8.5 Service Coverage by Target Year

8.5.1 Water Supply

(1) Population to be served by Level II system in Phase I

No untapped spring sources was confirmed to be suitable for Level II systems in rural water supply by the time of PW4SP preparation. However, Table 8.5.1 was prepared as reference for future update of this PW4SP. Conditions and assumptions applied for this estimate are as follows:

Table 8.5.1 Population to be Served by Level II System in Phase I

Municipality	Number of Untapped Spring	Number of Barangay to be Served	Number of Households to be Served	Population to be Served
Baco	0	0	0	0
Bansud	0	0	0	0
Bongabong	0	0	0	0
Bulalacao	0	0	0	0
Calapan (Capital)	0	0	0	0
Gloria	0	0	0	0
Mansalay	0	0	0	0
Naujan	0	0	0	0
Pinamalayan	0	0	0	0
Pola	0	0	0	0
Puerto Galera	0	0	0	0
Roxas	0	0	0	0
San Teodoro	0	0	0	0
Socorro	0	0	0	0
Victoria	0	0	0	0
Provincial Total	0	0	0	0

Source capacity:

The average source capacity of untapped spring was assumed to be capable to serve 100 households based on the review of existing Level II systems with spring sources.

Number of system:

One untapped spring was considered to serve one Level II system in one rural barangay.

(2) Population to be served by target year

Phase I

For urban area, the additional service coverage was estimated to be served by Level III service. For rural area, the population to be served by Level II systems with untapped springs was firstly calculated and the rest of additional service coverage was estimated to be served by Level I facilities.

Phase II:

For urban area, the population served by Level I and II facilities in base year was considered to be absorbed by Level III service aside from the additional service coverage to be estimated by the sector target. For rural area, all existing facilities in Phase I was assumed to be utilized through the future.

The population to be served by target year is exhibited in Table 8.5.2 and Table 8.5.3.

Table 8.5.2 Population to be Served in Phase I (Water Supply)

Municipality	Type	Population Served in the Base Year				Phase I Coverage (2000)								
						Total Population	Service Coverage				Additional Population to be Served			
		Level III	Level II	Level I	Total		Total	Level III	Level II	Level I	Level III	Level II	Level I	Total
Baco	Urban	0	0	1,716	1,716	2,200	1,870	154	0	1,716	154	0	0	154
	Rural	1,431	2,638	19,354	23,423	27,772	23,606	1,431	2,638	19,537	0	0	183	183
	Total	1,431	2,638	21,070	25,139	29,972	25,476	1,585	2,638	21,253	154	0	183	337
Bansud	Urban	0	318	2,946	3,264	4,785	4,067	803	318	2,946	803	0	0	803
	Rural	0	0	15,504	15,504	26,140	22,219	0	0	22,219	0	0	6,715	6,715
	Total	0	318	18,450	18,768	30,925	26,286	803	318	25,165	803	0	6,715	7,518
Bongabong	Urban	0	0	2,516	2,516	4,781	4,064	1,548	0	2,516	1,548	0	0	1,548
	Rural	0	0	25,719	25,719	55,224	46,940	0	0	46,940	0	0	21,221	21,221
	Total	0	0	28,235	28,235	60,005	51,004	1,548	0	49,456	1,548	0	21,221	22,769
Bulalacao	Urban	0	0	658	658	3,113	2,646	1,988	0	658	1,988	0	0	1,988
	Rural	0	0	2,181	2,181	23,801	20,231	0	0	20,231	0	0	18,050	18,050
	Total	0	0	2,839	2,839	26,914	22,877	1,988	0	20,889	1,988	0	18,050	20,038
Calapan (Capital)	Urban	22,685	0	8,472	31,157	40,680	34,578	26,106	0	8,472	3,421	0	0	3,421
	Rural	12,964	0	34,305	47,269	67,866	57,686	12,964	0	44,722	0	0	10,417	10,417
	Total	35,649	0	42,777	78,426	108,546	92,264	39,070	0	53,194	3,421	0	10,417	13,838
Gloria	Urban	0	0	1,243	1,243	2,382	2,025	782	0	1,243	782	0	0	782
	Rural	0	0	17,050	17,050	32,977	28,030	0	0	28,030	0	0	10,980	10,980
	Total	0	0	18,293	18,293	35,359	30,055	782	0	29,273	782	0	10,980	11,762
Mansalay	Urban	0	0	1,163	1,163	2,812	2,390	1,227	0	1,163	1,227	0	0	1,227
	Rural	0	0	13,590	13,590	31,055	26,397	0	0	26,397	0	0	12,807	12,807
	Total	0	0	14,753	14,753	33,867	28,787	1,227	0	27,560	1,227	0	12,807	14,034
Naujan	Urban	2,009	221	1,909	4,139	5,788	4,920	2,790	221	1,909	781	0	0	781
	Rural	756	250	48,281	49,287	81,730	69,471	756	250	68,465	0	0	20,184	20,184
	Total	2,765	471	50,190	53,426	87,518	74,391	3,546	471	70,374	781	0	20,184	20,965
Pinamalayan	Urban	7,420	0	0	7,420	8,630	7,420	7,420	0	0	0	0	0	0
	Rural	24,284	2,195	18,326	44,805	63,040	53,584	24,284	2,195	27,105	0	0	8,779	8,779
	Total	31,704	2,195	18,326	52,225	71,670	61,004	31,704	2,195	27,105	0	0	8,779	8,779
Pola	Urban	1,142	0	0	1,142	1,786	1,518	1,518	0	0	376	0	0	376
	Rural	1,754	250	5,257	7,261	30,565	25,980	1,754	250	23,976	0	0	18,719	18,719
	Total	2,896	250	5,257	8,403	32,351	27,498	3,272	250	23,976	376	0	18,719	19,095
Puerto Galera	Urban	0	0	2,779	2,779	4,155	3,532	753	0	2,779	753	0	0	753
	Rural	0	3,086	12,506	15,592	18,370	15,615	0	3,086	12,529	0	0	23	23
	Total	0	3,086	15,285	18,371	22,525	19,147	753	3,086	15,308	753	0	23	776
Roxas	Urban	1,582	0	1,569	3,151	4,641	3,945	2,376	0	1,569	794	0	0	794
	Rural	0	0	23,045	23,045	36,874	31,343	0	0	31,343	0	0	8,298	8,298
	Total	1,582	0	24,614	26,196	41,515	35,288	2,376	0	32,912	794	0	8,298	9,092
San Teodoro	Urban	0	0	1,971	1,971	2,897	2,462	491	0	1,971	491	0	0	491
	Rural	0	0	3,767	3,767	12,148	10,326	0	0	10,326	0	0	6,559	6,559
	Total	0	0	5,738	5,738	15,045	12,788	491	0	12,297	491	0	6,559	7,050
Socorro	Urban	0	0	3,291	3,291	5,325	4,526	1,235	0	3,291	1,235	0	0	1,235
	Rural	0	0	14,950	14,950	31,362	26,658	0	0	26,658	0	0	11,708	11,708
	Total	0	0	18,241	18,241	36,687	31,184	1,235	0	29,949	1,235	0	11,708	12,943
Victoria	Urban	0	0	6,804	6,804	8,879	7,547	743	0	6,804	743	0	0	743
	Rural	0	590	24,136	24,726	35,260	29,971	0	590	29,381	0	0	5,245	5,245
	Total	0	590	30,940	31,530	44,139	37,518	743	590	36,185	743	0	5,245	5,988
Provincial Total	Urban	34,838	539	37,036	72,413	102,854	87,510	49,934	539	37,037	15,096	0	0	15,096
	Rural	41,189	9,009	277,969	328,167	574,184	488,057	41,189	9,009	437,859	0	0	159,888	159,888
	Total	76,027	9,548	315,005	400,580	677,038	575,567	91,123	9,548	474,896	15,096	0	159,888	174,984

Table 8.5.3 Population to be Served in Phase II (Water Supply)

Municipality	Type	Population Served in 2000				Phase II Coverage (2010)								
						Total Population	Service Coverage				Additional Population to be Served			
		Level III	Level II	Level I	Total		Total	Level III	Level II	Level I	Level III	Level II	Level I	Total
Baco	Urban	154	0	1,716	1,870	2,812	2,615	2,615	0	0	2,461	0	0	2,461
	Rural	1,431	2,638	19,537	23,606	32,153	30,545	1,431	2,638	26,476	0	0	6,939	6,939
	Total	1,585	2,638	21,253	25,476	34,965	33,160	4,046	2,638	26,476	2,461	0	6,939	9,400
Bansud	Urban	803	318	2,946	4,067	5,721	5,321	5,321	0	0	4,518	0	0	4,518
	Rural	0	0	22,219	22,219	30,357	28,839	0	0	28,839	0	0	6,620	6,620
	Total	803	318	25,165	26,286	36,078	34,160	5,321	0	28,839	4,518	0	6,620	11,138
Bongabong	Urban	1,548	0	2,516	4,064	5,756	5,353	5,353	0	0	3,805	0	0	3,805
	Rural	0	0	46,940	46,940	64,246	61,034	0	0	61,034	0	0	14,094	14,094
	Total	1,548	0	49,456	51,004	70,002	66,387	5,353	0	61,034	3,805	0	14,094	17,899
Bulalacao	Urban	1,988	0	658	2,646	3,669	3,412	3,412	0	0	1,424	0	0	1,424
	Rural	0	0	20,231	20,231	27,730	26,344	0	0	26,344	0	0	6,113	6,113
	Total	1,988	0	20,889	22,877	31,399	29,756	3,412	0	26,344	1,424	0	6,113	7,537
Calapan (Capital)	Urban	26,106	0	8,472	34,578	54,567	50,747	50,747	0	0	24,641	0	0	24,641
	Rural	12,964	0	44,722	57,686	72,064	68,461	12,964	0	55,497	0	0	10,775	10,775
	Total	39,070	0	53,194	92,264	126,631	119,208	63,711	0	55,497	24,641	0	10,775	35,416
Gloria	Urban	782	0	1,243	2,025	2,782	2,587	2,587	0	0	1,805	0	0	1,805
	Rural	0	0	28,030	28,030	38,468	36,545	0	0	36,545	0	0	8,515	8,515
	Total	782	0	29,273	30,055	41,250	39,132	2,587	0	36,545	1,805	0	8,515	10,320
Mansalay	Urban	1,227	0	1,163	2,390	3,286	3,056	3,056	0	0	1,829	0	0	1,829
	Rural	0	0	26,397	26,397	36,224	34,413	0	0	34,413	0	0	8,016	8,016
	Total	1,227	0	27,560	28,787	39,510	37,469	3,056	0	34,413	1,829	0	8,016	9,845
Naujan	Urban	2,790	221	1,909	4,920	7,080	6,584	6,584	0	0	3,794	0	0	3,794
	Rural	756	250	68,465	69,471	95,020	90,269	756	250	89,263	0	0	20,798	20,798
	Total	3,546	471	70,374	74,391	102,100	96,853	7,340	250	89,263	3,794	0	20,798	24,592
Pinamalayan	Urban	7,420	0	0	7,420	10,710	9,960	9,960	0	0	2,540	0	0	2,540
	Rural	24,284	2,195	27,105	53,584	72,901	69,256	24,284	2,195	42,777	0	0	15,672	15,672
	Total	31,704	2,195	27,105	61,004	83,611	79,216	34,244	2,195	42,777	2,540	0	15,672	18,212
Pola	Urban	1,518	0	0	1,518	2,067	1,922	1,922	0	0	404	0	0	404
	Rural	1,754	250	23,976	25,980	35,674	33,890	1,754	250	31,886	0	0	7,910	7,910
	Total	3,272	250	23,976	27,498	37,741	35,812	3,676	250	31,886	404	0	7,910	8,314
Puerto Galera	Urban	753	0	2,779	3,532	7,056	6,562	6,562	0	0	5,809	0	0	5,809
	Rural	0	3,086	12,529	15,615	19,222	18,261	0	3,086	15,175	0	0	2,646	2,646
	Total	753	3,086	15,308	19,147	26,278	24,823	6,562	3,086	15,175	5,809	0	2,646	8,455
Roxas	Urban	2,376	0	1,569	3,945	6,375	5,929	5,929	0	0	3,553	0	0	3,553
	Rural	0	0	31,343	31,343	42,057	39,954	0	0	39,954	0	0	8,611	8,611
	Total	2,376	0	32,912	35,288	48,432	45,883	5,929	0	39,954	3,553	0	8,611	12,164
San Teodoro	Urban	491	0	1,971	2,462	3,300	3,069	3,069	0	0	2,578	0	0	2,578
	Rural	0	0	10,326	10,326	14,252	13,539	0	0	13,539	0	0	3,213	3,213
	Total	491	0	12,297	12,788	17,552	16,608	3,069	0	13,539	2,578	0	3,213	5,791
Socorro	Urban	1,235	0	3,291	4,526	7,604	7,072	7,072	0	0	5,837	0	0	5,837
	Rural	0	0	26,658	26,658	35,196	33,436	0	0	33,436	0	0	6,778	6,778
	Total	1,235	0	29,949	31,184	42,800	40,508	7,072	0	33,436	5,837	0	6,778	12,615
Victoria	Urban	743	0	6,804	7,547	11,749	10,927	10,927	0	0	10,184	0	0	10,184
	Rural	0	590	29,381	29,971	39,744	37,757	0	590	37,167	0	0	7,786	7,786
	Total	743	590	36,185	37,518	51,493	48,684	10,927	590	37,167	10,184	0	7,786	17,970
Provincial Total	Urban	49,934	539	37,037	87,510	134,534	125,116	125,116	0	0	75,182	0	0	75,182
	Rural	41,189	9,009	437,859	488,057	655,308	622,543	41,189	9,009	572,345	0	0	134,456	134,456
	Total	91,123	9,548	474,896	575,567	789,842	747,659	166,305	9,009	572,345	75,182	0	134,456	209,668

8.5.2 Sanitation

Table 8.5.4 Additional Number of Households to be Served in Phase I (Household Toilets)

Municipality	Area	No. of Households Served in the Base Year				No. of Households in 2000	Phase I Coverage (2000)							
							Household Coverage				Additional No. of Households to be Served			
		Flush	Poor Flush	VIP Latrine	Total		Flush	Poor Flush	VIP Latrine	Total	Flush	Poor Flush	VIP Latrine	Total
Baco	Urban	0	256	124	380	440	31	274	34	339	31	18	0	49
	Rural	133	2,257	1,288	3,678	5,049	260	2,850	583	3,693	127	593	0	720
	Total	133	2,513	1,412	4,058	5,489	291	3,124	617	4,032	158	611	0	769
Bansud	Urban	0	177	484	661	903	152	474	70	696	152	297	0	449
	Rural	0	609	2,113	2,722	5,027	0	3,097	581	3,678	0	2,488	0	2,488
	Total	0	786	2,597	3,383	5,930	152	3,571	650	4,373	152	2,785	0	2,937
Bongabong	Urban	0	284	379	663	902	292	333	69	694	292	49	0	341
	Rural	0	936	4,199	5,135	10,420	0	6,419	1,204	7,623	0	5,483	0	5,483
	Total	0	1,220	4,578	5,798	11,322	292	6,752	872	8,317	292	5,532	0	5,824
Bufalacao	Urban	0	50	320	370	528	183	183	41	407	183	133	0	316
	Rural	0	1,010	543	1,553	4,408	0	2,715	509	3,224	0	1,705	0	1,705
	Total	0	1,060	863	1,923	4,936	183	2,898	550	3,631	183	1,838	0	2,021
Calapan (Capital)	Urban	2,101	3,632	18	5,751	7,823	2,711	2,711	602	6,024	610	0	584	1,194
	Rural	1,179	5,416	269	6,864	12,119	1,866	5,599	1,400	8,865	687	183	1,131	2,001
	Total	3,280	9,048	287	12,615	19,942	4,577	8,310	2,002	14,889	1,297	183	1,715	3,195
Gloria	Urban	0	199	55	254	441	145	161	34	340	145	0	0	145
	Rural	0	1,364	1,343	2,707	6,222	0	2,875	719	3,594	0	1,511	0	1,511
	Total	0	1,563	1,398	2,961	6,663	145	3,036	753	3,934	145	1,511	0	1,656
Mansalay	Urban	0	372	0	372	511	177	177	39	393	177	0	39	216
	Rural	0	2,692	0	2,692	5,751	0	2,657	664	3,321	0	0	664	664
	Total	0	3,064	0	3,064	6,262	177	2,834	704	3,715	177	0	704	881
Naujan	Urban	205	609	171	985	1,181	409	409	91	909	204	0	0	204
	Rural	70	3,587	1,469	5,126	15,135	140	9,183	1,748	11,071	70	5,596	279	5,945
	Total	275	4,196	1,640	6,111	16,316	549	9,592	1,839	11,980	274	5,596	279	6,149
Pinamalayan	Urban	793	327	130	1,250	1,628	793	564	125	1,482	0	237	0	237
	Rural	2,249	2,816	944	6,009	11,674	2,249	5,393	1,348	8,990	0	2,577	404	2,981
	Total	3,042	3,143	1,074	7,259	13,302	3,042	5,957	1,474	10,473	0	2,814	404	3,218
Pola	Urban	119	187	0	306	372	129	129	29	287	10	0	29	39
	Rural	172	1,129	575	1,876	5,993	344	3,348	692	4,384	172	2,219	117	2,508
	Total	291	1,316	575	2,182	6,365	473	3,477	721	4,671	182	2,219	146	2,547
Puerto Galera	Urban	0	597	8	605	831	151	425	64	640	151	0	56	207
	Rural	0	2,001	223	2,224	3,466	0	2,135	400	2,535	0	134	177	311
	Total	0	2,598	231	2,829	4,297	151	2,560	464	3,175	151	134	233	518
Roxas	Urban	147	447	6	600	859	298	298	66	662	151	0	60	211
	Rural	0	1,460	616	2,076	6,704	0	4,130	774	4,904	0	2,670	158	2,828
	Total	147	1,907	622	2,676	7,563	298	4,428	840	5,566	151	2,670	218	3,039
San Teodoro	Urban	0	200	128	328	527	89	276	41	406	89	76	0	165
	Rural	0	762	465	1,227	2,169	0	1,336	251	1,587	0	574	0	574
	Total	0	962	593	1,555	2,696	89	1,612	291	1,992	89	650	0	739
Socorro	Urban	0	375	213	588	986	229	454	76	759	229	79	0	308
	Rural	0	1,370	773	2,143	6,031	0	3,715	697	4,412	0	2,345	0	2,345
	Total	0	1,745	986	2,731	7,017	229	4,169	773	5,171	229	2,424	0	2,653
Victoria	Urban	0	645	348	993	1,586	133	966	122	1,221	133	321	0	454
	Rural	0	3,176	1,425	4,601	6,411	0	3,949	740	4,689	0	773	0	773
	Total	0	3,821	1,773	5,594	7,997	133	4,915	863	5,911	133	1,094	0	1,227
Provincial Total	Urban	3,365	8,357	2,384	14,106	19,518	5,921	7,834	1,503	15,258	2,556	1,210	768	4,535
	Rural	3,803	30,585	16,245	50,633	106,579	4,859	59,401	12,310	76,570	1,056	28,851	2,931	32,839
	Total	7,168	38,942	18,629	64,739	126,097	10,781	67,235	13,813	91,829	3,613	30,061	3,700	37,374

Table 8.5.5 Additional Number of Households to be Served in Phase II (Household Toilets)

