6. PAST FINANCIAL PERFORMANCE IN WATER SUPPLY AND SANITATION

6.2 LGU's Past Financial Performance

6.2.1 Sources of Local Funds

Table 6.2.1 Income and Expenditure of Eastern Samar, 1995-1999

Municipality	1995	1996	1997	1998	1999
1. Arteche					
Tax Revenue					
Real Property Taxes		34,002 38	52,055 81	55,065 33	85,600 00
Business tax		64,776 83	89,225 00	80,863 25	100,000 00
Others		45,535 96	99,820 09	124,074 65	140,000 00
IRA		7,662,439 00	10,589,317 47	8,301,712 00	12,632,690 00
Other Revenue Source		99,258 23	121,990 68	129,002 07	135,000 00
Sub-Total		7,906,012 31	10,952,408 73	1,490,717 31	13,072,690 00
Expenditures					
Personal Services		5,624,554 34	6,731,225 37		
MOOE		908,600 67	1,437,493 25		
Others			656 50		
Sub-Total		6,533,155 01	8,169,374 12	-	-
Net Operating Income		1,372,857 30	2,783,034 61	1,490,717 31	13,072,690 00
Add Borrowings					
Surplus		-	187,332 56	-	-
Beginning Balance			288,580 39		
Less Capital Outlay		1,499,561 91	1,298,697 86		
Net Income		(126,704 55)	1,960,249 72	1,490,717 31	13,072,690 00
2. Balangiga					
Tax Revenue					
Real Property Taxes	36,842 75	37,349 99	38,270 52	57,743 78	54,934 69
Business tax	34,968 50	59,322 75	78,515 25	122,457 28	100,000 00
Others	349,196 42	298,934 75	322,382 75	511,788 25	456,424 69
IRA	7,567,927 00	8,124,390 00	10,380,878 00	11,417,461 00	14,318,997 00
Other Revenue Source					
Sub-Total	7,988,934 67	8,519,997 49	10,820,046 52	12,109,450 31	14,930,356 38
Expenditures					
Personal Services	5,697,975 58	5,765,279 60	6,978,508 40	8,727,127 88	9,053,120 12
MOOE	1,303,076 47	1,886,754 72	1,807,937 00	2,629,789 12	1,425,421 51
Others			1,905,427 07		
Sub-Total	7,001,052 05	7,652,034 32	10,691,872 47	11,356,967 00	10,478,541 63
Net Operating Income	987,882 62	867,963 17	128,174 10	752,493 31	4,451,814 75
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	789,428 44	761,856 50	39,246 25	743,117 55	-
Net Income	198,454 18	106,106 67	88,927 85	9,375 76	4,451,814 75
3. Borongan					
Tax Revenue					
Real Property Taxes		244,651 65	307,727 69	368,433 28	
Business tax		1,495,709 63	1,807,350 32	1,799,325 57	
Others		3,450,748 52	4,199,233 50	4,815,782 58	
IRA		19,798,596 00	20,002,619 00	28,709,591 00	
Other Revenue Source				200,000 00	
Sub-Total	-	24,989,705 80	26,316,970 51	35,893,130 43	-
Expenditures					
Personal Services		21,828,986 06	23,415,616 19	30,008,416 28	
MOOE		3,628,617 18	2,702,095 62	5,532,343 87	
Others					
Sub-Total	-	25,457,603 24	26,117,711 81	35,540,760 15	-
Net Operating Income	-	(467,897 44)	199,258 70	352,370 28	-
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay		425,736 75	199,163 80	91,088 50	
Net Income	-	(893,634 19)	94 90	261,281 78	-
4. Balangkayan					
Tax Revenue					
Real Property Taxes	22,608 50	15,412 97	24,575 08	9,717 69	
Business tax	24,608 50	23,100 26	31,456 25	19,244 95	
Others	43,844 35	27,206 23	53,695 10	40,026 00	
IRA	7,403,243 72	7,927,438 72	10,416,918 01	11,467,544 93	
Other Revenue Source	73,328 15	69,304 23	88,405 19	166,242 63	
Sub-Total	7,565,633 22	8,062,462 41	10,615,049 63	11,702,776 20	-
Expenditures					
Personal Services	5,738,963 26	6,135,150 85	7,836,502 60	9,639,499 32	
MOOE	427,207 12	556,123 26	681,504 33	505,703 14	
Others	1,273,950 56	1,396,181 88	1,946,847 31	1,490,702 82	
Sub-Total	7,440,120 94	8,077,456 99	10,464,854 28	11,636,909 28	-
Net Operating Income	125,512 28	(14,994 58)	150,195 35	75,866 92	-
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay			90,000 00	30,000 00	
Net Income	125,512 28	(14,994 58)	60,195 35	45,866 92	-

5. Can-Avid					Estimate
Tax Revenue					
Real Property Taxes	45,690 95	68,185 96	34,531 49	49,085 02	49,086 02
Business tax	143,097 75	185,467 14	159,054 00	157,542 50	157,542 50
Others	209,702 32	303,641 48	324,188 52	533,694 47	533,694 47
IRA	9,531,983 91	10,211,864 80	13,148,693 69	12,778,530 00	12,778,530 00
Other Revenue Source	-	11,806 46	48,368 17	-	-
Sub-Total	9,930,474 93	10,780,985 84	13,714,839 87	13,518,852 99	13,518,852 99
Expenditures					
Personal Services	7,069,453 90	7,673,788 19	9,544,121 43	10,261,117 44	10,261,117 44
MOOE	1,060,530 64	1,255,425 58	1,409,712 09	1,359,219 74	1,359,219 74
Others					
Sub-Total	8,129,984 54	8,929,213 77	10,953,833 50	11,620,337 18	11,620,337 18
Net Operating Income	1,800,490 39	1,851,772 07	2,761,006 37	1,898,515 81	1,898,515 81
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	47,700 00	1,548,442 78	2,025,239 22	1,807,833 95	1,807,833 95
Net Income	1,752,790 39	303,329 29	735,767 15	90,681 86	90,681 86
6. Dolores					
Tax Revenue					
Real Property Taxes	n/a	106,756 11	56,448 03	104,986 95	375,000 00
Business tax	n/a	498,061 20	372,753 20	428,536 95	780,000 00
Others	n/a	53,764 36	56,751 71	56,127 46	65,000 00
IRA	n/a	14,368,445 00	18,237,201 99	20,047,315 00	25,149,037 00
Other Revenue Source					
Sub-Total	-	15,027,026 67	18,723,154 93	20,636,966 36	26,369,037 00
Expenditures					
Personal Services	n/a	6,306,521 30	10,100,082 81	13,453,382 31	17,906,285 64
MOOE	n/a	1,360,026 48	3,707,747 08	855,804 20	2,314,128 96
Others	n/a				
Sub-Total	-	7,666,547 78	13,807,829 89	13,309,186 51	20,220,414 60
Net Operating Income	-	7,360,478 89	4,915,325 04	7,327,779 85	6,148,662 40
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay		117,271 00	158,760 00	148,490 00	350,000 00
Net Income	-	7,243,207 89	4,756,565 04	7,179,289 85	5,798,662 40
7. Gen. MacArthur					
Tax Revenue					
Real Property Taxes	113,181 50	121,376 79	137,996 66		
Business tax	97,390 50	114,767 75	127,322 90		
Others	54,333 17	31,152 57	267,548 95		
IRA	6,607,667 69	7,101,621 06	8,991,205 86		
Other Revenue Source	210,381 84	715,548 06	38,114 83		
Sub-Total	7,082,954 70	8,074,466 23	9,562,189 20	-	-
Expenditures					
Personal Services	5,234,803 75	5,524,130 80	7,187,595 04		
MOOE	1,268,269 08	1,546,579 02	1,706,372 53		
Others					
Sub-Total	6,503,072 83	7,070,709 82	8,893,967 57	-	-
Net Operating Income	579,881 87	1,003,756 41	668,221 63	-	-
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	483,688 50	430,882 64	734,525 93		
Net Income	96,193 37	572,873 77	(66,304 30)	-	-
8. Guiuan					
Tax Revenue					
Real Property Taxes	273,055 52	142,009 86	188,340 83	199,011 39	213,000 00
Business tax	1,018,925 20	588,735 20	633,884 46	781,872 34	2,300,000 00
Others	452,047 86	201,503 05	3,726,342 98	4,295,788 20	288,500 00
IRA	11,971,501 00	12,959,467 00	16,185,683 48	16,254,067 85	22,446,810 00
Other Revenue Source	3,399,680 33	3,258,515 06			5,438,000 00
Sub-Total	17,115,209 91	17,150,230 17	20,734,051 75	21,530,739 78	30,686,310 00
Expenditures					
Personal Services	10,782,243 09	12,502,900 59	14,762,939 18	16,442,373 68	20,669,418 92
MOOE	3,345,277 53	3,899,966 39	4,246,012 85	2,524,107 55	4,508,983 54
Others					5,507,907 54
Sub-Total	14,127,520 62	16,402,866 98	19,008,952 03	18,966,481 23	30,686,310 00
Net Operating Income	2,987,689 29	747,363 19	1,725,099 72	2,564,258 55	-
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	3,022,813 87	2,518,801 12	2,714,867 95	2,045,249 00	
Net Income	(35,124 58)	(1,771,437 93)	(989,768 23)	519,009 55	-

9. Buenavi					
Tax Revenue					
Real Property Taxes	24,754 78	19,759 55	31,000 00	32,000 00	33,617 69
Business tax	55,801 95	56,844 80	55,000 00	56 500 00	71,144 70
Others	166,081 83	175,581 98	819,070 95	418,879 25	435,266 38
IRA	6,829,716 00	6,819,344 00	8,968,085 00	10,161,845 00	11,874,056 00
Other Revenue Source					
Sub-Total	7,076,354 61	7,071,530 33	9,873,155 95	10,669,224 25	12,409,084 77
Expenditures					
Personal Services	5,749,872 28	6,206,689 81	5,849,066 25	6,890,519 38	7,122,486 47
MOOE	877,308 05	1,044,116 05	2,439,053 98	2,241,193 55	3,778,479 63
Others					
Sub-Total	6,627,180 33	7,250,805 86	8,288,120 23	9,131,712 93	10,900,966 10
Net Operating Income	449,174 28	(179,275 53)	1,585,035 72	1,537,511 32	1,508,118 67
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	189,540 30	20,000 00	891,120 91	711,329 15	881,183 92
Net Income	259,633 98	(199,275 53)	693,914 81	826,182 17	626,934 75
10. Jipapad					
Tax Revenue					
Real Property Taxes	10,378 00	5,673 09	11,226 00	10,421 00	
Business tax	15,198 76	15,574 50	48,538 50	27,617 75	
Others	11,491 00	8,567 00	13,136 00	34,803 30	
IRA	7,346,863 00	2,429,280 60	5,512,878 00	10,996,331 00	
Other Revenue Source	99,278 02	21,197 00	34,537 00	79,398 84	
Sub-Total	7,483,208 78	2,480,692 10	5,590,311 50	11,147,571 89	-
Expenditures					
Personal Services	4,707,956 00	1,779,083 00	4,179,336 00	6,550,406 60	
MOOE	634,250 00	259,515 04	579,995 00	925,980 00	
Others	1,056,000 00	207,727 90	660,000 00	1,470,030 00	
Sub-Total	6,398,206 00	2,246,325 94	5,419,331 00	10,946,416 60	-
Net Operating Income	1,085,002 78	234,366 16	170,980 50	201,155 29	-
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	91,800 00				
Net Income	993,202 78	234,366 16	170,980 50	201,155 29	-
11. Llorente					
Tax Revenue					
Real Property Taxes	35,719 39	140,100 50	51,399 89	215,000 00	215,500 00
Business tax	119,322 75	150,305 92	143,261 85	280,000 00	300,000 00
Others	593,648 73	818,964 52	1,085,628 19	1,226,000 00	1,271,500 00
IRA	13,490,051 32	14,726,904 00	17,095,342 88	18,038,337 00	23,964,564 00
Other Revenue Source	327,809 48	869,421 32	232,500 00		
Sub-Total	14,566,556 17	16,705,696 26	18,608,132 81	19,759,337 00	25,751,564 00
Expenditures					
Personal Services	8,509,814 46	10,118,790 09	12,046,252 00	14,955,763 69	16,017,791 51
MOOE	1,240,199 96	2,596,450 00	1,655,014 40	2,437,818 69	3,304,500 00
Others	2,817,702 80	6,029,454 03	3,904,385 08	4,312,000 28	6,429,272 49
Sub-Total	12,567,015 22	18,744,394 12	17,605,651 48	21,705,582 66	25,751,564 00
Net Operating Income	1,999,540 95	(2,038,697 86)	1,002,481 33	(1,946,245 66)	-
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay					
Net Income	1,999,540 95	(2,038,697 86)	1,002,481 33	(1,946,245 66)	-
12. Oras					
Tax Revenue					
Real Property Taxes	82,797 38	74,709 21	54,106 83		
Business tax	430,024 33	242,430 08	682,213 51		
Others	195,232 70	173,935 41	251,866 37		
IRA	10,994,271 12	11,858,056 16	13,340,008 66		
Other Revenue Source	61,571 25	99,155 00	1,230,362 00		
Sub-Total	11,763,936 78	12,458,285 86	15,558,557 37	-	-
Expenditures					
Personal Services	7,506,998 83	8,490,470 34	8,891,860 82		
MOOE	3,862,750 43	3,301,337 53	6,101,800 73		
Others					
Sub-Total	11,369,749 26	11,791,807 87	14,993,661 55	-	-
Net Operating Income	394,187 52	666,477 99	564,895 82	-	-
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	816,500 00	302,000 00	1,254,235 03		
Net Income	(422,312 48)	364,477 99	(689,339 21)	-	-

13. Quinapondan					
Tax Revenue					
Real Property Taxes	45,018 94	36,136 23	30,898 31	160,000 00	
Business tax	95,762 73	85,931 53	99,331 69	100,000 00	
Others	75,289 10	92,494 81	124,259 98	85,500 00	
IRA	6,306,299 00	6,814,148 00	8,843,961 00	10,084,426 00	12,823,751 97
Other Revenue Source					
Sub-Total	6,524,362 77	7,028,710 57	9,098,850 98	10,429,926 00	12,823,751 97
Expenditures					
Personal Services	4,238,331 22	5,129,243 84	6,013,484 78	7,675,051 04	8,925,734 01
MOOE	73,200 00	423,781 07	589,320 24	599,820 24	713,817 96
Others	1,261,259 80	1,362,829 60	1,768,792 20	1,816,885 20	2,413,200 00
Sub-Total	6,072,791 02	6,915,854 51	8,371,597 22	10,091,756 48	12,051,751 97
Net Operating Income	451,571 75	112,856 06	727,253 76	338,169 52	776,000 00
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay					
Net Income	451,571 75	112,856 06	727,253 76	338,169 52	776,000 00
14. Salcedo					
Tax Revenue					
Real Property Taxes	12,945 32	73,881 34	139,254 48	144,435 80	120,000 00
Business tax	4,100 75	18,935 25	41,663 90	30,276 50	228,012 10
Others	19,513 94	70,098 02	98,789 55	92,592 52	-
IRA	7,926,335 00	8,558,260 00	10,504,592 12	10,815,740 00	14,245,798 10
Other Revenue Source	25,281 30	334,057 20	403,253 20	376,761 14	479,462 00
Sub-Total	7,987,177 31	9,055,231 81	11,187,553 25	11,459,805 96	15,073,272 20
Expenditures					
Personal Services	4,429,722 69	7,377,440 48	7,303,508 14	8,566,829 41	10,904,179 92
MOOE	734,935 77	1,960,139 76	1,514,494 10	1,430,657 19	756,000 00
Others					3,171,092 28
Sub-Total	5,164,658 46	9,337,580 24	8,818,002 24	9,997,486 60	14,831,272 20
Net Operating Income	2,822,518 85	(282,348 43)	2,369,551 01	1,462,319 36	242,000 00
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	12,735 00	200,438 14	139,417 90	364,453 48	242,000 00
Net Income	2,809,783 85	(482,786 57)	2,230,133 11	1,097,865 88	-
15. San Julian					
Tax Revenue					
Real Property Taxes	27,660 97	31,608 16	30,334 06	37,334 43	61,000 00
Business tax	86,819 72	95,776 10	83,343 46	105,011 67	155,650 00
Others	1,831,298 20	27,910 32	29,941 10	41,274 94	50,300 00
IRA	5,387,604 11	7,715,628 53	9,833,283 98	10,643,410 26	13,226,790 00
Other Revenue Source	196,083 25	173,652 74	223,192 58	446,092 49	587,505 00
Grants and Aids	200,000 00		380,000 00	321,210 00	
Sub-Total	7,729,466 25	8,044,575 85	10,580,095 18	11,394,333 79	14,081,245 00
Expenditures					
Personal Services	5,282,419 91	6,080,643 41	7,512,836 55	9,355,697 47	9,533,479 71
MOOE	1,691,531 10	1,377,838 89	1,626,966 34	1,513,508 21	1,244,120 00
Others					
Sub-Total	6,973,951 01	7,458,482 30	9,139,802 89	10,869,205 68	10,777,599 71
Net Operating Income	755,515 24	586,093 55	1,440,292 29	525,128 11	3,303,645 29
Add Borrowings	-	-	-	-	-
Beginning Balance	616,792 93				
Surplus	-	-	-	-	-
Less Capital Outlay	808,960 90	376,131 40	1,226,890 29	261,209 96	172,000 00
Net Income	563,347 27	209,962 15	213,402 00	263,918 15	3,131,645 29
16. San Policarpo					
Tax Revenue					
Real Property Taxes	38,522 11		21,747 22	40,718 93	
Business tax	19,350 60		41,078 00	57,244 35	
Others	40,015 50		65,312 54	58,778 30	
IRA	6,197,801 60		8,709,753 00	9,415,192 00	11,373,933 00
Other Revenue Source	102,988 49		212,807 20	95,749 22	
Sub-Total	6,398,577 90	-	9,049,990 96	9,667,682 80	11,373,933 00
Expenditures					
Personal Services	4,787,402 09		6,339,201 02	6,905,134 24	
MOOE	2,002,441 31		1,645,116 70	1,598,465 64	
Others					
Sub-Total	6,289,843 40	-	7,984,317 72	8,503,599 88	-
Net Operating Income	108,734 50	-	1,065,673 24	1,164,082 92	11,373,933 00
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	450,000 00		988,263 30	1,280 00	
Net Income	(341,265 50)	-	77,409 94	1,162,802 92	11,373,933 00

