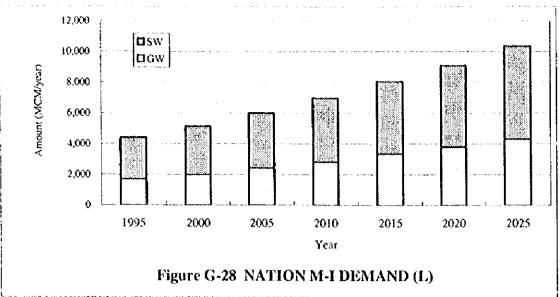


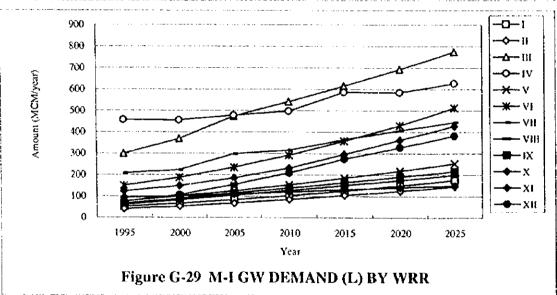


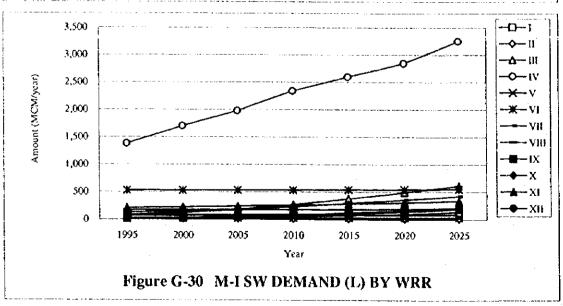


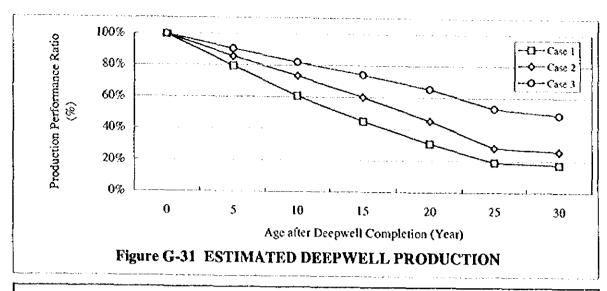


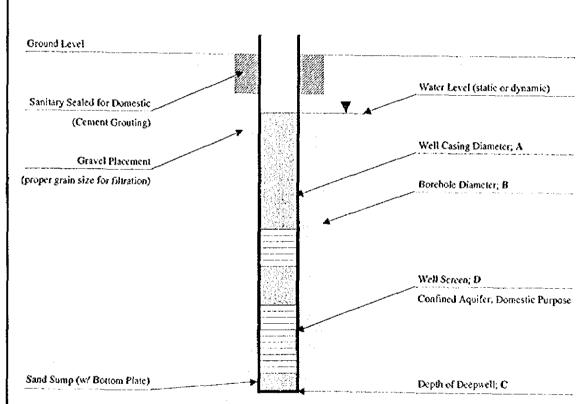








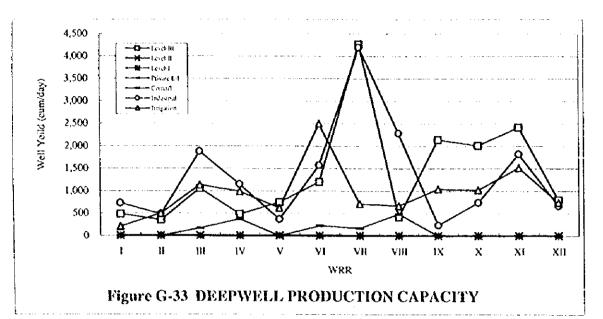


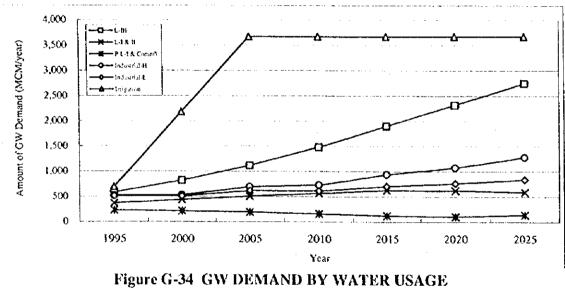


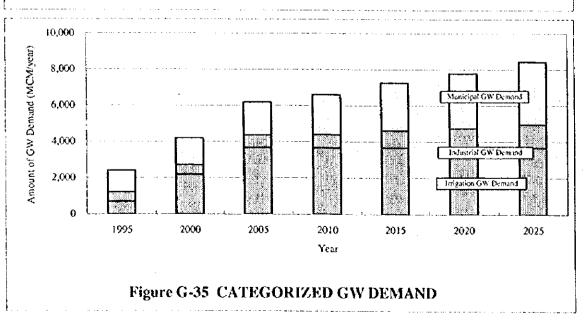
		Diameter		Depth or Length		
Water Supply Category		Well Casing mm (in.) - size A	Borehole mm (in.) - size B	Well String m - size C		Well Screen by Depth - size D
Municipal	Level-III	250 (10")	444.50 (17"-1/2)	103.3 to	218.6	30%
	Level-II	150 (6")	311.15 (12"-1/4)	53.8 to	101.1	25%
	Level-I	100 (4")	269.88 (10"-5/8)	35.9 to	67.4	20%
	Private L-I	100 (4")	200.03 (7"-7/8)	17.9 to	33.7	15%
·	Commercial	150 (6")	269.88 (10"-5/8)	16.5 to	42.5	25%
Industrial		250 (10")	444.50 (17"-1/2)	99.1 to	255.2	35%
Irrigation		200 (8")	374.65 (14"-3/4)	16.5 to	42.5	40%