Municipality	Area	No. of Households Served in 2000				No. of Households in 2010	Phase II Coverage (2010)							
							Households Coverage				Add'l No. of Households to be Served			
		Flush	Pour Flush	VIP Latrine	Total		Flush	Pour Flush	VIP Flush	Total	Flush	Pour Flush	VIP Flush	Total
Baco	Urban	31	274	34	339	703	330	330	0	660	299	56	0	355
	Rural	260	2,850	583	3,693	8,038	358	7,198	0	7,556	98	4,348	0	4,446
	Total	291	3,124	617	4,032	8,741	688	7,528	0	8,216	397	4,404	0	4,801
Bansud	Urban	152	474	70	696	1,430	672	672	0	1,344	520	198	0	718
	Rural	0	3,097	581	3,678	7,589	0	7,134	0	7,134	0	4,037	0	4,037
	Total	152	3,571	650	4,373	9,019	672	7,806	0	8,478	520	4,235	0	4,755
Bongabong	Urban	292	333	69	694	1,439	676	676	0	1,352	384	343	0	727
	Rural	0	6,419	1,204	7,623	16,062	0	15,099	0	15,099	0	8,680	0	8,680
	Total	292	6,752	1,273	8,317	17,501	676	15,775	0	16,451	384	9,023	0	9,407
Bulalacao	Urban	183	183	41	407	917	431	431	0	862	248	248	0	496
	Rural	0	2,715	509	3,224	6,933	0	6,517	0	6,517	0	3,802	0	3,802
	Total	183	2,898	550	3,631	7,850	431	6,948	0	7,379	248	4,050	0	4,298
Calapan (Capital)	Urban	2,711	2,711	602	6,024	13,642	6,412	6,412	0	12,824	3,701	3,701	0	7,402
	Rural	1,866	5,599	1,400	8,865	18,016	3,241	13,694	0	16,935	1,375	8,095	0	9,470
	Total	4,577	8,310	2,002	14,889	31,658	9,653	20,106	0	29,759	5,076	11,796	0	16,872
Gloria	Urban	145	161	34	340	696	327	327	0	654	182	166	0	348
	Rural	0	2,875	719	3,594	9,617	0	9,040	0	9,040	0	6,165	0	6,165
	Total	145	3,036	753	3,934	10,313	327	9,367	0	9,694	182	6,331	0	6,513
Mansalay	Urban	177	177	39	393	822	386	386	0	772	209	209	0	418
	Rural	0	2,657	664	3,321	9,056	0	8,513	0	8,513	0	5,856	0	5,856
	Total	177	2,834	704	3,715	9,878	386	8,899	0	9,285	209	6,065	0	6,274
Naujan	Urban	409	409	91	909	1,770	832	832	0	1,664	423	423	0	846
	Rural	140	9,183	1,748	11,071	23,755	189	22,141	0	22,330	49	12,958	0	13,007
	Total	549	9,592	1,839	11,980	25,525	1,021	22,973	0	23,994	472	13,381	0	13,853
Pinamalayan	Urban	793	564	125	1,482	2,678	1,259	1,259	0	2,518	466	695	0	1,161
	Rural	2,249	5,393	1,348	8,990	18,225	3,426	13,705	0	17,131	1,177	8,312	0	9,489
	Total	3,042	5,957	1,474	10,473	20,903	4,685	14,964	0	19,649	1,643	9,007	0	10,650
Pola	Urban	129	129	29	287	517	243	243	0	486	114	114	0	228
	Rural	344	3,348	692	4,384	8,919	439	7,945	0	8,384	95	4,597	0	4,692
	Total	473	3,477	721	4,671	9,436	682	8,188	0	8,870	209	4,711	0	4,920
Puerto Galera	Urban	151	425	64	640	1,764	829	829	0	1,658	678	404	0	1,082
	Rural	0	2,135	400	2,535	4,806	0	4,518	0	4,518	0	2,383	0	2,383
	Total	151	2,560	464	3,175	6,570	829	5,347	0	6,176	678	2,787	0	3,465
Roxas	Urban	298	298	66	662	1,593	749	749	0	1,498	451	451	0	902
	Rural	0	4,130	774	4,904	10,514	0	9,884	0	9,884	0	5,754	0	5,754
	Total	298	4,428	840	5,566	12,107	749	10,633	0	11,382	451	6,205	0	6,656
San Teodoro	Urban	89	276	41	406	825	388	388	0	776	299	112	0	411
	Rural	0	1,336	251	1,587	3,563	0	3,349	0	3,349	0	2,013	0	2,013
	Total	89	1,612	291	1,992	4,388	388	3,737	0	4,125	299	2,125	0	2,424
Socorro	Urban	229	454	76	759	1,901	893	893	0	1,786	664	439	0	1,103
	Rural	0	3,715	697	4,412	8,799	0	8,271	0	8,271	0	4,556	0	4,556
	Total	229	4,169	773	5,171	10,700	893	9,164	0	10,057	664	4,995	0	5,659
Victoria	Urban	133	966	122	1,221	2,937	1,380	1,380	0	2,760	1,247	414	0	1,661
	Rural	0	3,949	740	4,689	9,936	0	9,340	0	9,340	0	5,391	0	5,391
	Total	133	4,915	863	5,911	12,873	1,380	10,720	0	12,100	1,247	5,805	0	7,052
Provincial Total	Urban	5,921	7,834	1,503	15,258	33,634	15,807	15,807	0	31,614	9,886	7,973	0	17,859
	Rural	4,859	59,401	12,310	76,570	163,828	7,653	146,348	0	154,001	2,794	86,947	0	89,741
	Total	10,781	67,235	13,813	91,829	197,462	23,460	162,155	0	185,615	12,679	94,920	0	107,599

Table 8.5.6 Additional Number of Public School Students to be Served in Phases I and II (School Toilets)

Municipality	Std. No. of Public School Students that can be Served in the Base Year	Projected No. of Public School Students in 2000	Phase I Coverage (2000)		Std. No. of Public School Students that can be Served in the Base Year	Projected No. of Public School Students in 2000	Phase II Coverage (2010)	
			Public School Students Coverage	Add'l No. of Public School Students to be Served			Public School Students Coverage	Add'l No. of Public School Students to be Served
Baco	1,800	5,691	2,846	1,046	2,846	7,338	5,137	2,291
Bansud	2,100	7,467	3,734	1,634	3,734	9,652	6,756	3,022
Bongabong	3,900	14,060	7,030	3,130	7,030	17,975	12,583	5,553
Bulalacao	1,500	5,860	2,930	1,430	2,930	7,596	5,317	2,387
Calapan (Capital)	5,650	21,582	10,791	5,141	10,791	27,615	19,331	8,540
Gloria	2,500	8,863	4,432	1,932	4,432	11,280	7,896	3,464
Mansalay	2,150	8,054	4,027	1,877	4,027	10,323	7,226	3,199
Naujan	5,650	20,449	10,225	4,575	10,225	26,143	18,300	8,075
Pinamalayan	5,050	18,415	9,208	4,158	9,208	23,870	16,709	7,501
Pola	1,700	6,267	3,134	1,434	3,134	8,042	5,629	2,495
Puerto Galera	1,300	5,055	2,528	1,228	2,528	6,496	4,547	2,019
Roxas	2,500	9,445	4,723	2,223	4,723	12,137	8,496	3,773
San Teodoro	300	1,016	508	208	508	2,154	1,508	1,000
Socorro	2,850	10,563	5,282	2,432	5,282	13,468	9,428	4,146
Victoria	1,800	6,869	3,435	1,635	3,435	10,230	7,161	3,726
Provincial Total	40,750	149,656	74,833	34,083	74,833	194,319	136,024	61,191

Table 8.5.7 Additional Number of Public Utilities with Sanitary Toilets in Phases I and II

Municipality	Type	Coverage in 1994		Phase I Coverage (2000)			No. of PU with Sanitary Toilets in 2000	Phase II Coverage (2010)		
		No. of PU with Toilets Facilities	No. of PU with Sanitary Toilet	No. of PU with Toilets	Add'l No. of Public Utilities with Sanitary Toilet	No. of PU with Sanitary Toilet		No. of PU with Toilets	Add'l No. of Public Utilities with Sanitary Toilet	No. of PU with Sanitary Toilet
Baco	Public Market	2	2	3	1	3	3	3	0	3
	Bus/Jeep Term.	0	0	1	1	1	1	1	0	1
	Total	2	2	4	1	3	4	4	0	4
Bansud	Public Market	1	0	2	1	1	1	2	1	2
	Bus/Jeep Term.	0	0	1	1	1	1	1	0	1
	Total	1	0	3	2	2	2	3	1	3
Bongabong	Public Market	1	1	1	0	1	1	2	1	2
	Bus/Jeep Term.	1	1	2	1	2	2	2	0	2
	Total	2	2	3	1	3	3	4	1	4
Bulalacao	Public Market	1	0	1	1	1	1	1	0	1
	Bus/Jeep Term.	0	0	0	0	0	0	0	0	0
	Total	1	0	1	1	1	1	1	0	1
Calapan (Capital)	Public Market	1	0	2	1	1	1	2	1	2
	Bus/Jeep Term.	1	0	2	1	1	1	2	1	2
	Total	2	0	4	3	3	2	4	2	4
Gloria	Public Market	1	0	1	1	1	1	1	0	1
	Bus/Jeep Term.	0	0	1	1	1	1	1	0	1
	Total	1	0	2	1	1	2	2	0	2
Mansalay	Public Market	1	1	1	0	1	1	1	0	1
	Bus/Jeep Term.	0	0	1	1	1	1	1	0	1
	Total	1	1	2	1	2	2	2	0	2
Naujan	Public Market	1	1	1	0	1	1	1	0	1
	Bus/Jeep Term.	0	0	1	1	1	1	1	0	1
	Total	1	1	2	1	2	2	2	0	2
Pinamalayan	Public Market	2	0	2	1	1	1	3	2	3
	Bus/Jeep Term.	0	0	1	1	1	1	1	0	1
	Total	2	0	3	2	2	2	4	2	4
Pola	Public Market	1	0	1	1	1	1	1	0	1
	Bus/Jeep Term.	0	0	1	1	1	1	1	0	1
	Total	1	0	2	1	1	2	2	0	2
Puerto Galera	Public Market	1	1	2	1	2	2	2	0	2
	Bus/Jeep Term.	0	0	1	1	1	1	1	0	1
	Total	1	1	3	1	2	3	3	0	3
Roxas	Public Market	1	1	1	0	1	1	1	0	1
	Bus/Jeep Term.	1	0	1	1	1	1	1	0	1
	Total	2	1	2	1	2	2	2	0	2
San Teodoro	Public Market	1	1	1	0	1	1	1	0	1
	Bus/Jeep Term.	0	0	1	1	1	1	1	0	1
	Total	1	1	2	1	2	2	2	0	2
Socorro	Public Market	1	1	1	0	1	1	1	0	1
	Bus/Jeep Term.	0	0	1	1	1	1	1	0	1
	Total	1	1	2	1	2	2	2	0	2
Victoria	Public Market	2	2	2	0	2	2	2	0	2
	Bus/Jeep Term.	1	1	1	0	1	1	1	0	1
	Total	3	3	3	0	3	3	3	0	3
Provincial Total	Public Market	18	11	22	8	19	19	24	5	24
	Bus/Jeep Term.	4	2	16	10	12	15	16	1	16
	Total	22	13	38	18	31	34	40	6	40

Note: PU - Public Utilities

8.6 Facilities, Equipment and Rehabilitation Required to Meet the Target Services

8.6.1 Water Supply

(1) Required water supply facilities

Urban water supply:

Urban water supply facilities required by target year shown in Table 8.6.1 were estimated as required number of house connections based on the additional service coverage.

As reference, following requirements were also estimated:

- daily average water demand at 100 lpcd consumption rate, and
- number of deep wells to meet the daily maximum water demand based on the groundwater productivity.
  (daily maximum water demand = 1.3 x daily average water demand)

Information pertaining to the expansion plan of Level III systems was arranged to be indicated in Table 8.6.1 and details in Table 8.6.2, however no information was available during this PW4SP preparation.

Rural water supply:

Rural water supply facilities required by target year shown in Table 8.6.3 were estimated as number of Level II systems with number of communal faucets and number of Level I wells broken-down to deep and shallow wells. However, no untapped spring suitable for Level II system was confirmed during this PW4SP preparation.

(2) Required equipment and support vehicle

Presently, the provincial government has one unit of truck-mounted rotary drilling rig. DPWH-DEO has each one unit of truck-mounted percussion drilling rig and portable mechanized rotary drilling rig. Among these equipment, portable rotary drilling rig of DWPH is only applicable for shallow wells owing to its penetration capacity.

Taking into account the maximum utilization of existing equipment, additional number of required equipment is estimated for deep well drilling and rehabilitation work (shallow wells are considered to be drilled by the existing portable rotary rig).

Table 8.6.1 Urban Water Supply Facilities Required by Target Year

Municipality	Reference on Expansion of Existing Level III System						Phase I (2000) Requirements				Phase II (2010) Requirements			
	Name of System (Operating Body)	Type	Coverage in 1998		Type of Water Sources[1]	Plan for Expansion[2]	Additional Population to be Served	Number of House Connections	Daily Average Water Demand (cu. m/day)	Number of Deep Well	Additional Population to be Served	Number of House Connections	Daily Average Water Demand (cu. m/day)	Number of Deep Well
			No. of Brgy.	Served Population										
Baco	Municipal Govt	Urban	0	0	DW	No	154	31	15	1	2,461	615	246	1
		Rural	1	1,431										
		Total	1	1,431										
Bansud	Not Applicable	Urban	N.A.	N.A.	N.A.	N.A.	803	152	80	1	4,518	1,130	452	1
		Rural	N.A.	N.A.										
		Total	N.A.	N.A.										
Bongabong	Not Applicable	Urban	N.A.	N.A.	N.A.	N.A.	1,548	292	155	1	3,805	951	381	1
		Rural	N.A.	N.A.										
		Total	N.A.	N.A.										
Bulalacao	Not Applicable	Urban	N.A.	N.A.	N.A.	N.A.	1,988	337	199	1	1,424	356	142	1
		Rural	N.A.	N.A.										
		Total	N.A.	N.A.										
Calapan (Capital)	Calapan WSS	Urban	13	22,685	DW	No	3,421	658	342	1	24,641	6,160	2,464	4
		Rural	5	12,964										
		Total	18	35,649										
Gloria	Not Applicable	Urban	N.A.	N.A.	N.A.	N.A.	782	145	78	1	1,805	451	181	1
		Rural	N.A.	N.A.										
		Total	N.A.	N.A.										
Mansalay	Not Applicable	Urban	N.A.	N.A.	N.A.	N.A.	1,227	223	123	1	1,829	457	183	1
		Rural	N.A.	N.A.										
		Total	N.A.	N.A.										
Naujan	Naujan WD	Urban	3	2,009	DW	No	783	159	78	1	3,794	949	379	1
		Rural	0	0										
		Total	3	2,009										
	Brgy. San Agustin I	Urban	0	0										
		Rural	1	486										
		Total	1	486										
	Brgy. San Agustin II	Urban	0	0										
		Rural	1	270										
		Total	1	270										
	Municipal Total	Urban	3	2,009										
		Rural	2	756										
		Total	5	2,765										
Pinamalayan	Pinamalayan WD	Urban	4	7,420	Surf.	No	0	0	0	0	2,510	635	254	1
		Rural	11	24,284										
		Total	15	31,704										
Pola	Pola WD	Urban	2	1,142	SP	No	326	78	38	1	404	101	40	1
		Rural	3	1,754										
		Total	5	2,896										
Puerto Galera	Not Applicable	Urban	N.A.	N.A.	N.A.	N.A.	753	151	75	1	5,809	1,452	581	1
		Rural	N.A.	N.A.										
		Total	N.A.	N.A.										
Roxas	Roxas WD	Urban	1	1,582	DW	No	793	147	79	1	3,553	888	355	1
		Rural	0	0										
		Total	1	1,582										
San Teodoro	Not Applicable	Urban	N.A.	N.A.	N.A.	N.A.	491	89	49	1	2,578	645	258	1
		Rural	N.A.	N.A.										
		Total	N.A.	N.A.										
Socorro	Not Applicable	Urban	N.A.	N.A.	N.A.	N.A.	1,235	229	124	1	5,837	1,459	584	1
		Rural	N.A.	N.A.										
		Total	N.A.	N.A.										
Victoria	Not Applicable	Urban	N.A.	N.A.	N.A.	N.A.	743	133	74	1	10,186	2,546	1,018	2
		Rural	N.A.	N.A.										
		Total	N.A.	N.A.										
Provincial Total		Urban	23	34,838			15,096	2,824	1,510	14	75,182	18,795	7,518	19
		Rural	22	41,189										
		Total	45	76,027										

Note: 1. *Dw* - Deep Well, *SP* - Spring., *DgW* - Dug Well and *Surf* - Surface Water.
2. Refer to supporting Table 8.6.3 for details.

Table 8.6.2 Plan for Expansion of Existing Level III System

Municipality	Name of Operating Body	Additional Areas Barangay to be Covered	Additional Population to be Served	Additional Water Sources	
				Type[1]	Capacity (cu. m/day)
Baco	Municipal Gov't.	0	0	N.A.	0
Calapan (Capital)	Calapan WSS	0	0	N.A.	0
Naujan	Naujan WD	0	0	N.A.	0
	Brgy. San Agustin I	0	0	N.A.	0
	Brgy. San Agustin II	0	0	N.A.	0
	Municipal Total	0	0		0
Pinamalayan	Pinamalayan WD	0	0	N.A.	0
Pola	Pola WD	0	0	N.A.	0
Roxas	Roxas WD	0	0	N.A.	0
Provincial Total		0	0		0

Note: 1. *DW* - Deep Well, *SP* - Spring, *DgW* - Dug Well, and *Surf* - Surface Water Intake.

Table 8.6.3 Rural Water Supply Facilities Required by Target Year

Municipality	Phase I (2000) Requirements								Phase II (2010) Requirements					
	Level II		Level I						Level I					
	Number of System	No. of Communal Faucets	Number of Deep Wells				No. of Shallow Wells	Total	Number of Deep Wells				No. of Shallow Wells	Total
			40 m	80 m	120 m	Sub-total			40 m	80 m	120 m	Sub-total		
Baco	0	0	2	0	0	2	0	2	66	0	0	66	18	84
Bansud	0	0	69	0	0	69	17	86	68	0	0	68	17	85
Bongabong	0	0	0	160	0	160	107	267	0	106	0	106	71	177
Bulalacao	0	0	178	0	0	178	45	223	60	0	0	60	15	75
Calapan (Capital)	0	0	25	0	0	25	99	124	26	0	0	26	102	128
Gloria	0	0	138	0	0	138	0	138	107	0	0	107	0	107
Mansalay	0	0	95	0	0	95	63	158	59	0	0	59	40	99
Naujan	0	0	249	0	0	249	0	249	257	0	0	257	0	257
Pinamalayan	0	0	108	0	0	108	0	108	193	0	0	193	0	193
Pola	0	0	172	0	0	172	73	245	72	0	0	72	31	103
Puerto Galera	0	0	0	0	0	0	0	0	33	0	0	33	0	33
Roxas	0	0	61	0	0	61	40	101	62	0	0	62	42	104
San Teodoro	0	0	0	78	0	78	0	78	0	38	0	38	0	38
Socorro	0	0	0	90	0	90	60	150	0	52	0	52	35	87
Victoria	0	0	64	0	0	64	0	64	94	0	0	94	0	94
Provincial Total	0	0	1,161	328	0	1,489	504	1,993	1,097	196	0	1,293	371	1,664

Applicable type of well drilling equipment is determined considering the geological formation of the province that 50% of target area is medium to hard formation suitable to percussion type and the rest is soft to medium formation suitable to rotary type. Idling time for equipment overhauling/maintenance and rest days of workers are considered at 25% of the year.

Small size rotary drilling rig (hand-feed spindle type for shallow well):

Average performance

- 1 well/15 days (3 m/day of drilling rate with finishing work)

Annual accomplishment

- 18 wells/year (365 days/year ÷ 15 days/well x 0.75)

Required number

- 6 sets for the total 504 shallow wells

Medium size rotary drilling rig (truck-mounted top-head drive type for deep well):

Average performance

- 1 well/20 days (10 m/day of drilling rate with finishing work)

Annual accomplishment

- 13 wells/year (365 days/year ÷ 20 days/well x 0.75)

Required number

- 12 sets for 50% of the total 1,489 deep wells

Medium size percussion drilling rig (truck-mounted type for deep well):

Average performance

- 1 well/30 days (5 m/day of drilling rate with finishing work)

Annual accomplishment

- 9 wells/year (365 days/year ÷30 days/well x 0.75)

Required number

- 17 sets for 50% of the total 1,489 deep wells

Well rehabilitation equipment:

Average performance

- 1 well/7 days (well redevelopment and finishing work

Annual accomplishment

- 39 wells/year (365 days/year ÷7 days/well x 0.75)

Required number

- 1 set for 10% of 1,489 Level I deep wells

Support vehicle:

Type - pick-up truck with winch, double cab

Required number

- 7 units (6 units for small size rotary rig and 1 unit for well rehabilitation)

Considering the utilization of existing percussion drilling rig and well rehabilitation equipment, the following equipment shall be mobilized/procured either by private sector or LGUs to accomplish the physical targets:

- 6 sets of small size rotary rig for shallow wells,
- 11 sets of medium size rotary rig for 50% of deep wells,
- 16 sets of medium size percussion rig for 50% of deep wells
- 1 set of well rehabilitation equipment for 10% of deep wells (at least 1 set shall be held by the provincial government), and
- 7 units of support vehicles for shallow well construction and well rehabilitation.