17. Sulat					
Tax Revenue					
Real Property Taxes	60,413 97	65,700 73	59,783 30	185,000 00	185,000 00
Business tax	162,137 74	138,632 61	116,235 60	247,200 00	247,200 00
Others	29,793 58	23,968 66	30,058 47	40,800 00	40,800 00
IRA	7,728,477 00	8,141,535 00	10,643,441 00	12,059,554 00	14,506,432 00
Other Revenue Source	155,226 65	208,450 78	206,508 36	281,200 00	281,200 00
Sub-Total	8,137,048 94	8,578,327 78	11,056,026 33	12,813,754 00	15,210,332 00
Expenditures					
Personal Services	6,134,239 85	6,093,824 27	7,358,098 18	9,063,712 58	10,651,894 00
MOOE	689,971 20	668,093 42	835,403 07	878,814 00	878,696 00
Others	1,394,897 57	1,465,440 60	1,213,690 25	3,070,595 00	3,679,742 00
Sub-Total	8,219,108 62	8,227,358 29	9,847,191 50	13,013,121 58	15,210,332 00
Net Operating Income	(82,059 68)	350,969 49	1,208,875 23	(199,367 58)	-
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	21,000 00	4,300 00	32,002 00	22,000 00	-
Net Income	(103,059 68)	346,669 49	1,176,873 23	(221,367 58)	-
18. Taft					Estimate
Tax Revenue					
Real Property Taxes	73,698 45	78,127 80	72,769 42		241,866 85
Business tax	217,615 62	343,581 08	377,924 54		459,350 06
Others					
IRA	9,139,918 20	9,800,011 10	12,820,940 00		15,726,455 00
Other Revenue Source	132,453 11	125,621 16	132,649 70		348,783 09
Sub-Total	9,563,685 39	10,340,341 14	13,404,283 66	-	16,776,455 00
Expenditures					
Personal Services	6,900,647 60	7,798,402 74	9,141,212 48		11,655,121 87
MOOE	830,010 13	1,149,069 43	1,204,098 38		1,334,524 27
Others	1,649,004 56	884,069 45	1,421,723 86		3,580,613 75
Sub-Total	9,379,662 29	9,831,541 32	11,767,034 72	-	16,570,259 89
Net Operating Income	184,023 10	508,799 82	1,637,248 94	-	206,195 11
Add Borrowings	-	-	-	-	-
Surplus	-	-	-	-	-
Less Capital Outlay	360,307 78	366,750 64	1,900 00		50,500 00
Net Income	(176,284 68)	142,049 18	1,635,348 94	-	155,695 11

6.2.2 Availability of Funds

Table 6.2.2 Past Internal Revenue Allotment for the Province of Eastern Samar

	Item	1995	1996	1997	1998	1999
1.	IRA to all municipalities (National total)	18,768,952,000	19,607,715,553	24,849,000,000	28,245,815,434	31,830,589,345
2.	IRA by Municipality	199,519,390.00	214,249,775.00	265,590,436.99	312,292,064	371,188,390
1	Arteche	7,777,115	8,359,023.00	10,589,317.93	10,633,381	12,632,690
2	Balangiga	7,567,927	8,124,390.00	10,380,877.60	12,018,380	14,318,997
3	Balangkayan	7,403,274	7,927,439.00	10,416,918.12	12,041,489	14,299,193
4	Borongan (Capital)	18,436,747	19,798,596.00	20,002,619.13	31,899,545	37,921,015
5	Can-Avid	9,531,984	10,211,885.00	13,148,695.90	13,451,084	15,985,712
6	Dolores	13,348,731	14,368,445.00	18,237,205.15	21,102,437	25,149,077
7	General Macarthur	6,594,488	7,101,621.00	8,992,205.63	10,322,466	12,244,055
8	Giporlos	6,829,715	7,358,342.00	8,986,112.06	10,039,884	11,874,056
9	Guiuan	11,971,501	12,959,467.00	15,955,527.08	18,093,848	21,542,118
10	Hernani	5,155,522	5,568,003.00	7,295,807.68	8,305,630	9,821,139
11	Jipapad	7,346,863	7,854,991.00	9,970,548.25	11,575,086	13,817,857
12	Lawaan	6,297,729	6,777,375.00	9,516,143.27	11,004,508	13,110,621
13	Llorente	13,490,051	14,410,689.00	17,095,343.29	20,042,597	23,964,564
14	Maslog	7,127,344	7,605,471.00	9,598,792.44	11,205,955	13,379,193
15	Maydolong	10,778,030	11,494,788.00	14,528,321.55	16,984,712	20,274,513
16	Mercedes	4,388,588	4,743,583.00	6,194,485.80	7,019,427	8,283,095
17	Oras	10,994,271	11,868,056.00	13,240,007.78	17,757,158	21,126,993
18	Quinapondan	6,313,487	6,814,148.00	8,932,889.66	10,162,178	12,000,394
19	Salcedo	7,926,330	8,558,263.00	10,504,591.26	12,024,776	14,245,798
20	San Julian	7,174,099	7,715,631.00	9,829,893.15	11,216,208	13,226,790
21	San Policarpo	6,197,801	6,687,964.00	8,709,753.04	9,910,729	11,737,933
22	Sulat	7,728,477	8,141,595.00	10,643,440.93	12,230,300	14,506,132
23	Taft	9,139,316	9,800,010.00	12,820,940.29	13,250,286	15,726,455
3.	% Share by Municipality	100.00	100.00	100.00	100.00	100.00
1	Arteche	3.90	3.90	3.99	3.40	3.40
2	Balangiga	3.79	3.79	3.91	3.85	3.86
3	Balangkayan	3.71	3.70	3.92	3.86	3.85
4	Borongan (Capital)	9.24	9.24	7.53	10.21	10.22
5	Can-Avid	4.78	4.77	4.95	4.31	4.31
6	Dolores	6.69	6.71	6.87	6.76	6.78
7	General Macarthur	3.31	3.31	3.39	3.31	3.30
8	Giporlos	3.42	3.43	3.38	3.21	3.20
9	Guiuan	6.00	6.05	6.01	5.79	5.80
10	Hernani	2.58	2.60	2.75	2.66	2.65
11	Jipapad	3.68	3.67	3.75	3.71	3.72
12	Lawaan	3.16	3.16	3.58	3.52	3.53
13	Llorente	6.76	6.73	6.44	6.42	6.46
14	Maslog	3.57	3.55	3.61	3.59	3.60
15	Maydolong	5.40	5.37	5.47	5.44	5.46
16	Mercedes	2.20	2.21	2.33	2.25	2.23
17	Oras	5.51	5.54	4.99	5.69	5.69
18	Quinapondan	3.16	3.18	3.36	3.25	3.23
19	Salcedo	3.97	3.99	3.96	3.85	3.84
20	San Julian	3.60	3.60	3.70	3.59	3.56
21	San Policarpo	3.11	3.12	3.28	3.17	3.16
22	Sulat	3.87	3.80	4.01	3.92	3.91
23	Taft	4.58	4.57	4.83	4.24	4.24

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
1. Municipal Development Finance (MDF)	Multilateral lending sources for LGU projects have principally come from three main sources, the World Bank (WB), the Asian Development Bank (ADB) and the Overseas Economic Cooperation Fund of Japan (OECF). The funds have been channeled through the MDF, a revolving fund created by a Presidential Decree in March 1984 to consolidate the fragmented and uncoordinated borrowing and grant system to the LGUs. The MDF is administered by the Bureau of Local Government Finance (BLGF) under the DOF. Before the creation of the MDF, the donor agencies required a central agency for monitoring the foreign loans and grants. With the establishment of the MDF, a separate monitoring agency was no longer needed, and thus, the MDF became the conduit for foreign loans and grants. The MDF also played the role of a monitoring unit and project accounting support for foreign funds directed to the LGUs.	The MDF operates under the direction of a Policy Governing Board chaired by the DOF with three other Government agencies as members, i.e. the National Economic and Development Authority (NEDA), the Department of Interior and Local Government (DILG) and the Department of Budget and Management (DBM). The MDF consists of two major units, the Financial Unit, headed by the Executive Director of the BLGF and the Central Projects Office (CPO), the project implementation unit for each project located in participating agencies in the MDF. Aside from providing loans, the MDF also provides technical assistance to LGUs for project identification and feasibility studies and for other projects such as the Real Property Tax Administration Project, which assisted more than 800 LGUs in improving their real property tax collection.	The MDF was created as a revolving fund and made available to LGUs in undertaking their socio-economic development programs. It was active in providing loans to LGUs in the 1980s when the GFIs stopped lending to the LGUs on account of mounting uncollectible accounts. During this time, the MDF channeled some ₱7.9 billion of long-term finance to LGUs. LGU projects that have benefited from assistance from the MDF include: • public markets • heavy equipment and machinery • bus terminals • slaughterhouses • drainage and waterworks • roads • solid waste • telephone systems • health centers At present, nine loans have been provided by the World Bank, ADB, OECF and Eximbank of Korea through the MDF. Total loans extended under the nine projects for all regions amounts to $290 million (P10.7 billion at current exchange rates). The greater access by higher income LGUs to the MDF credit facility can be attributed to the requirement of financial capacity and the ability of the LGU to repay the loans. Other criteria also favor the higher income LGUs, such as urban population minimum requirements and annual population growth rates, annual income and equity requirements, and commitment to establish a separate project office with full-time staff. Considering that the higher income LGUs have access to	Terms of Credit. The MDF is, at present, the only source of credit finance that is offering long-term financing with a maturity period of 15-25 years. The interest rate is currently set at 2 percent above the weighted average interest rate of 61-90 day domestic time deposits. No collateral is required since the IRA intercept mechanism guarantees the loan repayment. Aside from providing loans, the MDF can also provide a package of a loan and a grant, which effectively lowers the LGU's borrowing costs. The loan component carries the terms and conditions set by the lender through the MDF. Because of the liberal terms of the MDF, particularly the long-term principal repayment feature, the MDF has been extremely attractive to LGUs. Funding Limitation. At the moment, MDF funding to the LGUs is experiencing constraints for several reasons: • the increased demand for MDF credits by other developing countries; • funding limitations of the multilateral institutions that support the MDF; • constraints imposed by the government budgetary process; and • increasingly limited eligibility for MDF assistance to the Philippines due to the increased economic development of the country. First, the worldwide demand for MDF assistance and the increase in requirements by other less-developed countries in the world has constrained the availability of funds to meet the increased demand for MDF funds from the Philippines. The multilateral agencies, in the pursuit of poverty alleviation objectives, are shifting attention to poorer regions of the world such as Africa. Second, the multilateral institutions that support the MDF are experiencing funding limitations themselves and are encouraging LGUs to tap private sources of financing for development assistance worldwide. Third, the MDF's present lending capacity is constrained by the budgetary process of the Government. Each department of the national government observes a budgetary ceiling imposed by Congress and the Development Budget Coordinating Committee. In practice, the budget submission of the National Government departments, which include budgetary requests for MDF counterpart funds, are subject to the ceiling. Finally, as the Philippine economy progresses, its eligibility for increased MDF assistance is adversely affected, as one of the principal criteria for MDF assistance is the economic standing of the recipient country.

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
MDF (contd)			other sources of funding, the Government, in implementing its new vision for LGU financing, is discussing with the multilateral financing agencies, re-focusing MDF assistance toward less creditworthy LGUs.	Assessment The MDF continues to be a major source of concessionary credit finance for LGUs. Since its first loan (Municipal Development Project I of the World Bank), the MDF has been actively contributing to the economic development of LGUs by providing long- term financing for LGU projects. It is the long-term feature of MDF loans and the concessionary rate that has attracted the LGUs. Lately, however, some LGUs have voiced concern regarding the long processing time of MDF loans. Therefore, steps need to be taken to streamline the approval process. At the same time, consistent with the new vision of the Government for LGU financing, the MDF is being re-oriented to be a more effective instrument in lending to lower class municipalities, which have limited access to private sources of capital. Reform of the MDF is being undertaken with World Bank assistance. Because of the favorable terms of MDF lending, the MDF is expected to continue to be attractive to LGUs for financing basic services.
2. Local Water Utilities Administration (LWUA)	In order to promote, develop and finance local water utilities, optimize public service water operations, and facilitate the improvement of local water services, the Local Water Utilities Administration (LWUA) was created in September 1972 under the Provincial Water Utilities Act. The LWUA is a specialized lending institution, which provides financing to water districts for water supply development, expansion and improvement. LWUA has evolved to be primarily a financing agency with the following functions. • provide loans to qualified local water utilities for their capital expenditure programs; establish standards for local water utilities such as water quality, design and construction of new or additional facilities for water supply, treatment, transmission and distribution, and for wastewater collection, treatment and disposal.			

Financing Source	Objectives	Prequalification	Eligible Projects	Loan Features
LWUA (contd)	• furnish technical assistance and personnel training programs for local water utilities; • effect systems integration, joint investments, water district annexation and de-annexation. LWUA has, over the years, on-lent funds from ODA sources at concessionary rates. LWUA has extended loans to rural waterworks and sanitation associations, which are non-stock, non-profit cooperative associations, and franchised to operate rural water supply systems in remote areas where access to a water district is difficult. Many water districts have benefited from low-interest, long-term loans of up to 25 years with ample grace periods. However, because of funding source constraints from its donor agencies, LWUA has not been able to accommodate funding requests from all the water districts. As a result, some water districts (Bulacan, Metro Cebu, Puerto Princesa and Batanes have turned to alternative sources of financing such as BOT schemes and joint ventures).			
3. DBP	Provide loans to qualified LGUs for projects which will enhance and facilitate the delivery of basic services to their constituents and at the same time, capture sizeable deposits from LGUs.	To qualify under the Program, the province, municipality or city shall: 1. have beneficiary population of at least 10,000; 2. perform important local, commercial, transportation, industrial, educational or similar activities; 3. have gross annual average revenues of at least ₱3.0 million over the last three years; 4. have balanced or surplus prospective income streams for the next three years (computation to be validated by the concerned RMT/Branch); 5. have no adverse findings from banks and major suppliers both for the LGU and the current Chief Executive and Treasurer; and	1. Revenue-generating projects include, but not limited to public markets, slaughter-houses, transport terminals, municipal water systems, storage/refrigeration facilities, and hospital/health facilities which are self-liquidating; 2. Projects under the PCCD-CEP are primarily designed for income generation by barangay residents who will be organized into 4 to 6 member groups which will be funded by the LGUs out of the loan proceeds from GFIs like DBM. Initially, the pilot operation will cover 40 pre-identified barangays located at the 20 priority provinces.	**DBP Environmental Credit Facilities** Environmental projects are actually eligible under all of DBP's credit facilities. Two of these facilities are dedicated to environmental credit funding. These are the Environmental Infrastructure Support Credit Program (or EISCP), and the Industrial Pollution Control Loan Project (or IPCLP). Both are policy-based lending programs to support investment projects of industrial enterprises in promoting the protection and enhancement of the quality of the environment. **Environmental Infrastructure Support Credit Program** EISCP is by far the most successful of all DBP's environmental credit facility. The project is actually just on its 1 and 1/2-year pilot stage with 5 Billion Yen (equivalent to about 1.4 Billion Pesos) funding from the OECF. Total loan approvals has reached ₱1.3 Billion, almost exhausting the total fund.

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
3. DBP		6. have shown efficiency in the collection of real estate and other local taxes based on the steady growth rates over the last three (3) years	For the expanded operation, 4,000 out of 42,000 barangays will be targeted annually. 3. Non-revenue generating projects include but are not limited to construction of roads and bridges, and acquisition of heavy equipment which are not intended to generate revenues but to enhance efficiency in the provision of services to their constituents 4. The project to be financed shall have passed the first and second screening following the Simplified Screening Criteria of World Bank (available with DBP); 5. The project to be financed shall be included in the approval of local development plan and public investment program (Local Government Code Section 296); 6. The project shall be duly endorsed by the local council as evidenced by the relevant enabling resolution	With the success of EISCP, DBP is working with Japan's OECF to continue to extend a second tranche of the credit facility on a larger scale. **Industrial Pollution Control Loan Project** IPCLP is a DM 10 million credit facility entrusted to DBP by the KfW of Germany. Although smaller in amount, the IPCLP also offers concessional rates to industries, particularly the small to medium scale industries, who are intending to invest in environmental projects. More or less, both EISCP and IPCLP carry the same features, terms and conditions **Comparative Features of Environmental Infrastructure Support Credit Program and Industrial Pollution Control Loan Project** *Amount:* Yen 5.158 Billion (United Facility) DM 10 Million (United Facility) *Loan Denomination:* Pesos *Purpose:* To provide financial assistance to environmental investment projects for pollution abatement and promotion of industrial efficiency. To support investment projects of new and existing industrial firms for the reduction of pollution and reduction of utilization of natural resources *Eligible Borrowers:* Filipino citizens or corporations organized under the laws of the Philippines at least 70% of whose capital is owned by citizens of the Philippines. Existing and new SMEs with pre-funding asset size of ₱60 million or less. *Interest Rate to End-Users :* 11% fixed p.a. *Tenor:* 3 to 15 years with a maximum grace period of 5 years. Up to 10 years with a maximum grace period of two (2) years. *Loan Size:* 80% of total project cost Maximum of 70% of the total investment cost or P24 million whichever is lower.

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
DBP (contd)				*Eligible Projects* Four basic types of pollution control projects: • Pollution treatment • Pollution minimization / clean technology • Toxic and hazardous waste substance management • Solid waste management Investment in pollution reduction including improvement of occupational situation and/or the reduction of raw material inputs to cover waste minimization technology in industrial processes. **THE CREDIT LOAN PROCESS** All loan applications are accepted through the Lending Units at the Head Office and DBP Branches. The staff of these lending units have undergone training and are now familiar with the common environmental terms and practices. Lending Units advise applicants of the types of projects that are eligible for financing and conduct initial review of loan documents. All loan applications go through the usual credit evaluation at this stage. The Lending Units then request the Environmental Management Unit (EMU) for technical appraisal and evaluation of proposed projects. Sometimes, credit evaluation and technical appraisal are done simultaneously. EMU not only conducts paper review of the project but also site visits and inspection of the proposed project. The new thing here in this process, is that from mere evaluation of credit worthiness, EMU's endorsement and findings are now integrated into the CA submitted to proper authorities for credit approval. The project's impact and benefits are thus clearly presented. Along with the Account Officers, EMU also monitors progress of the project. **a. Amount of Loan:** a. <u>Window III Loans</u> 1. Revenue-Generating Projects – The minimum-maximum loan limits shall be ₱1 million and ₱50 million, respectively, subject to periodic review by WINCOM, and with a minimum equity participation of at least 15% of the total project cost. 2. PCCD-CEP Projects – ₱1.5 million per Barangay Business Center

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
DBP (contd)				b. Loans Secured by Deposits – Total project cost but not to exceed 50% of the ADB deposits of the past six-month period reckoned from the preceding month which shall be maintained during the term of the loan and covered by a "Hold Out Agreement" **b. Terms of Payment:** a. Window III Loans 1. Revenue-Generating Projects – The term of the loan shall be kept within project requirements and projected cashflows. Maximum term of the loan is 12 years inclusive of a maximum grace period of 2 years. The loan shall be payable monthly, quarterly or semi-annually depending on the cash generation of the project. 2. PCCD-CEP Projects – Maximum of 5 years inclusive of up to one year grace period payable quarterly. The on-lending terms from Barangay Business Centers to their respective group members is maximum of 2 years inclusive of up to 6 months grace period payable monthly. b. Loans Secured by Deposits – Maximum of five (5) years payable monthly **c. Interest Rate:** a. Window III Loans – Variable and reviewable every January 1 and July 1 based on prevailing 91-day T-Bill rate plus two (2%) provided that the rate is not higher then "AAAA". PCCDP-CEP – The LGU shall be charged 12% p.a. to be passed on to the BBC without spread. The on-lending rate by BBC is 14% p.a. b. Loans Secured by Deposits – Based on the formula prescribed in ALMA Circular No. 01-95 covering the Revised Guidelines from Loans Secured by Deposits. **d. Drawdown:** Drawdown shall be on one time or in multiple basis. The loan proceeds shall be credited to a special project account to be opened by the LGU with DBP, withdrawals of which shall be subject to approved operating guidelines of the loan.