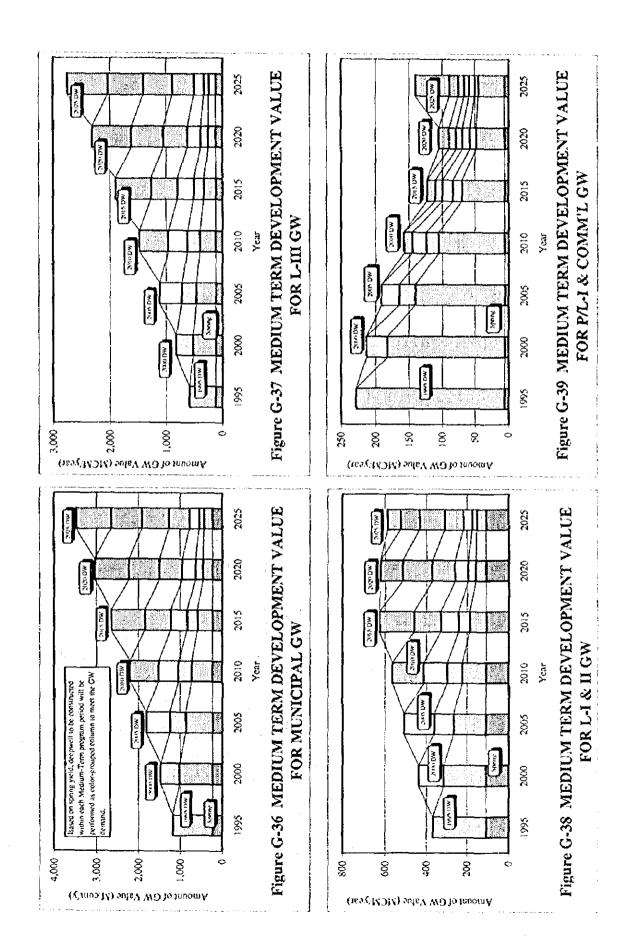
Remarks; Municipal deepwell should be equipped with sanitary materials sealed & be designed to fix confined aquifer for domestic water use. Irrigation deepwell shall be utilized (pumped) by seasonal requirement. Various pump will be required for each type of deepwell such as submersible, self-priming, handpump, etc.