In addition to the above, service trucks equipped with crane are required for each unit of medium size rotary and percussion rigs for hauling drilling tools and water.

8.6.2 Sanitation

Table 8.6.4 Urban Household Toilets Required by Target Year

Municipality	Phase I (2000) Requirements								Phase II (2010) Requirements							
	Add'l HHs to be Served				No.of HHs Toilets				Add'l HHs to be Served				No.of HHs Toilets			
	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total
Baco	31	18	0	49	31	18	0	49	299	56	0	355	299	56	0	355
Bansud	152	297	0	449	152	297	0	449	520	198	0	718	520	198	0	718
Bongabong	292	49	0	341	292	49	0	341	384	343	0	727	384	343	0	727
Bulalacao	183	133	0	316	183	133	0	316	248	248	0	496	248	248	0	496
Calapan (Capital)	610	0	584	1,194	610	0	584	1,194	3,701	3,701	0	7,402	3,701	3,701	0	7,402
Gloria	145	0	0	145	145	0	0	145	182	166	0	348	182	166	0	348
Mansalay	177	0	39	216	177	0	39	216	209	209	0	418	209	209	0	418
Naujan	204	0	0	204	204	0	0	204	423	423	0	846	423	423	0	846
Pinamalayan	0	237	0	237	0	237	0	237	466	695	0	1,161	466	695	0	1,161
Pola	10	0	29	39	10	0	29	39	114	114	0	228	114	114	0	228
Puerto Galera	151	0	56	207	151	0	56	207	678	404	0	1,082	678	404	0	1,082
Roxas	151	0	60	211	151	0	60	211	451	451	0	902	451	451	0	902
San Teodoro	89	76	0	165	89	76	0	165	299	112	0	411	299	112	0	411
Socorro	229	79	0	308	229	79	0	308	664	439	0	1,103	664	439	0	1,103
Victoria	133	321	0	454	133	321	0	454	1,247	414	0	1,661	1,247	414	0	1,661
Provincial Total	2,556	1,210	768	4,535	2,556	1,210	768	4,535	9,886	7,973	0	17,859	9,886	7,973	0	17,859

Table 8.6.5 Rural Household Toilets Required by Target Year

Municipality	Phase I (2000) Requirements								Phase II (2010) Requirements							
	Add'l HHs to be Served				No.of HHs Toilets				Add'l HHs to be Served				No.of HHs Toilets			
	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total
Baco	127	593	0	720	127	593	0	720	98	4,348	0	4,446	98	4,348	0	4,446
Bansud	0	2,488	0	2,488	0	2,488	0	2,488	0	4,037	0	4,037	0	4,037	0	4,037
Bongabong	0	5,483	0	5,483	0	5,483	0	5,483	0	8,680	0	8,680	0	8,680	0	8,680
Bulalacao	0	1,705	0	1,705	0	1,705	0	1,705	0	3,802	0	3,802	0	3,802	0	3,802
Calapan (Capital)	687	183	1,131	2,001	687	183	1,131	2,001	1,375	8,095	0	9,470	1,375	8,095	0	9,470
Gloria	0	1,511	0	1,511	0	1,511	0	1,511	0	6,165	0	6,165	0	6,165	0	6,165
Mansalay	0	0	664	664	0	0	664	664	0	5,856	0	5,856	0	5,856	0	5,856
Naujan	70	5,596	279	5,945	70	5,596	279	5,945	49	12,958	0	13,007	49	12,958	0	13,007
Pinamalayan	0	2,577	404	2,981	0	2,577	404	2,981	1,177	8,312	0	9,489	1,177	8,312	0	9,489
Pola	172	2,219	117	2,508	172	2,219	117	2,508	95	4,597	0	4,692	95	4,597	0	4,692
Puerto Galera	0	134	177	311	0	134	177	311	0	2,383	0	2,383	0	2,383	0	2,383
Roxas	0	2,670	158	2,828	0	2,670	158	2,828	0	5,754	0	5,754	0	5,754	0	5,754
San Teodoro	0	574	0	574	0	574	0	574	0	2,013	0	2,013	0	2,013	0	2,013
Socorro	0	2,345	0	2,345	0	2,345	0	2,345	0	4,556	0	4,556	0	4,556	0	4,556
Victoria	0	773	0	773	0	773	0	773	0	5,391	0	5,391	0	5,391	0	5,391
Provincial Total	1,056	28,851	2,931	32,839	1,056	28,851	2,931	32,839	2,794	86,947	0	89,741	2,794	86,947	0	89,741

Table 8.6.6 Public School Toilets Required by Target Year

Municipality	Phase I (2000) Requirements			Phase II (2010) Requirements		
	Add'l Public School Students to be Served	No. of Toilet Units	No. of Toilet Facilities	Add'l Public School Students to be Served	No. of Toilet Units	No. of Toilet Facilities
Baco	1,046	21	4	2,291	46	9
Bansud	1,634	33	7	3,022	60	12
Bongabong	3,130	63	13	5,553	111	22
Bulalacao	1,430	29	6	2,387	48	10
Calapan (Capital)	5,141	103	21	8,540	171	34
Gloria	1,932	39	8	3,464	69	14
Mansalay	1,877	38	8	3,199	64	13
Naujan	4,575	92	18	8,075	162	32
Pinamalayan	4,158	83	17	7,501	150	30
Pola	1,434	29	6	2,495	50	10
Puerto Galera	1,228	25	5	2,019	40	8
Roxas	2,223	44	9	3,773	75	15
San Teodoro	208	4	1	1,000	20	4
Socorro	2,432	49	10	4,146	83	17
Victoria	1,635	33	7	3,726	75	15
Provincial Total	34,083	685	140	61,191	1,224	245

Table 8.6.7 Public Toilets Required by Target Year

Municipality	Type	Phase I (2000) Requirements Number of Public Toilets	Phase II (2010) Requirements Number of Public Toilets
Baco	Public Market	1	0
	Bus/Jeepney Term.	1	0
	Total	2	0
Bansud	Public Market	1	1
	Bus/Jeepney Term.	1	0
	Total	2	1
Bongabong	Public Market	0	1
	Bus/Jeepney Term.	1	0
	Total	1	1
Bulalacao	Public Market	1	0
	Bus/Jeepney Term.	0	0
	Total	1	0
Calapan (Capital)	Public Market	1	1
	Bus/Jeepney Term.	1	1
	Total	2	2
Gloria	Public Market	1	0
	Bus/Jeepney Term.	1	0
	Total	2	0
Mansalay	Public Market	0	0
	Bus/Jeepney Term.	1	0
	Total	1	0
Naujan	Public Market	0	0
	Bus/Jeepney Term.	1	0
	Total	1	0
Pinamalayan	Public Market	1	2
	Bus/Jeepney Term.	1	0
	Total	2	2
Pola	Public Market	1	0
	Bus/Jeepney Term.	1	0
	Total	2	0
Puerto Galera	Public Market	1	0
	Bus/Jeepney Term.	1	0
	Total	2	0
Roxas	Public Market	0	0
	Bus/Jeepney Term.	1	0
	Total	1	0
San Teodoro	Public Market	0	0
	Bus/Jeepney Term.	1	0
	Total	1	0
Socorro	Public Market	0	0
	Bus/Jeepney Term.	1	0
	Total	1	0
Victoria	Public Market	0	0
	Bus/Jeepney Term.	0	0
	Total	0	0
Provincial Total	Public Market	8	5
	Bus/Jeepney Term.	10	1
	Total	18	6

9. SECTOR MANAGEMENT PLAN

9.4 Project Management Arrangements

Table 9.4.1 Format for Level I Project Data

Form _____

PROPOSED LEVEL I PROJECT DATA

Notice : This form shall be accomplished upon instruction on PST/PWSD

LOCATION

1.1 Barangay/Sitio	1.3 Province
1.2 Municipality	1.4 Region

POP. DATA

2.1 Total Community/Barangay Population	2.3 Proposed Population to be Served
2.2 Total Number of Households	2.4 Proposed Number of Households to be Served

INFORMATION ON THE WELL SITE

3.1 Ownership : ☐ Public ☐ Private	3.3 Location:
3.2 Description :	3.4 Donor (If Private Lot):

DESCRIPTION OF EXISTING NEARBY SOURCE(S) (Use separate sheets if necessary)

4.1 Type of Point Source:
- ☐ Deep Well
- ☐ Shallow Well
- ☐ Spring
- ☐ Others (dug well pond)

4.2 Ownership :
- ☐ Public
- ☐ Private

4.3 For wells :
- Casing diameter_____ in. or_____m.
- Casing depth _____ ft. or_____m.
- Water level Well _____ ft. or_____m.
- Well capacity/yield _____ gpm. or_____m.

4.4 For Springs : Capacity/yield _____ gpm. or_____lps.

Approx. elevation above or below
Service Area _____ ft. or _____ m

Location
- ☐ Inside of service area
- ☐ Outside of service area

Approximate distance from center of service area _____km.

Prepared by :

_____ _____

Municipal Liason Staff Date

Table 9.4.2 Format for Level II Feasibility Study

Form _____

FEASIBILITY STUDY (Level II) Notice : This form shall be accomplished upon instruction of the PST/PWSO.	Barangay	Municipality
	Province	Region

PROJECT SUMMARY

POPULATION DATA

1. Present Population	2. Design Population	3. Number of Households
		6. Number of Faucets

TECHNICAL DATA

4. Type of Source ☐ Spring ☐ Well ☐ Surface Water	5. Type of System ☐ Gravity ☐ Pumped	
	7. Pump Horsepower _____ HP	8. Pumping Time _____ Hours per Day
9. Total Average Daily Demand _____ Liters	10. Storage Tank Capacity _____ Liters	11. Pump Discharge Capacity _____ LPS

FINANCIAL DATA

12. Total System Cost ₱ _____	13. Maximum Loan Amount ₱ _____	14. Interest Rate _____
15. Local Equity ₱ _____	16. Funding Cost per Household ₱ _____	17. Repayment Period (months) _____

18. Type of Local Equity
☐ Cash ☐ Labor ☐ Materials ☐ Others, _____

19. Total Monthly Expense ₱ _____	20. Monthly Fee Per Household ₱ _____

ANNEXES

☐ 1 Survey Form	☐ 5 Design of Pipe Lines	☐ 9A Fittings Schedule	☐ 12 Financial Analysis
☐ 2 Map of the Project Area	☐ 6 Design of Reservoir	(G.I. Pipes)	☐ 13 Availability of Local
☐ 3 Design Criteria and	and Pump	☐ 9B Fittings Schedule	Equity
Basic Design Data	☐ 7 Detailed Design Plan	☐ 10 Bill of Materials	
☐ 4 Schematic Diagram of	☐ 8 Pipes Schedule	☐ 11 Cost Summary	
the System			

Prepared by :	Endorsed by :
_____ _____ Municipal Liason Staff Date	_____ _____ PST/PWSO Coordinator Date

Annex 1

SURVEY FORM
_____ Rural Water Supply Project

A. LOCATION

Barangay : _____ Province : _____
Municipality : _____ Region Number : _____

B. GENERAL INFORMATION

1. Population _____
2. Number of households _____
3. Distance from poblacion _____ kilometers
4. Availability of electricity Yes ☐ No ☐
5. Distance form electric line _____ kilometers
6. Power cost per kilowatt hour P _____
7. Availability of public transportation _____
8. Main livelihood of residents
   - ☐ Land transport
   - ☐ Water transport
   - ☐ Farming
   - ☐ Industry ☐ Others
   - ☐ Fishing

C. TECHNICAL INFORMATION

1. Are there reliable sources of potable water?
   ☐ Yes ☐ No

a) For Wells
- Well capacity : _____ lps
- Casing diameter : _____
- Casing depth : _____
- Water level from top of well : _____
- Location :
  - ☐ Within service area
  - ☐ Outside _____M. from service area

b) For Springs
- Average dry season flow : _____ ☐ GPM ☐ LPS
- Relative elevation of spring
  - a. _____ ☐ ft. ☐ m. above service area
  - b. _____ ☐ ft. ☐ m. below service area
- Location :
  - ☐ Within service area
  - ☐ Outside _____ m. from service area

2. Are there water supply system materials and equipment (pumps, pipes, fittings) which can be donated for this project from other source?

☐ Yes ☐ No

For pumps : Type : _____ Power : _____ HP

For pipes : ☐ Galvanized Iron ☐ PVC
☐ Others, specify _____

3. Is there an existing water tank that can be used? ☐ Yes ☐ No

Type : ☐ Steel ☐ Reinforced Concrete

Capacity : _____ ☐ Gallons ☐ Cubic Meters

Location: (Please indicate in the map of the project area)

Relative elevation with respect to service area ____ ☐ ft. ____ ☐ m.

4. Are there other sites where water tanks may be erected? ☐ Yes ☐ No
Location : (please indicate in the map of the project area)

Relative elevation with respect to service area ____ ☐ ft. ____ ☐ m.

5. Does the barrio have skilled personnel? ☐ Yes ☐ No

If yes, how many? Estimated Number

Plumbers : _____
Masons : _____
Carpenters : _____
Others : _____

If no, are there competent contractors near the area?
Plumbing contractor : ☐ Yes ☐ No
Tank fabricator : ☐ Yes ☐ No

Are there suppliers of materials (pumps, pipes, fittings) in the municipality?
☐ Yes ☐ No

D. FINANCIAL INFORMATION

1. What can the barangay provide as local equity?

Cash : ₱ _____

Labor : _____ man-days

Materials : Sand : _____ cu. m.

Gravel : _____ cu. m.

Cement : _____ bags

Others, specify : _____

2. Have the people been informed of the current financing policies for Level II systems, particularly the monthly fees required to repay loan & provide for O & M?

☐ Yes ☐ No

3. How much are the people willing to pay per household per month as a water fee?

Below ₱ 6.00 ☐ ₱ 10.00 - 15.00 ☐ Others ☐

₱ 6.00 - 10.00 ☐ 15.00 - 20.00 ☐ Specify : _____

4. Average income per household ₱ _____ per month

E. INSTITUTIONAL INFORMATION

1. Is there an existing association who is ready, willing and able to manage the system

☐ Yes ☐ No

If yes, please specify. _____

2. Are people willing to join a water association to operate and manage a water supply system? ☐ Yes ☐ No

3. How many households are willing to be members? _____ households.

4. Name at least three (3) leaders of the community who can act as officers of the association, if required.

Name	Address
_____	_____
_____	_____
_____	_____
_____	_____

F. MAP OF THE AREA

Please attach map of the area proposed to be served. Indicate location of houses, buildings and other structures to be served including roads, the water source(s) and possible locations of storage tanks. The map should preferably be drawn to scale.

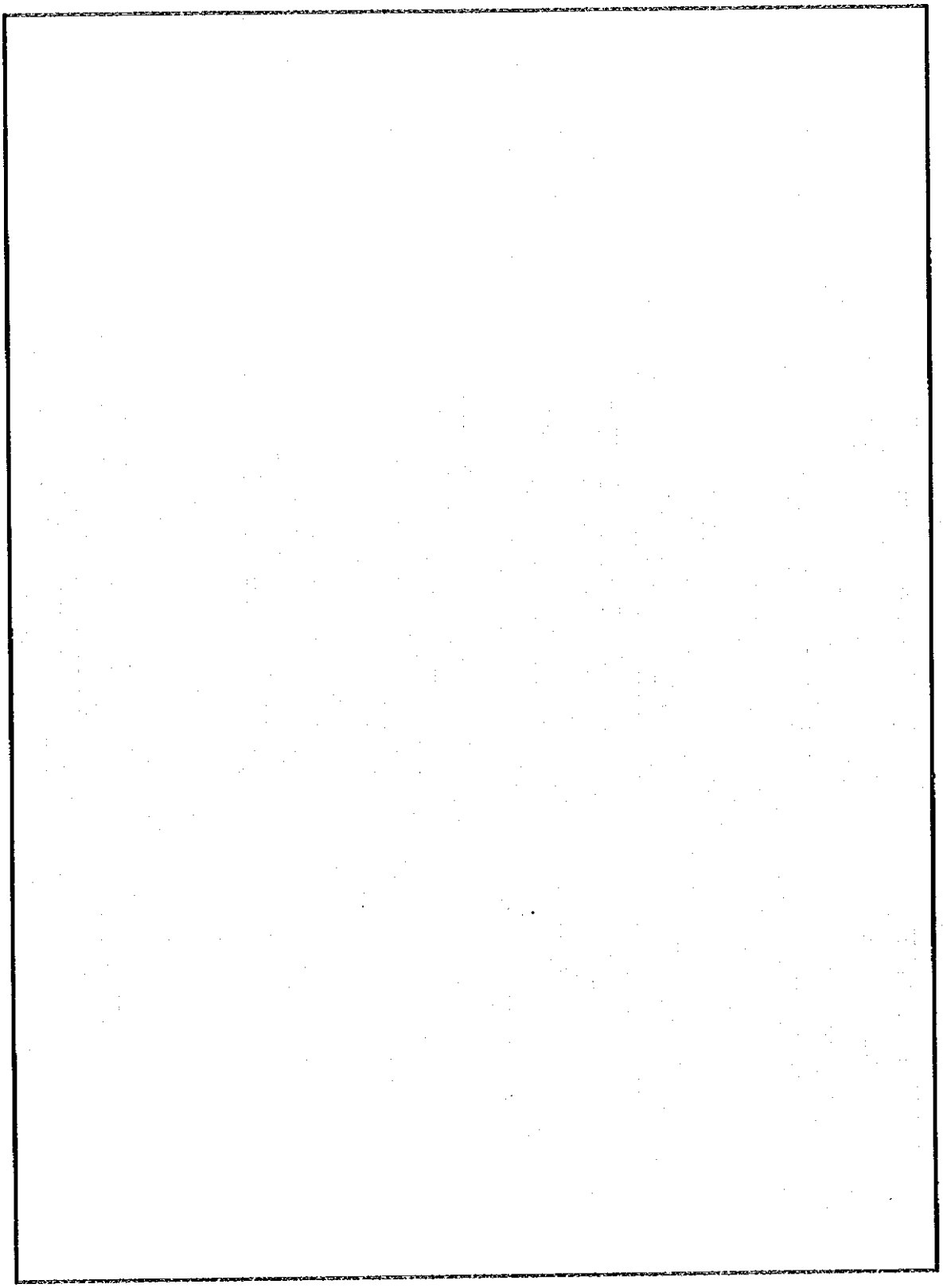
Important : If map cannot be drawn to scale, indicate distance measurements between important points along roads, or possible routes of distribution pipes with households properly indicated. For rolling terrain, indicate elevation differences between measurement points.