Financing Source	Objectives	Prequalification	Eligible Projects	Loan Features
DBP (contd)				**e. Collateral Requirements:** <u>For Window III Loans:</u> Loans with maturities beyond 5 years shall be secured by: a. Registered first real estate mortgage and/or registered first chattel mortgage in favor of DBP, with loan values based on existing DBP policy, subject to final verification by DBP; b. Such other collateral or security arrangements as may be acceptable to DBP. Loans with maturities of up to 5 years shall be on best effort basis. In addition, the following shall be obtained: a. Assignment of specified portion/amount of the LGU's Internal Revenue Allotment (IRA) in favor of DBP in an amount at least equivalent to one (1) amortization payment which shall be maintained while the loan is outstanding. For PCCD-CEP Projects, this would be sufficient; b. Assignment of profits or income from the project to be financed until the loan is fully paid; c. Endorsement in favor of DBP of insurance policies on mortgaged properties. The insurance shall be placed, based on sound value, by DBP, through its appointed insurance broker. <u>For Loans Secured by Deposits:</u> Project assets and deposit agreement with a minimum balance of 200% of the outstanding balance of the loan and shall automatically be applied to the loan in the event of default. **f. Other Conditions** .. a. The LGU shall include appropriation for debt amortizations in its annual budget in accordance with the LGC until the loan shall have been fully paid. b. The LGU shall maintain Special Depository Account under the General Fund, where repayment of obligations to DBP shall take precedence after operating expenses of the project. Only when the debt amortizations have been satisfied will excess from part of the General Fund.

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
DBP (contd)				c. The LGU shall open a CASA account for the assigned IRA with the understanding that DBP shall automatically offset the amortization for the period against this deposit account. A minimum balance equivalent to one amortization payment shall be imposed d. The LGU shall execute a Deed or Undertaking making DBP its main depository bank e. The LGU shall maintain a debt service cover of at least 1.2 times. Debt service coverage is defined as yearly revenue from all sources less operating costs and maintenance expenditures, divided by yearly debt service to all creditors f. The LGU shall maintain constitute a Local Prequalification, Bids and Awards Committee (PBAC), which shall primarily be responsible for the conduct and prequalification of contractors, bidding, evaluation of bids and recommendation of awards concerning the Project, with at least one (1) DBP representative as an observer g. The LGU shall constitute a Local Technical Committee, which shall primarily be concerned with providing technical assistance to the local PBAC, with at least one (1) DBP representative h. The LGU shall commit to establish a project office with full-time staff and operating budget for project preparation/ implementation. i. The LGU shall constitute and commission a competent consultancy firm to be tasked with validating and certifying the acceptability and compliance with the approved specifications of all acquired materials and supplies j. The LGU shall only engage the professional services of such parties and commission such works as are customary for industrial development operations and projects similar to the financed project, which services must be reasonably priced, considering the quality and competence of the parties rendering them and in case of works, the technical quality and competitive costs of the same, if approved in writing by the DBP k. The LGU shall submit resolution passed by the appropriate Sanggunian Board (Panlalawigan, Panlunsod or Pambayan) expressly authorizing the following

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
DBP (contd)				1. The loan being contracted by the local Chief Executive; 1. The Authority of the Local Chief Executive (Governor or Mayor) to negotiate and enter into the contract of the loan applied for and to mortgage or assign or otherwise into a collateral agreement to secure the payment of the loan applied for; 2. The continuing assignment of the LGU's applicable portion of its IRA, realty taxes and all other revenues to DBP until the loan is fully paid; 3. The continuing assignment of profits or income from the project/economic undertaking to be financed until the loan is fully paid; 4. Authorization to the DBM for it to remit the IRA for deposit to the account of the LGU with DBP duly acknowledged/received by DBM, Manila; 5. The authority for the Mayor and/or Treasurer to open and maintain deposit account with DBP where its IRA and revenues shall be deposited during the term of the loan; and 6. Authority for DBP to debit the LGU's deposit account to cover payments of its loan obligation with the Bank
4. Philippine National Bank (PNB)	**Purpose of the Loan:** 1. To finance the establishment, development, or expansion of income generating projects such as: a) Revenue-Generating/Cost Savings • Public Market • Trading Center/ Terminal • Water System (Construction/Expansion) • Asphalt Plant • Heavy Equipment • Telephone System • Commercial System • Slaughterhouse • Grains Procurement/ Trading • Post-Harvest Facilities	**Prospects for Commercial Bank Lending to LGUs.** Recently, commercial banks' attitude toward LGU financing has undergone a transformation. Some commercial banks now recognize that LGUs represent a potential market for credit lending because of the large financing requirements of LGUs associated with the devolution of basic services and infrastructure requirements. Other reasons for the attractiveness of LGUs as a growing market for commercial lending are: • the increase in LGUs' share of the national wealth; • presence of a legal framework for LGU financing; • flexibility and expanded borrowing powers of LGUs under the LGC;		**Eligible Borrowers:** • Municipality • City • Province **Amount of the Loan** The amount of the loan is equivalent to the project's requirement (100%) but not to exceed the aggregate of five time (5x) the sum of the 20% portion of the Annual regular income and the Annual Internal Revenue Allotment (IRA) share of the LGU. **Term of Loan** Maximum of seven (7) years provided that amortization shall be payable on a monthly or quarterly basis. A longer term may be considered by PNB Board of Directors, if justified. **Interest Rate** Interest rates shall be prime rate based subject to periodic interest resetting.

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
PNB (contd)	b) Others • Irrigation • Renovation/Const. Of City/ Capital Town's Municipal Hall • Purchase of lots • Reclamation • Sports Complex • Diagnostic Equipment/Building • Road Construction/ Repair • Hospital Building with Pay Wards • School Building 2) To finance acquisition of property, plant, machinery, equipment, and necessary accessories for the implementation of the items enumerated in the preceding section Note: Combination of revenue & non-revenue generating project in one loan package. Philippine National Bank (PNB). Consistent with its mission of achieving an "enduring involvement in socio-civic endeavors that uplift the quality of life", the PNB is among the largest, most active institutions lending to LGUs. Until recently a GFI, PNB, which was privatized in May 1996, has total resources amounting to ₱197 billion as of the end of 1996. Its loans to LGUs have reached ₱11.4 billion as of end-March 1997 for 225 different projects.	• increasing financial sophistication of some LGUs (some provinces are exploring private foreign financial instruments), and • the growing market opportunity in financing LGU infrastructure requirements (some ₱20 billion are in the project pipeline of LGU BOT Projects). Commercial lending to LGUs will also get a boost from the establishment of the LGU Guarantee Corporation, which will guarantee commercial loans to LGUs. In the past, the lack of a guarantee facility was a major factor that inhibited commercial lending to LGUs as commercial banks were concerned with the certainty of repayment. As the guarantee facility will provide the repayment "comfort" to commercial banks, it is expected that private commercial lending to LGUs will finally develop.		Collaterals • Assignment of applicable regular income of the LGU, Internal Revenue Allotment share of LGU and Net Revenue generated by the project financed. • Chattel Mortgage of Equipment Financed by the Loan. • Real Estate of Local Government Units. **Standard Conditions** **a. Common Condition** 1. Submission of a Resolution of the Sangguniang Bayan/ Panlungsod authorizing the loan and designating the Local Chief Executive (LCE) as the authorized signatory. The resolution should also contain the following: a) The continuing assignment to PNB of the project revenue if applicable), LGU's applicable portions of the Internal Revenue Allotment (IRA), realty taxes and all other revenues until the loan is fully paid; b) The authorization of the LGU to the Department of Budget and Management (DBM) for the remittance of all its IRA thru PNB for deposit to the LGU's account maintained with PNB; c) The duly notarized undertaking of the LCE and/or Treasurer to remit to PNB applicable portion of the LGU's realty taxes and other revenues on a monthly basis as payment of the amortizations on the loan; d) The authority for the LCE and/or Treasurer to maintain the LGU's deposit account with PNB wherein the project's revenues, the LGU's IRA and other revenues shall be deposited until the loan s fully paid and the PNB to debit the LGU deposit accounts to cover payment of its obligations; e) The duly notarized undertaking of the LGU to include in its annual budget its loan obligations with PNB. 2. Submission of the LGU's letter-authorization to the DBM for the latter to remit all IRA directly to PNB for deposit to the LGU's account with PNB until the loan is fully paid, duly acknowledged /received for DBM, Manila.

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
PNB (contd)	The types of projects that were lent to LGUs include income-generating and cost- saving projects such as commercial centers, public markets, transport terminals, slaughterhouses, power generators, water systems, construction projects and acquisition of heavy equipment. Other projects supported by PNB lending include: telecommunications facilities, grains procurement, and post-harvest facilities. Lending to the NCR accounted for 56% of the total amount (₱6.3 billion). Luzon projects accounted for 26% (P3.0 billion), Visayas, 10% (₱1.1 billion), and the rest was for Mindanao, 8% (₱0.8 billion). On a per project basis, Luzon Projects averaged ₱31.0 million per project; Mindanao, ₱22.2 million and the Visayas at ₱20.6 million per project. Majority of the loans lent to LGUs were for heavy equipment, infrastructure and public markets			2. Submission of a duly notarized certification by LGU that: a) the 20% limit provided under the law in the servicing of loan obligations have not been exceeded; b) Legible copies of the Loan Agreement and Security Agreement have been posted at the conspicuous place in the Municipality/City Hall/ Provincial Capitol; c) The proposed sources of repayment of the loan are available and not restricted by law. 3. PNB shall continue to be the LGU's principle depository Bank until such time the loan is fully paid. 4. Approval and confirmation by the Sangguniang Bayan/Panlungsod of the terms of the covering Credit Agreement and all other documents executed by the LCE in the implementation of the loan. 5. Undertaking by the LGU that they will not incur additional obligation/ indebtedness without the written consent of PNB which consent will not be unreasonably withheld. 6. Any amount in excess of the approved amount of loan shall be shouldered by the LGU. 7. Subject to SEL Cir. 4-315/94 of May 17, 1994 on Interest Rate Setting and Adjustments. 8. All insurable improvements financed by the loan shall be insured up to the full insurable value and policy endorsed in favor of the Bank. 9. All applicable provisions of PNB's standard loan conditions and such other conditions our Legal Department may impose to protect the interest of the Bank. **b. Loans for Machinery/Equipment/Vehicle** 1) Loan proceeds shall be paid directly to the supplier/seller of the equipment/ vehicle in an amount equal to the selling price or amount of the approved loan whichever is lower. 2) If to be imported, the letter of credit shall be opened at the Bank and the loan proceeds be equivalent to the a) corresponding import bill upon negotiation computed at the prevailing selling rate at the time of negotiation.

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
PNB (contd)				b) amount of the LC in case of cash LC computed at the prevailing selling rate on the LC opening date. 1) LGU to execute a chattel mortgage on the equipment within 60 days upon acquisition. 2) Submission of a duly notarized certification that all government policies rules and regulations in the award of the contract to the local supplier have been complied with. **For Construction/Development Loans** 1) Releases shall be staggered basis which are to be made only upon presentation of progress report and billing certified by the project engineer and the Municipal/City/Provincial Engineer and approved by the project owner and to be validated by the Bank appraisers. 2) Where the contract calls for a mobilization outlay, such amount for initial release shall not exceed 15% of the approved loan. 3) Submission of a duly notarized certification that all government policies, rules and regulations in the award of the project to the contractor have been complied with. 4) PNB shall have the option to buy or lease space of its choice for a branch site within the project to be financed. **Terms of Credit.** Eligible loans for PNB financing under its LGU financing program include those, which finance the establishment, development or expansion of income-generating projects. Other projects that qualify include irrigation, construction of municipal halls, sports complex, medical diagnostic equipment, road construction, hospitals and school buildings. The maximum loanable amount can be as much as 100% of the project requirements but will not exceed the aggregate of five times the sum of the 20% portion of the annual regular income and the IRA share of the LGU. The term of the loan is generally

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
PNB (contd)				up to 7 years, but the Board of Directors may consider a longer term if justified. The interest rate is prime rate-based subject to periodic interest resetting. Collateral requirements can include the assignment of applicable regular income of the LGU, IRA share and the revenues generated by the project financed. Other collateral include the chattel mortgage of equipment financed by the loan and real estate mortgage on patrimonial property of LGUs.
5. Land Bank of the Philippines (LBP)	Created in 1963, the Land Bank of the Philippines (LBP), one of the top five universal banks in the country with total resources of some ₱134 billion, has been lending actively to LGUs over the years. It has a social mission of promoting countryside development and has been a major contributor to rural credit delivery in the Philippines. Though LBP's main portfolio of loans is in the agrarian sector, it has a very active LGU financing program consistent with its mission. Foremost in LBP's LGU financing program is its "Total Development Options - Unified Land Bank Approach to Development or TODO-UNLAD program." The program offers a comprehensive package of loans that links farmers' cooperatives, private companies, rural banks, non-governmental institutions and LGUs around an income generating project in a specific area. The Land Bank's LGU program has financed projects in various sectors amounting to over ₱11.6 billion as of March 1997, primarily in infrastructure, bus terminals, public markets telecommunications, housing, water systems, road construction and traffic systems.	Pre-Release Requirements Loans to the LGU's shall be covered by the regular documentary requirements for regular loan accounts. In addition, the following documents shall be required. a. Borrowing Resolution. Passed by the Sangguniang Panglungsod and expressly: • Confirming, approving and ratifying all previous representations and warranties and all the terms and conditions of the loan, and authorizing the Local Chief Executive to sign all documents pertaining to the loan; • Designating the person authorized to negotiate and sign all documents pertaining to the loan; • Authorizing the mortgage/assignment for certain personal and/or real properties and declaring that the properties offered as collateral are patrimonial and not actually devoted to public use and prohibiting the conversion of said properties to public user or service; • Committing not to contract other loans/credits with other creditors/banks are to impair the LGU's paying capacity for the duration of the loan; • Directing the LGU Treasurer and the accountant to enter the loan in the appropriate books of the LGU;		Terms of Credit. As mentioned in the previous paragraph, Land Bank lends to provinces, cities and municipalities that are rated medium-grade or higher. Using this criterion, some 960 LGUs are eligible for Land Bank assistance. Eligible loans finance local infrastructure and other socio- economic development projects under LGUs' local development plans. The maximum loan amount is based on the requirement of the project but does not exceed the "Net Borrowing Capacity" calculated for LGUs as defined in the Local Government Code. LGUs typically will contribute 25% of the total project cost; the terms of the loan will not exceed 5 years and the maximum grace period on principal is two years. Interest rate charged is the prevailing market rate. Collateral requirements can include a holdout on LGU deposits; real estate property, machinery and equipment and a deed of assignment on IRA, regular taxes or net income. The LGU lending program requirements and procedures of Land Bank are reproduced in Annex 4.

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
LBP (contd)	Majority of Land Bank lending to LGUs has been directed to infrastructure financing (61%). These projects included integrated development projects in Metro Manila and Metro Cebu consisting of roads, reclamation, ports, schools, municipal and commercial buildings, etc. The next major exposure of Land Bank was in heavy machinery (15%), which are used by LGUs in carrying out their development and infrastructure projects. Lending to construction projects amounted to 7% and the rest were for sport complexes, public markets, bus terminals and others. To assist Land Bank in making their investment decisions, it has developed a creditworthiness ranking system for LGUS. This system classifies LGUs into four credit categories. Land Bank utilizes a set of criteria for its LGU credit rating system, including financial capability, socioeconomic profile, political stability and the technical, economic and financial viability of the proposed project. About 17% of LGUs are classified by the LBP as prime clients and high grade, while 40% are classified as medium grade. Land Bank's lending policy is limited to LGUs with a medium-grade or higher classification	• Designating LBP as the LGU's major depository bank for IRA and for its other deposits which designation shall be revoked while the loan obligations remains outstanding and directing the LGU Secretary to provide a copy of this Resolution to DBM or other IRA-administering office; • Appropriating the amount for loan repayment on the LGU's annual budget until the loan, interest and other charges are fully paid; • Undertaking by the LGU to secure from DBM a written certification of its commitment to withhold the LGU's IRA in favor of LBP in the event of payment default; • Authorizing LBP to deduct for set-off and/or deduct amounts from any deposits or funds of the LGU with LBP and apply the same to the payment of the loan or any portion thereof, or interest and penalties thereon as may be deemed necessary to LBP. **Processing Requirements** a. Sangguniang Resolution authorizing the Local Chief Executive to negotiate a loan with LBP b. Budget for the Current Year c. COA Audited Financial Statements for the past 3 years d. List of Elected Officials and Key officers e. Schedule of LGU's IRA for the past 2 years f. Feasibility Study g. Regular Documentary Requirements pertaining to offered collaterals h. For Projects involving Construction • Cost estimates • Plans and specifications		

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
LBP		• Bill of materials • Work program /schedule duly approved by the Local Chief Executive and the City/District Engineer i. For Acquisition of Machinery and Equipment • List of Machinery and Equipment, its Description & Estimated Cost based on Firm Quotation. • Guarantee from the Dealers/ Suppliers as the Availability of Spare parts in the Local Market		
6. Municipal Bond Flotation (MBF)	Municipal bond flotation is another private source of debt financing that is generating a lot of interest from LGUs. Municipal bonds represent an additional source of financing for LGUs, which hitherto had not been tapped. To date, six LGU bond flotations have been successfully floated, the first one in infrastructure development (Cebu equity bonds), and the rest in housing	**Legal Framework for Bond Flotations.** The 1991 Local Government Code allows, subject to the rules and regulations of the Bangko Sentral ng Pilipinas (BSP) and the Securities and Exchange Commission (SEC), to "issue bonds, debentures, securities, collateral, notes and other obligations to finance self-liquidating, income-producing development or livelihood projects pursuant to the priorities established in the approved local development plan or the public investment Provinces, cities and municipalities are authorized under the LGC to issue municipal bonds under two conditions: (i) the obligation should finance self-liquidating, income producing development or livelihood projects; and (ii) the projects to be financed must be in accordance with priorities established in the approved local development plan or the public investment program. Thus, at the moment, LGUs cannot utilize a bond flotation for recurrent obligations or general obligations of LGUs and other non-revenue earning expenditures such as theconstruction of a city or municipal hall or payment of staff salaries.		**Bond Flotations Issued.** The Province of Cebu pioneered LGU bond flotations in the country when they floated the first bond issue in July 1990 (Cebu Equity Bond Unit). The ₱300 million issue had a term of three years, tax free interest income at 16 percent and called for principal repayments in five (5) equal semi-annual installments in the form of class "A" shares of Cebu Property Ventures and Development Corporation (CPVDC), a joint venture of Cebu Province and Ayala Land, Inc. (ALI). Cebu had contributed land and ALI contributed cash for their shares in CPVDC. With the tax-free feature, the investors effectively earned 20% on their investment plus the capital appreciation prospects of the CPVDC shares. Since the Cebu bond flotation, there have been five more issues (all in the housing sector): • Victorias Pabahay Bonds - Negros Occidental (₱8.0 million) • Legazpi Suerte Bonds - Albay (₱26.0 million) • Claveria Housing Bonds - Misamis Oriental (₱20.0 million) • Sto. Domingo Housing Bonds - Nueva Ecija (₱10.0 million) • Puerto Princesa Housing Bond Palawan (₱20.0 million)

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
MBF (contd)		In addition, the LGU concerned is obligated to formally adopt a public investment program for the province, city or municipality, and the project to be financed through a bond flotation must be part of the public investment program. Bond flotations require endorsement/ approval of the BSP. **National Government Guarantee.** In order to enhance the market prospects of bond flotations, some LGUs, such as the province of Palawan, have requested a national government guarantee for their planned foreign bond flotations. However, the national government is not empowered to grant a guarantee to LGU foreign bond issues by virtue of R.A. 4860 (Foreign Borrowings Act) which limits the issuance of sovereign guarantees to loans of government-owned or government- controlled corporations and government financial institutions. With regard to local bond flotations, there have been instances where a national government agency has guaranteed the obligations of an LGU. Of the five LGU housing bond issues floated in the country, four have carried a partial guarantee from the Home Insurance Guarantee Corporation (HIGC), a national government agency. The housing bond issue floated in Sto. Domingo, Nueva Ecija, however, did not carry an HIGC guarantee, but nevertheless was fully subscribed. For non-housing bond issues, it is unlikely that a National Guarantee would be granted primarily because such guarantees run counter to the principles laid down in the Local Government Code, i.e. with the increase in the share of LGUs in the national wealth, and allowing LGUs the freedom to obtain should financing from various sources, the LGUs assume responsibility for financing basic services and infrastructure requirements.		These bonds were issued on a taxable basis with interest rates ranging from 14 - 16%. The term of the issues ranged from 3 years. All issues carried the guarantee of HIGC except the Sto. Domingo housing bonds. A description of the bond issuance process is presented by the Multinational Investment Bank Corporation, one of the major underwriters in the municipal bond market. Since the bonds floated were of relatively small size and short in maturity, it is clear that additional incentives are needed to promote development of a broader municipal bond market. In this regard, the Government is taking concrete steps through its policy initiative, New Vision and Policy Framework for LGU Financing, to initiate policies that will develop the municipal bond market.