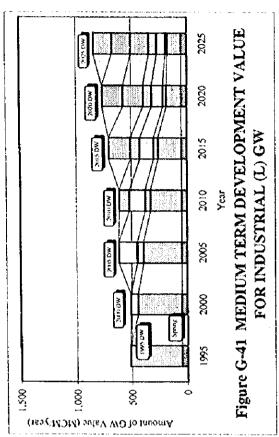
Figure G-32 TYPICAL DEEPWELL STRUCTURES

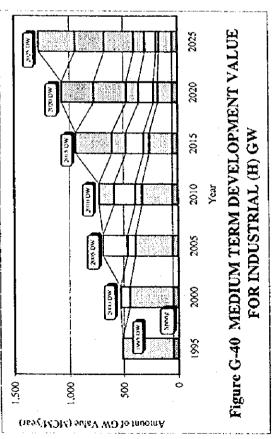


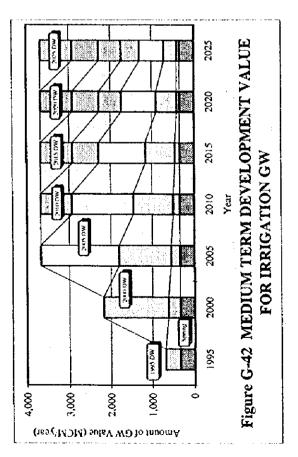




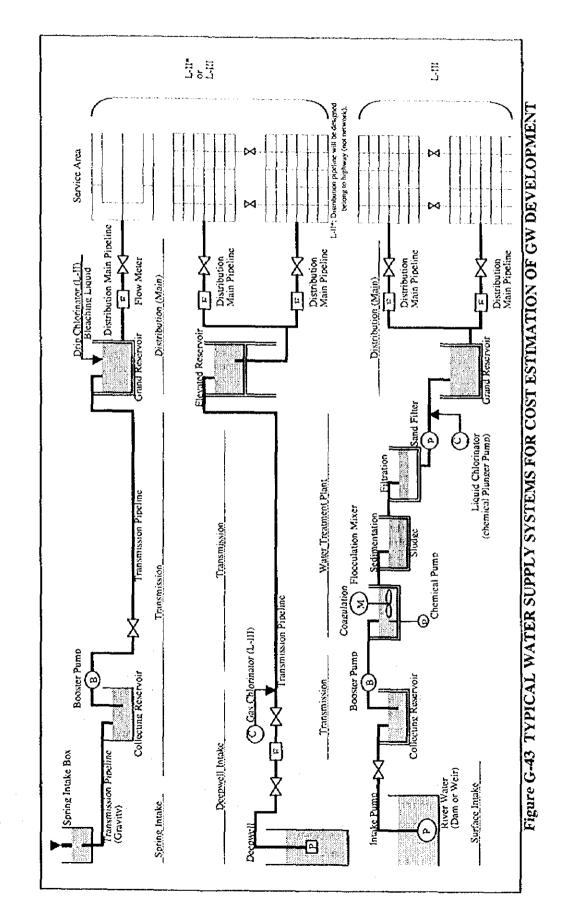


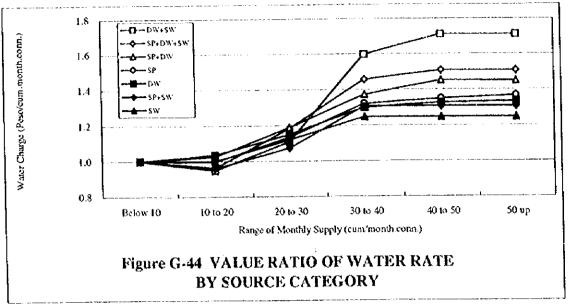


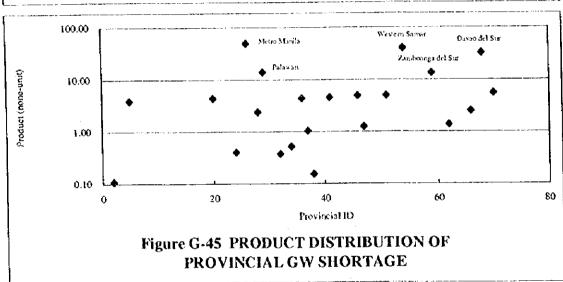


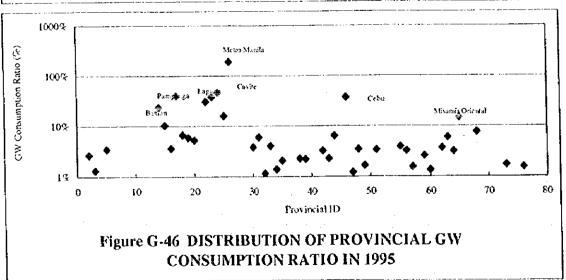


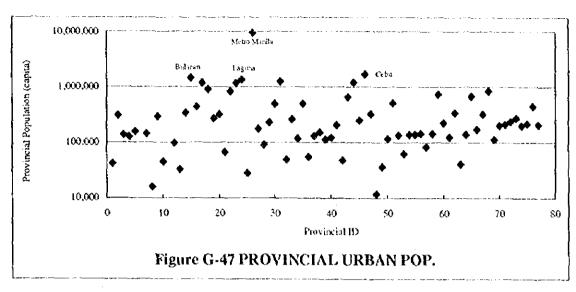
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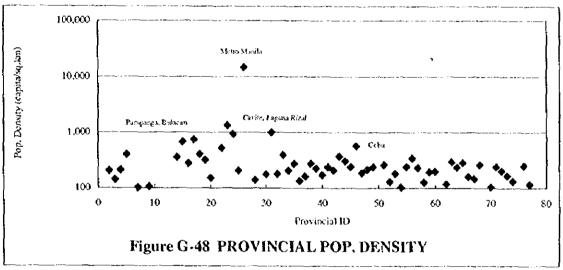