G. REMARKS :

Annex 2

MAP OF THE PROJECT AREA

_____ Rural Water Supply Project



Annex 3

DESIGN CRITERIA AND BASIC DESIGN DATA
_____ Rural Water Supply Project

I. Design Criteria

1. Design Period : 5 years
2. Population
   - Annual Growth : 3%
   - Average Household Size : 6 persons/HH
   - Design Population : Present Population x 1.16
3. Per Capita Water Consumption
   - Level II : 60 lpcd
   - Level II with garden : 75 lpcd
   - Level III : 100 lpcd
4. Water Demand
   - Average Day Demand : Design Population X Per Capita Consumption
   - Maximum Day Demand : 1.3 X Average Day Demand
   - Maximum Hour Demand : 2.5 X Average Day Demand
5. Pump Operation
   - Pumping Hours : 8 -15 hours
   - Pumping Rate : Maximum Day Demand/PumpingHrs. = _____
6. Storage Capacity : 1/4 of Average Day Demand
7. System Pressure : 5 - 10 psi at faucet
8. Households Served Per Faucet : 4 - 6 HH

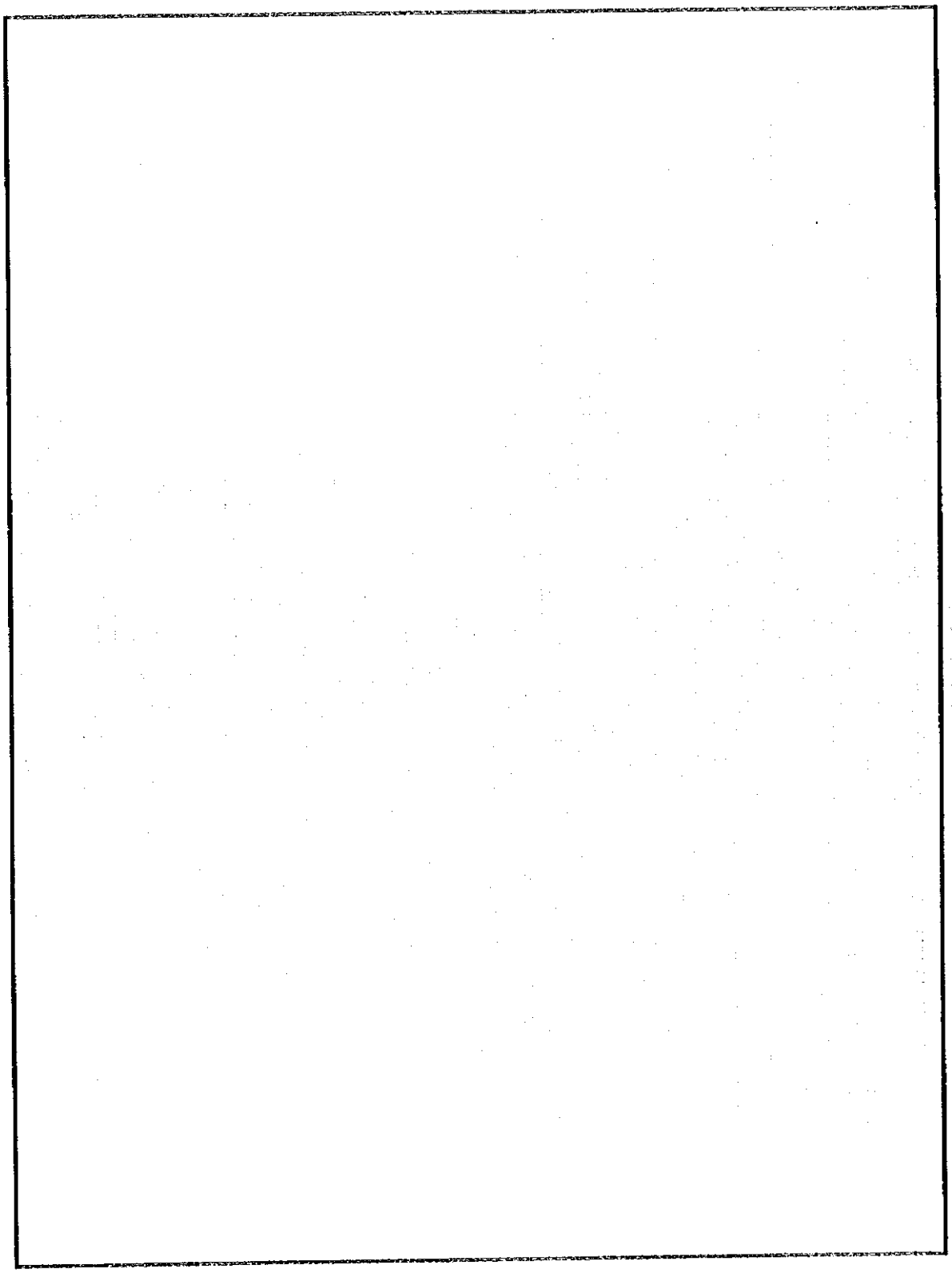
II. Basic Design Data

1. Present Population : _____
2. Design Population (Present Population X 1.16) : _____
3. Average Day Demand: _____ X _____ : _____
   (Per Capita Consumption) (Design Pop.)
4. Maximum Day Demand: 1.3 X _____ : _____
   (Average Day Demand)

Annex 4

SCHEMATIC DIAGRAM OF THE SYSTEM

_____ Rural Water Supply Project



Annex 5

DESIGN OF PIPE LINES

_______________ Rural Water Supply Project

SECTION (1)	NODES From (2)	To (3)	SECTION LENGTH(M) (4)	HOUSEHOLD SERVED (5)	PEAKFLOW (LPS) (6)	PIPE DIA (MM) (7)	HEAD LOSS PER 100M (8)	ACTUAL HEADLOSS (9)	REMARK (10)

Annex 6

DESIGN OF RESERVOIR AND PUMP

_____ Rural Water Supply Project

A. DESIGN

1. Determine Capacity of Reservoir, (C_r)

   C_r = 1/4 x Average Day Demand

   C_r = 1/4 x D_s (LPD)

   C_r = _____ liters

2. Determine Minimum Water Elevation, (WL_m)

   WL_m = total head loss + Minimum Pressure in Main (Meters)

   For Barangay System, Min. Pressure = 5 psi (use 3M.)

   For Poblacion System, Min. Pressure = 10 psi (use 7M.)

   WL_m = _____ M.

   Note : The bottom of the storage tank should be higher than this elevation.

B. DESIGN OF PUMP

1. Determine Pump Capacity, Q_p (LPS)

   Q_p = Max. Day Demand (LPD)/ Operating Time (Sec.)

   Q_p = 78 P_d/T where: P_d = Design Population

   T = Operating Time in Seconds

   Q_p = _____ LPS

2. Calculate Total Dynamic Head, TDH (Meters)

   TDH = Depth of Pumping Level + by Maximum Reservoir Elevation + friction loss

   TDH = _____ m

3. Calculate Brake Horsepower Requirement :

$$\text{Brake Horsepower} = \frac{Q_p \times TDH}{75 \times \text{Efficiency}}$$

Brake Horsepower = _____ Hp

Where :

Efficiency for Centrifugal Pump, 30-60 %

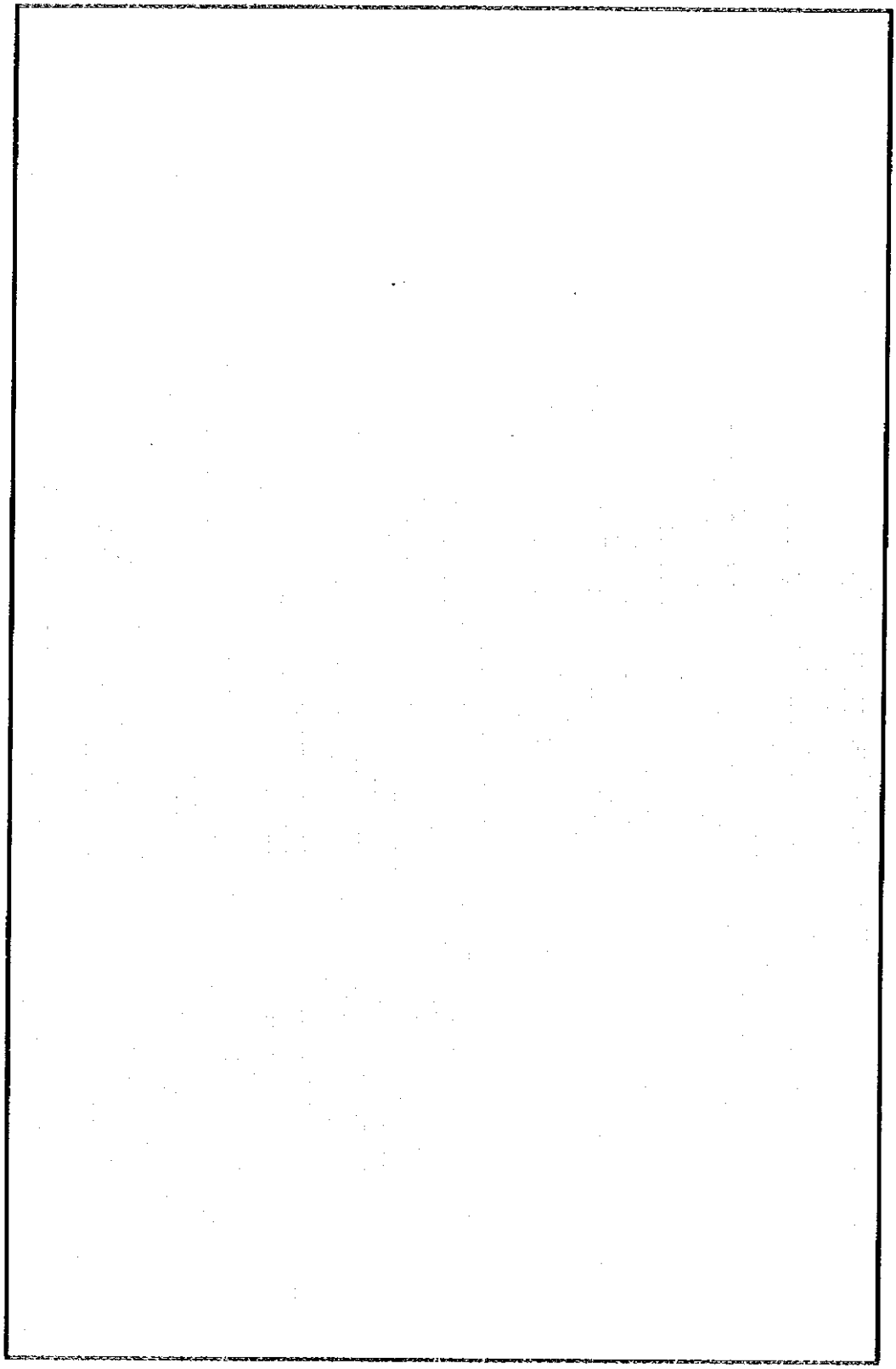
Efficiency for Submersible Pump, 50-60 %

Efficiency for Jetmatic Pump, 20-30 %

Annex 7

DETAILED DESIGN PLAN

_____ Rural Water Supply Project



Annex 8

PIPES SCHEDULE

_____ Rural Water Supply Project

PIPE DIAMETER (1) mm	SECTION LENGTH (2) m	REQUIRED PIPES (3)	ACTUAL NO. OF PIPES (4)	ADDITIONAL PIPES (5)

Annex 9A

FITTINGS SCHEDULE (G.I. PIPES)

_____ Rural Water Supply Project

NODES / SECT LENGTH	COUPLING Qty.	COUPLING Size	UNION PATENTE Qty.	TEE STD.	TEE REDUCER	BUSHING REDUCER	ELBOW STD / ELBOW REDUCER	COUPLING REDUCER	FAUCET	NIPPLE	VALVES

Annex 9B

FITTINGS SCHEDULE (PVC PIPES)

_____ Rural Water Supply Project

NODES / SECT LENGTH	SOCKET		STD. / ELBOW REDUCER	STD. / TEE REDUCER	SOCKET ADAPTOR	SOCKET REDUCER	G. I. FITTINGS			OTHERS
	Qty.	Size					VALVES	FAUCET	ELBOW	

Annex 10

BILL OF MATERIALS

_____ Rural Water Supply Project

QUANTITY	UNIT	DESCRIPTION	UNIT COST	TOTAL COST

Annex 11

COST SUMMARY

_____ Rural Water Supply Project

I. ESTIMATED COST OF THE SYSTEM

1. a) Cost of Pipes ₱ _____

   b) Cost of Fittings _____

   Total Cost of Pipes and Fittings ₱ _____

2. Cost of Reservoir _____

3. Cost of Pump _____

4. Labor Cost _____

   a) 10% of Pipes & Fittings (For G.I. Pipes)

   b) 25% of Pipes & Fittings (For PVC Pipes)

5. Cost of Freight and Handling _____

6. Contingencies 5% (Pipes & Fittings - Labor) _____

   Total Cost of the System ₱ _____

For gravity system, omit cost of pump.

II. FINANCIAL DATA

1. Total Cost of the System ₱ _____
2. Local Equity _____
3. Amount of Loan _____

Note:

Cost of freight and handling:

0%, - Rizal; 2.5%, - Zambales; 7% - Mindoro Fittings

Annex 12

FINANCIAL ANALYSIS

_____ Rural Water Supply Project

A. RELEVANT DATA

1. Pumping Hours : _____ hrs.
2. Pump Horsepower : _____ HP
3. Cost/KWH : P_____
4. Pump Cost : P_____
5. Amount of Loan : P_____
6. Loan Terms : _____ % (interest per annum)
   : _____ years (Repayment Period)
7. Number of Households : _____

B. COMPUTATION OF MONTHLY EXPENSES (Omit non-applicable items)

1. Operations
   a. Salaries _____ x _____ = P _____
   b. Office Supplies _____ x _____ = P _____
   c. Power _____ x _____ = P _____
   d. Chemical _____ x _____ = P _____
   e. Miscellaneous _____ x _____ = P _____

2. Asset Replacement
   a. Pump _____ / _____ = P _____
   Life (nos.)
   b. Pipelines _____ / _____ = P _____
   Life (nos.)
   c. Tank _____ / _____ = P _____
   Life (nos.)
   d. Others _____ / _____ = P _____
   Life (nos.)
3. Amortization _____ x _____ = P _____
   (CRF) (Loan Amt.)
4. Maintenance (2% of Capital Equipt.costs annually)
   .02 X _____ /12 = P _____
6. Total Monthly Expenses = P _____

C. COMPUTATION OF WATER FEE

Monthly Water Fee Per Household :

_____ / _____ = P _____

(Total Monthly Expenses) (No. of HH)

Annex 13

AVAILABILITY OF LOCAL EQUITY

Item	Amount
I. Cash	P _____

II. Labor

Type of Labor	No. of Workers	No. of Days	Rate Per Day	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	_____

III. Materials

Type of Materials	Quantity	Unit Cost	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	_____

TOTAL P _____

I certify that the items listed above represent the local share of the project cost. _____ Association President _____ Date	Noted by : _____ Municipal Sector Liason _____ Date

9.5 Community Development Models

Community Development Model Study (Level I)
Model Site: Purok Calawang, Bgy. Guinobatan Calapan, Oriental Mindoro

1. Socio-Economic Profile of the Model Site

Purok Calawang is one of four depressed sitios of Barangay Guinobatan in the capital town of Calapan. It is outside the service area of the Calapan Waterworks System and Development Corporation. The barangay is located approximately 1 km east of the Calapan town center along Lumangbayan Road. It can be reached by a 25-minute ride by jeepney or tricycle. The barangay has a population of about 1,000, most of whom are farmers. Thirty-eight percent (38%) are professionals; about 25% are sales/service workers. Average annual family income is estimated at ₱2,000. Leading crops grown are coconuts and palay. There is also a small-scale livestock and poultry farm in the barangay which is owned by one of the prominent families. As well as a small concrete moulding plant producing toilet bowls is likewise operating in the area.

The entire barangay consists of 210 households. About eighty percent (80%) of the houses are made of light, indigenous materials and the rest are permanent and semi-permanent structures. There are eighty (80) households clustered on the northern part (Purok Calawang) comprising the target beneficiaries for this proposed project. Significantly, the purok has been designated as a relocation site for squatter resettlement (about 40 additional families will be relocated shortly). There are no community-based organizations in the purok.

2. Present Water Supply/Sanitation Situation

Almost all of the households in Purok Calawang have individual dug wells (depth: 2-3 m) for washing/bathing. Drinking water is fetched from several shallow wells (depth: 18 m) fitted with jetmatic handpumps located in the adjacent purok about 300 meters away. Six (6) such facilities were constructed in 1994 by the provincial government to serve about 100 households. It was reported that two households in the purok successfully drilled a free-flowing well up to a depth of 240 ft. (75 m.). The area consists mainly of alluvial formation; terrain is flat; site is about 2 kms inland from the coastline. During the recent floods, the entire purok was submerged under one meter of floodwater for an extended period. Unsanitary pits located in most of the household invariably affect the shallow wells.

3. Assessments

3.1. Water Sources

The residents get most of their water requirements from dug wells. For drinking purposes, the people fetch water from shallow wells situated 300 meters away. Although there are no complaints about the quality of water, these sources are not provided with protection works and considered inadequate. Unsanitary household pits also pollute the shallow wells. At the same time, their sources for drinking water are located far from their houses such that water collection consumes much time and energy especially for women and children who are doing most of water hauling. Transporting the water this far also exposes it to pollutants

3.2. Sanitation Facilities

Most of the residents do not have individual sanitary toilets. They resort to the bad practice of "wrap and throw" method for their wastes.

3.3. Health

This situation explains why water-related diseases account for the leading causes of morbidity and mortality in the area. Yet, the residents do not see this as a direct result of using contaminated water from unprotected water sources or from unsanitary toilets. People seemed to be accustomed in using water from unsanitary shallow wells that they do not complain of the quality anymore or even suspect it as the cause of their maladies. As such the residents are satisfied with their present condition and show less concern in improving their water and sanitation facilities.

3.4. Institutional Analysis

There is no existing non-government organization (NGO) or people's organization operating in Purok Calawang which can mobilize the residents to develop a more reliable water system and affect a greater sanitary toilet coverage. Analyzing the situation, the reasons for these could be the following:

(1) The availability of water sources (dug wells and shallow wells) and of sanitary disposal system located in Purok Calawang, although not safe, makes it difficult for the purok residents to recognize their water and sanitation needs.

(2) The low income level of purok residents deters them from forming an association and execute projects. Residents assume that associations and projects are synonymous with lots of expenses and contributions.

(3) The Barangay Council and other NGOs operating in Oriental Mindoro have failed to mobilize the residents to attend to their water and sanitation problems.

As such, there is a pressing need to form and develop a local organization to tackle this health and environment issue.

4. Future Development Needs

4.1. Potential Source and Service Level

The construction of shallow wells or deep wells would alleviate the prevailing situation in the study area. Based on the data for Calapan, safe water acquifer can be found at depths of 100 to 150 meters. For deep well construction, s detailed study (test drilling, geo-resistivity, etc.) should be done to get the depth, quality and specific yield. Proper construction method needed to avoid possible contamination of surface water.

All out campaign for construction of individual sanitary toilets should be launched.

4.2. Formation of BWSA

Forming a Barangay Waterworks and Sanitation Association (BWSA) is considered the best alternative in order to have an organization that will coordinate and implement the proposed project.

5. Capital and O&M Funds

5.1. Water Source Facility and Sanitary Toilet

Capital cost required to construct a shallow well is ₱57,000 while a deep well costs around ₱255,000. This may come in as grant from the municipal or provincial government.

Capital cost of household toilets shall be shouldered by the owners. If a family is not able to put up the initial capital cost, the BWSA can make arrangements for the extension of loan from the fund sources (rural bank, cooperatives, etc.).

5.2. Operation and Maintenance

The community should raise an amount equivalent to 1% of the capital cost which shall be set aside for the operation and maintenance of the shallow wells.

Operation and maintenance of household toilets shall be done by the owners.

6. Community Involvement

6.1. Pre-Construction (Project Preparation and Planning)

(1) The Barangay Council of Guinobatan, in coordination with the MSL, could initiate a meeting among the residents to discuss water and sanitation problems and needs in the area. A discussion on the prevailing health situation in the area, such as recent epidemics or the government's immunization campaign can be the opening agenda in the meeting. The opportunities in the sector and possible implementation of water and sanitation project in the sitio can then be discussed.

(2) The residents shall organize the Barangay Waterworks and Sanitation Association (BWSA). The Board of Directors and officers of the Association should call a meeting among its members to discuss the implementation of Level I water system and the provision of sanitary toilets to the residents. The association can form a committee to act as the project team that will regularly coordinate with the municipal's project staff.

(3) The association should determine the monthly fees that the members will contribute to cover all O&M costs, as well as to establish a reserve fund.

(4) The BWSA should submit a formal request to the municipality/provincial government, duly endorsed by the Barangay Council, for technical and financial assistance in undertaking Level I project in Purok Calawang. The request is accompanied by a written set of commitments signed by the members indicating willingness to participate in the project, assume the responsibility for the operation and maintenance, including the collection of fees to pay for the operation and maintenance cost. An initial reserve fund

representing the membership fees of beneficiaries will be collected and deposited in a bank.

(5) Upon approval of such request, the association will mobilize its project team to assist in project implementation and in undertaking the following:

a) Conduct of community study (barangay diagnostics)

b) Identification of alternative sites available where the shallow wells would be installed

c) Negotiation for written permits granting use of land and right of way where hand pumps would be put up

d) Negotiation with qualified local contractor who can undertake well drilling

(6) Monitoring Activities: During this stage, the association will submit a progress report to Municipal Liaison Officer indicating the status of project planning and preparation. The report will include such information as the composition and membership of the BWSA, scope of project to be implemented, project specifications, work plan and schedule, and financial arrangement (if any).