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
MBF (contd)		In addition, the Government's fiscal policy is to limit extension of guarantees in order to protect its fiscal position. Because of the absence of a National Government guarantee, one can surmise that only the most creditworthy LGUs would be able to successfully float the first few non-housing municipal bond flotations.		
7. Build-Operate-Transfer (BOT)	BOT or "Build-Operate-Transfer" is a project-financing scheme that uses private investment to undertake infrastructure projects historically financed and implemented by the public sector. BOT schemes are generally characterized by the participation of the private sector as the major sponsor of the project. The private sector proponent is given the rights and privileges by the public sector (the LGU) to build and operate the facility, transferring the facility to the LGU after the concession period. One very important characteristic of BOT schemes is that they allow proper allocation of risks. The private sector proponent assumes certain risk, the design, construction and operating and maintenance risks. In addition, BOT schemes, by virtue of requiring little or no upfront investments, provide local governments with a viable vehicle to overcome their budgetary resource constraints and accelerate the implementation of infrastructure projects. With BOTs, local government units need not depend on financial assistance from the National Government. If a local government unit can develop and package a financially viable project, it only needs	**Legal Framework of the LGU BOT Scheme.** The Local Government Code of 1991 allows the LGUs to tap both Government and private sources of capital to finance basic services, local infrastructure and other development projects. Realizing that the cost of financing these services and infrastructure projects is huge and considering that the Philippines had a highly successful BOT program at the national level, the LGC made specific and liberal provisions for the use of BOT schemes by LGUs. Section 302 of the LGC states; " Local government units may enter into contracts with any duly pre-qualified individual contractor for the financing, construction, operation and maintenance of any financially-viable infrastructure facility, under the build-operate-transfer agreement, subject to the applicable provisions of RA 6957, as amended by R.A. 7718 (the BOT Law). **Coverage of LGU BOT Scheme and LGU BOT Pipeline.** In the late 1980s and early 1990s, the BOT scheme was the Government's answer to solving the power crisis. Since then, the BOT scheme has been utilized to finance other infrastructure projects at the national level (transportation, information technology and water). Under the BOT law, LGUs would be able to utilize the BOT scheme in many sectors so long as they are revenue-generating.		**Characteristics:** • A private company or consortium is given the right to build and operate a facility previously provided for by the government • The private company is responsible for financing, design' constructing, operating and maintaining the project; • Lenders look to the projects assets and revenue stream for repayment; Concession period is agreed typically (20-25 years) after which the facility is transferred to the LGU. **Advantages:** • BOT offers an alternative source of financing; • A transparent legal framework already exists for BO financing; • LGUs benefit from a project with a typical no or very little initial investment; • BOT schemes offer proper allocation of risks; • BOT projects usually result in better and reliable service and consistent supply; • Long concession period and contractual agreements assure project sustainability; • Technology and skills transfer usually result from BOT projects; • BOT Projects may stimulate local capital market development.

Financing Source	Objectives	Prequalification	Eligible Projects	Loan Features
BOT (contd)	to solicit investor interest in the project and undergo the processing procedures prescribed under the BOT Law and the LGC.	Thus far, BOT schemes are being planned for infrastructure requirements in the LGUs such as water supply and sewerage, solid waste management, commercial centers, public markets, slaughterhouses, and telecommunications. One example of a successful LGU project implemented under a BOT scheme is the Mandaluyong Public Market. Concerning countrywide LGU BOT projects, there are a number of projects in an advanced development stage. These projects are in the following areas: bulk water supply, solid waste management, public markets, slaughterhouse, integrated bus terminals, and commercial complexes. The largest projects are the Batangas Water Supply Project which is at the conceptual stage ($275 million), the Metro Manila Solid Waste Management Project under negotiation (US$270 million); the Metro Cebu Water Supply Project ($110 million) and the Bulacan Bulk Water Supply Project ($50 million). There are eight projects in an advanced stage of development with a project cost of US$188 million or about ₱7billion, consisting of commercial centers, public markets, a waste recycling plant, slaughterhouse, solid waste management and a combined power and water supply project. In addition, there are 21 other short listed projects amounting to $690 million or about ₱27.6 billion, which are in various stages of processing.		
8. LGU Guarantee Corporation (LGUGC)	Aware of the funding problems besetting the LGUs, particularly their limited access to commercial finance, the Development Bank of the Philippines (DBP) and the Bankers Association of the Philippines (BAP) took the initiative in establishing the LGU Guarantee Corporation (LGUGC).	The establishment of the LGUGC was necessitated by the inability of LGUs to access private sector funding chiefly because of the perception of lack of creditworthiness and political succession risk. To mitigate these "perceived" risks, the DBP and the BAP, composed of some 53 different universal and commercial banks operating in the country,	**Joint Ventures** Many LGUs also contemplate on entering into joint venture partnerships with the private sector. Indeed, what is required in a joint venture undertaking is the consummation of the legal agreements	**Others Forms of Private Sector Participation in LGU Infrastructure Projects** Aside from BOT schemes and the innovative provincial equity funds, there are other forms of private sector participation in LGU infrastructure projects (mostly in the water sector) which have improved service delivery and facilitated increased access to finance for new investments. It shows how responsibility for

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
LGUGC (conntd)	The LGUGC is expected to enhance the flow of commercial funds to the LGUs, and play a "catalytic" role by providing a guarantee on loans and credits granted to LGUs from commercial funding sources, and to municipal bond flotations. Ultimately, the LGUGC will enable LGUs to expand their borrowing capacity, develop their ability to issue a variety of credit instruments, reduce their financing costs and improve their operating flexibility. The LGUGC's implementing rules and regulations, guidelines and by-laws are being drafted, and formal incorporation was completed in March 1998. It is expected that the guarantee facility will begin operations by the mid-part of 1998.	established the LGU Guaranty Corporation to guarantee loans and credits granted by participating member commercial banks for various capital investment projects of LGUs. The joint venture partnership between DBP and the BAP is geared towards accelerating the competitive access of LGU's to financial markets, especially private sector credit. So far, twenty local banks and three foreign banks have signed up as participating investing banks. The specific objectives of the LGUGC are as follows: • expand the LGUs' borrowing capacity and credit availability; • reduce the LGUs' financing costs; • improve the operating and financial flexibility of the LGUs; • reduce the credit and other perceived risks (e.g. political risk) of lenders; and • contribute to the development of the local capital market by creating a market for a variety of credit instruments. The corporation is capitalized at ₱500 million with paid up capital of ₱250 million. As a first step, the LGUGC will set-up an LGU database, and develop internal LGU credit rating system. Next, the LGUGC will accredit financial institutions which have expressed interest in participating in the guarantee program as investing banks. Finally, the LGUGC will receive and process the guarantee applications from the appropriate bank under the BAP, which will provide financing for the LGU project. In case of default by the LGU on the loan, the guarantee can be called or a restructuring exercise undertaken by the leading financial institution. The guarantee facility will have a gearing ratio of 10 times its paid-in capital; therefore, it can provide guarantees of up to ₱2.5 billion. Initially, the LGUGC can provide a credit guarantee of up to 85% of the LGU loan until a credit rating mechanism is put in place. Based on recent discussions, LGUs are excited about the prospects of obtaining a guarantee facility for its loans to finance its various projects.	and once the financing and the contractors are in place, the project can commence. However, joint ventures do not have any specific legal framework at the moment such as the one for BOTS, which makes the arrangement subject to potential legal difficulties. In comparison, BOT schemes have the legal framework with its own specific law and implementing rules and regulations, mitigating the likelihood of a protracted legal challenge if legal issues arise	certain functions are allocated, such as asset ownership and how these different schemes impact on certain parameters such as level of investments by LGUs and consumer tariffs. These schemes vary in the type of private sector participation: • **Service contracts** are short-duration engagements for specific tasks to be undertaken by the private sector participant. The purpose is to utilize certain expertise considered to be more cost-effectively undertaken by the private sector. Overall coordination remains to be the function of the utility. • **Management contracts** have a longer term duration giving the private sector a larger operational role in the utility. Similar to the purposes of service contracts but in more expanded form, management contracts allow the private sector to introduce efficiency in operations (usually through performance objectives) for a management fee. Responsibility for investments remain with the Government. • **Leases or affermage contracts** allow the private sector to lease the assets of a utility and takes on the responsibility for operating and maintaining them. The contractor (lessor) makes lease payments to the utility in exchange for the operation of the assets and the revenue collections from operations. Similar to management contracts, responsibility for investments remain with the Government. Commercial risk is borne by the contractor. • **Concessions** give the private sector the right to operate and maintain the assets of the utility and to make necessary investments in exchange for fixed concession payments paid to the utility or the Government. • **BOT contracts** give the private sector the right to build, operate and transfer the facility to the utility or the Government after a fixed period of time (see section on BOT schemes). • Divestiture involves the outright sale of a utility's assets to the private sector. It is important that the LGUs truly understand the different forms of private sector participation and evaluate which of these schemes is most suitable and cost-effective for achieving their objective of improving the delivery of basic services.

Financing Source	Objectives	Prequalification	Elligible Projects	Loan Features
9. NDC – Agri-Agra Erap Bonds	Aucuon Date: April 15, 1999 Issue Size: ₱5.0 billion Interest Rate: 7.875% Reception : Oversubscribed amount tendered is five times the ₱5.0 billion bonds available, with significant participation by the foreign banks.		**Project Selection/Evaluation Criteria** NDC is open to partnership with the private sector. The projects should conform with the following set of guidelines: 1. The project should be for agri-agra development. 2. It should be in accordance with any or in support of development framework such as the Development Plans of the NEDA, DRIVE and Regional Growth Areas Development of DTI, Investment Priorities Program of BOI, Priority Investment Program of DA, DAR and NDC, or, the Sectoral Development Plans mandated by law. 3. It should be larger than those classified under the Small and Medium Enterprises with a project cost greater than ₱60 million. 4. It should be ready for implementation with identified specific site, with definite proponent and is accessible to major infrastructure. 5. The project selection shall ensure diversity of products, sectors, and geographical location. 6. Preference will be given to project that utilize proven modern technology and have proven modern technology and have program for technology transfer to the farmers and/or project beneficiaries. 7. The project should directly or indirectly benefit farmers and marginalized communities in line with the "ERAP Para sa Mahirap thrust. 8. It should have an IRR of at least 18% with reasonably short payback period and an economic rate of 15% based on NEDA's Economic Evaluation Procedure. 9. The proponents should be able to show its financial capability and ability to access market of product. 10. The project should have a clear exit mechanism for NDC. 11. It should be environment-friendly and have necessary environmental controls.	

7. WATER SOURCE DEVELOPMENT

7.3 Groundwater Sources

7.3.2 Groundwater Availability in the Province

(1) Major Information and References

The Groundwater Availability Map was prepared using the following information and reference (detailed list of reference is presented in Table 7.1.2, Data Report):

- Administrative and Topographical Maps of the Province published by NAMRIA with scales of 1:250,000 and 1:50,000, respectively.
- Geological Map of the Philippines published by BMGS with a scale of 1:1,000,000.
- Water Resource Investigation conducted by NWRB, 1986.
- Well Inventory Database prepared by NWRB, LWUA and DPWH.
- Well Inventory Database in the province.
- General information on groundwater condition by DPWH-DEO and PPDO.
- Well Log Data by DPWH-DEO and PEO.
- Water source information by Water Districts.

(2) Approach and Methodology

The procedure in preparing the Groundwater Availability Map is explained below with workflow depicted in Figure 7.3.1.

1) Prepare a base map with an approximate scale of 1:900,000 (fit to the A4 map size). The topographical map of NAMRIA (1:250,000) was used as a reference map. Basic information including rivers and provincial and municipal boundaries are indicated in the prepared base map.

2) The groundwater potential areas, based on the geology of the province, are delineated on the base map. The Recent alluvial and/or beach deposits, Pliocene-Quaternary sedimentary formation (clay, silt, sand and gravel) and Pliocene-Quaternary volcanic rock units (pyroclastics, debris flow and tuff) are regarded as possible aquifers considering their high porosity and permeability.

Boundaries between groundwater development potential area and difficult area were defined and delineated as presented in Figure 7.3.1, Main Report.

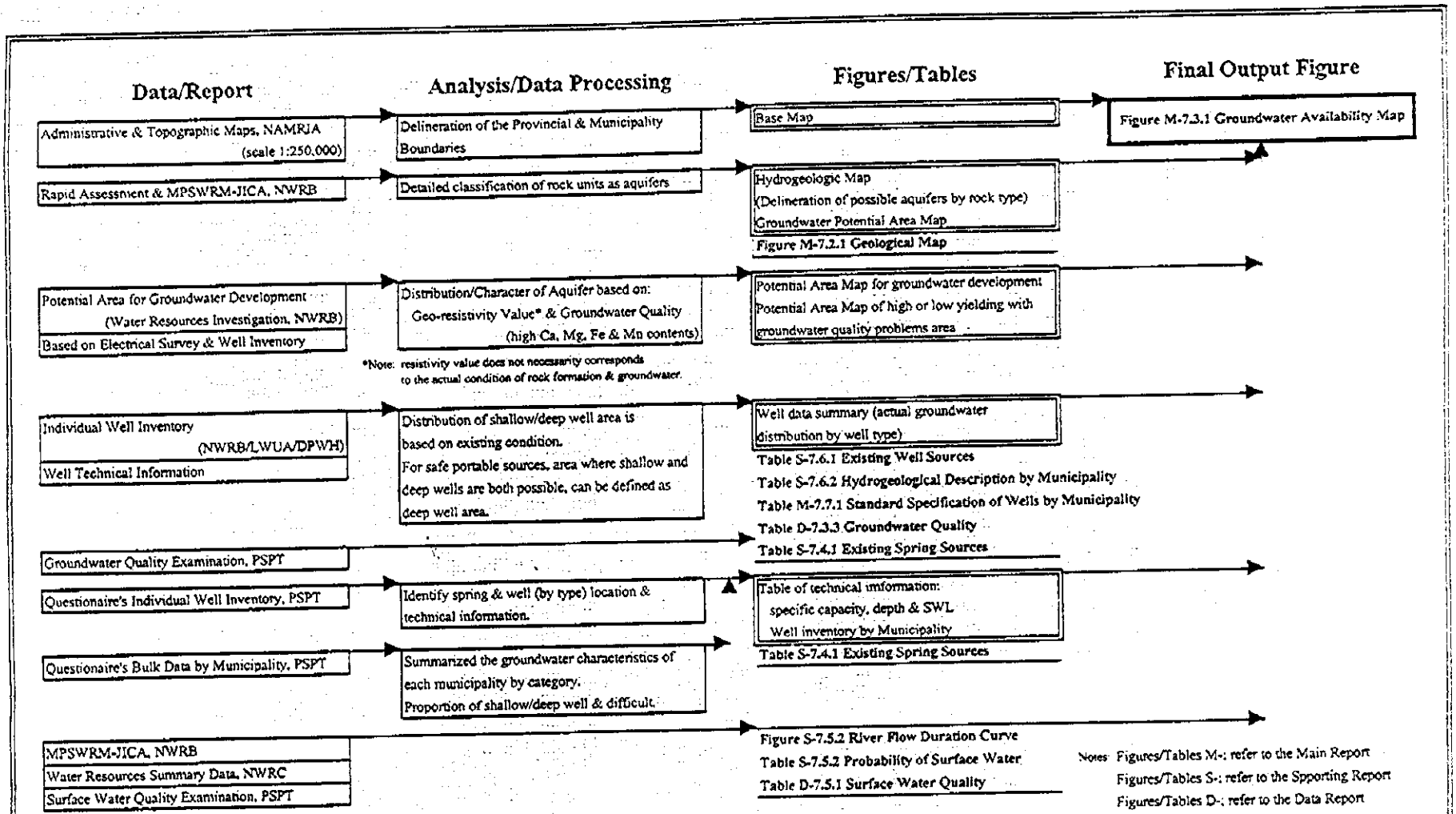

Figure 7.3.1 Workflow of Groundwater Availability Map

3) Areas with potential high yielding aquifer in the Water Resources Investigation of NWRB, are reflected in the defined groundwater potential areas.

Based on the results of electric resistivity survey of the above investigation, resistivity values from 20 to 210 ohm-meter indicate a potential high yielding formation. Values less than 10 ohm-meter suggest clayey layer. Figure 7.3.1, Main Report, shows the boundaries of areas with high and low yielding aquifers.

4) Delineate shallow and deep well areas based on well database of NWRB and DPWH central office, well inventory of DPWH-DEO and rock distribution. Figure 7.3.2 presents the categorization in terms of groundwater utilization.

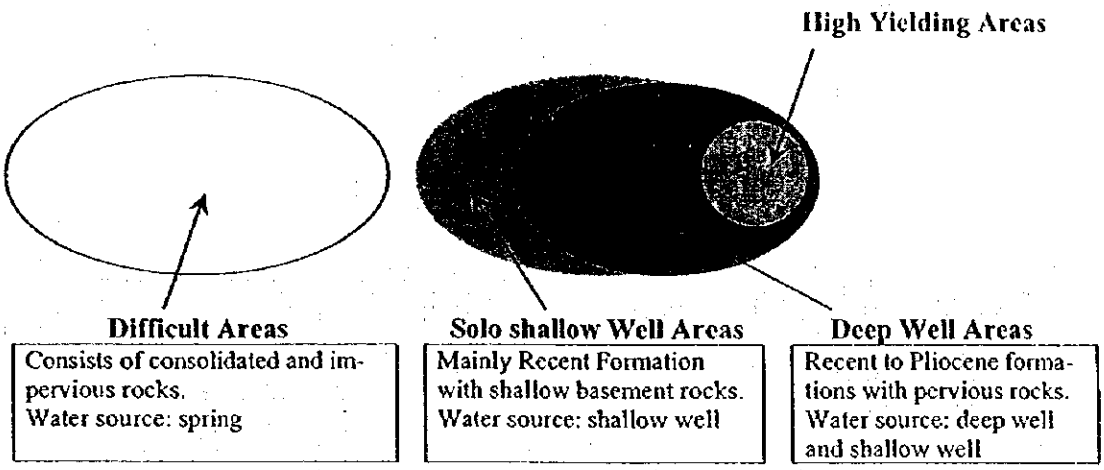

Figure 7.3.2 Area Category by Groundwater Utilization

Solo shallow well areas are defined on the following basis:

(a) Predominance of serviceable shallow wells and presence of deep wells with water quality problem and/or low yielding aquifers.

(b) Occurrence of impervious rocks beneath the Recent formation at shallow depth.

5) Based on the information provided by NWRB's well inventory and the data obtained through the questionnaires, well specification for each municipality is established as shown in the map. These specifications are used as references in evaluating the groundwater availability in each locality. Individual well locations with technical information are presented in Figure 7.6.1, Data Report.

(3) Future Updating and Utilization of the Map

For future updating of the map, the following procedure shall be employed.

1) Referring to the results of any supplementary water sources investigation by various agencies, re-define the potential area for groundwater development by applying the aforementioned procedures.