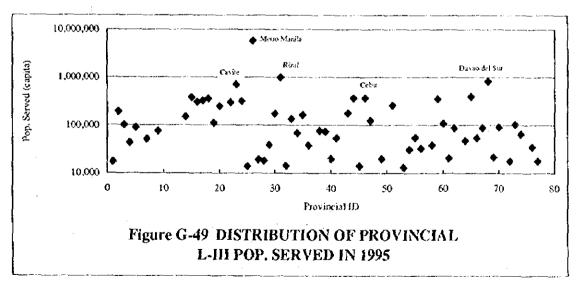




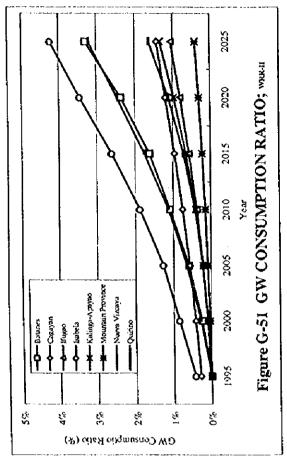


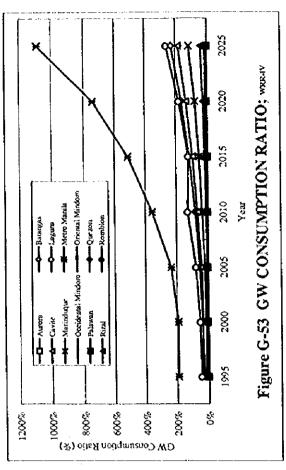


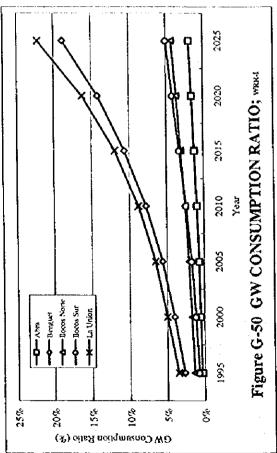


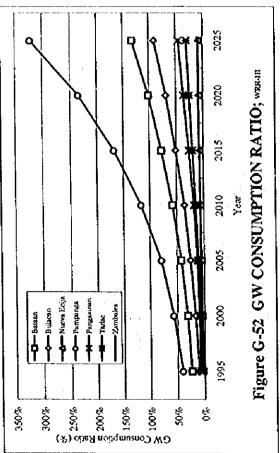


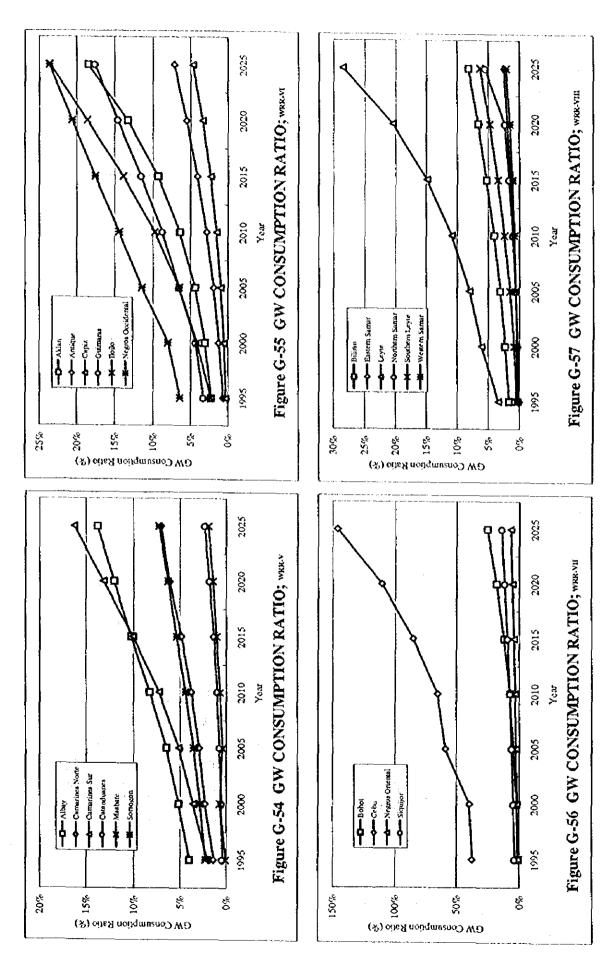