6.2. Construction Phase (Project Implementation)

(1) During construction of facilities, the association has to assign team/s which shall coordinate and monitor the implementation of the project.

(2) Beneficiaries could provide labor during well construction, pump installation and preparation of drains and soakway pits.

(3) The community may be asked to contribute materials which are locally available. These may take in the form of gravel and sand, roofing sheets, timber or tools for excavation.

(4) The residents should provide information which may be necessary expedite the construction of the facility.

(5) Monitoring Activities: The BWSA will have a meeting discussion with MSL on the status of construction project.

6.3. Post Construction (Operation and Maintenance)

(1) BWSA should monitor whether the contractors conduct proper disinfection of the wells immediately after their completion. Also, the association shall request the Provincial Health Office (PHO) to conduct periodic surveillance and, if necessary, disinfection of the wells.

(2) The BWSA shall monitor whether the facilities are properly maintained or not.

(3) Beneficiaries should be involved directly in the operation and maintenance of the facilities. They shall practice to keep the premises of the water facility clean, sanitary and free from excess water, which may cause contamination of the water source. Breakdown should be reported immediately to the BWSA and necessary repair work must be undertaken at once.

(4) Operation and maintenance cost will be shouldered by the beneficiaries through their membership fees. The association shall regularly collect monthly contribution and deposit them in the bank. Expenses for repairs and improvement as well as spare parts commonly used will also be purchased out of this fund.

(5) The member-beneficiaries should provide labor in the repair and rehabilitation of the facilities.

(6) The association shall adopt a disaster response program which focuses on securing facilities and in providing water supply in times of emergencies.

(7) Water quality surveillance should be a priority activity of the BWSA. Members should see to it that regular water examination is being done by the RHU or PHO. Results will be furnished to the BWSA.

(8) Maintenance of individual household toilets should be the responsibility of the owners.

(9) Monitoring Activities: The BWSA is required to submit annual reports to MSL. The first report should be submitted immediately upon the completion of the project. It should well log data, number of sanitary toilets constructed, overall cost (both for water system and toilets), project modification (if any), and timetable of maintenance activities.

Succeeding reports will indicate breakdowns and repairs, expenses, problems encountered in operating the system and, if possible, recommendations, and other relevant data.

7. Project Elements

7.1. Health and Hygiene Education

(1) Health and hygiene education should be launched as early as the start of the project and be sustained. In fact, it will be a good entry point in discussing existing water and sanitation issues in the community.

(2) The MSL, in cooperation with the Rural Health Unit should conduct a continuous health education campaign in the project area. Special presentations can also be done by the RHU staff during meetings of the group. Significantly, the facilities to be established would provide more opportunities to discuss hygiene practices and identify areas for improvement.

(3) This local effort can be reinforced by multi-media campaign being organized by higher institutions such as the DOH and the government's information agency.

(4) The barangay elementary school adopt DEC's Teacher-Child-Parent Approach which teaches practical lessons in hygiene education that involves parents and other members of the family.

7.2. Human Resources Development and Training

(1) BWSA members, including women, will be trained on the following:

1) basic hand pump operation and maintenance; simple tasks like replacing rubber washer, etc. Workshops and on-the-job training will be conducted by the municipal government.

2) Qualified young members will be enrolled at the National Manpower and Youth Council which conducts regular training course on Plumbing. Internship of graduates can be arranged with the nearest water district or with the municipal/provincial government.

7.3. Women's Involvement

1) The women members of BWSA shall be involved from the start of the project and on major decisions like the selection of sites for the wells and the collection of fees/contributions.

2) Women should be involved in operation and maintenance of the facilities, doing simple tasks. They should therefore be included in training programs conducted for the members.

3) The women sector must spearhead in health and hygiene education.

Community Development Model Study (Level II)

Model Site: Barangays Loyal, Sampaguita and Ordovilla, Victoria, Oriental Mindoro

1. Socio-Economic Profile of the Model Site

The study area covers portions of Barangays Loyal, Sampaguita and Ordovilla. The site is located about five (5) kms from the town proper of Victoria (42 kms from Calapan). Purok Silangan in Loyal constitutes 200 households while concerned areas in Bgys. Sampaguita and Ordovilla consist of about 2,000 households.

Eighty (80%) percent of the work force in the three barangays are engaged in fruit tree farming as the main source of livelihood. Fruits include rambutan, lanzones, sintunes, calamansi and jack fruit. Bananas and root crops are also grown in the area. In addition, some households are involved in livestock raising (cattle, goats, hogs and chicken). The average family income is estimated at up to ₱ 25,000 annually.

Houses in the areas are scattered. Lot sizes range from 2 to 4 hectares each since they are essentially fruit orchards. The barangay is traversed by an earth-gravel provincial road which is hardly passable during the rainy season. Common types of vehicles plying the road are tricycles and jeepneys. Cargo trucks also operate during the harvest season. Literacy rate is placed at about 80%. There is an elementary school in the barangay with a PTA.

2. Present Water Supply/Sanitation Situation

Residents fetch their drinking water at poblacion and pay ₱5.00 to ₱7.00 per 5-gallon container. Each household spends about ₱600.00/month for their water needs; others who can't afford to pay get their water from the river. For washing and bathing, rainwater roof catchments are used. There is a spring situated about 1.2 kms from Purok Silangan although it has not been developed yet. DPWH drilled a well with a depth of 90 ft. in Bgy Sampaguita. However, no water came out. In the lower part of Bgy Ordovilla, a shallow well was constructed but the water is not potable due to water quality problem. The area is consist of a thin clayey alluvial deposit underlain by late Pliocene and Pleistocene sandstone and conglomerates.

Solid wastes are dumped and burned/buried in vacant areas. Composting is also a common practice. Only about 50% of the households have pit latrines which are mostly unsanitary.

The current effort to improve the water service is at the initiative of the Barangay Council of Loyal. They have taken steps to coordinate plans with the adjacent barangays who may also benefit from the improvements. Resolutions were passed to the governor's office re: construction of water system. The Council has organized water committee but said committee has not been active due to non-existence of water supply system in the area. The residents have applied water rights from DENR. A preliminary investigation for water supply improvement has been done by the PEO at the request of the three barangays.

3. Assessments

3.1. Water Sources

The residents of Purok Silangan and parts of Barangays Sampaguita and Ordovilla encounter difficulties in acquiring adequate water supply. They have to buy their drinking water from private vendors in the poblacion at a high price. For washing and bathing purposes, they get water from unreliable rainwater roof catchments. The lone existing shallow well in the area does not produce good quality water. Others get water from the river.

3.2. Sanitation Facilities

The sanitation condition in these areas is likewise in a bad state. Only half of the households in the area have pit latrines which are mostly unsanitary. The rest dump their solid wastes in vacant lots.

3.3. Health

This prevailing condition in the community illustrates why there are many cases of water-related diseases in the area. In fact, diarrhea is the number one cause of infant mortality in the province while other water-borne diseases are the leading cause of morbidity among adult population. As a result, many productive man-hours are lost due to these illnesses.

3.4. Institutional Analysis

The existing health and sanitation condition in the area compels the barangay Council of Loyal to take steps in mobilizing the people. The Council of Loyal formed a water committee which coordinated with the two adjacent barangays in an attempt to develop the area's water supply system. The Council, through the water committee, passed a resolution requesting assistance from the Provincial Government. Due to lack of follow-up activities concerning the project, the committee became inactive.

In order to pursue the improvement of the water and sanitation condition in the three barangays, the residents of Barangays Loyal, Sampaguita and Ordovilla should decide which community organization should be delegated to coordinate this activities. Should the residents determine that a new organization has to be formed, the Barangay Councils of the three barangays should collaborate on establishing that organization.

4. Future Development Needs

4.1. Potential Source and Service Level

A spring situated about 1.2 kms from Purok Silangan can be an alternative water source for the proposed project. A concrete box may be constructed about 100 m from the stream flow. To avoid contamination, a good drainage around the spring will be constructed so that surface water will not mix with spring flow during the rainy season. Deep wells may also be viable alternative sources. Possible aquifer is about 100-150 m depth.

Level 2 water system is appropriate for the project area composed of a piped distribution system with communal faucets installed in each of the three barangays.

Families shall be encouraged to construct individual household toilets

4.2. Formation of RWSA

The formation of a Rural Water and Sanitation Association (RWSA) is the most ideal set-up to operate, maintain and provide dependable and adequate water service to Purok Silangan and part of Barangays Sampaguita and Ordovilla. The RWSA shall be formally organized with the members of the board of directors coming from the three barangays. A general manager shall be appointed to oversee the day-to-day operation of the RWSA.

5. Capital and O&M Funds

5.1. Water Source Facility and Sanitary Toilets

(1) Capital cost required to construct level 2 system is ₱2,472,273.00. Of this amount, cost of materials is about 70%, while labor cost accounts for 30%.

(2) The capital cost will be shouldered by the RWSA through a loan from the municipal/provincial governments or other lending institutions (LWUA, cooperatives, rural banks, etc). To bring down the cost of the system, the community should provide free labor in the construction of the system. They can assist in excavations, pipe laying and installation of faucets. The water charges to be collected by the association from the water consumers will cover administrative cost of RWSA, costs of system operation and maintenance and loan amortization.

(3) Capital cost of individual household toilets shall be shouldered by the homeowners. If a family is not able to put up the initial capital cost, the RWSA can make arrangements for the extension of loan from various institutions. Policies on interest rates and repayment scheme adopted by the institutions shall be adopted. The association will be the guarantor and the collector for this loan.

5.2. Operation and Maintenance

Water charges to be collected by the association from the water consumers will cover costs of operation and maintenance. Generally, the association should raise 1% of the total capital cost annually for the system's O&M.

6. Community Involvement

6.1. Pre-Construction (Project Preparation and Planning)

(1) The Water Committee of Barangay Loyal should initiate the initial meeting among the residents of Purok Silangan and part of adjacent barangays (Sampaguita and Ordovilla) to discuss water and sanitation problems and needs.

(2) The people shall organize the RWSA to manage, operate and maintain the water system. Members of the water association shall be the main users of the water system. The officers appoint committees which shall be responsible for all the undertakings of the cooperative.

(3) The members shall pay their initial membership dues .

(4) The RWSA shall request the municipal/provincial government for technical assistance in determining the scope of water and sanitation project they shall undertake.

(5) The Association shall submit a request to the municipal/provincial government or other lending institutions (such as commercial banks and cooperatives) for the necessary loan to finance the project. The request is accompanied by a commitment sheet signed by the beneficiaries indicating their willingness to participate in the project, assume the responsibility for the maintenance, including the collection of fees to pay for the cost of operation and maintenance and for loan amortization. A reserve fund representing the initial contribution/membership fee of beneficiaries will be collected and deposited in a bank.

(6) As soon as there's fund available, the RWSA shall mobilize its own team to assist the municipal/provincial team in:

1) undertaking community study (barangay diagnostics)
2) selection of water source and location of communal faucets
3) detailed planning and as a baseline for evaluation (including technical and social aspects as well as knowledge, attitudes, practices related to water, sanitation, and hygiene).
4) negotiation for the acquisition of the right of way
5) establishing the technology, level and design of the water system.
6) short listing of local contractors for the conduct of bidding

(7) The members shall also attend all briefings and presentations related to the project

(8) Monitoring: During this stage, the RWSA shall submit a progress report to the Municipal Sector Liaison (MSL) indicating the status of project planning and preparation. The report will include, among others, the scope of project to be implemented, project specifications, work plan and schedule, delineation of responsibilities, and financial arrangements.

6.2. Construction Phase (Project implementation)

(1) The beneficiaries shall provide self-help labor in the following activities:

1) clearing of the spring premises
2) construction of intake box and drainage around the spring
3) digging and pipe laying
4) installation of public faucets and meter
5) preparation of drains and soak way pits
6) excavation of pits and construction of latrine structures

(2) Granting of right of way for pipe laying, construction of pump stations and for installation of other necessary facilities

(3) Dissemination of information on the on-going construction

(4) Provision of access to contractors

(5) The association shall meet with the beneficiaries to set water fees to generate fund that will be used for the system's loan repayment and for operation and maintenance.

(6) Monitoring Activities: The association will submit progress reports to MSL indicating the status of the project. It contains information such as modifications, project team composition, people's contributions (cash, materials and labor), etc.

6.3. Post Construction (Facility Operations)

(1) The RWSA should monitor the practices of the users to ensure proper handling of the water and sanitation facilities as well as prudent use of water. Every member-consumer should also cooperate with RWSA to protect from loss or damage communal faucets with meters. The loss or damage due to the fault or negligence of the member shall be borne by him.

(2) The association should assign person/s to regularly monitor the performance of the water source and public faucets. Water samples should be collected in cooperation with the PHO staff.

(3) The members should pay their membership dues/water consumption charges regularly in order for the association maintain good service of the water system.

(4) Maintenance of individual household toilets shall be the responsibility of the owners.

(5) Monitoring Activities: The association should submit quarterly reports to MSL. The first post-construction report should be submitted immediately upon the completion of the project. It should indicate scope of work (water system) such as: scope of spring development undertaken, number of communal faucets installed, length and diameter of pipes laid, sanitary toilets constructed, modifications (if any), overall cost (both for water system and toilets), and timetable of maintenance activities. Succeeding reports will indicate breakdowns and repairs, expenses, problems encountered in operating the system and, if possible, recommendations, and other relevant data.

7. Project Elements

7.1. Training and Hygiene Education

(1) To create awareness among the residents on the value of safe water and sanitary toilet facilities, the RWSA assisted by MSL, shall conduct hygiene education in the project area. The campaign should be launched as early as the commencement of the project and be sustained.

(2) The hygiene education conducted by RWSA could, in fact, be the entry point for the improvement of water and sanitation systems in the area. Moreover, the new facilities shall provide more opportunities to discuss hygiene practices and identify areas for improvement.

(3) Each of the three barangay elementary schools adopts DEC's Teacher-Child-Parent Approach which teaches practical lessons in hygiene education that involves parents and other members of the family.

(4) The efforts of the MSL and the school shall be reinforced by multi-media campaign being implemented by other government institutions such as the DOH and the Philippine Information Agency.

7.2. Human Resources Development and Training

(1) Members of the association, including women, shall be trained on:

1) basic utility operation and maintenance
2) simple tasks like replacing rubber washer
3) leak detection and repair
4) meter reading,

(2) Workshops and on-the-job training will be conducted by the municipal/provincial government.

(3) Qualified young members will be enrolled at the National Manpower and Youth Council which conducts regular training course on water system operation. Internship of graduates can be arranged with the nearest water district or the municipal waterworks system.

7.3. Women's Involvement

(1) The RWSA should campaign for female members and give them equal opportunity in the Board and in the management of the association. They (the women) must be involved from the start of the project and on major decisions like the selection of sites for the wells and the faucets and in the collection of fees/contributions.

(2) Women should be involved in operation and maintenance of the facilities, doing simple tasks. They should therefore be included in training programs conducted for the members.

3) The women sector must spearhead in health and hygiene education campaign in the community.

Community Development Model Study (Level III)

Model Site: Bgys. Masagana & Evangelista, Naujan, Oriental Mindoro

1. Socio-economic profile of the model site

Portions of Barangays Masagana and Evangelista in the municipality of Naujan will comprise the study area. About 200 households in Masagana and another 150 households in Evangelista are included in the proposed project. A third area, Barangay Aurora with 500 households, is also under consideration to be included in the service area.

Of the three barangays, Masagana is the most economically progressive barangay. Most of its residents are engaged in fruit tree farming and some animal raising.

2. Present water supply and sanitation situation

At present, drinking water is taken from about 50 shallow wells with 12 m depth. A spring which yields potable water is located about 1.5 kms from Masagana. Presently, 10 households are directly tapped to it. These water sources are used for drinking and washing. No major water quality problems have been experienced, although on occasions, "rusty color and taste" have been detected. Surrounding areas of the site consist of Pleistocene formation underlain by alluvial deposits. The existing well inventory indicates good yield (maximum, 3 m^3; average, 1 m^3) at a depth of 40-80 meters below ground level. Some may even be artesian deep wells.

Based on the survey conducted by the Barangay Council, the residents are willing to pay about P 50 per month for their water consumption.

Most of the households have their own pour-flush toilets or pit latrines.

3. Assessment

3.1. Water Sources

Water supply in the study area poses a threat to the health of the residents, although they are accessible to the water sources. Most of the existing shallow wells are not adequately protected against contamination. The spring is likewise unprotected and without properly disinfected.

3.2. Sanitation Facilities

Sanitary condition in the two barangays is generally good compared to other barangays. Most of the households have sanitary toilets. However, there is still a need to campaign for better maintenance of the existing facilities and promotion of toilet construction to the rest of the residents.

3.3. Health

The health condition in the area is relatively favorable as compared to the rest of the barangays in the municipality, although some cases of water-related diseases have been recorded. This could be ascribed to water contamination due to improper handling and storage of water. Improper maintenance of sanitary facilities is also a cause of illnesses.

In this regard, a better water system and good hygiene education is needed to attain a better health condition in the barangays.

3.4. Institutional Analysis

A water district exists in the municipality of Naujan but the study area is not covered since they are isolated from the service area.

Level III water system has a good potential in the study area due to the density of the houses and the willingness of the people to pay for the service. The residents are also willing to organize themselves for the development of their water system and promotion of better sanitation.

There are no existing community organizations which can be delegated to supervise the water and sanitation project and it seems the barangay councils of the two barangays are not yet inclined to establish a group to address the need exclusively.

4. Future Development Needs

4.1. Potential Source and Service Level

The spring in Masagana may be tapped as the main water source for the two barangays after detailed study. The study should entail an alternative to cover Barangay Aurora for additional 500 households. Since the people are ready to have individual connections, Level III water system shall be constructed.

Deep well sources may be located within the populated areas. Alternatively, a detailed study of the aquifer and the proposed spring is needed.

4.2. Identification of Community Organization

As a pre-requisite to the development of the water and sanitation facilities in the area, a community organization should be appointed by the residents. In the case of Bgys. Masagana and Evangelista, there is no existing organization which can assume the responsibility of implementing Level III project. As such, there is a need for the residents of the two barangays to get together and form an organization. Based on preliminary interviews with the people, the formation of a water cooperative is a better alternative organization in the area.

5. Capital and O&M Funds

5.1. Water System

(1) Capital cost required to construct the Level III system for the two barangays shall be determined after the conduct of feasibility study and detailed design thereafter.

(2) The capital cost will be shouldered by the Cooperative through a loan from the municipal/provincial government or other sources such as LWUA and commercial banks. Water charges will be collected from the consumers to cover the cost of operation and maintenance, and for loan amortization.

5.2. Individual Sanitary Toilets

Capital cost of household toilets shall be shouldered by the homeowners. Should a member can not put up the initial capital cost, the cooperative can extend loan to the member, terms of payment of which shall be decided by the cooperative.

6. Community Involvement

6.1. Pre-Construction (Project Planning and Preparation)

(1) The residents of the two barangays shall initiate the move for the holding of a general assembly-meeting to discuss the water and sanitation problems and needs in the community. The Barangay Councils shall facilitate the meeting, in coordination with the Municipal Sector Liaison and representatives from the Naujan Water District.

(2) The people shall organize the Water Cooperative to assume the functions of a water association in managing, operating and maintaining the water supply system. Members of the water cooperative shall be the main users of the water supply system. shall elect their officers and appoint a manager who will supervise the operation of the cooperative.

(3) The members shall pay their initial membership dues .

(4) The water cooperative shall request the municipal/provincial government or the water district to provide assistance in determining the scope of water and sanitation project they shall undertake.

(5) The cooperative shall enter into a memorandum of agreement with the water district for managerial and technical assistance in the conduct of feasibility study, design and construction of level III water system and in the management of the system. The cooperative will work with the Municipal Sector Liaison (MSL) and water district in seeking for the services of the Local Water Utilities Administration (LWUA) on this project. At a future time when Naujan Water District shall have become fully developed and operational, the cooperative may be merged with the WD.

(6) The cooperative submits a formal request to the municipal and/or provincial government for the necessary financial loan in undertaking the project. The request is accompanied by a commitment sheet signed by the beneficiaries indicating their willingness to

participate in the project, assume the responsibility for the maintenance, including the collection of fees to pay for the cost of operation and maintenance and for loan amortization. A reserve fund representing the initial contribution/membership fee of beneficiaries will be collected and deposited in a bank.