2) Update the provincial database using the questionnaire made for the study to make necessary revision of the delineated boundaries of groundwater categories.

7.4 Spring Sources

The numbers and discharge of developed springs by municipality are shown in Table 7.4.1. The dividing discharge of 2.0 lps for existing developed spring sources means that this capacity is enough for Level II water supply and can be applied to upgrade small Level III water supply. The data are derived from the questionnaires and Table 7.1.1 Water Source Information, Data Report.

Table 7.4.1 Existing Spring Sources

Municipality	No. of Developed Spring		Untapped Spring		
	Q<2.0 lps	Q>2.0 lps	No.	Ave. lps	Range lps
Arteche	1	0	4	0.2	0.2 ~ 0.3
Balangiga	0	0	-		~
Balangkayan	5	0	-		~
Borongan	18	0	-		~
Can-avid	3	10	2	63.7	11.6 ~ 115.7
Dolores	0	7	7	2.9	2.1 ~ 4.1
Gen. Mac Arthur	0	0	-		~
Giporlos	0	0	-		~
Guiuan	0	0	-		~
Hernani	1	4	10	0.3	0.1 ~ 0.6
Jipapad	10	0	10	0.2	0.2 ~ 0.2
Lawaan	0	0	-		~
Llorente	0	0	6	0.4	0.4 ~ 0.5
Maslog	5	0	7	0.1	0.1 ~ 0.1
Maydolong	0	0	-		~
Mercedes	0	0	-		~

Table 7.4.1 Existing Spring Sources

(Cont'd)

Municipality	No. of Developed Spring		Untapped Spring				
	Q<2.0 lps	Q>2.0 lps	No.	Ave. lps	Range lps		
Oras	14	0	3	0.3	0.3	~	0.3
Quinapondan	0	11	2	3.5	3.5	~	3.5
Salcedo	7	0	-			~	
San Julian	0	5	3	3.5	2.7	~	4.6
San Policarpio	1	0	-			~	
Sulat	10	0	-			~	
Taft	8	1	5	0.5	0.1	~	2.3

Note: Ave. lps & Range lps mean the average discharge and the range of discharges in lps (liter/second), respectively.

7.5 Surface Water Sources

The major rivers in the province were selected to evaluate their potential as water supply sources to meet the future water needs of the province. The following criteria were adopted for the selection:

- rivers which have been utilized for domestic purpose,
- rivers which have gauging stations, and
- rivers with watershed of 100 km^2 or more.

Based on the above criteria, the selected major rivers are Oras, Dolores, Ulot, Taft, Borongan, Suribao, Llorente and Balangiga Rivers. The Jicontrol River is a tributary of the Dolores River as shown in Figure 7.5.1, River Network Map.

The only gauging station in the province is located at the tributary of the Dolores River shown in Figure 7.5.1. Runoff records are obtained from the "Philippine Water Resources Summary Data" prepared by the NWRC in 1980. Information on the gauging station and the present uses (water rights) of the major rivers in the province is summarized in Table 7.5.1.

(1) Surface Water Utilization/Water Rights

As seen in Table 7.5.1, the present water uses in the watershed of the major rivers totaled 3.84 m^3/sec. The major diversion points, operated by NIA and private associations, are located in Balangkayan (Llorente River), Dolores (Dolores River), Laawan (Balangigan River), Oras (Oras River) and San Julian (Borongan River). Mining sites are located in the mountainous area. Most of them are within the watershed of Taft River as shown in Figure 7.5.1.

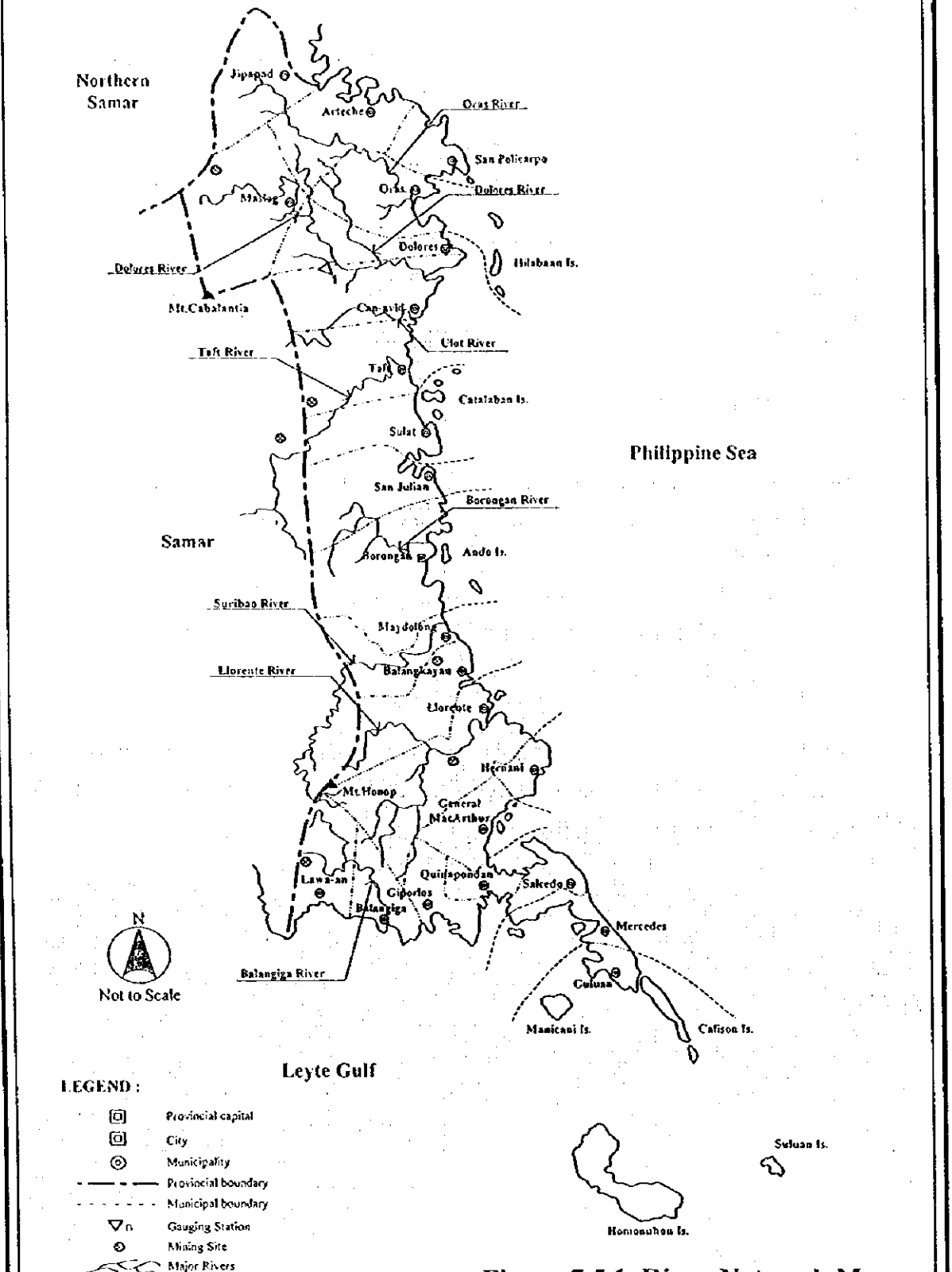

Figure 7.5.1 River Network Map
Province of Eastern Samar

Table 7.5.1 Gauging Station & River Water Use by Major River Basin

River Basin		Information from Gauging Station						Surface Water Use (Water Rights) in Watershed				
Major River	Stream & Main Systems	Drainage*1 sq.km	Location No. in Figure 7.5.1	River Flow Rate (Q: cum/sec) Peak Q_p	Max. Q_{dx}	Mini. Q_{dn}	Data Period	Municipality in watershed	Domestic cum/sec	Industrial cum/sec	Irrigation cum/sec	Others*3 cum/sec
Oras		No Gauging Station exists.						Jipapad	NR*4	NR*4	NR*4	NR*4
								Arteche	NR*4	NR*4	NR*4	NR*4
								Oras	-	-	0.93	-
Dolores	Dolores	No Gauging Station exists.						Arteche	NR*4	NR*4	NR*4	NR*4
								Oras	-	-	0.03	-
								Dolores	-	-	0.22	-
								Can-avid	-	-	0.02	-
	Jicontrol	95.0	(1): Hinolaso	231.31	180.96	2.48	1959-'70	Maslog	NR*4	NR*4	NR*4	NR*4
								Dolores	NR*4	NR*4	NR*4	NR*4
								Can-avid	NR*4	NR*4	NR*4	NR*4
Ulot		No Gauging Station exists.						(Samar)*5	NR*4	NR*4	NR*4	NR*4
								Taft	NR*4	NR*4	NR*4	NR*4
								Can-avid	-	-	0.02	-
Taft		No Gauging Station exists.						(Samar)*5	NR*4	NR*4	NR*4	NR*4
								Sulet	NR*4	NR*4	NR*4	NR*4
								Taft	NR*4	NR*4	NR*4	NR*4
Borongan		No Gauging Station exists.						San Julian	-	-	1.32	-
								Borongan	-	-	-	-
Suribao		No Gauging Station exists.						(Samar)*5	NR*4	NR*4	NR*4	NR*4
								Maydolong	NR*4	NR*4	NR*4	NR*4
Llorente		No Gauging Station exists.						Balangkayan	-	-	0.21	-
								Llorente	NR*4	NR*4	NR*4	NR*4
Balangiga		No Gauging Station exists.						Lawa-an	-	-	1.09	-
								Balangiga	NR*4	NR*4	NR*4	NR*4

Source; Philippine Water Resources Summary Data, established January 1980 by NWRC

Notes; Drainage*1 : Watershed Area at Gauging Station
NA*2 : Recorded River Gauge Hight only
Others*3 : Including Livestock, Recreation & Fisheries
NR*4 : Surface water utilization was not registered in NWRB Database, as of March 1997.
(Province)*5 : Out of Applicable Area
Q_p : Peak Discharge of Daily Maximum Discharge
Q_{dx} : Maximum Daily Discharge of Weighted Daily Discharge
Q_{dn} : Minimum Daily Discharge of Weighted Daily Discharge

(2) River Flow Analysis

The flow duration curves, derived from the available runoff records, are shown in Figure 7.5.2. The stream flow, maintenance flow, diversion flow and return flow are usually used to estimate the exploitable surface water potential. In this study, the stream flow was considered as the flow potential for domestic use and the diversion flow value was treated as the equivalent to the discharge of water rights registration in surface water use. No detailed study on the return flow has been performed yet due to the difficulties in investigating the irrigation, evapotranspiration and recharge value to groundwater, etc. within the entire watersheds in the province. Therefore, the return flow was not considered for the estimation of exploitable potential.

It is generally accepted that to secure the required volume for water supply, each water use sector adopts the different return periods. Usually, the dependability of domestic water supply is taken to be 90% or higher (10-year or longer return-period) of the whole hydrological period.

In determining the river maintenance flow, such factors as runoff characteristics, navigation, fishing, picturesque scenery, salt water intrusion, clogging of river mouth, riparian structures, groundwater table, flora and fauna, and river water quality shall be considered to maintain the normal function of the river. In the Philippines, 10% of the dependable flow of the river is required as minimum maintenance flow. Therefore, the maintenance flow was calculated as the dependable flow for irrigation, which equals to 80% (5-year return-period) of the whole hydrological period.

Finally, the exploitable potential of surface water in the province was studied in the case of inflow to and outflow from the respective municipalities. The results are summarized in Table 7.5.2.

(3) Surface Water Quality

Mining sites exist upstream of the Taft stream that is located in the municipality of Taft. A major product is copper. The locations of the mining sites are shown in Figure 7.5.1.

The results of water quality analysis are summarized in Table 7.5.1, Data Report. The sampling locations were selected upstream of the respective municipalities. In the said table, Class AA and Class A of the DENR "Water Quality Criteria for Fresh Water" are shown as reference for raw water evaluation. The PNSDW-1994 is also used to evaluate

Percent of Time (%) (No. in Figure 7.5.1)	Specific Discharge (cum/sec/100sq km) Dolores-Jicontrol 1
10%	25.49
20%	13.60
30%	10.87
40%	9.21
50%	7.41
60%	5.97
70%	5.16
80%	3.93
90%	3.08
100%	1.58
Data Period	1959-'70

Source; Philippine Water Resources Summary Data, as of Jan. 1980 by NWRC
Interim Report, Master Plan Study on Water Resources Management, as of Oct. 1997 by NWRB

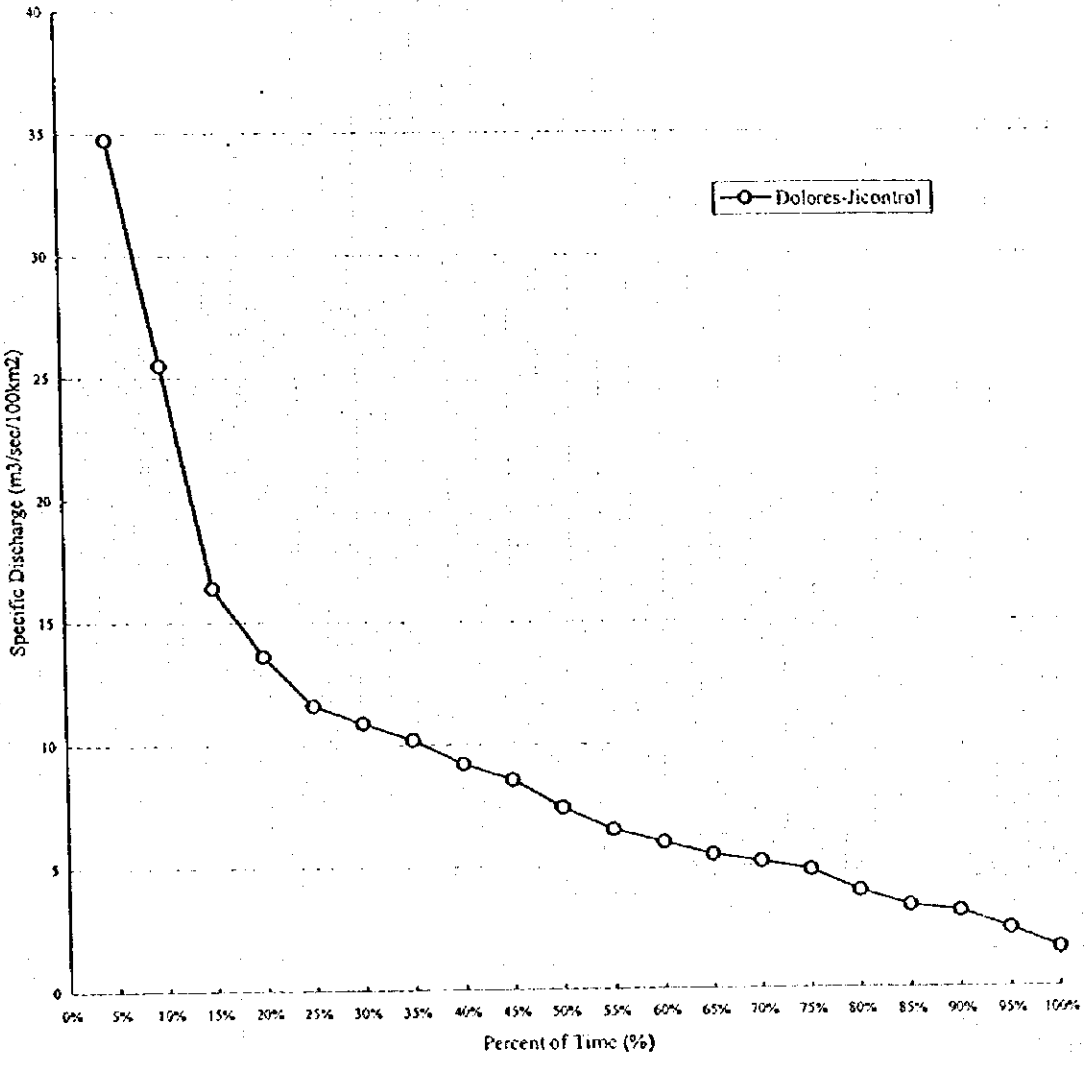

Figure 7.5.2 River Flow Duration Curve

Table 7.5.2 Probability of Surface Water

Surface Water Sources		Related Data					Probability of Surface Water (10-year returen-period)							
				Watershed Area in		Sp. D (return-period)	Inlet Flow to Municipality				Outlet Flow from Municipality			
Major River	System & Main	Location Municipality & other Province	River Connection	Location (1)	Upstream (2)	10-year (3)	5-year (4)	S/Flow (5) (3)x(2)/100	M/Flow (6) (2)x(4)/100x10%	Use (7)	Potential (8) (5)+(6)-(7)	S/Flow (9) (3)+(1)x(3)/100	M/Flow (10) (4)-(1)x(4)/100x10%	Use (11)	Potential (12) (9)+(10)-(11)
		upstream to down	outlet or inlet	sq.km	sq.km	Q	Q	cu.m/sec	cu.m/sec	cu.m/sec	cu.m/sec	cu.m/sec	cu.m/sec	cu.m/sec	cu.m/sec
Oras		Jipapad		197.33	0.00	3.08	3.93	0.00	0.00	0.00	0.00	6.08	0.78	0.00	5.31
		Arteche		70.08	197.33	3.08	3.93	6.08	0.78	0.00	5.31	8.24	1.05	0.00	7.19
		Oras		77.20	267.41	3.08	3.93	8.24	1.05	0.00	7.19	10.62	1.36	0.93	8.34
Dolores	Dolores	Arteche		21.02	0.00	3.08	3.93	0.00	0.00	0.00	0.00	0.65	0.08	0.00	0.57
		Oras		49.70	21.02	3.08	3.93	0.65	0.08	0.00	0.57	2.18	0.28	0.03	1.87
		Dolores		54.44	70.72	3.08	3.93	2.18	0.28	0.03	1.87	3.86	0.49	0.25	3.12
		Can-avid	to Jicontrol	0.94	125.16	3.08	3.93	3.86	0.49	0.25	3.12	3.89	0.50	0.26	3.13
	Jicontrol	Maslog		249.80	0.00	3.08	3.93	0.00	0.00	0.00	0.00	7.70	0.98	0.00	6.72
		Dolores		235.91	249.80	3.08	3.93	7.70	0.98	0.00	6.72	14.97	1.91	0.00	13.06
		Can-avid	from Dolores	94.38	611.81	3.08	3.93	18.86	2.41	0.26	16.19	21.76	2.78	0.26	18.72
Ulot		Taft		63.92	87.89	3.08	3.93	2.71	0.35	0.00	2.36	4.68	0.60	0.00	4.08
		Can-avid		151.01	151.81	3.08	3.93	4.68	0.60	0.00	4.08	9.33	1.19	0.02	8.12
Taft		Sulet		92.81	259.88	3.08	3.93	8.01	1.02	0.00	6.99	10.87	1.39	0.00	9.48
		Taft		119.85	352.69	3.08	3.93	10.87	1.39	0.00	9.48	14.56	1.86	0.00	12.71
Borongan		San Julian		33.09	0.00	3.08	3.93	0.00	0.00	0.00	0.00	1.02	0.13	0.05	0.84
		Borongan		183.00	33.09	3.08	3.93	1.02	0.13	0.05	0.84	6.66	0.85	0.05	5.76
Suribao		Maydolong		275.87	643.69	3.08	3.93	19.84	2.53	0.00	17.31	28.34	3.62	0.00	24.72
Llorente		Balangkayan		120.12	0.00	3.08	3.93	0.00	0.00	0.00	0.00	3.70	0.47	0.21	3.02
		Llorente		307.24	120.12	3.08	3.93	3.70	0.47	0.21	3.02	13.17	1.68	0.21	11.28
Balangiga		Lawa-an		110.32	0.00	3.08	3.93	0.00	0.00	0.00	0.00	3.40	0.43	1.09	1.87
		Balangiga		118.52	110.32	3.08	3.93	3.40	0.43	1.09	1.87	7.05	0.90	1.09	5.06

Note: Sp. D (Specific Discharge) was analyzed by montly mean flow records from gauging station.
S/Flow (Stream Flow) was estimated specific diacharge (10-year return-period) multilied by upstream area.
M/Flow (Maintenance Flow) was estimated 10% of river flow in case of 5-year return-period.
Sp.D (10-year or 5-year return-period) without gauging station was adopted by the other analysis result from near gauging station.
Inlet & outlet "Use" (Water Rights) are summed up by NWRB Database, as of March 1997.
Unit Q for Specific Discharge is cu.m/sec/100 sq.km.
S/Flow, M/Flow & Use in final outlet flow of each stream system was added to respective inlet flows' of main system.

water quality with reference to turbidity and trace elements. Except for color, the water quality of the selected rivers falls within the class "A" standard, although the parameters tested are limited.