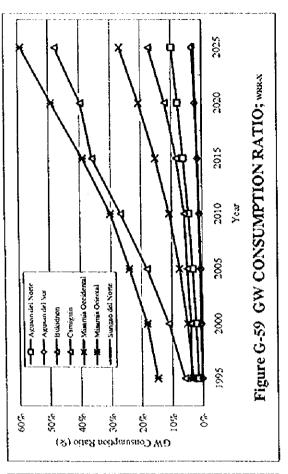


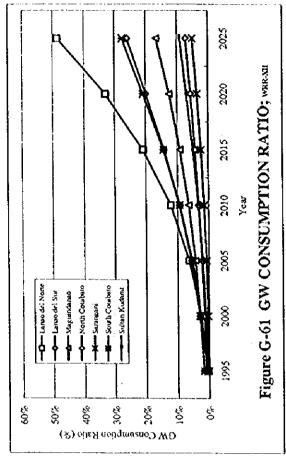


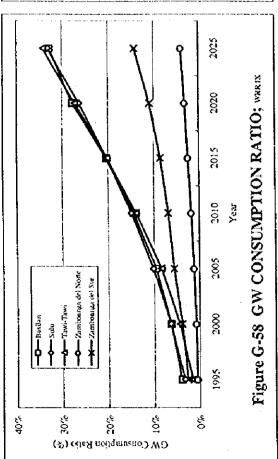


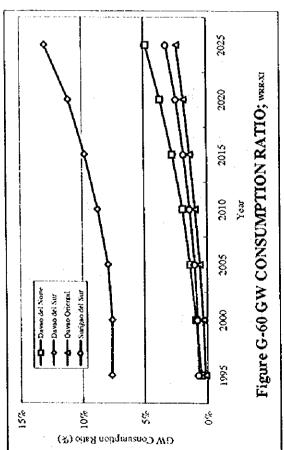


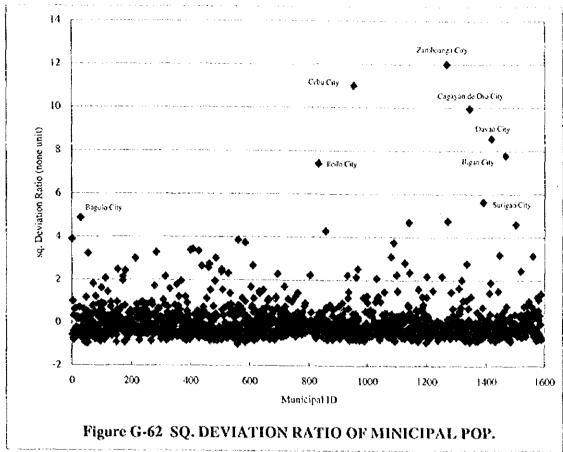


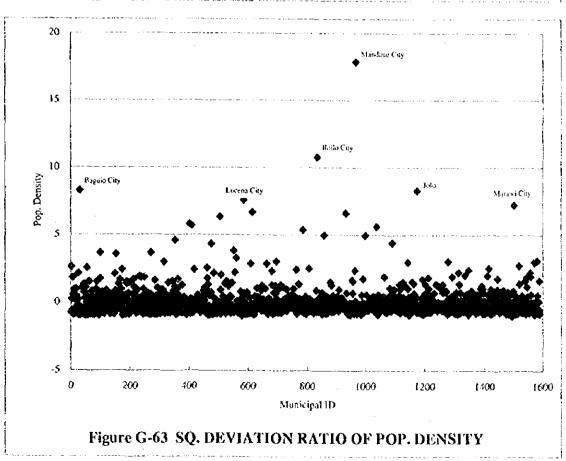