(7) Upon approval of the loan, the cooperative will mobilize its own team to assist the municipal/ provincial or other supporting staff in:

1) conducting feasibility studies
2) negotiation for the acquisition of the right of way
3) design of the system
4) project bidding
5) project mobilization

(8) The members shall also attend all briefings and presentations related to the project

(9) Monitoring: During this stage, the cooperative shall submit a progress report to the MSL indicating the status of project planning and preparation. The report will include, among others, the scope of project to be implemented, project specifications, work plan and schedule, delineation of responsibilities, and financial arrangements.

6.2. Construction (Project Implementation)

(1) Since the construction of the water system will be undertaken by a qualified contractor, the direct involvement of the barangay residents shall be limited to the following:

1) Granting of right of way for pipe laying, construction of pump stations and installation of other necessary facilities
2) Dissemination of information on the construction activities
3) Compliance with new road traffic routes
4) Provision of access to contractors
5) Monitoring of inconveniences caused by the construction
6) Early application for water connection

(2) Monitoring: The contractor, through the authority (MSL and/or others) will submit to the cooperative progress reports on the status of the construction project. The report shall include any modification, problems being encountered, and possible solutions.

6.3. Post Construction (Operation and Maintenance)

(1) The facilities shall be operated and maintained by highly-trained personnel and technicians to be assigned by the cooperative. However, the users should participate in the operation and maintenance of the systems through the following:

1) Paying of water bills on time
2) Reporting of water leaks at the main pipeline
3) Giving access to meter readers
4) Conservation of water
5) Campaign for more service connections.
6) Reporting of illegal connections, tampering of water meters and busted pipes
7) Monitoring of water quality
8) Attending at cooperative meetings and other activities

(2) The association shall assist in the maintenance of the premises of facilities, putting fences and planting different varieties of plants and trees.

(3) Individual household toilets shall be the responsibility of the owners.

(4) Monitoring Activities: The Cooperative shall submit quarterly reports to the MSL. The first post-construction report should be submitted immediately upon the completion of the project. It should indicate scope of work, sanitary toilets constructed, modifications (if any), overall cost (both for water system and toilets), and timetable of maintenance activities. Succeeding reports will indicate number of connections, breakdowns and repairs, expenses, problems encountered in operating the system and, if possible, recommendations, and other relevant data.

7. Project Elements

7.1. Training and Hygiene Education

(1) Health and hygiene education should be launched as early as the initial planning of the project and be sustained. In fact, it would be a good entry point in discussing existing water and sanitation issues in the community prior to the formation of the Cooperative.

(2) The Municipal Sector Liaison, together with the Rural Health staff should conduct a continuous health education campaign in the barangay. Special presentations can also be done by the Rural Health Unit (RHU) staff during meetings of the group. Significantly, the facilities to be established would provide more opportunities to discuss hygiene practices and identify areas for improvement.

(3) This local effort can be reinforced by multi-media campaign being organized by higher government institutions such as the DOH and the Philippine Information Agency to be coordinated by the municipal/provincial staff.

(4) The primary schools in the two barangays shall adopt DEC's Teacher-Child-Parent Approach which teaches practical lessons in hygiene education that involves parents and other members of the family.

7.2. Human Resources Development and Training

(1) Training and human resource development programs shall be directed to those who would manage , operate and maintained the water systems. The Board of Directors, Management and staff of the Cooperative shall be sent to the provincial government/other relevant central government agencies to attend basic and advance training programs such as policy making, financial management, systems design, construction supervision, among others.

(2) Qualified young members and residents of the two barangays will also be enrolled at the National Manpower and Youth Council which conducts water system-related courses. Internship of graduates can be arranged with the municipal/provincial government or the water district.

7.3. Women's Involvement

(1) The Cooperative should campaign for female members and give them equal opportunity in the Board and in the management of the system They (the women) must be involved from the start of the project and their recommendations must be considered.

(2) Women should be involved in operation and maintenance of the facilities and allowed to simple repair jobs. They should therefore be included in training programs conducted for the members.

3) The women sector must spearhead in health and hygiene education campaign in the community.

10. COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT

10.2 Assumptions for Cost Estimates

(1) Unit Construction Cost

Table 10.2.1 Unit Cost of Level I (Deep Well - 40m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,300
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	11	pcs.	2,625	28,875
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,719	2,719
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,313	8,626
2. Labor, Fuel, Lubricant and others				
Well Drilling for 40 m depth at 200mm borehole	40	m	1,100	44,000
3. Freight Cost (7% of Materials)		L.S.		2,815
Sub-Total of B				**87,035**
C. Well Development		L.S.		5,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,000	9,000
(2) 63mm x 6m GI Pipe with coupling	6	pcs.	1,706	10,236
(3) #10 Sieved Gravel	0.7	cu.m	870	609
(4) Coarse Sand	1	cu.m	304	304
(5) Cement for Sanitary Seal	4	bags	117	468
(6) Pump Base and Platform				
1) Cement	4	bags	117	468
2) Gravel	2	cu.m	385	770
3) Sand	1	cu.m	304	304
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	250	250
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	45	270
6) Nail	1	kg.	32	32
Sub-Total of D-1				22,711
2. Labor (40% of D-1.)		L.S.		9,084
3. Freight Cost (7% of Materials)		L.S.		1,590
Sub-Total of D				**33,385**
E. Indirect Cost				
Profit (10% of A, B, C & D)		L.S.		12,872
VAT (10% of Profit & Labor)		L.S.		6,596
Sub-Total of E				**19,468**
Total of Construction Cost (A+B+C+D+E)				**148,188**
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,000
2. Construction Supervision		L.S.		2,000
3. Water Quality Analysis		L.S.		1,088
Sub-Total of F				**6,088**
GRAND TOTAL				**154,276**
SAY				**154,300**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost Adjusted to 1995 Price Level.

Table 10.2.2 Unit Cost of Level I (Deep Well - 80m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		**L.S.**		**3,300**
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	24	pcs.	2,625	63,000
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,719	2,719
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,313	8,626
2. Labor, Fuel, Lubricant and others				
Well Drilling for 80 m depth at 200mm borehole	80	m	1,100	88,000
3. Freight Cost (7% of Materials)		L.S.		5,204
Sub-Total of B				**167,549**
C. Well Development		**L.S.**		**5,000**
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,000	9,000
(2) 63mm x 6m GI Pipe with coupling	8	pcs.	1,706	13,648
(3) #10 Sieved Gravel	1.6	cu.m	870	1,392
(4) Coarse Sand	1	cu.m	304	304
(5) Cement for Sanitary Seal	4	bags	117	468
(6) Pump Base and Platform				
1) Cement	4	bags	117	468
2) Gravel	2	cu.m	385	770
3) Sand	1	cu.m	304	304
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	250	250
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	45	270
6) Nail	1	kg.	32	32
Sub-Total of D-1				26,906
2. Labor (40% of D-1.)		L.S.		10,762
3. Freight Cost (7% of Materials)		L.S.		1,883
Sub-Total of D				**39,551**
E. Indirect Cost				
Profit (10% of A, B, C and D)		L.S.		21,540
VAT (10% of Profit & Labor)		L.S.		12,030
Sub-Total of E				**33,570**
Total of Construction Cost (A+B+C+D+E)				**248,970**
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,000
2. Construction Supervision		L.S.		2,000
3. Water Quality Analysis		L.S.		1,088
Sub-Total of F				**6,088**
GRAND TOTAL				**255,058**
SAY				**255,100**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.3 Unit Cost of Level I (Deep Well - 120m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,300
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	37	pcs.	2,625	97,125
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,719	2,719
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,313	8,626
2. Labor, Fuel, Lubricant and others				
Well Drilling for 120 m depth at 200mm borehole	120	m	1,100	132,000
3. Freight Cost (7% of Materials)		L.S.		7,593
Sub-Total of B				**248,063**
C. Well Development		L.S.		5,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,000	9,000
(2) 63mm x 6m GI Pipe with coupling	15	pcs.	1,706	25,590
(3) #10 Sieved Gravel	2.5	cu.m	870	2,175
(4) Coarse Sand	1	cu.m	304	304
(5) Cement for Sanitary Seal	4	bags	117	468
(6) Pump Base and Platform				
1) Cement	4	bags	117	468
2) Gravel	2	cu.m	385	770
3) Sand	1	cu.m	304	304
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	250	250
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	45	270
6) Nail	1	kg.	32	32
Sub-Total of D-1				39,631
2. Labor (40% of D-1.)		L.S.		15,852
3. Freight Cost (7% of Materials)		L.S.		2,774
Sub-Total of D				**58,257**
E. Indirect Cost				
Profit (10% of A, B, C and D)		L.S.		31,462
VAT (10% of Profit & Labor)		L.S.		17,931
Sub-Total of E				**49,393**
Total of Construction Cost (A+B+C+D+E)				**364,013**
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,000
2. Construction Supervision		L.S.		2,000
3. Water Quality Analysis		L.S.		1,088
Sub-Total of F				**6,088**
GRAND TOTAL				**370,101**
SAY				**370,100**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.4 Unit Cost of Level I (Deep Well Rehabilitation)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		**L.S.**		**3,300**
B. Well Rehabilitation				
1. Materials				
(1) Cylinder Pump Set	1	set	9,000	9,000
(2) Cement for Surface Sealing	4	bags	117	468
(3) Pump Base and Platform				
1) Cement	4	bags	117	468
2) Gravel	2	cu.m	385	770
3) Sand	1	cu.m	304	304
4) Plywood (4' x 8' x 1/4")	1	pc.	250	250
5) Form Lumber (2" x 3" x 6")	6	pcs.	45	270
6) Nail	1	kg.	32	32
Sub-Total of B-1				11,562
2. Labor (40% of B-1)		L.S.		4,625
3. Freight Cost (7% of Materials)		L.S.		809
Sub-Total of B				**16,996**
C. Well Development		**L.S.**		**6,500**
D. Indirect Cost				
Profit (10% of A, B & C)		L.S.		2,680
VAT (10% of Profit & Labor)		L.S.		1,381
Sub-Total of D				**4,061**
Total of Construction Cost (A+B+C+D)				**30,857**
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		1,100
2. Supervision		L.S.		650
3. Water Quality Analysis		L.S.		1,088
Sub-Total of E				**2,838**
GRAND TOTAL				**33,695**
SAY				**33,700**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.5 Unit Cost of Level I (Shallow Well - 18m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		1,100
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 50mm x 6m PVC Pipe with socket	2	pcs.	813	1,626
(2) 50mm x 3m PVC Pipe with plug	1	pc.	410	410
(3) 50mm PVC Socket	1	pc.	90	90
(4) 50mm x 3m PVC Screen	1	pc.	1,300	1,300
2. Labor, Fuel, Lubricant and others				
Well Drilling for 18 m depth at 150mm borehole	18	m	520	9,360
3. Freight Cost (7% of Materials)		L.S.		240
Sub-Total of B				**13,026**
C. Well Development		L.S.		500
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) 50mm Jetmatic Handpump	1	set	2,380	2,380
(2) 50mm x 1m GI Pipe (Sch. 40)	1	pc.	75	75
(3) #10 Sieved Gravel	0.1	cu.m	870	87
(4) Coarse Sand	0.07	cu.m	304	21
(5) Cement for Sanitary Seal	1	bag	117	117
(6) Pump Base and Platform				
1) Cement	4	bags	117	468
2) Gravel	1	cu.m	385	385
3) Sand	1	cu.m	304	304
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	250	250
5) Form Lumber (50mm x 75mm x 1,800 mm)	1	pc.	45	45
6) Nail	1	kg.	32	32
Sub-Total of D-1				4,164
2. Labor (40% of D-1.)		L.S.		1,666
3. Freight Cost (7% of Materials)		L.S.		291
Sub-Total of D				**6,121**
E. Indirect Cost				
Profit (10% of A, B, C & D)		L.S.		2,075
VAT (10% of Profit & Labor)		L.S.		1,310
Sub-Total of E				**3,385**
Total of Construction Cost (A+B+C+D+E)				**24,132**
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		2,000
2. Construction Supervision		L.S.		1,500
3. Water Quality Analysis		L.S.		1,088
Sub-Total of F				**4,588**
GRAND TOTAL				**28,720**
SAY				**28,700**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.6 Unit Cost of Level II (600 Service Population)

Sheet-1 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,000
B. Construction of Spring Box				
1. Materials		L.S.		36,300
2. Labor (30% of 1.)		L.S.		10,890
3. Freight Cost (7% of Materials)		L.S.		2,541
Sub-Total of B				**49,731**
C. Installation of Pipelines & Fittings				
1. Transmission Main				
(1) Materials				
1) 63mm dia. PVC Pipe (Class 12.5 with pusher type socket)	330	pcs.	813	268,290
2) 63mm dia. Tee	1	no.	88	88
3) Solvent Cement	26	cans	46	1,196
4) 63mm dia. x 150mm Nipple	3	nos.	136	408
5) 63mm dia. Union Patente	1	pc.	173	173
6) 63mm dia. x 50mm dia. Reducing Socket	2	pcs.	105	210
7) 63mm dia. Elbow (90 deg.)	1	pc.	76	76
8) 63mm dia. Elbow (45 deg.)	1	pc.	75	75
9) 63mm dia. Gate Valve	3	pcs.	763	2,289
Sub-Total of Materials				272,805
(2) Labor (30% of Material Cost)		L.S.		81,842
(3) Freight Cost (7% of Materials)		L.S.		19,096
Sub-Total of Transmission Main				373,743
2. Distribution Pipeline				
(1) Materials				
1) 50mm dia. PVC Pipe (Class 12.5 with pusher type socket)	20	pcs.	450	9,000
2) 38mm dia. PVC Pipe (Class 12.5 with pusher type socket)	30	pcs.	300	9,000
3) 20mm dia. PVC Pipe (Class 40 with pusher type socket)	10	pcs.	100	1,000
4) 13mm dia. x 1 m Stand Pipe	10	pcs.	94	940
5) Solvent Cement	4	cans	46	184
6) Fittings				
a. 50mm dia. x 150mm PVC Nipple	3	pcs.	125	375
b. 32mm dia. x 150mm PVC Nipple	3	pcs.	76	228
c. 13mm dia. x 150mm GI Nipple	40	pcs.	25	1,000
d. 50mm dia. Union Patente	1	pcs.	163	163
e. 32mm dia. Union Patente	2	pcs.	71	142
f. 13mm dia. Union Patente	10	pcs.	25	250
g. 50mm dia. x 32mm dia. Reducing Socket	6	pcs.	90	540
h. 32mm dia. x 20mm dia. Reducing Socket	10	pcs.	70	700
i. 20mm dia. x 13mm dia. Reducing Socket	10	pcs.	55	550
j. 50mm dia. PVC Elbow (90 deg.)	2	pcs.	68	136
k. 13mm dia. GI Elbow (90 deg.)	20	pcs.	13	260
l. 20mm dia. x 13mm dia. Socket Adaptor	10	pcs.	41	410
m. 50mm dia. GI Gate Valve	2	pcs.	671	1,342
n. 32mm dia. GI Gate Valve	2	pcs.	380	760
o. 13mm dia. GI Gate Valve	24	pcs.	230	5,520
p. 13mm dia. Brass Faucet	24	pcs.	41	984
q. 50mm dia. Tee	4	pcs.	130	520
r. 32mm dia. Tee	6	pcs.	110	660
s. Water Meter	24	pcs.	750	18,000
t. Water Meter Box	24	pcs.	1,100	26,400
Sub-Total of Materials				79,064
(2) Labor (30% of Material Cost)		L.S.		23,719
(3) Freight Cost (7% of Materials)		L.S.		5,534
Sub-Total of Distribution Pipeline				108,317
Sub-Total of C				**482,060**

Table 10.2.6 Unit Cost of Level II (600 Service Population)

Sheet-2 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
D. Indirect Cost				
1. Transmission Main				
(1) Profit (10% of C-1)		L.S.		37,374
(2) VAT (10% of Profit and Labor)		L.S.		11,922
2. Source Facilities and Distribution Pipeline				
(1) Profit (10% of A, B, C-2)		L.S.		16,105
(2) VAT (10% of Profit and Labor)		L.S.		5,071
Sub-Total of D				**70,472**
Total Construction Cost (A+B+C+D)				**605,263**
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering and RWSA Formation		L.S.		2,000
2. Supervision		L.S.		12,000
3. Water Quality Analysis		L.S.		1,088
Sub-Total of E				**15,088**
Total Estimated Cost				**620,351**
Unit Cost per Person Served				1,034
			Say	**1,000**

Note: L.S. - Lump Sum
Source: DPWH standard price in 1994
Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.7 Unit Cost of Level III (5,000 Service Population)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		**L.S.**		**300,000**
B. Source Development and Storage				
1. Deep Well	1	No.	1,540,000	1,540,000
2. Deep Well Pump	1	No.	550,000	550,000
3. Chlorinator House & Equipment	1	L.S.		440,000
4. Storage Tank (250 cu.m)	1	No.	1,100,000	1,100,000
Sub-Total of B				**3,630,000**
C. Transmission Main				
1. 160mm dia.	500	L.M.	1,120	560,000
Sub-Total of C				**560,000**
D. Distribution Main				
1. 160mm dia.	1,000	L.M.	1,120	1,120,000
2. 110mm dia.	3,000	L.M.	925	2,775,000
3. 90mm dia.	3,000	L.M.	580	1,740,000
4. 75mm dia.	5,000	L.M.	540	2,700,000
Sub-Total of D				**8,335,000**
E. Service Connections	**1,000**	**Nos.**	**1,940**	**1,940,000**
F. Miscellaneous				
1. Vehicle	1	No.	550,000	550,000
2. Office & Workshop Bldg.	1	No.	550,000	550,000
3. Office Equipment		L.S.		100,000
4. Tools and Spare Parts		L.S.		100,000
Sub-Total of F				**1,300,000**
Total Direct Cost (A+B+C+D+E+F)				**16,065,000**
G. Indirect Cost (25% of Direct Cost)		**L.S.**		**4,016,250**
Total Estimated Cost				**20,081,250**
Unit Cost per Person Served				
For New Construction				4,016
			Say	**4,000**
For Expansion of Existing System (Exclude F.)				3,691
			Say	**3,700**

Note: L.S. - Lump Sum

Source: LWUA standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.8 Unit Cost of Level III (10,000 Service Population)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		**L.S.**		**300,000**
B. Source Development and Storage				
1. Deep Well	1	No.	1,540,000	1,540,000
2. Deep Well Pump	1	No.	550,000	550,000
3. Chlorinator House & Equipment	1	L.S.		440,000
4. Storage Tank (250 cu.m)	1	No.	1,100,000	1,100,000
Sub-Total of B				**3,630,000**
C. Transmission Main				
1. 160mm dia.	500	L.M.	1,120	560,000
Sub-Total of C				**560,000**
D. Distribution Main				
1. 160mm dia.	2,000	L.M.	1,120	2,240,000
2. 110mm dia.	5,000	L.M.	925	4,625,000
3. 90mm dia.	6,000	L.M.	580	3,480,000
4. 75mm dia.	8,000	L.M.	540	4,320,000
Sub-Total of D				**14,665,000**
E. Service Connections	**2,000**	**Nos.**	**1,940**	**3,880,000**
F. Miscellaneous				
1. Vehicle	1	No.	550,000	550,000
2. Office & Workshop Bldg.	1	No.	550,000	550,000
3. Office Equipment		L.S.		100,000
4. Tools and Spare Parts		L.S.		100,000
Sub-Total of F				**1,300,000**
Total Direct Cost (A+B+C+D+E+F)				**24,335,000**
G. Indirect Cost (25% of Direct Cost)		**L.S.**		**6,083,750**
Total Estimated Cost				**30,418,750**
Unit Cost per Person Served				
For New Construction				3,042
			Say	**3,000**
For Expansion of Existing System (Exclude F.)				2,879
			Say	**2,900**