7.6 Future Development Potential of Water Sources

(1) Groundwater

A well inventory covering all the municipalities shows that there are 3,754 existing wells in the province, while 493 wells (164 deep wells and 329 shallow wells) are recorded in the inventory prepared by PSPT (See Table 7.1.1 and 7.3.1, Data Report). Despite the smaller number of wells included in the PSPT data, these were used in the analysis, since these provided technical information. Of the total 493 wells, 468 have complete information: depth, static water level and specific capacity. Data are summarized in Table 7.6.1 Existing Well Sources.

Table 7.6.1 Existing Well Sources

Municipality	Type	No.	Depth (m)		SWL (mbgs)		Sp. Cap. (lpsm)	
			Ave.	Range	Ave.	Range	Ave.	Range
Arteche	DW	0		-		-		-
	SW	27	6.0	6.0 - 6.0	5.1	3.0 - 6.0	0.2	0.2 - 0.2
Balangiga	DW	0		-		-		-
	SW	8	6.0	6.0 - 6.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
Balangkayan	DW	0		-		-		-
	SW	0		-		-		-
Borongan	DW	35	21.6	21.0 - 24.0	3.3	3.0 - 6.0	0.2	0.2 - 0.2
	SW	45	6.5	6.0 - 10.0	3.3	3.0 - 6.0	0.2	0.2 - 0.2
Can-avid	DW	17	23.7	20.0 - 60.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
	SW	0		-		-		-
Dolores	DW	7	40.0	40.0 - 40.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
	SW	40	6.0	6.0 - 6.0	3.1	3.0 - 6.0	0.4	0.2 - 10.7
Gen. Mac Arthur	DW	0		-		-		-
	SW	3	7.0	6.0 - 9.0	-	- - -	0.2	0.2 - 0.2
Giporlos	DW	0		-		-		-
	SW	14	6.0	6.0 - 6.0	3.5	3.0 - 6.0	0.2	0.2 - 0.2
Guiuan	DW	0		-		-		-
	SW	47	6.2	3.0 - 12.0	3.0	1.8 - 6.0	0.2	0.2 - 0.2

Table 7.6.1 Existing Well Sources

(Cont'd)

Municipality	Type	No.	Depth (m)		SWL (mbgs)		Sp. Cap. (lpsm)	
			Ave.	Range	Ave.	Range	Ave.	Range
Hernani	DW	0		-		-		-
	SW	22	5.2	4.5 - 6.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
Jipapad	DW	3	25.0	25.0 - 25.0	6.0	6.0 - 6.0	0.2	0.2 - 0.2
	SW	0		-		-		-
Lawaan	DW	1	20.0	20.0 - 20.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
	SW	16	4.6	3.0 - 6.1	2.9	2.0 - 3.0	0.2	0.2 - 0.2
Llorente	DW	42	30.7	20.0 - 43.0	19.1	6.0 - 36.0	0.6	0.5 - 0.6
	SW	0		-		-		-
Maslog	DW	0		-		-		-
	SW	0		-		-		-
Maydolong	DW	1	20.0	20.0 - 20.0	6.0	6.0 - 6.0	0.2	0.2 - 0.2
	SW	10	9.9	7.0 - 12.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
Mercedes	DW	11	45.0	45.0 - 45.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
	SW	8	11.5	6.0 - 15.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
Oras	DW	8	34.5	25.0 - 50.0	5.0	3.0 - 21.0	0.3	0.2 - 1.0
	SW	24	12.8	10.0 - 18.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
Quinapondan	DW	3	20.0	20.0 - 20.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
	SW	12	12.4	4.0 - 15.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
Salcedo	DW	0		-		-		-
	SW	18	4.6	3.0 - 14.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
San Julian	DW	9	23.2	20.0 - 53.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
	SW	12	10.7	8.0 - 12.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
San Policarpio	DW	6	27.2	20.0 - 30.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
	SW	10	6.4	6.0 - 10.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
Sulat	DW	8	20.0	20.0 - 20.0	7.8	5.0 - 10.0	-	- - -
	SW	10	5.4	4.0 - 6.0	3.7	3.0 - 6.0	0.2	0.2 - 0.2
Taft	DW	13	23.8	20.0 - 40.0	3.0	3.0 - 3.0	0.2	0.2 - 0.2
	SW	3	6.0	6.0 - 6.0	3.2	3.0 - 6.0	0.2	0.2 - 0.2

Notes; The values of "Ave. depth, SWL and Sp.Cap." by municipality are estimated using the weighted average based on 1995 census population in respective barangays at well location.
Legend; SWL=static water level, Sp.Cap.=specific capacity, Ave.=average, SW=shallow well and DW=deep well

Considering the well information, the most productive wells are those with depth ranging from 6.0m to 12.0m and from 20.0m to 43.0m. Good yielding wells have static water level varying from about 2m to 37mbgs and specific capacity of 1.0 lpsm to 11.0 lpsm.

Based on the hydraulic characteristics and location of wells in Eastern Samar, aquifers are widely distributed in northern coastal and lowland hills. Shallow well area is distributed in southern and southeastern coastal areas of the province. The Miocene and older rock units are widely distributed in the western and southwestern parts of the province that are classified as difficult area for groundwater development.

As indicated in Figure 7.3.1 Main Report, the fluviatile deposits are high yielding potential areas covering the northern coastal part of the province. However, much numbers of shallow and deep wells in the municipalities of Arteche, Can-avid, Dolores, Jipapad and Oras contain high iron and acid groundwater.

As alternative water sources, the untapped springs can be developed for future use. These are the most reliable sources for water supply in the province because groundwater quality has a serious problem of ironic water. Existing spring sources of 164 are utilized for water supply and they originate from the high mountains in the western part of the province. The untapped springs of 59 are proposed as future water sources in the coastal areas from Jipapad to Quinapondan.

Iron removal facilities shall be considered for Level-I deep well facilities in case there are no alternative spring sources in deep well areas with water quality problem of ironic groundwater in northern part of the province. The proportion of the iron removal facilities to be constructed for Level-I deep well facilities covering the entire province is estimated at 10%.

The detailed hydrogeological characteristics of each municipality are summarized in Table 7.6.2, while individual well locations with technical information are shown in Figure 7.6.1 individual Well Location and Specification Map, Data Report.

Additional wells shall be designed employing "gravel packed well" with gravel thickness of about 50mm or more depending on the grain sizes of aquifers and pumping capacity. While, natural gravel packed well may be adopted within the areas where well-sorted natural gravel formation is distributed at the expected aquifer. Such areas are usually the upstream areas of alluvial fans or plains in the province. Application of such method for Level-I well is also justifiable, since inflow velocity of groundwater through the screen is very low because of minimal pumping rate by means of hand-pump operation.

Table 7.6.2 Hydrogeological Descriptions by Municipality

Municipality	Ground Information								Well Information						Groundwater Information						
	Topography			Geology					Depth		SWL		Sp.Cap.	L-III	Availability			Potential		Quality	
	Area Proportion (%)			Lithofacies	Stratigraphy of Geological Age*				m		mbgs		lpsm		Area Proportion (%)			Comparative		Area Feature	
	Plain-Plateau	Hilly-Piedmont	Mountain	(Major Aquifers)	Q	Tertiary Neo.	Tertiary Paleo.	C	mini.	max.	mini.	max.	ave.	well	SW	DW	Diff.	Wells	Springs	Problem	Pollutants
Arteche	96%	4%	0%	recent deposit & limestone	x	x	x		6	6	3.0	6.0	0.20	0	0%	96%	4%	fair	few	ironic & saline	
Balangiga	8%	4%	88%	recent deposit & fissure			x		6	6	3.0	3.0	0.20	0	8%	0%	92%	poor	rich		mining
Balangkayan	2%	33%	65%	weathered & fissure	x	x	x		-	-	-	-	-	0	2%	0%	98%	poor	rich		mining
Borongan	22%	25%	53%	recent deposit & limestone	x	x	x		6	24	3.0	6.0	0.20	0	0%	12%	88%	fair	few	ironic & saline	mining
Can-avid	63%	23%	14%	recent deposit & limestone	x	x	x		20	60	3.0	3.0	0.20	0	0%	63%	37%	good	rich	ironic & saline	mining
Dolores	73%	4%	23%	recent deposit & limestone	x	x	x		6	40	3.0	5.5	0.60	0	0%	73%	27%	good	rich	ironic & saline	
G.MacArthur	7%	4%	89%	recent deposit & fissure	x		x		6	9	-	-	0.20	0	0%	7%	93%	poor	rich	ironic	
Giporlos	6%	0%	94%	recent deposit & fissure	x		x		6	6	3.0	6.0	0.20	0	6%	0%	94%	poor	rich		
Guiuan	72%	0%	28%	recent deposit & limestone	x	x			3	12	1.8	6.0	0.20	0	0%	72%	28%	fair	poor	saline	
Hernani	24%	29%	47%	recent deposit & fissure	x		x		5	6	3.0	3.0	0.20	0	24%	0%	76%	poor	rich	ironic	
Jipapad	92%	8%	0%	recent deposit & limestone	x	x	x		25	25	6.0	6.0	0.20	0	0%	92%	8%	fair	few		
Lawaan	7%	42%	51%	recent deposit & fissure	x		x		3	20	2.0	3.0	0.20	0	7%	0%	93%	poor	rich		mining
Llorente	6%	18%	76%	recent deposit & fissure	x		x		20	43	6.0	37.2	0.60	0	6%	0%	94%	poor	rich		mining
Maslog	12%	21%	67%	recent deposit & limestone		x	x		-	-	-	-	-	0	0%	12%	88%	poor	few	ironic	mining
Maydolong	1%	56%	43%	fissure			x		7	20	3.0	3.0	0.20	0	0%	1%	99%	risky	few		mining
Mercedes	86%	0%	14%	recent deposit & fissure	x	x	x		6	45	3.0	21.0	0.20	0	0%	86%	14%	fair	poor	saline	
Oras	100%	0%	0%	recent deposit & limestone	x	x	x		10	50	3.0	3.0	0.20	0	0%	100%	0%	good	few	saline	
Quinapondan	54%	3%	43%	recent deposit & limestone	x	x	x		4	20	3.0	3.0	0.20	0	0%	53%	47%	fair	rich	ironic	
Salcedo	64%	0%	36%	recent deposit & limestone	x	x	x		3	14	3.0	3.0	0.20	1	0%	64%	36%	fair	few	ironic & saline	
San Julian	26%	23%	51%	recent deposit & limestone	x	x	x		8	53	3.0	3.0	0.20	0	0%	26%	74%	fair	rich	ironic & saline	mining
San Policarpo	100%	0%	0%	recent deposit & limestone	x	x	x		6	30	3.0	10.0	0.20	0	0%	100%	0%	fair	few	saline	
Sulat	52%	40%	8%	recent deposit & limestone	x	x	x		4	20	3.0	6.0	0.20	1	0%	52%	48%	fair	rich	ironic & saline	mining
Taft	53%	44%	3%	recent deposit & limestone	x	x	x		6	40	1.8	37.2	0.20	0	0%	53%	47%	fair	rich	ironic & saline	mining

Legend: Geological Age, Q=Quaternary, Neo.=Neogene, Paleo.=Paleogene, C=Cretaceous
Well Information, SWL=static water level, Sp.Cap.=specific capacity, L-III=wells operated for L-III service
Groundwater Information, SW=solo shallow well area, DW=deep well area, Diff.=difficult area, ff=free flowing well

Generally, shallower well has a higher possibility to be constructed by the natural gravel packed method than the deeper one in areas formed by recent deposits. This is because the layers at different depths of alluvial plain or fan deposits had been formed by different situations of transportation and sedimentation between varied grain sizes. Therefore, the availability of the natural gravel packed well is experimentally assumed referring to the limited information such as topography, geology, static water levels, etc., as shown in Table 7.6.3.

Table 7.6.3 Proportion of Gravel Packed and Natural Gravel Packed Wells

Municipality (only potential area)	Proposed Well Depth	Proportion (%) of Level-I Deep Wells	
		Gravel Packed	Natural Gravel Packed
Arteche	80 m	80 %	20 %
Can-avid	80 m	80 %	20 %
Dolores	80 m	80 %	20 %
Jipapad	80 m	90 %	10 %
Oras	80 m	80 %	20 %
Sulat	40 m	90 %	10 %
Taft	40 m	90 %	10 %

Examination on the effective grain sizes and uniformity coefficient by sieve analysis at the influential aquifers (composed of coarse sand and/or fine gravel) should be conducted during the implementation period. Such analysis and actual well construction results are very helpful to apply the natural gravel packed method in future planning.

In northern part of the Samar Central Highlands area, it is reported by DPWH/DEO that numerous deep wells present high Fe contents (PNSDW; Fe<=1.0ppm). Groundwater with high Fe and acid pH values seems to be prevalent in this Samar Central Highlands based on examination results and general information provided from the provinces of Samar and Northern Samar. Ironic water pumped from deep wells is caused by groundwater itself, well materials eluded in acid water, or combination of groundwater and well materials. There are four cases on water quality problem in terms of Fe and pH value as shown below.

(1) Iron concentration is less than the PNSDW(1 ppm) and the pH value of groundwater indicates neutral or alkaline. There is a low possibility of iron contamination

throughout the future.

(2) Although iron concentration is within the PNSDW, groundwater quality shows an acid pH value. There is a possibility of iron contamination from steel materials.

(3) Iron concentration exceeds the PNSDW and groundwater shows neutral or alkaline. There is iron contamination caused by groundwater itself.

(4) Iron concentration exceeds the PNSDW and groundwater shows acid pH side. There is a possibility of iron contamination caused by groundwater and/or well materials.

Where groundwater has high Fe contains, the Iron Removal Facility shall be additionally installed. Where the parameter of groundwater indicates acid pH side, the well materials shall be designed to use anti-corrosive materials, such as anti-metallic (polyvinyl chloride; PVC) or anti-corrosive metal (stainless steel; SUS) materials.

Generally, shallower well presents water quality with alkalinity parameter. This is because the shallow wells are usually constructed in alluvial plain or fan deposits. The well casing materials of the said anti-corrosive shall be used for deep wells. The development of deep wells using anti-corrosive materials in the province is experimentally assumed referring to the limited information such as results of water quality examination, geology, etc., as shown in Table 7.6.4.

Table 7.6.4 Proportion of Wells to be Constructed by Different Materials

Municipality (only potential area)	Proposed Well Depth	Proportion (%) of Level-I Deep Wells	
		GI Casing Pipes	PVC Casing Pipes
Arteche	80 m	70 %	30 %
Borongan	40 m	80 %	20 %
Can-avid	80 m	70 %	30 %
Dolores	80 m	70 %	30 %
Jipapad	80 m	70 %	30 %
Maslog	120 m	60 %	40 %
Oras	80 m	70 %	30 %
San Julian	40 m	80 %	20 %
San Policarpio	40 m	80 %	20 %
Sulat	40 m	70 %	30 %
Taft	40 m	70 %	30 %

Water quality examination on Fe and pH parameters should be conducted during the implementation period. Such groundwater quality analysis is very helpful to design well materials in future planning.

(2) Spring

Untapped spring sources identified are shown in Table 7.6.5. These data were collected and tabulated using the questionnaire sheet-untapped spring information format, Data Report. Data also include the parameters of barangay name, owner, discharge, transmission pipeline length and relative elevation.

Table 7.6.5 Untapped Spring Sources Identified

Location		Untapped Spring			
Municipality	Barangay	Owner	Discharge (lps)	T.L.L.* (km)	Elevation Difference (m)
Arteche	Bato	Unknown	0.2	0.5	NA
	Campacion	Unknown	0.2	0.1	NA
	Garden	Unknown	0.3	0.5	NA
	Mac Arthur	Unknown	0.2	0.2	NA
Can-avid	Pandol	Public	115.7	3.0	20 m
	Salvacion	Public	11.6	0.5	5 m
Dolores	Buenavista	Public	2.1	0.1	NA
	Cabagoan	Public	4.1	0.1	NA
	Dampigan	Public	2.3	0.5	NA
	San Roque	Public	2.3	0.9	NA
	San Vicente	Public	3.5	1.2	NA
	Santo Nino	Public	3.0	0.2	NA
	Tanauan	Public	2.9	0.2	NA
Hernani	Barangay III	Private	0.2	0.5	NA
	Batang	Private	0.2	1.0	NA
	Cacatmonan	Public	0.2	0.5	NA
	Canciledes	Public	0.3	0.3	NA
	Carmen	Public	0.3	1.5	NA
	Garawon	Public	0.3	1.5	NA
	Nagaja	Private	0.1	0.2	NA
	Padang	Private	0.1	0.1	NA
	San Isidro	Public	0.2	2.0	NA
	San Miguel	Public	0.6	0.7	NA
Jipapad	Agsaman	Public	0.2	0.8	NA
	Barangay I	Public	0.2	1.0	NA

Table 7.6.5 Untapped Spring Sources Identified

(Cont'd)

Location		Untapped Spring			
Municipality	Barangay	Owner	Discharge (lps)	T.L.L.* (km)	Elevation Difference (m)
	Cagmanaba	Public	0.2	0.6	NA
	Dorillo	Public	0.2	0.7	NA
	Jewaran	Public	0.2	0.4	NA
	Mabuhay	Public	0.2	0.6	NA
	Magsaysay	Public	0.2	0.6	NA
	Recare	Public	0.2	0.8	NA
	Rozas	Public	0.2	0.5	NA
	San Roque	Public	0.2	0.4	NA
Llorente	Burak	Public	0.4	0.3	NA
	Candoros	Public	0.4	0.7	NA
	Cantomco	Public	0.4	0.7	NA
	Maca-anga	Public	0.4	0.4	NA
	Magtino	Public	0.4	0.8	NA
	Naubay	Public	0.5	0.4	NA
Maslog	Libertad	Public	0.1	0.3	NA
	Malobago	Public	0.1	0.2	NA
	Maputi	Public	0.1	0.2	NA
	San Roque	Public	0.1	0.5	NA
	Tangbo	Public	0.1	0.5	NA
	Taytay	Public	0.1	0.1	NA
	Tugas	Public	0.1	0.1	NA
Oras	Batang	Public	0.3	0.3	NA
	Buntay	Public	0.3	0.1	NA
	Saurong	Public	0.3	2.0	NA
Quinapondan	Bagte	Public	3.5	1.5	NA
	Buenavista	Public	3.5	3.0	NA
San Julian	Bunacan	Public	3.2	3.0	NA
	Libas	Public	2.7	3.0	NA
	Putong	Public	4.6	3.0	NA
Taft	Bongdo	Public	0.1	0.5	NA
	Calayugon	Public	0.1	2.0	NA
	Malinao	Public	2.3	5.0	NA
	Mantang	Public	0.2	5.0	NA
	Nato	Public	0.1	1.0	NA

Note: T.L.L. - Transmission line length
NA - Data not available

7.7 Water Source Development for Medium-Term Development Plan

7.7.1 Detailed Groundwater Investigation Required

(1) Groundwater Database and Test Wells in Northern Coastal Area

Groundwater quality problem with high Fe contents is reported (high percentage of existing wells) in northern part of the province. The seashore area populated in Dolores and Oras has this kind of water quality problem.