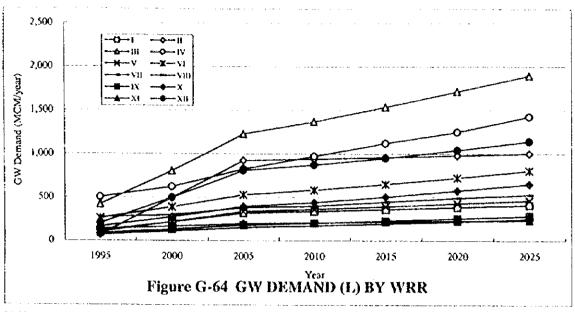


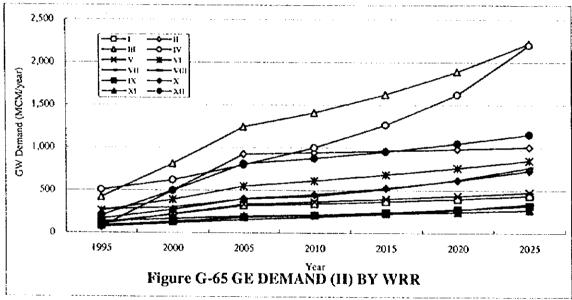


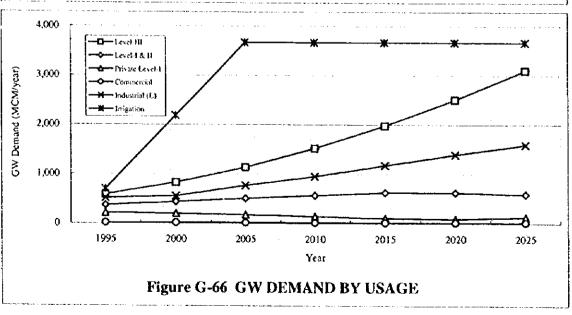


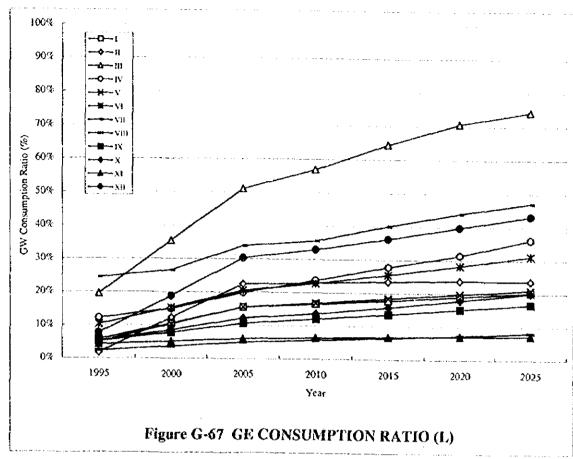


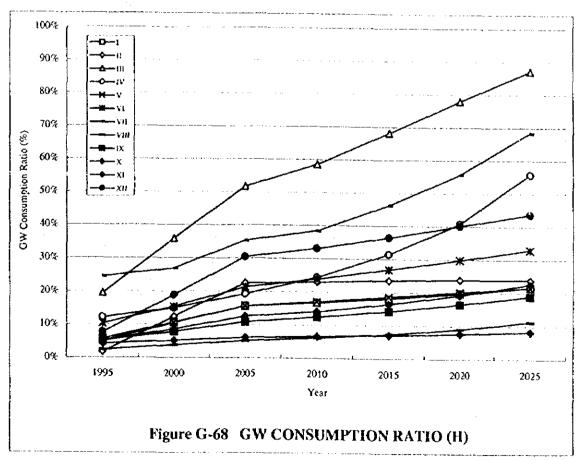


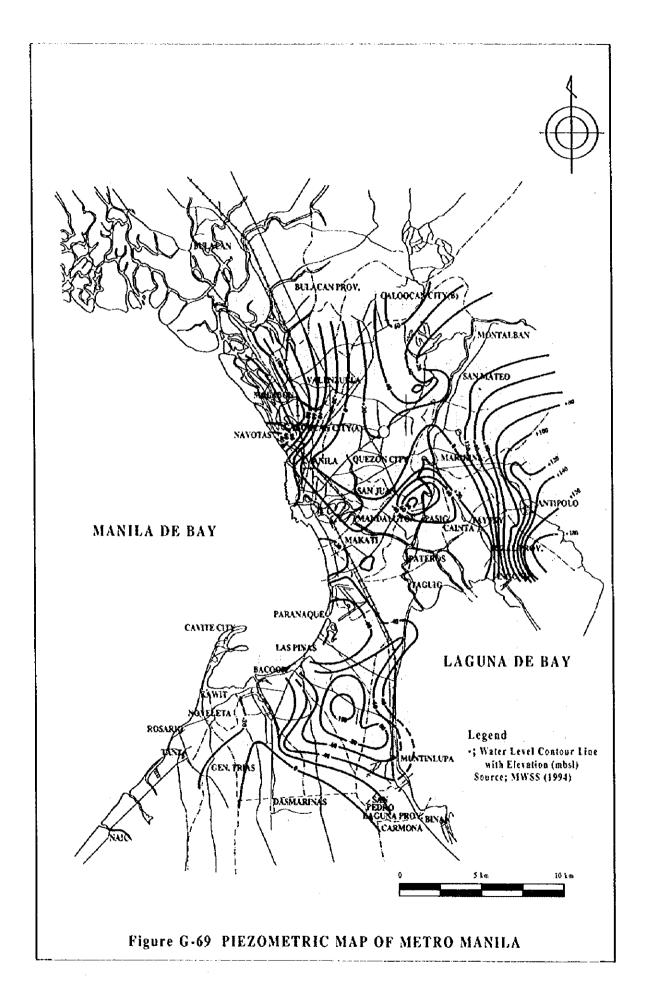