Note: L.S. - Lump Sum
Source: LWUA standard price in 1994
Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.9 Unit Cost of Level III (15,000 Service Population)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		**L.S.**		**300,000**
B. Source Development and Storage				
1. Deep Well	2	No.	1,540,000	3,080,000
2. Deep Well Pump	2	No.	550,000	1,100,000
3. Chlorinator House & Equipment	2	L.S.		440,000
4. Storage Tank (250 cu.m)	2	No.	1,100,000	2,200,000
Sub-Total of B				**6,820,000**
C. Transmission Main				
1. 160mm dia.	1,000	L.M.	1,120	1,120,000
Sub-Total of C				**1,120,000**
D. Distribution Main				
1. 160mm dia.	3,000	L.M.	1,120	3,360,000
2. 110mm dia.	7,000	L.M.	925	6,475,000
3. 90mm dia.	9,000	L.M.	580	5,220,000
4. 75mm dia.	11,000	L.M.	540	5,940,000
Sub-Total of D				**20,995,000**
E. Service Connections	**3,000**	**Nos.**	**1,940**	**5,820,000**
F. Miscellaneous				
1. Vehicle	1	No.	550,000	550,000
2. Office & Workshop Bldg.	1	No.	550,000	550,000
3. Office Equipment		L.S.		100,000
4. Tools and Spare Parts		L.S.		100,000
Sub-Total of F				**1,300,000**
Total Direct Cost (A+B+C+D+E+F)				**36,355,000**
G. Indirect Cost (25% of Direct Cost)		**L.S.**		**9,088,750**
Total Estimated Cost				**45,443,750**
Unit Cost per Person Served				
For New Construction				3,030
			Say	**3,000**
For Expansion of Existing System (Exclude F.)				2,921
			Say	**2,900**

Note: L.S. - Lump Sum
Source: LWUA standard price in 1994
Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.10 Unit Cost of Flush Water Sealed with Septic Tank Toilet

Sheet 1 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Demolition		**L.S.**		**1,000**
B. Earthwork				
1. Materials				
(1) Gravel Fill	1	cu.m.	385	385
Sub-Total of B-1				385
2. Labor				
(1) Excavation	6	cu.m.	119	714
(2) Backfill	2	cu.m.	108	216
(3) Gravel Fill	1	cu.m	141	141
Sub-Total of B-2				1,071
Sub-Total of B				**1,456**
C. Walls & Posts				
1. Materials				
(1) 0.15 x 0.20 x 0.40 Ord. CHB	180	pcs.	6	1,080
(2) Cement	17	bags	117	1,989
(3) Sand	2	cu.m	304	608
(4) Rebars: 12 mm dia. x 6.0 m	5	pcs.	68	340
10 mm dia. x 6.0 m	2	pcs.	49	98
(5) #16 Tie Wire	1	kg.	49	49
(6) Scaffolding:				
10-2" x 4" x 8" (Ord. Lumber)	53	bf.	32	1,696
Sub-Total of C-1				5,860
2. Labor (30% of C-1)		L.S.		1,758
Sub-Total of C				**7,618**
D. Roofing Work				
1. Materials				
(1) GA #26 Corr. GI (L=3.0 m)	3	bd.ft.	274	822
(2) GA #26 Plain GI Flushing	1	pc.	264	264
(3) GA # 24 Plain GI Gutter	1	pc.	264	264
(4) Roof Nails	2	kgs.	44	88
(5) Rafter - 2" x 5 x 10', 4 pcs.	33.33	bd.ft	32	1,067
(6) Purlins - 2" x 2" x 12', 3 pcs.	12	bd.ft	32	384
(7) Wood Cleats - 2" x 2" x 12', 1 pc.	3.33	bd.ft	32	107
(8) Nailers - 2" x 2" x 12', 5 pcs.	20	bd.ft	32	640
2" x 2" x 10', 5 pcs.	20	bd.ft	32	640
(9) Fascia Board - 1" x 12" x 18', 2 pcs.	36	bd.ft	32	1,152
(10) Common Wire Nails (Assorted)	3	kgs.	29	87
(11) Downspout (PVC)				
75 mm dia. x 3.0 m	2	pcs.	81	162
(12) Elbow (PVC) - 75 mm dia.	2	pcs.	15	30
(13) Coupling (PVC) - 75 mm dia.	1	pc.	14	14
Sub-Total of D-1				5,721
2. Labor (30% of D-1)		L.S.		1,716
Sub-Total of D				**7,437**

Table 10.2.10 Unit Cost of Flush Water Sealed with Septic Tank Toilet

Sheet 2 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
E. Plumbing				
1. Materials				
(1) Water Closet	1	set	2,000	2,000
(2) Water line and sanitary fixtures with septic tank		L.S.		6,192
Sub-Total of E-1				8,192
2. Labor (30% of E-1)		L.S.		2,458
Sub-Total of E				**10,650**
F. Carpentry Work				
1. Materials				
(1) Flush Type Door w/Lower Jambs	1	pc.	1,428	1,428
(2) Windows (wooden jalousy) w/Jambs	2	sets	298	596
Sub-Total of F-1				2,024
2. Labor (30% of E-1)		L.S.		607
Sub-Total of F				**2,631**
G. Freight Cost (7% of Materials for B-F excluding indigenous materials)		**L.S.**		**1,225**
H. Indirect Cost				
Profit (10% of A - G)		L.S.		3,202
VAT (10% of Profit & Labor)		L.S.		1,081
Sub-Total of H				**4,283**
Total of Construction Cost (A+B+C+D+E+F+G+H)			**Say**	**36,300** 36,300

Source: DOH standard price in1993.

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.11 Unit Cost of Pour Flush with Double Pit Latrine

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Earthwork				
1. Materials				
(1) Gravel Fill	1	cu.m.	385	385
Sub-Total of A-1				385
2. Labor				
(1) Excavation	6	cu.m.	119	714
(2) Backfill	2	cu.m.	108	216
(3) Gravel Fill	1	cu.m.	141	141
Sub-Total of A-2				1,071
Sub-Total of A				**1,456**
B. Concrete Work				
1. Materials				
Slab on wood planks				
(1) 16 - 2" x 8" x 6' Coco Lumber	128	bd.ft.	8	1,024
(2) 10mm dia x 6.0m Rebar	3	pcs.	49	147
(3) #16 Tie Wire	0.5	kg.	49	25
(4) Cement	10	bags	117	1,170
(5) Sand	1.5	cu.m.	304	456
(6) Gravel	2	cu.m.	385	770
(7) Stone Lining with Mortar		L.S.	1,014	1,014
Sub-Total of B-1				4,606
2. Labor (25% of B-1)		L.S.		1,152
Sub-Total of B				**5,758**
C. Walls & Posts				
1. Materials				
(1) 4 - 4" x 4" x 10' Coco Lumber	53.33	bd.ft.	8	427
(2) 6 - 2" x 3" x 10' Coco Lumber	30	bd.ft.	8	240
(3) 8 - 2" x 3" x 8' Coco Lumber	32	bd.ft.	8	256
(4) 2.0 m x 5.0 m Sawali	2	rolls	357	714
(5) Assorted Nails	6	kgs.	29	174
(6) Bamboo Clips		L.S.	119	119
Sub-Total of C-1				1,930
2. Labor (25% of C-1)		L.S.		483
Sub-Total of C				**2,413**
D. Roofing Work				
1. Materials				
Rafters				
(1) 4 - 2" x 4" x 6' Coco Lumber	16	bd.ft.	8	128
(2) Bamboo Purlins		L.S.	119	119
(3) Nipa Roofing	2	100 pcs./bandle	238	476
Sub-Total of D-1				723
2. Labor (25% of D-1)		L.S.		181
Sub-Total of D				**904**
E. Plumbing				
1. Material				
(1) Toilet Bowl-Squat Type	1	pc.	547	547
(1) 75mm dia x 6.0m PVC Pipe	1	pc.	129	129
Sub-Total of E-1				676
2. Labor (25% of E-1)		L.S.		169
Sub-Total of E				**845**
F. Freight Cost (7% of Materials for B - E excluding indigenous materials)		L.S.		153
G. Indirect Cost				
Profit (10% of A - F)		L.S.		1,153
VAT (10% of Profit & Labor)		L.S.		421
Sub-Total of G				**1,574**
Total Construction Cost (A+B+C+D+E+F+G)			Say	13,103 **13,100**

Note: L.S. - Lump Sum
Source: DOH standard price in 1993.
Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.12 Unit Cost of Ventilated Improved Pit Latrine (VIP)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Earthwork				
1. Materials				
(1) Gravel Fill	0.5	cu.m	385	193
Sub-Total of A-1				193
2. Labor				
(1) Excavation	3	cu.m	119	357
(2) Backfill	1	cu.m	108	108
(3) Gravel Fill	0.5	cu.m	141	71
Sub-Total of A-2				536
Sub-Total of A				729
B. Concrete Work				
1. Materials				
Slab on wood planks				
(1) 8 - 2" x 8" x 6' Coco Lumber	64	bd.ft.	8	512
(2) 10mm dia x 6.0m Rebar	2	pcs.	49	98
(3) #16 Tie Wire	0.5	kg.	49	25
(4) Cement	4	bags	117	468
(5) Sand	0.5	cu.m	304	152
(6) Gravel	0.5	cu.m	385	193
(7) Stone Lining with Mortar		L.S.	1,014	1,014
Sub-total of B-1				2,462
2. Labor (25% of B-1)		L.S.		616
Sub-Total of B				3,078
C. Walls & Posts				
1. Materials				
(1) 4 - 4" x 4" x 10' Coco Lumber	53.33	bd.ft.	8	427
(2) 6 - 2" x 3" x 10' Coco Lumber	30	bd.ft.	8	240
(3) 8 - 2" x 3" x 8' Coco Lumber	32	bd.ft.	8	256
(4) 2.0 m x 5.0 m Sawali	2	rolls	357	714
(5) Assorted Nails	6	kgs.	29	174
(6) Bamboo Clips		L.S.	119	119
Sub-Total of C-1				1,930
2. Labor (25% of C-1)		L.S.		483
Sub-Total of C				2,413
D. Roofing Work				
1. Materials				
Rafters				
(1) 4 - 2" x 4" x 6' Coco Lumber	16	bd.ft.	8	128
(2) Bamboo Purlins		L.S.	119	119
(3) Nipa Roofing	2	100	238	476
Sub-Total of D-1		pcs./bundle		723
2. Labor (25% of D-1)		L.S.		181
Sub-Total of D				904
E. Plumbing				
1. Materials				
(1) 50mm dia PVC Pipe	1	pc.	65	65
(2) Fly Screen		L.S.	50	50
Sub-Total of E-1				115
2. Labor (25% of E-1)		L.S.		29
Sub-Total of E				144
F. Freight Cost (7% of Materials for B-E excluding sand and gravel)		**L.S.**		**62**
G. Indirect Cost				
Profit (10% of A - F)		L.S.		733
VAT (10% of Profit & Labor)		L.S.		204
Sub-Total of G				937
Total of Construction Cost (A+B+C+D+E+F+G)			Say	8,267 8,300

Note: L.S. - Lump Sum

Source: DOH standard price in 1993.

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.13 Unit Cost of School Toilet

Sheet-1 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization and Demobilization		L.S.		5,300
B. Earthwork				
1. Materials				
(1) Gravel Fill	3.00	cu.m	385	1,155
Sub-Total of B-1				1,155
2. Labor				
(1) Excavation	15.88	cu.m	119	1,890
(2) Backfill	4.97	cu.m	108	537
(3) Gravel Fill	3.00	cu.m	141	423
Sub-Total of B-2				2,850
Sub-Total of B				4,005
C. Concrete Work				
1. Materials				
(1) Cement	61.00	bags	117	7,137
(2) Sand	4.00	cu.m	304	1,216
(3) Gravel	8.00	cu.m	385	3,080
(4) Rebars: 12mm dia x 6m	38.00	pcs.	68	2,584
10mm dia x 6m	57.00	pcs.	49	2,793
(5) #16 Tie Wire	8.00	kgs.	49	392
(6) Formworks:				
1/4" Plywood	6.00	pcs.	405	2,430
2"x2"x10" (Coco Lumber)	200.00	bd.ft.	8	1,600
Sub-Total of C-1				21,232
2. Labor (30% of C-1)		L.S.		6,370
Sub-Total of C				27,602
D. Masonry Work				
1. Materials				
(1) 6" CHB	800.00	pcs.	6	4,800
(2) 4" CHB	260.00	pcs.	5	1,300
(3) Cement	97.00	bags	117	11,349
(5) Sand	10.00	cu.m	304	3,040
(6) Rebars: 12mm dia x 6m	30.00	pcs.	68	2,040
10mm dia x 6m	11.00	pcs.	49	539
(7) #16 Tie Wire	4.00	kgs.	49	196
(8) Scaffolding:				
2"x4"x8" = 10 pcs. (Coco Lumber)	53.33	bf.	8	427
Sub-Total of D-1				23,691
2. Labor (30% of D-1)		L.S.		7,107
Sub-Total of D				30,798
E. Roofing Work				
1. Materials				
(1) GA #26 Corr. GI (l = 10')	20.00	pcs.	274	5,480
(2) GA #24 Pln. GI Flashing	3.00	pcs.	264	792
(3) GA #24 Pln. GI Gutter (Pre-Fab)	9.00	pcs.	264	2,376
(4) Umbrella Nails 2 - 1/2"	12.00	kgs.	44	528
(5) Rafter - 2"x5"x18' = 5 pcs.	75.00	bf.	32	2,400
(6) Purlins - 2"x2"x12' = 18 pcs.	72.00	bf.	32	2,304
(7) WD Cleats - 2"x2"x10" = 6 pcs.	20.00	bf.	32	640

Table 10.2.13 Unit Cost of School Toilet

Sheet-2 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(8) Nailers - 2"x2"x1012' = 30 pcs.	120.00	bf.	32	3,840
- 2"x2"x10' = 36 pcs.	120.00	bf.	32	3,840
(9) Fascia Board				
1"x12"x12' = 4 pcs.	48.00	bf.	32	1,536
1"x12"x18' = 2 pcs.	36.00	bf.	32	1,152
(10) Wood Plate				
2"x4"x20' = 2 pcs.	26.66	bf.	32	853
(11) 1/4" Thk. Mar. Plywood 4'x8'	14.00	pcs.	29	406
(12) C.W.N. Assorted	15.00	kgs.	29	435
(13) 3" dia x 3m Downspout (PVC)	3.00	pcs.	81	242
(14) 3" dia Elbow (PVC)	2.00	pcs.	15	30
(15) 3"dia Coupling (PVC)	1.00	pcs.	14	14
(16) Ceiling Vent				
1"x1"x8' = 4 pcs.	2.67	bf.	26	69
(17) Screen (1/8"x1/8")	1.00	yd.	81	81
Sub-Total of E-1				27,018
2. Labor (30% of E-1)		L.S.		8,105
Sub-Total of E				**35,123**
F. Carpentry Work				
1. Materials				
(1) D - 1 Hollow Core Tanguile				
Flush Type Door w/ Louver (.80x2.20)	2.00	sets	1,428	2,856
(2) D - 2 Hollow Core Tanguile				
Flush Type Door (.60x2.10)	1.00	sets	1,071	1,071
(3) D - 3 Louver Door (.60x1.40)	5.00	sets	893	4,465
(4) Door Jambs (Apitong)				
2"x6"x14" = 1 pc.	14.00	bf.	32	448
2"x6"x10" = 2 pcs.	20.00	bf.	32	640
2"x6"x10" = 1 pc.	18.00	bf.	32	576
2"x4"x12" = 5 pcs.	40.00	bf.	32	1,280
(7) Wooden Jalousie Window				
With 5 Blades (.40x.50)	14.00	set	298	4,172
(8) Window Jambs (Apitong)				
2"x6"x16" = 5 pcs.	80.00	bf.	32	2,560
2"x6"x14" = 1 pc.	14.00	bf.	32	448
2"x6"x10" = 1 pc.	10.00	bf.	32	320
(9) Cabinet				
3/4"x4'x8' = 1 pc. (plyboard)	1.00	pc.	774	774
Sub-Total of F-1				19,610
2. Labor (30% of F-1)		L.S.		5,883
Sub-Total of F				**25,493**
G. Tile Work				
1. Materials				
(1) 4 - 1/4"x4 - 1/4" Glazed Tiles	1,950.00	pcs.	4	7,800
(2) 0.10x0.20m Floor Tiles	900.00	pcs.	7	6,300
(3) Cement	4.00	bags	117	468
(4) White Cement	1.00	bag	629	629
Sub-Total of G-1				15,197

Table 10.2.13 Unit Cost of School Toilet

Sheet-3 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
2. Labor (30% of G-1)		L.S.		4,559
Sub-Total of G				**19,756**
H. Plumbing Work				
1. Materials				
(1) Toilet Bowl - Squat Type	3.00	sets	596	1,788
(2) Toilet Bowl-Sit Type	2.00	sets	596	1,192
(3) Lavatory	2.00	sets	845	1,690
(4) 4" dia x 3m PVC San. Pipe	4.00	pcs.	149	596
(5) 3" dia x 3m PVC San. Pipe	7.00	pcs.	84	588
(6) 1 1/ 2" dia x 3m PVC San. Pipe	4.00	pcs.	53	212
(7) 2" dia. x 3m PVC San. Pipe	2.00	pcs.	50	100
(8) 6" x 4" Floor Drain	5.00	pcs.	84	420
(9) 2" dia. Elbow PVC	4.00	pcs.	7	28
(10) 4" dia WYB PVC	2.00	pcs.	25	50
(11) 4" dia. x 3" dia. WYB PVC	12.00	pcs.	30	360
(12) 4" dia. x 2" dia. TEE PVC	2.00	pcs.	31	62
(13) 4" dia. TEE PVC	3.00	pcs.	31	93
(14) 1 1/2" dia. WYB PVC	1.00	pcs.	12	12
(15) 4" dia. Clean Out PVC	3.00	pcs.	35	105
(16) 3" dia. Clean Out PVC	1.00	pcs.	28	28
(17) Faucet	3.00	pcs.	50	150
(18) 3" dia. x 2" dia. WYB PVC	2.00	pcs.	25	50
(19) 1 1/2" dia. Elbow PVC	6.00	pcs.	13	78
(20) PVC Cement	1.00	can	121	121
(21) 2" dia. PVC San. Pipe x 3m	2.00	pcs.	79	158
(22) 4" dia. x 2" dia. TEE	2.00	pcs.	21	42
(23) Check Valve 1 1/2"	1.00	pcs.	182	182
(24) 4" P-Trap	5.00	pcs.	66	330
Sub-Total of H-1				8,435
2. Labor (30% of H-1)		L.S.		2,531
Sub-Total of H				**10,966**
I. Painting				
1. Materials				
(1) Acrylic, Semi Gloss	8.00	gals.	261	2,088
(2) Concrete Sealer	4.00	gals.	206	824
(3) Acri Color: Wood	4.00	gals.	80	320
(4) Enamel, QDE	6.00	gals.	266	1,596
(5) Wood Putty	1.00	gals.	302	302
(6) Paint Thinner	1.00	gals.	60	60
(7) Tinting Color	4.00	pint	40	160
(8) Sand Paper (Assorted)	15.00	pcs.	7	105
(9) Misecellaneous		L.S.	1,000	0
(10) Roof Paint (green, ready-mix)	2.00	gals.	281	562
Sub-Total of I-1				6,017
2. Labor (30% of I-1)		L.S.		1,805
Sub-Total of I				**7,822**

Table 10.2.13 Unit Cost of School Toilet

Sheet-4 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
J. Electrical Work				
1. Materials				
(1) 40 Watts Flourescent Lamp	2.00	sets	255	510
(2) Elect. Wire TW #12	24.00	M	7	168
(3) Elect. Conduit - 1/2" dia x 10"	4.00	pcs.	78	312
(4) Entrance Cap. 1/2" dia	1.00	pc.	29	29
(5) Switch Outlet, Flush Type	2.00	pcs.	39	78
(6) Utility Box 2"x3"	2.00	pcs.	7	14
(7) Porcelain Receptacle 2" dia	2.00	pcs.	7	14
(8) Safety Switch 60A, 250V	1.00	set	490	490
(9) Electrical Tape	1.00	roll	22	22
Sub-Total of J-1				1,637
2. Labor (30% of J-1)		L.S.		491
Sub-Total of J				**2,128**
K. Hardware				
1. Materials				
(1) 3"x3" Butt Hinges (Loose Pin)	10.00	pcs.	15	150
(2) 4"x4" Butt Hinges (Loose Pin)	12.00	pcs.	18	216
(3) Door Lockset (Schlage US)	3.00	pcs.	454	1,362
(4) Barrel Bolt (4")	5.00	pcs.	40	200
(5) Cabinet Pull (4")	5.00	pcs.	7	35
(6) Water Storage Cover				
Checkered Plate 1/4" thick				
1.44x0.645 w/ L bar & flat bar	1.00	set	984	984
0.645x0.633 w/ L bar & flat bar	2.00	set	555	1,110
(7) Padlock	1.00	pcs.	378	378
Sub-Total of K-1				4,435
2. Labor (30% of K-1)		L.S.		1,331
Sub-Total of K				**5,766**
L. Septic Tank and Sewage Basin				
1. Materials				
(1) 4" CHB	180.00	pcs.	5	900
(2) Cement	18.00	bags	117	2,106
(3) Sand	1.50	cu.m	304	456
(4) Gravel	1.00	cu.m	385	385
(5) Rebars: 10mm dia x 6m	29.00	pcs.	68	1,972
(6) #16 Tire Wire	2.00	kgs.	49	98
(7) Formworks: Coco Lumber				
2"x3"x10' = 12 pcs.	60.00	bf.	8	480
1/4" plywood ord. 4'x8'	2.00	pcs.	405	810
C.W.N. (Assorted)	2.00	kgs.	29	58
Sub-Total of L-1				7,265
2. Labor (30% of L-1)		L.S.		2,180
Sub-Total of L				**9,445**