In spite of the problem, there is no detailed information on where and what depth an aquifer distributes, how geologic condition and water quality are related, what hydraulic coefficients and water tables are, etc. Therefore, groundwater database shall be prepared and studied. In addition to this, water quality examination shall be conducted, since water quality information is quite limited at present. The requirements for groundwater database and water quality examination are as follows:

Groundwater Database

- Study Area; Arteche, Can-avid, Dolores, Oras & San Policarpio
- Parameter; Service Level, Well Depth/Diameter, Screen Position, Geologic Log (if any), SWL, Production/Operation Hour, Draw-down, Water Quality & Completion Year

Water Quality Examination

- Sampling Source; Deep Wells (Level I to III) in the same area for "Database"
- Water Quality Examination; to include of Fe, Mn, pH, Ca, Mg, etc.

Additionally, at least two (2) test wells in urban areas of Dolores and Oras shall be conducted for pumping test and water quality examination. The investigation shall entail the following:

Test Wells

- Study Site; Urban area of Dolores and Oras
- Number of Test Wells; at least each one test deep well in respective municipalities
- Tentative Well Design; depth of 100m, diameter of 200mm and screen length of 25m
- Pumping Test; Time draw-down with maximum discharge of 1,000m^3/day and re-

covery test

- Water Quality Examination; to include of Fe, Mn, pH, Ca, Mg, etc.

(2) Spring Water Quality Examination in Southern Mountain Area

Spring is a major water source in southern municipalities including Borongan. Some shallow wells were used for drinking purpose, but these wells have a possibility of saline water intrusion and/or high Fe contents. Water quality of springs is generally acceptable for drinking (only Bacteria test results were confirmed). However, mineral rich rocks are found in mountain area. Spring water quality shall also be examined for future spring development.

Spring Water Quality Examination

- Study Area; Balangiga, Balangkayan, Gen. Mac Arthur, Giporlas, Hernani, Lawaan, Matdolong & Quinapondan
- Sampling Source; Spring (developed/present use and undeveloped/future use) in the subject area
- Water Quality Examination to include;

Physical;	Turbidity, Color & TDS
Chemical;	pH, Total Hardness, Alkalinity & Acidity
Bacteriological;	Bacteria & Coliform
Major Cation;	Na^+, K^+, Ca^+ & Mg^+
Major Anion;	CO_3^-, HCO_3^-, Cl^- & SO_4^-
Trace Element;	Cu, Fe & Mn

7.7.2 Spacing Allocation for Level II and III Wells

The pumping rates required for Level I facilities are fairly lower than that for Level II and III systems. The well interference in Level I facilities need not to be studied in terms of spacing of wells and production rate, since most formations in shallow and deep well areas generally have enough groundwater development potential. As Level II and III wells are usually expected to produce larger discharge to meet the water demand, the spacing of wells to avoid well interference has to be considered. Spacing allocation for Level II and III wells was examined considering specific capacity, pumping rate, and assumed drawdown of 1cm at the interference radius for a pumping duration of 16 hours.

(1) Specific Capacity

According to the existing well source information, specific capacity was considered with ranges from 0.5 lpsm to 6.5 lpsm. To simplify the calculation, an average value in each range is adopted in the calculation of interference radius.

(2) Pumping Rate

The pumping rate was estimated by assuming a drawdown of 10m with the average value of specific capacity and pump operation of 16 hours/day. The formula used to determine proper well spacing is the Jacob modified equation. Drawdown at the interference boundary is assumed at 1cm after a pumping duration of 16 hours.

Table 7.7.1 presents the estimated spacing requirements and number of wells to be constructed within a well field of one km^2. The spacing interval between adjacent wells to avoid well interference is planned to be more than twice the distances of the calculated interference radius.

Table 7.7.1 Spacing Arrangements for Planned Wells

Range of Specific Capacity (lpsm)	Estimated Pumping Rate (m^3/day)	Estimated Interference Radius (m)	Estimated Number of Wells/km^2
0.5 - 1.5	500	80	45
1.5 - 3.0	1,000	120	20
3.0 - 4.5	2,000	160	11
4.5 - 6.0	2,500	200	7
> 6.0	>2,500	>200	>7

FUTURE REQUIREMENTS AND DEVELOPMENT PLAN

B

8. FUTURE REQUIREMENT IN WATER SUPPLY AND SANITATION IMPROVEMENT

8.2 Targets of Provincial Sector Plan

Table 8.2.1 Estimation of Base Year Service Coverage of Water Supply

Name of Municipality	Area	Population (1998)	Population Served by 1998 Facilities				Population Served by Planned/On-going Projects				Population Served in the Base Year (1998)			
			Level III	Level II	Level I	Total	Level III	Level II	Level I	Total	Level III	Level II	Level I	Total	Percentage Coverage
Arreche	Urban	4,682			2,680	2,680							2,680	2,680	57
	Rural	8,279			2,806	2,806							2,806	2,806	34
	Total	12,961			5,486	5,486							5,486	5,486	42
Balangiga	Urban	5,970			3,638	3,638							3,638	3,638	61
	Rural	5,632		1,355	2,050	3,405						1,355	2,050	3,405	60
	Total	11,602		1,355	5,688	7,043						1,355	5,688	7,043	61
Balangkayan	Urban	2,985	1,256	1,710	15	2,981					1,256	1,710	15	2,981	100
	Rural	6,270			2,550	2,550							2,550	2,550	41
	Total	9,255	1,256	1,710	2,565	5,531					1,256	1,710	2,565	5,531	60
Borongan (Capital)	Urban	20,078	6,348		9,352	15,700					6,348		9,352	15,700	78
	Rural	30,051	319	1,333	15,569	17,221					319	1,333	15,569	17,221	57
	Total	50,129	6,667	1,333	24,921	32,921					6,667	1,333	24,921	32,921	66
Can-avid	Urban	5,674			3,368	3,368							3,368	3,368	59
	Rural	10,905		1,696	3,033	4,729						1,696	3,033	4,729	43
	Total	16,579		1,696	6,401	8,097						1,696	6,401	8,097	49
Dolores	Urban	11,134		650	6,137	6,787						650	6,137	6,787	61
	Rural	24,349		2,369	7,239	9,608						2,369	7,239	9,608	39
	Total	35,483		3,019	13,376	16,395						3,019	13,376	16,395	46
General MacArthur	Urban	4,388			4,157	4,157							4,157	4,157	95
	Rural	5,788		564		564						564		564	10
	Total	10,176		564	4,157	4,721						564	4,157	4,721	46
Giporlos	Urban	5,168			3,143	3,143							3,143	3,143	61
	Rural	4,571		943	705	1,648						943	705	1,648	36
	Total	9,739		943	3,848	4,791						943	3,848	4,791	49
Guiuan	Urban	9,862			6,094	6,094							6,094	6,094	62
	Rural	26,116		2,620	14,669	17,289						2,620	14,669	17,289	66
	Total	35,978		2,620	20,763	23,383						2,620	20,763	23,383	65
Hernani	Urban	2,211			1,323	1,323							1,323	1,323	60
	Rural	6,242		304	2,501	2,805						304	2,501	2,805	45
	Total	8,453		304	3,824	4,128						304	3,824	4,128	49
Jipapad	Urban	3,402			2,500	2,500							2,500	2,500	73
	Rural	3,152													
	Total	6,554			2,500	2,500							2,500	2,500	38
Lawaan	Urban	5,212		342	3,066	3,408						342	3,066	3,408	65
	Rural	5,145		1,010	2,064	3,074						1,010	2,064	3,074	60
	Total	10,357		1,352	5,130	6,482						1,352	5,130	6,482	63

Table 8.2.1 Estimation of Base Year Service Coverage of Water Supply (Cont'd)

Name of Municipality	Area	Population (1998)	Population Served by 1998 Facilities				Population Served by Planned/On-going Projects				Population Served in the Base Year (1998)				
			Level III	Level II	Level I	Total	Level III	Level II	Level I	Total	Level III	Level II	Level I	Total	Percentage Coverage
Llorente	Urban	6,478	506	30		536					506	30		536	8
	Rural	8,871		389	3,494	3,883						389	3,494	3,883	44
	Total	15,349	506	419	3,494	4,419					506	419	3,494	4,419	29
Maslog	Urban	1,163		337		337						337		337	29
	Rural	2,649		231		231						231		231	9
	Total	3,812		568		568						568		568	15
Maydolong	Urban	5,374	1,150	2,495	906	4,551					1,150	2,495	906	4,551	85
	Rural	7,333	116	1,310	1,370	2,796					116	1,310	1,370	2,796	38
	Total	12,707	1,266	3,805	2,276	7,347					1,266	3,805	2,276	7,347	58
Mercedes	Urban	1,335													
	Rural	4,455			3,437	3,437							3,437	3,437	77
	Total	5,790			3,437	3,437							3,437	3,437	59
Oras	Urban	8,665			7,489	7,489							7,489	7,489	86
	Rural	24,358		1,432	9,526	10,958						1,432	9,526	10,958	45
	Total	33,023		1,432	17,015	18,447						1,432	17,015	18,447	56
Quinapondan	Urban	4,547		957	2,586	3,543						957	2,586	3,543	78
	Rural	8,639		1,391	3,356	4,747						1,391	3,356	4,747	55
	Total	13,186		2,348	5,942	8,290						2,348	5,942	8,290	63
Salcedo	Urban	3,053	1,458	60		1,518					1,458	60		1,518	50
	Rural	12,786		366	10,058	10,424						366	10,058	10,424	82
	Total	15,839	1,458	426	10,058	11,942					1,458	426	10,058	11,942	75
San Julian	Urban	2,718			1,690	1,690							1,690	1,690	62
	Rural	9,267		694	5,475	6,169						694	5,475	6,169	67
	Total	11,985		694	7,165	7,859						694	7,165	7,859	66
San Policarpo	Urban	4,280			2,889	2,889							2,889	2,889	68
	Rural	7,807			4,393	4,393							4,393	4,393	56
	Total	12,087			7,282	7,282							7,282	7,282	60
Sulat	Urban	5,318	3,726	255	786	4,767					3,726	255	786	4,767	90
	Rural	9,108		703	4,240	4,943						703	4,240	4,943	54
	Total	14,426	3,726	958	5,026	9,710					3,726	958	5,026	9,710	67
Taft	Urban	4,758			3,753	3,753							3,753	3,753	79
	Rural	12,890		1,189	8,150	9,339						1,189	8,150	9,339	72
	Total	17,648		1,189	11,903	13,092						1,189	11,903	13,092	74
Provincial Total	Urban	128,455	14,444	6,836	65,572	86,852					14,444	6,836	65,572	86,852	68
	Rural	244,663	435	19,899	106,685	127,019					435	19,899	106,685	127,019	52
	Total	373,118	14,879	26,735	172,257	213,871					14,879	26,735	172,257	213,871	57

Table 8.2.2 Population Coverage in Phase I Provided by Served Population in the Base Year (Water Supply)

Name of Municipality	Area	Population Served by 1998 Facilities				1998		2001	
		Level III	Level II	Level I	Total	Total Population	Coverage (%)	Total Population	Coverage (%)
Arteche	Urban			2,680	2,680	4,682	57	4,978	54
	Rural			2,806	2,806	8,279	34	8,868	32
	Total			5,486	5,486	12,961	42	13,846	40
Balangiga	Urban			3,638	3,638	5,970	61	7,058	52
	Rural		1,355	2,050	3,405	5,632	60	5,595	61
	Total		1,355	5,688	7,043	11,602	61	12,653	56
Balangkayan	Urban	1,256	1,710	15	2,981	2,985	100	2,985	100
	Rural			2,550	2,550	6,270	41	7,119	36
	Total	1,256	1,710	2,565	5,531	9,255	60	10,104	55
Borongan (Capital)	Urban	6,348		9,352	15,700	20,078	78	20,078	78
	Rural	319	1,333	15,569	17,221	30,051	57	33,166	52
	Total	6,667	1,333	24,921	32,921	50,129	66	53,244	62
Can-avid	Urban			3,368	3,368	5,674	59	7,087	48
	Rural		1,696	3,033	4,729	10,905	43	11,207	42
	Total		1,696	6,401	8,097	16,579	49	18,294	44
Dolores	Urban		650	6,137	6,787	11,134	61	15,536	44
	Rural		2,369	7,239	9,608	24,349	39	22,480	43
	Total		3,019	13,376	16,395	35,483	46	38,016	43
General MacArthur	Urban			4,157	4,157	4,388	95	4,444	94
	Rural		564		564	5,788	10	6,015	9
	Total		564	4,157	4,721	10,176	46	10,459	45
Giporlos	Urban			3,143	3,143	5,168	61	5,474	57
	Rural		943	705	1,648	4,571	36	3,614	46
	Total		943	3,848	4,791	9,739	49	9,088	53
Guiuan	Urban			6,094	6,094	9,862	62	10,176	60
	Rural		2,620	14,669	17,289	26,116	66	26,912	64
	Total		2,620	20,763	23,383	35,978	65	37,088	63
Hernani	Urban			1,323	1,323	2,211	60	2,694	49
	Rural		304	2,501	2,805	6,242	45	6,591	43
	Total		304	3,824	4,128	8,453	49	9,285	44
Jipapad	Urban			2,500	2,500	3,402	73	4,059	62
	Rural					3,152		3,190	
	Total			2,500	2,500	6,554	38	7,249	34
Lawaan	Urban		342	3,066	3,408	5,212	65	7,176	47
	Rural		1,010	2,064	3,074	5,145	60	4,504	68
	Total		1,352	5,130	6,482	10,357	63	11,680	55
Llorente	Urban	506	30		536	6,478	8	6,478	8
	Rural		389	3,494	3,883	8,871	44	7,360	53
	Total	506	419	3,494	4,419	15,349	29	13,838	32
Maslog	Urban		337		337	1,163	29	1,369	25
	Rural		231		231	2,649	9	2,816	8
	Total		568		568	3,812	15	4,185	14
Maydolong	Urban	1,150	2,495	906	4,551	5,374	85	6,325	72
	Rural	116	1,310	1,370	2,796	7,333	38	7,439	38
	Total	1,266	3,805	2,276	7,347	12,707	58	13,764	53
Mercedes	Urban					1,335		1,768	
	Rural			3,437	3,437	4,455	77	4,685	73
	Total			3,437	3,437	5,790	59	6,453	53
Oras	Urban			7,489	7,489	8,665	86	8,665	86
	Rural		1,432	9,526	10,958	24,358	45	27,476	40
	Total		1,432	17,015	18,447	33,023	56	36,141	51
Quinapondan	Urban		957	2,586	3,543	4,547	78	5,705	62
	Rural		1,391	3,356	4,747	8,639	55	8,616	55
	Total		2,348	5,942	8,290	13,186	63	14,321	58
Salcedo	Urban	1,458	60		1,518	3,053	50	3,159	48
	Rural		366	10,058	10,424	12,786	82	12,289	85
	Total	1,458	426	10,058	11,942	15,839	75	15,448	77
San Julian	Urban			1,690	1,690	2,718	62	2,718	62
	Rural		694	5,475	6,169	9,267	67	9,533	65
	Total		694	7,165	7,859	11,985	66	12,251	64
San Policarpo	Urban			2,882	2,889	4,280	68	4,766	61
	Rural			4,393	4,393	7,807	56	8,413	52
	Total			7,282	7,282	12,087	60	13,179	55
Sulat	Urban	3,726	255	786	4,767	5,318	90	6,422	74
	Rural		703	4,240	4,943	9,108	54	8,875	56
	Total	3,726	958	5,026	9,710	14,426	67	15,297	63
Taft	Urban			3,753	3,753	4,758	79	4,789	78
	Rural		1,189	8,150	9,339	12,890	72	15,025	62
	Total		1,189	11,903	13,092	17,648	74	19,814	66
Provincial Total	Urban	14,444	6,836	65,572	86,852	128,455	68	143,909	60
	Rural	435	19,899	106,685	127,019	244,663	52	251,788	50
	Total	14,879	26,735	172,257	213,871	373,118	57	395,697	54

Table 8.2.3 Number of Households Served by Sanitary Toilets in the Base Year (1998)

Name of Municipality	Area	Population (1998)	Number of Households (1998)	Households Using Sanitary Toilets in 1998				Recipient HHs of Planned/On-going Projects				Households Using Sanitary Toilets in the Base Year (1998)							
												Number				Coverage (%)			
				Flush Toilets	Pour Flush	VIP/Dry	Total	Flush	Pour Flush	VIP/Dry	Total	Flush	Pour Flush	VIP/Dry	Total	Flush	Pour Flush	VIP/Dry	Total
Arteche	Urban	4,682	894	1	360	361	722					1	360	361	722		40	40	81
	Rural	8,279	1,556		353	353	706						353	353	706		23	23	45
	Total	12,961	2,450	1	713	714	1,428					1	713	714	1,428		29	29	58
Balangiga	Urban	5,970	1,129		682	92	774						682	92	774		60	8	69
	Rural	5,632	1,018		492	56	548						492	56	548		48	6	54
	Total	11,602	2,147		1,174	148	1,322						1,174	148	1,322		55	7	62
Balangkayan	Urban	2,985	575		356	34	390						356	34	390		62	6	68
	Rural	6,270	1,181		581	77	658						581	77	658		49	7	56
	Total	9,255	1,756		937	111	1,048						937	111	1,048		53	6	60
Borongan (Capital)	Urban	20,078	3,846	335	1,025	1,599	2,959					335	1,025	1,599	2,959	9	27	42	77
	Rural	30,051	6,010	152	1,555	3,347	5,054					152	1,555	3,347	5,054	3	26	56	84
	Total	50,129	9,856	487	2,580	4,946	8,013					487	2,580	4,946	8,013	5	26	50	81
Can-avid	Urban	5,674	973		592	108	700						592	108	700		61	11	72
	Rural	10,905	1,961		313	702	1,015						313	702	1,015		16	36	52
	Total	16,579	2,934		905	810	1,715						905	810	1,715		31	28	58
Dolores	Urban	11,134	1,971	80	1,358	328	1,766					80	1,358	328	1,766	4	69	17	90
	Rural	24,349	4,317	2	1,193	580	1,775					2	1,193	580	1,775		28	13	41
	Total	35,483	6,288	82	2,551	908	3,541					82	2,551	908	3,541	1	41	14	56
General MacArthur	Urban	4,388	804		345	79	424						345	79	424		43	10	53
	Rural	5,788	1,026		41	412	453						41	412	453		4	40	44
	Total	10,176	1,830		386	491	877						386	491	877		21	27	48
Giporlos	Urban	5,168	983		488	86	574						488	86	574		50	9	58
	Rural	4,571	850		282	28	310						282	28	310		33	3	36
	Total	9,739	1,833		770	114	884						770	114	884		42	6	48
Guiuan	Urban	9,862	1,878	50	1,295	187	1,532					50	1,295	187	1,532	3	69	10	82
	Rural	26,116	5,287		1,810	394	2,204						1,810	394	2,204		34	7	42
	Total	35,978	7,165	50	3,105	581	3,736					50	3,105	581	3,736	1	43	8	52
Hernani	Urban	2,211	380	7	69	124	200					7	69	124	200	2	18	33	53
	Rural	6,242	1,027	1	52	645	698					1	52	645	698		5	63	68
	Total	8,453	1,407	8	121	769	898					8	121	769	898	1	9	55	64
Jipapad	Urban	3,402	539		393	72	465						393	72	465		73	13	86
	Rural	3,152	573		151	120	271						151	120	271		26	21	47
	Total	6,554	1,112		544	192	736						544	192	736		49	17	66
Lawaan	Urban	5,212	839		387	25	412						387	25	412		46	3	49
	Rural	5,145	917		484	50	534						484	50	534		53	5	58
	Total	10,357	1,756		871	75	946						871	75	946		50	4	54