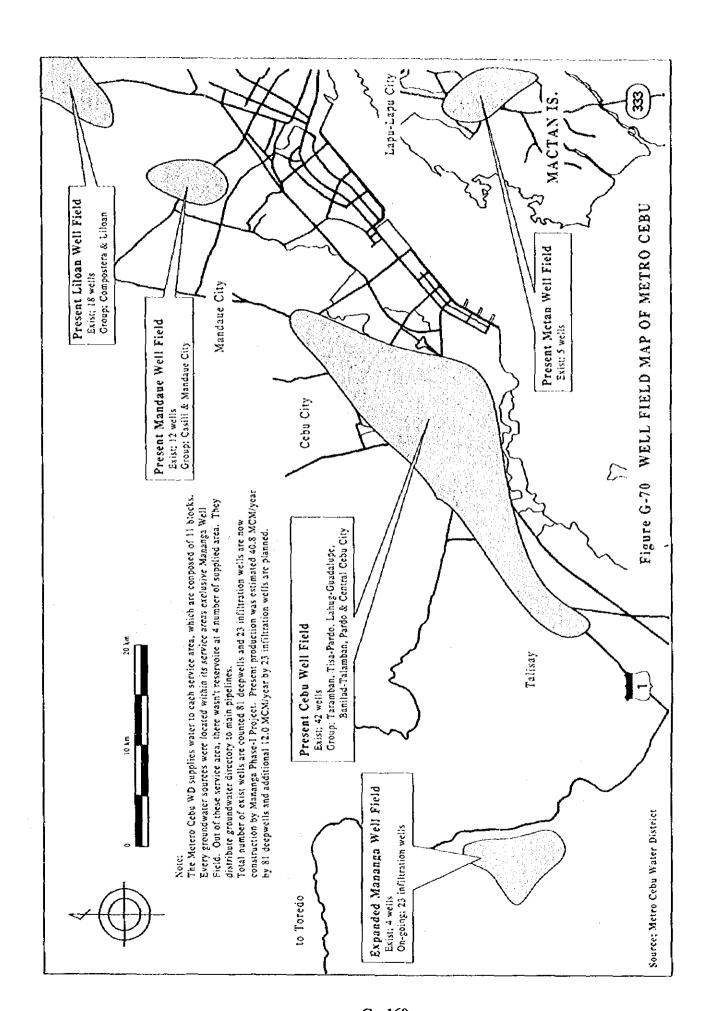


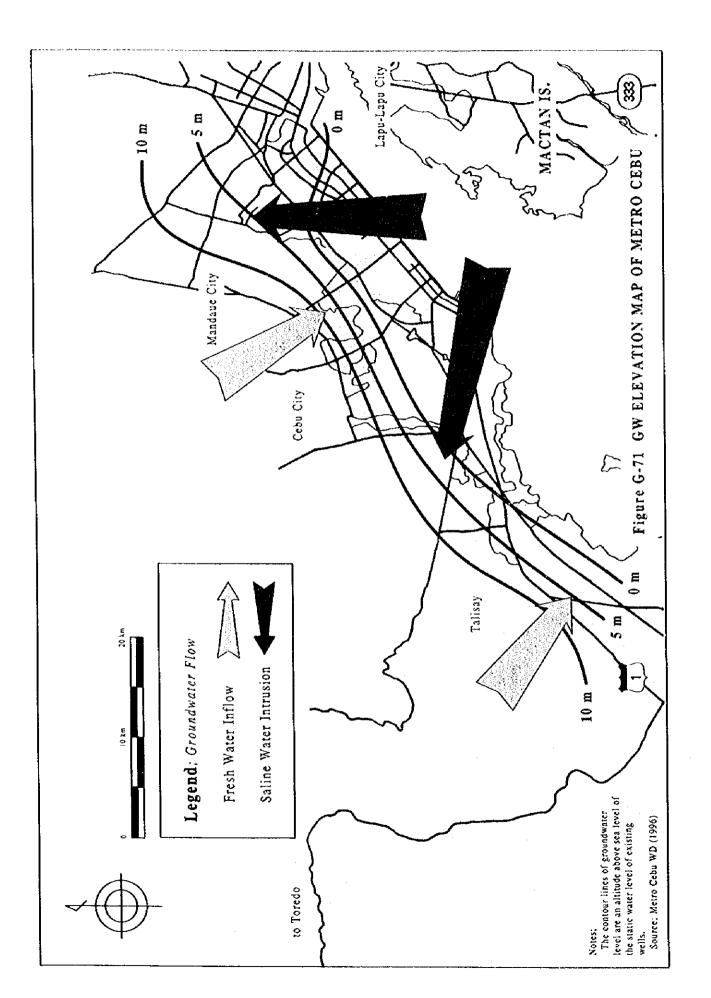




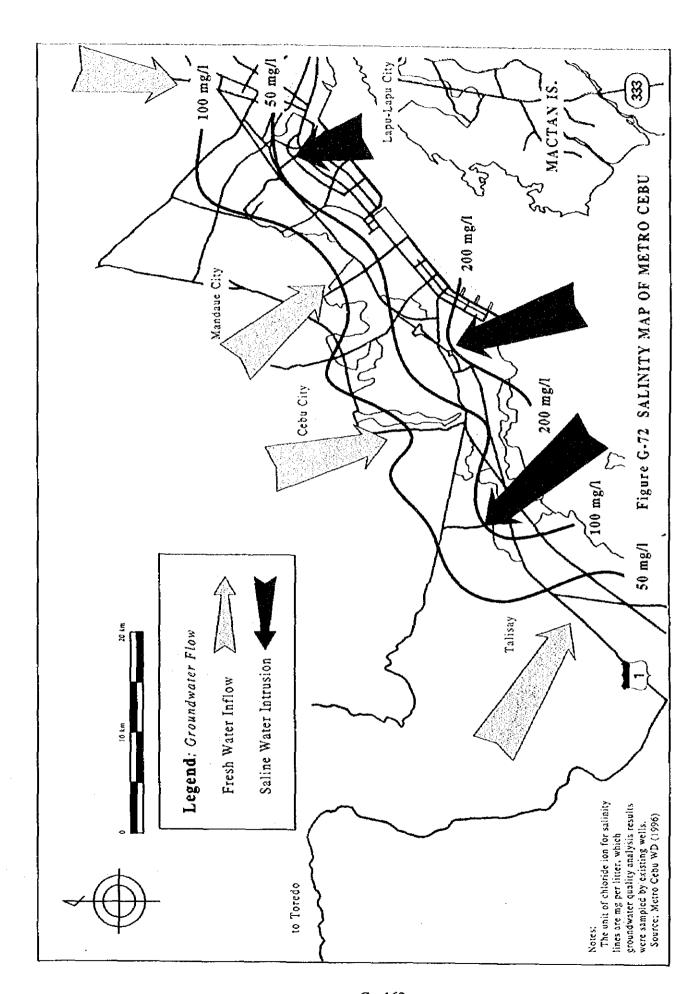


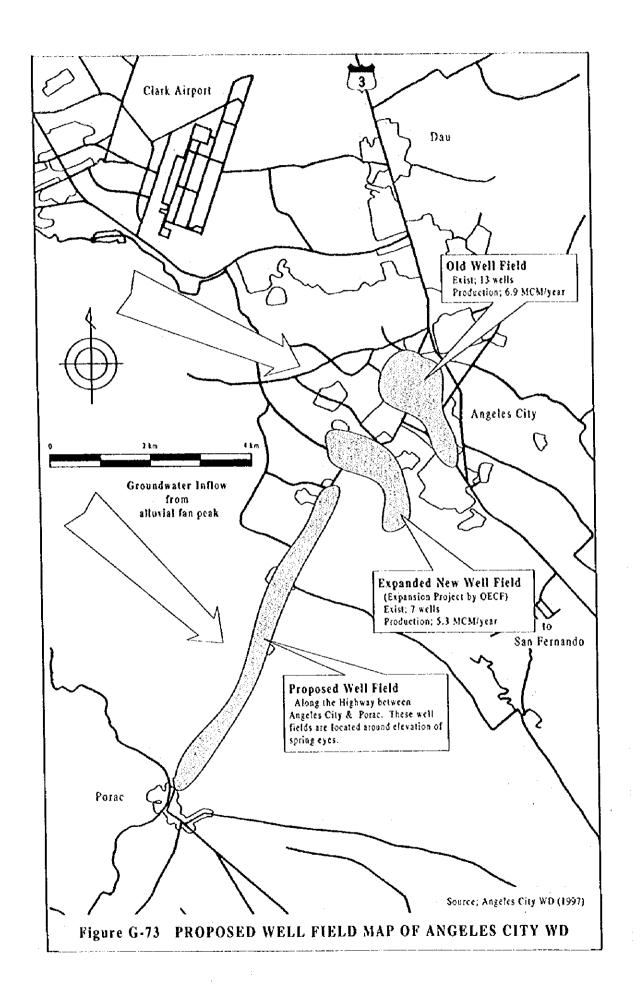


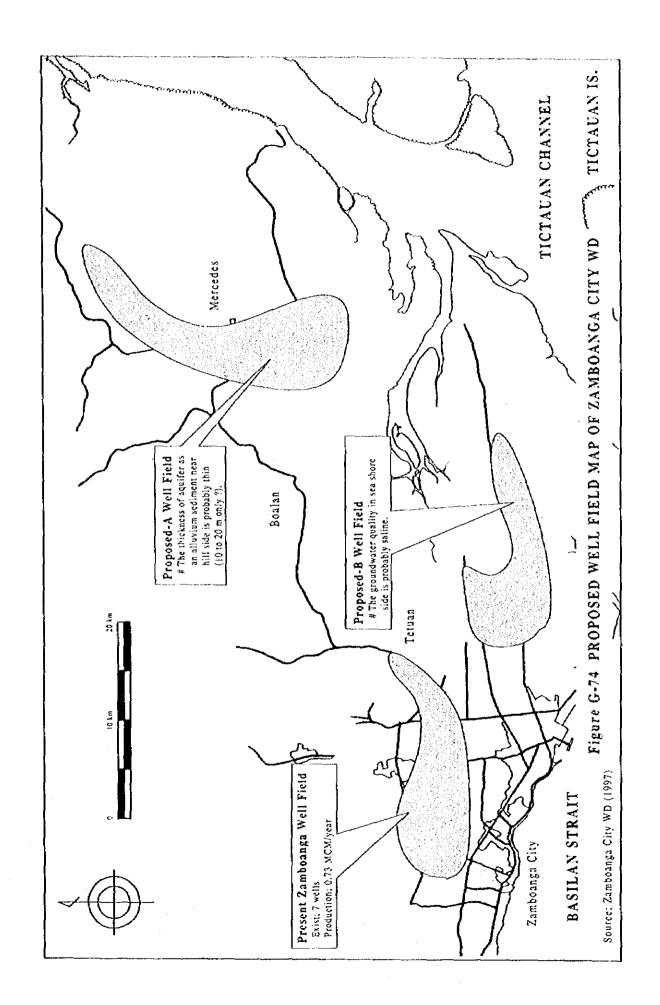


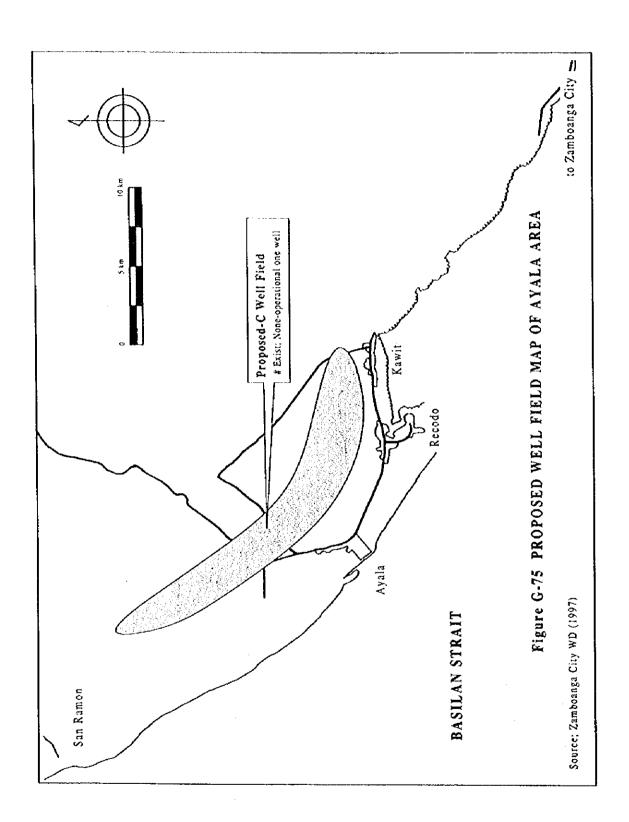


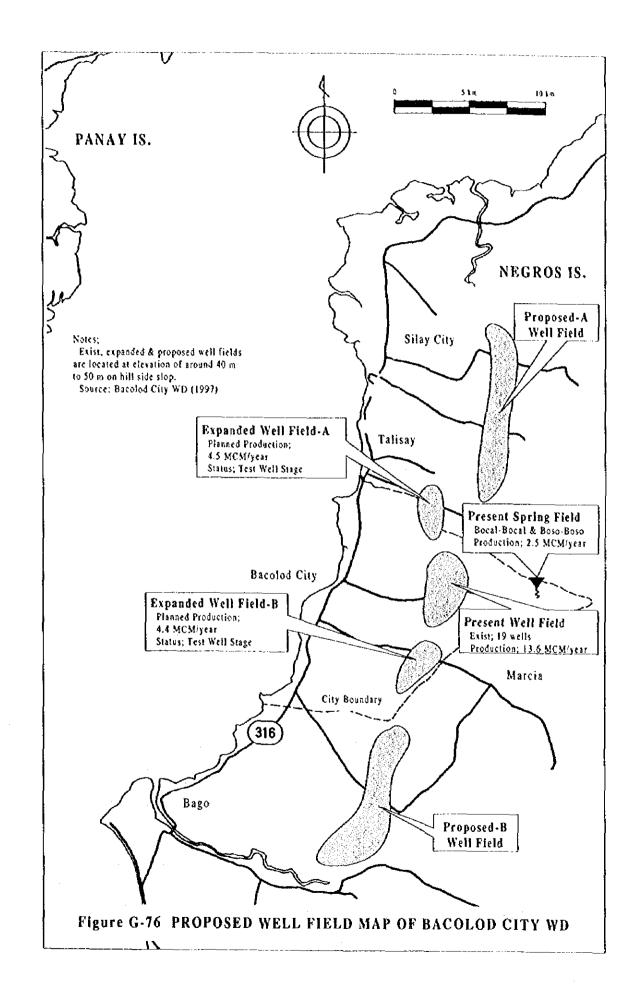
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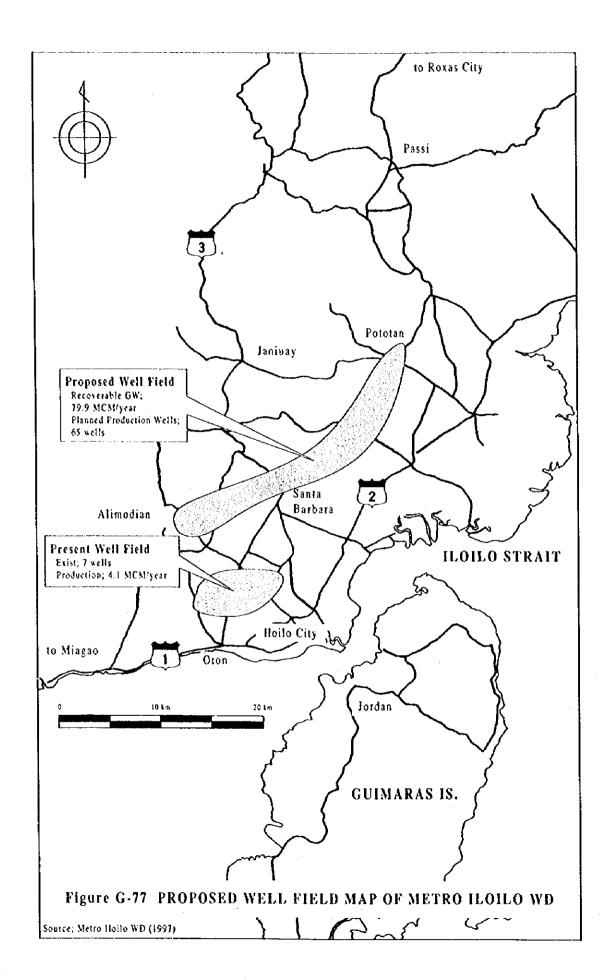


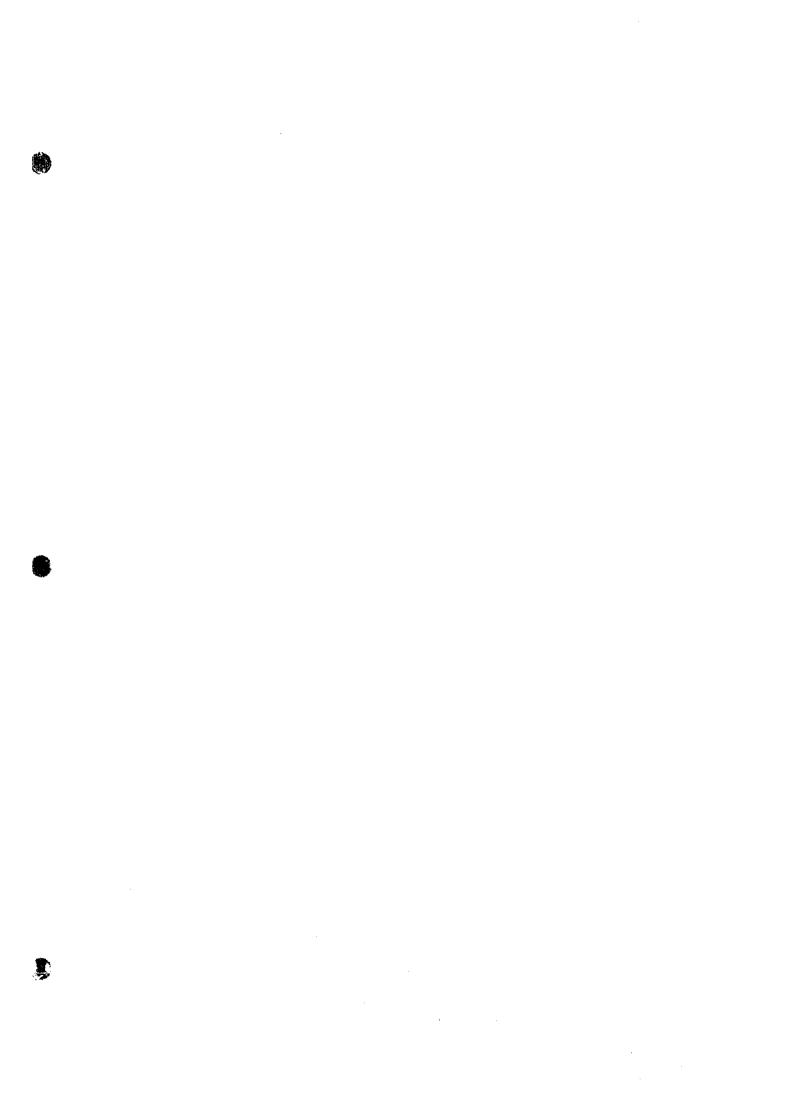












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