Table 8.2.3 Number of Households Served by Sanitary Toilets in the Base Year (1998) (Cont'd)

Name of Municipality	Area	Population (1998)	Number of Households (1998)	Households Using Sanitary Toilets in 1998				Recipient HHs of Planned/On-going Projects				Households Using Sanitary Toilets in the Base Year (1998)							
												Number				Coverage (%)			
				Flush Toilets	Pour Flush	VIP/Dry	Total	Flush	Pour Flush	VIP/Dry	Total	Flush	Pour Flush	VIP/Dry	Total	Flush	Pour Flush	VIP/Dry	Total
Llorente	Urban	6,478	1,344	53	828	63	944					53	828	63	944	4	62	5	70
	Rural	8,871	1,829		982	39	1,021						982	39	1,021		54	2	56
	Total	15,349	3,173	53	1,810	102	1,965					53	1,810	102	1,965	2	57	3	62
Maslog	Urban	1,163	207		120	17	137						120	17	137		58	8	66
	Rural	2,649	515		243	34	277						243	34	277		47	7	54
	Total	3,812	722		363	51	414						363	51	414		50	7	57
Maydolong	Urban	5,374	1,001	28	615	70	713					28	615	70	713	3	61	7	71
	Rural	7,333	1,204	7	554	144	705					7	554	144	705	1	46	12	59
	Total	12,707	2,205	35	1,169	214	1,418					35	1,169	214	1,418	2	53	10	64
Mercedes	Urban	1,335	198		84		84						84		84		42		42
	Rural	4,455	740		396		396						396		396		54		54
	Total	5,790	938		480		480						480		480		51		51
Oras	Urban	8,665	1,539		795		795						795		795		52		52
	Rural	24,358	4,421		2,166		2,166						2,166		2,166		49		49
	Total	33,023	5,960		2,961		2,961						2,961		2,961		50		50
Quinapondan	Urban	4,547	641		354		354						354		354		55		55
	Rural	8,639	1,459		832		832						832		832		57		57
	Total	13,186	2,100		1,186		1,186						1,186		1,186		56		56
Salcedo	Urban	3,053	601		447		447						447		447		74		74
	Rural	12,786	2,615		1,307		1,307						1,307		1,307		50		50
	Total	15,839	3,216		1,754		1,754						1,754		1,754		55		55
San Julian	Urban	2,718	555	5	415		420					5	415		420	1	75		76
	Rural	9,267	1,868		1,531		1,531						1,531		1,531		82		82
	Total	11,985	2,423	5	1,946		1,951					5	1,946		1,951		80		81
San Policarpo	Urban	4,280	839		388	336	724						388	336	724		46	40	86
	Rural	7,807	1,479			886	886							886	886			60	60
	Total	12,087	2,318		388	1,222	1,610						388	1,222	1,610		17	53	69
Sulat	Urban	5,318	1,045		674		674						674		674		64		64
	Rural	9,108	1,748		1,310		1,310						1,310		1,310		75		75
	Total	14,426	2,793		1,984		1,984						1,984		1,984		71		71
Tafi	Urban	4,758	860	9	734	13	756					9	734	13	756	1	85	2	88
	Rural	12,890	2,269		927	176	1,103						927	176	1,103		41	8	49
	Total	17,648	3,129	9	1,661	189	1,859					9	1,661	189	1,859		53	6	59
Provincial Total	Urban	128,455	23,641	568	12,804	3,594	16,966					568	12,804	3,594	16,966	2	54	15	72
	Rural	244,663	45,870	162	17,555	8,043	25,760					162	17,555	8,043	25,760		38	18	56
	Total	373,118	69,511	730	30,359	11,637	42,726					730	30,359	11,637	42,726	1	44	17	61

Table 8.2.4 Number of Public School Student Served by School Toilets in Base Year (1998)

Name of Municipality	1998 Total Number of Public School Student	Standard No. of Student that can be Served by 1998	No. of Student to be Served by Planned /On-going Projects	Standard No. of Students that can be Served by Toilets in Base Year (1998)	Coverage (%)
Arteche	3,424	400		400	12
Balangiga	2,569	2,280		2,280	89
Balangkayan	2,061	1,680		1,680	82
Borongan (Capital)	14,182	9,400		9,400	66
Can-avid	3,731				
Dolores	9,264	880		880	9
General MacArthur	2,903	2,600		2,600	90
Giporlos	2,668	2,668		2,668	100
Guiuan	9,152	3,520		3,520	38
Hernani	2,121	1,520		1,520	72
Jipapad	1,002	320		320	32
Lawaan	2,523	2,200		2,200	87
Llorente	4,174	2,600		2,600	62
Maslog	698	698		698	100
Maydolong	6,680	5,440		5,440	81
Mercedes	1,549	720		720	46
Oras	7,791	4,680		4,680	60
Quinapondan	2,772	640		640	23
Salcedo	4,703	3,800		3,800	81
San Julian	2,998	280		280	9
San Policarpo	2,316	1,720		1,720	74
Sulat	3,036	3,036		3,036	100
Taft	4,322	2,880		2,880	67
Provincial Total	96,639	53,962		53,962	56

Table 8.2.5 Number of Public Utilities with Sanitary Toilets in the Base Year (1998)

Name of Municipality	Type	No. of PU with Toilets in 1998	No. of PU with Sanitary Toilets in 1998	No. of PU with Sanitary Toilets in Planned/On-going Projects	No. of PU with Toilets in Base Year 1998	No. of PU with Sanitary Toilets in Base year 1998	Coverage (%)
Arteche	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total	1	1		1	1	100
Balangiga	Public Market						
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total						
Balangkayan	Public Market						
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total						
Borongan (Capital)	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal	1	1		1	1	100
	Parks/Playground						
	Total	2	2		2	2	100
Can-avid	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total	1	1		1	1	100
Dolores	Public Market	2	2		2	2	100
	Bus/Jeepney Terminal	2	2		2	2	100
	Parks/Playground	1	1		1	1	100
	Total	5	5		5	5	100
General MacArthur	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total	1	1		1	1	100
Giporlos	Public Market						
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total						
Guiuan	Public Market	3	3		3	3	100
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total	3	3		3	3	100

Table 8.2.5 Number of Public Utilities with Sanitary Toilets in the Base Year (1998) (Cont'd)

Name of Municipality	Type	No. of PU with Toilets in 1998	No. of PU with Sanitary Toilets in 1998	No. of PU with Sanitary Toilets in Planned/On-going Projects	No. of PU with Toilets in Base Year 1998	No. of PU with Sanitary Toilets in Base year 1998	Coverage (%)
Hernani	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total	1	1		1	1	100
Jipapad	Public Market						
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total						
Lawaan	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total	1	1		1	1	100
Llorente	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total	1	1		1	1	100
Maslog	Public Market						
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total						
Maydolong	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal						
	Parks/Playground	1	1		1	1	100
	Total	2	2		2	2	100
Mercedes	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total	1	1		1	1	100
Oras	Public Market						
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total						
Quinapondan	Public Market						
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total						

Table 8.2.5 Number of Public Utilities with Sanitary Toilets in the Base Year (1998) (Cont'd)

Name of Municipality	Type	No. of PU with Toilets in 1998	No. of PU with Sanitary Toilets in 1998	No. of PU with Sanitary Toilets in Planned/On-going Projects	No. of PU with Toilets in Base Year 1998	No. of PU with Sanitary Toilets in Base year 1998	Coverage (%)
Salcedo	Public Market						
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total						
San Julian	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total	1	1		1	1	100
San Policarpo	Public Market						
	Bus/Jeepney Terminal	1	1		1	1	100
	Parks/Playground						
	Total	1	1		1	1	100
Sulat	Public Market	1	1		1	1	100
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total	1	1		1	1	100
Taft	Public Market						
	Bus/Jeepney Terminal						
	Parks/Playground						
	Total						
Provincial Total	Public Market	16	16		16	16	100
	Bus/Jeepney Terminal	4	4		4	4	100
	Parks/Playground	2	2		2	2	100
	Total	22	22		22	22	100

Table 8.2.6 Households Coverage in Phase I Provided by Existing Facilities in the Base Year (Household Toilets)

Name of Municipality	Area	No. of Household Served by Existing Facilities				Coverage in 1998							Coverage in 2004						
		Flush	Pour Flush	VIP/Dry	Total	No. of HHs	Percentage of Served Households				Served Population		No. of HHs	Percentage of Served Households				Served Population	
							Flush	Pour Flush	VIP/ Dry	Total	Number	%		Flush	Pour Flush	VIP/ Dry	Total	Number	%
Arteche	Urban	1	360	361	722	894		40	40	81	3,792	81	950		38	38	76	4,020	76
	Rural		353	353	706	1,556		23	23	45	2,107	45	1,667		21	21	42	3,958	42
	Total	1	713	714	1,428	2,450		29	29	58	5,899	58	2,617		27	27	55	7,978	55
Balangiga	Urban		682	92	774	1,129		60	8	69	4,119	69	1,334		51	7	58	4,427	58
	Rural		492	56	548	1,018		48	6	54	3,224	54	1,012		49	6	54	3,267	54
	Total		1,174	148	1,322	2,147		55	7	62	7,343	62	2,346		50	6	56	7,694	56
Balangkayan	Urban		356	34	390	575		62	6	68	2,030	68	575		62	6	68	2,197	68
	Rural		581	77	658	1,181		49	7	56	1,672	56	1,341		43	6	49	3,775	49
	Total		937	111	1,048	1,756		53	6	60	3,702	60	1,916		49	6	55	5,972	55
Borongan (Capital)	Urban	335	1,025	1,599	2,959	3,846	9	27	42	77	15,460	77	3,846	9	27	42	77	16,347	77
	Rural	152	1,555	3,347	5,054	6,010	3	26	56	84	16,866	84	6,633	2	23	50	76	26,652	76
	Total	487	2,580	4,946	8,013	9,856	5	26	50	81	32,326	81	10,479	5	25	47	76	42,999	76
Can-avid	Urban		592	108	700	973		61	11	72	4,085	72	1,216		49	9	58	4,488	58
	Rural		313	702	1,015	1,961		16	36	52	2,950	52	2,016		16	35	50	6,118	50
	Total		905	810	1,715	2,934		31	28	58	7,035	58	3,232		28	25	53	10,606	53
Dolores	Urban	80	1,358	328	1,766	1,971	4	69	17	90	10,021	90	2,750	3	49	12	64	10,593	64
	Rural	2	1,193	580	1,775	4,317		28	13	41	4,565	41	3,986		30	15	45	10,777	45
	Total	82	2,551	908	3,541	6,288	1	41	14	56	14,586	56	6,736	1	38	13	53	21,370	53
General MacArthur	Urban		345	79	424	804		43	10	53	2,326	53	814		42	10	52	2,372	52
	Rural		41	412	453	1,026		4	40	44	1,931	44	1,066		4	39	42	2,594	42
	Total		386	491	877	1,830		21	27	48	4,257	48	1,880		21	26	47	4,966	47
Giporlos	Urban		488	86	574	983		50	9	58	2,997	58	1,041		47	8	55	2,800	55
	Rural		282	28	310	850		33	3	36	1,860	36	672		42	4	46	1,546	46
	Total		770	114	884	1,833		42	6	48	4,857	48	1,713		45	7	52	4,346	52
Guiuan	Urban	50	1,295	187	1,532	1,878	3	69	10	82	8,087	82	1,938	3	67	10	79	8,275	79
	Rural		1,810	394	2,204	5,287		34	7	42	4,142	42	5,448		33	7	40	11,080	40
	Total	50	3,105	581	3,736	7,165	1	43	8	52	12,229	52	7,386	1	42	8	51	19,355	51
Hernani	Urban	7	69	124	200	380	2	18	33	53	1,172	53	463	2	15	27	43	1,260	43
	Rural	1	52	645	698	1,027		5	63	68	1,503	68	1,084		5	60	64	4,589	64
	Total	8	121	769	898	1,407	1	9	55	64	2,675	64	1,547	1	8	50	58	5,849	58
Jipapad	Urban		393	72	465	539		73	13	86	2,926	86	643		61	11	72	3,197	72
	Rural		151	120	271	573		26	21	47	1,599	47	580		26	21	47	1,640	47
	Total		544	192	736	1,112		49	17	66	4,525	66	1,223		44	16	60	4,837	60
Lawaan	Urban		387	25	412	839		46	3	49	2,554	49	1,156		33	2	36	2,870	36
	Rural		484	50	534	917		53	5	58	3,023	58	803		60	6	67	3,353	67
	Total		871	75	946	1,756		50	4	54	5,577	54	1,959		44	4	48	6,223	48

Table 8.2.6 Households Coverage in Phase I Provided by Existing Facilities in the Base Year (Household Toilets) Cont'd)

Name of Municipality	Area	No. of Household Served by Existing				Coverage in 1998							Coverage in 2004						
		Flush	Pour Flush	VIP/Dry	Total	No. of HHs	Percentage of Served Households				Served Population		No. of HHs	Percentage of Served Households				Served Population	
							Flush	Pour Flush	VIP/ Dry	Total	Number	%		Flush	Pour Flush	VIP/ Dry	Total	Number	%
Llorente	Urban	53	828	63	944	1,344	4	62	5	70	4,535	70	1,344	4	62	5	70	4,050	70
	Rural		982	39	1,021	1,829		54	2	56	3,628	56	1,518		65	3	67	4,404	67
	Total	53	1,810	102	1,965	3,173	2	57	3	62	8,163	62	2,862	2	63	4	69	8,454	69
Maslog	Urban		120	17	137	207		58	8	66	768	66	244		49	7	56	834	56
	Rural		243	34	277	515		47	7	54	628	54	548		44	6	51	1,562	51
	Total		363	51	414	722		50	7	57	1,396	57	792		46	6	52	2,396	52
Maydolong	Urban	28	615	70	713	1,001	3	61	7	71	3,816	71	1,178	2	52	6	61	4,149	61
	Rural	7	554	144	705	1,204	1	46	12	59	3,171	59	1,222	1	45	12	58	4,639	58
	Total	35	1,169	214	1,418	2,205	2	53	10	64	6,987	64	2,400	1	49	9	59	8,788	59
Mercedes	Urban		84		84	198		42		42	561	42	262		32		32	623	32
	Rural		396		396	740		54		54	721	54	778		51		51	2,630	51
	Total		480		480	938		51		51	1,282	51	1,040		46		46	3,253	46
Oras	Urban		795		795	1,539		52		52	4,506	52	1,539		52		52	4,886	52
	Rural		2,166		2,166	4,421		49		49	4,246	49	4,987		43		43	12,814	43
	Total		2,961		2,961	5,960		50		50	8,752	50	6,526		45		45	17,700	45
Quinapondan	Urban		354		354	641		55		55	2,501	55	805		44		44	2,705	44
	Rural		832		832	1,459		57		57	2,592	57	1,455		57		57	5,292	57
	Total		1,186		1,186	2,100		56		56	5,093	56	2,260		52		52	7,997	52
Salcedo	Urban		447		447	601		74		74	2,259	74	622		72		72	2,218	72
	Rural		1,307		1,307	2,615		50		50	1,527	50	2,513		52		52	6,232	52
	Total		1,754		1,754	3,216		55		55	3,786	55	3,135		56		56	8,450	56
San Julian	Urban	5	415		420	555	1	75		76	2,066	76	555	1	75		76	2,110	76
	Rural		1,531		1,531	1,868		82		82	2,229	82	1,922		80		80	7,789	80
	Total	5	1,946		1,951	2,423		80		81	4,295	81	2,477		79		79	9,899	79
San Policarpo	Urban		388	336	724	839		46	40	86	3,681	86	935		41	36	77	3,968	77
	Rural			886	886	1,479			60	60	2,568	60	1,593			56	56	5,094	56
	Total		388	1,222	1,610	2,318		17	53	69	6,249	69	2,528		15	48	64	9,062	64
Sulat	Urban		674		674	1,045		64		64	3,404	64	1,262		53		53	3,593	53
	Rural		1,310		1,310	1,748		75		75	3,989	75	1,703		77		77	7,215	77
	Total		1,984		1,984	2,793		71		71	7,393	71	2,965		67		67	10,808	67
Taft	Urban	9	734	13	756	860	1	85	2	88	4,187	88	866	1	85	2	87	4,613	87
	Rural		927	176	1,103	2,269		41	8	49	2,331	49	2,645		35	7	42	6,986	42
	Total	9	1,661	189	1,859	3,129		53	6	59	6,518	59	3,511		47	5	53	11,599	53
Provincial Total	Urban	568	12,804	3,594	16,966	23,641	2	54	15	72	91,853	72	26,338	2	49	14	64	96,595	64
	Rural	162	17,555	8,043	25,760	45,870		38	18	56	73,072	56	47,192		37	17	55	144,006	55
	Total	730	30,359	11,637	42,726	69,511	1	44	17	61	164,925	61	73,530	1	41	16	58	240,601	58

Table 8.2.7 Public School Students and Public Utilities Coverage in Phase I by Existing Facilities in the Base Year

Name of Municipalities	Public School Toilets					Public Toilets					
		Coverage in 1998		Coverage in 2004		Coverage in 1998			Coverage in 2004		
	Std. No. of Student that can be Served by Base Year	Total No. of Public School Students	%	Total No. of Public School Student	%	No. of PU with Toilets in Base Year	No. of PU with Sanitary Toilets in Base Year	%	No. of PU with Toilets	No. of PU with Sanitary Toilets in Base Year	%
Arteche	400	3,424	12	3,667	11	1	1	100	2	1	50
Balangiga	2,280	2,569	89	2,896	79				1		
Balangkayan	1,680	2,061	82	2,381	71				1		
Borongan (Capital)	9,400	14,182	66	13,634	69	2	2	100	4	2	50
Can-avid		3,731		4,355		1	1	100	2	1	50
Dolores	880	9,264	9	9,581	9	5	5	100	5	5	100
General MacArthur	2,600	2,903	90	2,830	92	1	1	100	3	1	33
Giporlos	2,668	2,668	100	2,357	113				3		
Guiuan	3,520	9,152	38	9,548	37	3	3	100	4	3	75
Hernani	1,520	2,121	72	2,422	63	1	1	100	1	1	100
Jipapad	320	1,002	32	1,403	23				1		
Lawaan	2,200	2,523	87	2,783	79	1	1	100	1	1	100
Llorente	2,600	4,174	62	3,577	73	1	1	100	3	1	33
Maslog	698	698	100	823	85						
Maydolong	5,440	6,680	81	3,755	145	2	2	100	2	2	100
Mercedes	720	1,549	46	1,625	44	1	1	100	1	1	100
Oras	4,680	7,791	60	8,909	53				5		
Quinapondan	640	2,772	23	3,110	21				3		
Salcedo	3,800	4,703	81	4,335	88				2		
San Julian	280	2,998	9	2,966	9	1	1	100	2	1	50
San Policarpo	1,720	2,316	74	3,018	57	1	1	100	2	1	50
Sulat	3,036	3,036	100	3,293	92	1	1	100	2	1	50
Taft	2,880	4,322	67	5,067	57				2		
Provincial Total	53,962	96,639	56	98,335	55	22	22	100	52	22	42