Table 10.2.13 Unit Cost of School Toilet

Sheet-5 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
M. Shallow Well (18 depth)				
a. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 63mm x 6m PVC Pipe with socket	2.00	pcs.	813	1,626
(2) 63mm x 3m PVC Pipe with plug	1.00	pc.	410	410
(3) 63mm PVC Socket	1.00	pc.	90	90
(4) 63mm x 3m PVC Screen	1.00	pc.	1,300	1,300
Sub-Total of M-a-1				3,426
2. Labor, Fuel, Lubricant and others				
Well Drilling for 18m depth at 150mm borehole	18.00	m	520	9,360
Sub-Total of M-a				12,786
b. Well Development		L.S.		500
c. Gravel Packing, Installation of Hand-Pump and Construction of Platform				
1. Materials				
(1) 50mm Jetmatic Handpump	1.00	set	2,380	2,380
(2) 50mm x 1m GI Pipe (Sch. 40)	1.00	pc.	75	75
(3) #10 Sieved Gravel	0.10	cu.m	870	87
(4) Coarse Sand	0.07	cu.m	430	30
(5) Cement for Sanitary Seal	1.00	bag	117	117
(6) Pump Base and Platform				
1) Cement	4.00	bags	117	468
2) Gravel	1.00	cu.m	385	385
3) Sand	1.00	cu.m	304	304
4) Plywood (1,200mm x 2,400mm x 6mm)	1.00	pc.	405	405
5) Form Lumber (50mmx75mmx1,800mm)	1.00	pc.	45	45
6) Nail	1.00	kg.	29	29
Sub-Total of M-c-1				33,823
2. Labor (40% of M-c-1)		L.S.		13,529
Sub-Total of M-c				47,352
Sub-Total of M				**60,638**
N. Freight Cost (7% of Materials for A - M excluding sand and gravel)		L.S.		**11,396**
O. Indirect Cost				
Profit (10% of A - N)		L.S.		25,624
VAT (10% of Profit & Labor)		L.S.		8,237
Sub-Total of O				**33,861**
Total of Construction Cost (A to O)				**290,099**
P. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		2,000
2. Construction Supervision		L.S.		1,500
Sub-Total of P				**3,500**
GRAND TOTAL			Say	**293,599** **293,600**

Source: DOH standard price in 1993.
Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.14 Unit Cost of Public Toilet

Sheet-1 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization and Demobilization (2.4% of B - M)		**L.S.**		**6,400**
B. Earthwork				
1. Materials				
(1) Gravel Fill	3.00	cu.m	385	1,155
Sub-Total of B-1				1,155
2. Labor				
(1) Excavation	15.88	cu.m	119	1,890
(2) Backfill	4.97	cu.m	108	537
(3) Gravel Fill	3.00	cu.m	141	423
Sub-Total of B-2				2,850
Sub-Total of B				**4,005**
C. Concrete Work				
1. Materials				
(1) Cement	61.00	bags	117	7,137
(2) Sand	4.00	cu.m	304	1,216
(3) Gravel	8.00	cu.m	385	3,080
(4) Rebars: 12mm dia x 6m	38.00	pcs.	68	2,584
10mm dia x 6m	57.00	pcs.	48	2,736
(5) #16 Tie Wire	8.00	kgs.	48	384
(6) Formworks:				
1/4" Plywood	6.00	pcs.	405	2,430
2"x2"x10" (Coco Lumber)	200.00	bd.ft.	8	1,600
Sub-Total of C-1				21,167
2. Labor (30% of C-1)		L.S.		6,350
Sub-Total of C				**27,517**
D. Masonry Work				
1. Materials				
(1) 6" CHB	800.00	pcs.	6	4,800
(2) 4" CHB	260.00	pcs.	5	1,300
(3) Cement	97.00	bags	117	11,349
(5) Sand	10.00	cu.m	304	3,040
(6) Rebars: 12mm dia x 6m	30.00	pcs.	68	2,040
10mm dia x 6m	11.00	pcs.	49	539
(7) #16 Tie Wire	4.00	kgs.	49	196
(8) Scaffolding:				
2"x4"x8" = 10 pcs. (Coco Lumber)	53.33	bf.	8	427
Sub-Total of D-1				23,691
2. Labor (30% of D-1)		L.S.		7,107
Sub-Total of D				**30,798**
E. Roofing Work				
1. Materials				
(1) GA #26 Corr. GI (1 = 10')	20.00	pcs.	274	5,480
(2) GA #24 Pln. GI Flashing	3.00	pcs.	264	792
(3) GA #24 Pln. GI Gutter (Pre-Fab)	9.00	pcs.	264	2,376
(4) Umbrella Nails 2 - 1/2"	12.00	kgs.	44	528
(5) Rafter - 2"x5"x18' = 5 pcs.	75.00	bf.	32	2,400

Table 10.2.14 Unit Cost of Public Toilet

Sheet-2 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(6) Purlins - 2"x2"x12' = 18 pcs.	72.00	bf.	32	2,304
(7) WD Cleats - 2"x2"x10" = 6 pcs.	20.00	bf.	32	640
(8) Nailers - 2"x2"x1012' = 30 pcs.	120.00	bf.	32	3,840
- 2"x2"x10' = 36 pcs.	120.00	bf.	32	3,840
(9) Fascia Board				
1"x12"x12' = 4 pcs.	48.00	bf.	32	1,536
1"x12"x18' = 2 pcs.	36.00	bf.	32	1,152
(10) Wood Plate				
2"x4"x20' = 2 pcs.	26.66	bf.	32	853
(11) 1/4" Thk. Mar. Plywood 4'x8'	14.00	pcs.	452	6,328
(12) C.W.N. Assorted	15.00	kgs.	29	435
(13) 3" dia x 3m Downspout (PVC)	3.00	pcs.	81	243
(14) 3" dia Elbow (PVC)	2.00	pcs.	15	30
(15) 3"dia Coupling (PVC)	1.00	pcs.	14	14
(16) Ceiling Vent, 1"x1"x8', 4 pcs.	2.67	bf.	26	69
(17) Screen (1/8"x1/8")	1.00	yd.	81	81
Sub-Total of E-1				32,941
2. Labor (30% of E-1)		L.S.		9,882
Sub-Total of E				**42,823**
F. Carpentry Work				
1. Materials				
(1) D - 1 Hollow Core Tanguile				
Flush Type Door w/ Louver (.80x2.20)	2.00	sets	1,428	2,856
(2) D - 2 Hollow Core Tanguile				
Flush Type Door (.60x2.10)	1.00	sets	1,071	1,071
(3) D - 3 Louver Door (.60x1.40)	5.00	sets	893	4,465
(4) Door Jambs (Apitong)				
2"x6"x14" = 1 pc.	14.00	bf.	32	448
2"x6"x10" = 2 pcs.	20.00	bf.	32	640
2"x6"x10" = 1 pc.	18.00	bf.	32	576
2"x4"x12" = 5 pcs.	40.00	bf.	32	1,280
(7) Wooden Jalousie Window				
With 5 Blades (.40x.50)	14.00	set	298	4,172
(8) Window Jambs (Apitong)				
2"x6"x16" = 5 pcs.	80.00	bf.	32	2,560
2"x6"x14" = 1 pc.	14.00	bf.	32	448
2"x6"x10" = 1 pc.	10.00	bf.	32	320
(9) Cabinet				
3/4"x4'x8' = 1 pc. (plyboard)	1.00	pc.	774	774
Sub-Total of F-1				19,610
2. Labor (30% of F-1)		L.S.		5,883
Sub-Total of F				**25,493**
G. Tile Work				
1. Materials				
(1) 4 - 1/4"x4 - 1/4" Glazed Tiles	1,950.00	pcs.	4	7,800
(2) 0.10x0.20m Floor Tiles	900.00	pcs.	7	6,300
(3) Cement	4.00	bags	117	468

Table 10.2.14 Unit Cost of Public Toilet

Sheet-3 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(4) White Cement	1.00	bag	629	629
(5) Tiles Fittings		L.S.	4,790	4,790
Sub-Total of G-1				19,987
2. Labor (30% of G-1)		L.S.		5,996
Sub-Total of G				**25,983**
H. Plumbing Work				
1. Materials				
(1) Urinal	3.00	sets	1,063	3,189
(2) Toilet Bowl - Squat Type	6.00	sets	596	3,576
(3) 4" dia x 3m PVC San. Pipe	6.00	pcs.	149	894
(4) 3" dia x 3m PVC San. Pipe	4.00	pcs.	84	336
(5) 2" dia x 3m PVC San. Pipe	3.00	pcs.	50	150
(6) 3/4" dia x 6m G.I. Pipe Sch. 40	5.00	pcs.	244	1,220
(7) 1/2" dia x 6m G.I. Pipe Sch. 40	1.00	pcs.	179	179
(8) 4"x4" WYE PVC	1.00	pcs.	25	25
(9) 3" dia Elbow PVC	10.00	pcs.	30	300
(10) 3" dia 45 degrees Bend PVC	2.00	pcs.	25	50
(11) 2" dia Elbow PVC	6.00	pcs.	7	42
(12) 2" dia 45 degrees Bend PVC	2.00	pcs.	20	40
(13) 1/2" dia Elbow G.I.	5.00	pcs.	10	50
(14) 4" dia 3" dia WYE PVC	8.00	pcs.	40	320
(15) 3/4" dia TEE G.I.	7.00	pcs.	40	280
(16) 1/2" dia TEE G.I.	5.00	pcs.	20	100
(17) 4" dia x 2" dia TEE PVC	6.00	pcs.	40	240
(18) 4" dia Clean Out PVC	3.00	pcs.	35	105
(19) 2" dia Clean Out PVC	1.00	pcs.	25	25
(20) Faucet	10.00	pcs.	50	500
(21) 3" dia x 2" dia Elbow Reducer PVC	1.00	pcs.	28	28
(22) 3" dia x 2" dia WYE PVC	3.00	pcs.	25	75
(23) 2" dia x 2" dia WYE PVC	3.00	pcs.	15	45
(24) PVC Cement	1.00	can	121	121
(25) 4" dia x 2" dia WYE PVC	2.00	pcs.	40	80
(26) Gate Valve 3/4" dia	1.00	pcs.	121	121
(27) Gate Valve 1/2" dia	1.00	pcs.	96	96
(28) Water Meter 3/4" dia	1.00	pcs.	1,261	1,261
(29) 3/4"dia x1/2"dia Elbow Reducer G.I.	1.00	pcs.	14	14
Sub-Total of H-1				13,462
2. Labor (30% of H-1)		L.S.		4,039
Sub-Total of H				**17,501**
I. Painting				
1. Materials				
(1) Acrylic, Semi Gloss	8.00	gals.	261	2,088
(2) Concrete Sealer	4.00	gals.	206	824
(3) Acri Color: Wood	4.00	gals.	80	320
(4) Enamel, QDB	6.00	gals.	266	1,596
(5) Wood Putty	1.00	gals.	302	302
(6) Paint Thinner	1.00	gals.	60	60

Table 10.2.14 Unit Cost of Public Toilet

Sheet-4 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(7) Tinting Color	4.00	pint	40	160
(8) Sand Paper (Assorted)	15.00	pcs.	7	105
(9) Misecellaneous		L.S.	1,005	0
(10) Roof Paint (green, ready-mix)	2.00	gals.	281	562
Sub-Total of I-1				6,017
2. Labor (30% of I-1)		L.S.		1,805
Sub-Total of I				**7,822**
J. Electrical Work				
1. Materials				
(1) 40 Watts Flourescent Lamp	2.00	sets	255	510
(2) Elect. Wire TW #12	24.00	M	7	168
(3) Elect. Conduit - 1/2" dia x 10"	4.00	pcs.	78	312
(4) Entrance Cap. 1/2" dia	1.00	pc.	29	29
(5) Switch Outlet, Flush Type	2.00	pcs.	39	78
(6) Utility Box 2"x3"	2.00	pcs.	7	14
(7) Porcelain Receptacle 2" dia	2.00	pcs.	7	14
(8) Safety Switch 60A, 250V	1.00	set	490	490
(9) Electrical Tape	1.00	roll	22	22
Sub-Total of J-1				1,637
2. Labor (30% of J-1)		L.S.		491
Sub-Total of J				**2,128**
K. Hardware				
1. Materials				
(1) 3"x3" Butt Hinges (Loose Pin)	10.00	pcs.	15	150
(2) 4"x4" Butt Hinges (Loose Pin)	12.00	pcs.	18	216
(3) Door Lockset (Schlage US)	3.00	pcs.	454	1,362
(4) Barrel Bolt (4")	5.00	pcs.	40	200
(5) Cabinet Pull (4")	5.00	pcs.	7	35
(6) Water Storage Cover				
Checkered Plate 1/4" thick				
1.44x0.633 w/ L bar & flat bar	1.00	set	984	984
(7) 0.645x0.633 w/ L bar & flat bar	2.00	set	555	1,110
(8) Padlock	1.00	pcs.	378	378
Sub-Total of K-1				4,435
2. Labor (30% of K-1)		L.S.		1,331
Sub-Total of K				**5,766**
L. Septic Tank and Sewage Basin				
1. Materials				
(1) 4" CHB	180.00	pcs.	5	900
(2) Cement	18.00	bags	117	2,106
(3) Sand	1.50	cu.m	304	456
(4) Gravel	1.00	cu.m	385	385
(5) Rebars: 10mm dia x 6m	29.00	pcs.	68	1,972
(6) #16 Tire Wire	2.00	kgs.	49	98

Table 10.2.14 Unit Cost of Public Toilet

Sheet-5 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(7) Formworks: Coco Lumber				
2"x3"x10' = 12 pcs.	60.00	bf.	8	480
1/4" plywood ord. 4'x8'	2.00	pcs.	405	810
C.W.N. (Assorted)	2.00	kgs.	29	58
Sub-Total of L-1				7,265
2. Labor (30% of L-1)		L.S.		2,180
Sub-Total of L				**9,445**
M. Concrete Water Tank (Elevated)				
1. Earth Work				
(1) Materials				
1) Gravel Fill	1.00	cu.m	385	385
Sub-Total of M-1 (1)				385
(2) Labor				
1) Excavation	14.70	cu.m	119	1,749
2) Backfill	13.08	cu.m	108	1,413
3) Gravel Fill	1.00	cu.m	141	141
Sub-Total of M-1 (2)				3,303
Sub-Total of M-1				3,688
2. Materials				
(1) Cement	62.00	bags	117	7,254
(2) Sand	4.50	cu.m	304	1,368
(3) Gravel	8.00	cu.m	385	3,080
(4) Rebars: 12mm dia x 6m	160.00	pcs.	49	7,840
(5) #16 Tie Wire	4.00	kgs.	49	196
(6) Formworks:				
1/4" plywood	12.00	pcs.	405	4,860
2"x3"x16' = 60 pcs.	480.00	bf.	8	3,840
(7) C.W.N. (Assorted)	5.00	kgs.	29	145
Sub-Total of M-2				39,647
3. Labor (30% of M-2)		L.S.		11,894
Sub-Total of M				**55,229**
N. Freight Cost (7% of Materials for A - M excluding sand and gravel)		**L.S.**		**12,406**
O. Indirect Cost				
Profit (10% of A - M)		L.S.		27,332
VAT (10% of Profit & Labor)		L.S.		9,044
Sub-Total of O				**36,376**
Total of Construction Cost (A to O)				**309,692**
P. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		**2,000**
2. Construction Supervision		L.S.		**1,500**
Sub-Total of P				**3,500**
GRAND TOTAL				**313,192**
			Say	**313,200**

Source: DOH standard price in 1993.
Unit Cost: Adjusted to 1995 Price Level.

10.2.2 Unit Cost of Equipment

Unit cost (CIF Manila) of equipment was referred to the standard cost estimates of DPWH as follows.

(1) Medium Size rotary drilling rig

Type:

Truck-mounted top head drive mud circulation type

Rated drilling capacity:

150 m depth for ϕ250 mm bore hole

Equipment composition:

One unit of truck-mounted drilling rig

Each one set of operating accessories, drilling tools, casing tools and fishing tools

One set of spare parts (equivalent to 10% of above equipment/tool cost)

Unit cost:

Peso 17,370,000 per set

(2) Medium size percussion drilling equipment

Type:

Truck-mounted cable percussion type

Rated drilling capacity:

150 m depth for Ø 250 mm bore hold

Equipment compositions:

One unit of truck-mounted drilling rig

Each one set of operating accessories, drilling tools, pipe handling tools and fishing tools

One set of spare parts (equivalent to 10% of above equipment/tool cost)

Unit Cost:

Peso 10,280,000 per set

(3) Well rehabilitation equipment

Equipment composition:

One unit of diesel engine driver air compressor (7.5 kg./sq.m. 500 liter/min.)

One set of air hose and hose fittings:

Unit cost:

Peso 138,000 per set

(4) Service truck

Type:

Diesel engine driven 4 tons truck equipped with crane.

Unit cost:

Peso 1,175,000 per unit

(5) Support vehicle

Type:

Diesel engine drive pick-up truck with electric winch

Unit cost:

Peso 500,000 per unit

(7) Refuse collection truck

Type:

Closed type compactor truck with 5 cu.m of payload capacity

Unit cost:

Peso 1,380,000 per unit including spare parts

10.3 Cost of Required Facilities and Equipment

10.3.1 Cost of Required Facilities

Table 10.3.1 Construction Cost of Water Supply Facilities Required for Phase I (2000)

Unit: 1,000 Pesos

Municipalities	Urban Water Supply Level III	Rural Water Supply								Grand Total
		New System						Level I Rehabilitation	Total	
		Level II	Level I							
			Deep Well			Shallow Wells	Sub-Total			
			40 m	80 m	120 m					
Baco	616	0	309	0	0	0	309	7	316	932
Bansud	3,212	0	10,647	0	0	488	11,135	233	11,368	14,580
Bongabong	6,192	0	0	40,816	0	3,071	43,887	539	44,426	50,618
Bulalacao	7,952	0	27,465	0	0	1,292	28,757	600	29,357	37,309
Calapan (Capital)	12,658	0	3,858	0	0	2,841	6,699	84	6,783	19,441
Gloria	3,128	0	21,293	0	0	0	21,293	465	21,758	24,886
Mansalay	4,908	0	14,659	0	0	1,808	16,467	320	16,787	21,695
Naujan	2,890	0	38,421	0	0	0	38,421	839	39,260	42,150
Pinamalayan	0	0	16,664	0	0	0	16,664	364	17,028	17,028
Pola	1,391	0	26,540	0	0	2,095	28,635	580	29,215	30,606
Puerto Galera	3,012	0	0	0	0	0	0	0	0	3,012
Roxas	2,938	0	9,412	0	0	1,148	10,560	206	10,766	13,704
San Teodoro	1,964	0	0	19,898	0	0	19,898	263	20,161	22,125
Socorro	4,940	0	0	22,959	0	1,722	24,681	303	24,984	29,924
Victoria	2,972	0	9,875	0	0	0	9,875	216	10,091	13,063
Provincial Total	58,773	0	179,143	83,673	0	14,465	277,281	5,019	282,300	341,073

Table 10.3.2 Construction Cost of Water Supply Facilities Required for Phase II (2010)

Unit: 1,000 Pesos

Municipality	Urban Water Supply Level III	Rural Water Supply (Level I)							Grand Total
		New System					Level I Rehabilitation	Total	
		Deep Well			Shallow Wells	Sub-Total			
		40 m	80 m	120 m					
Baco	9,106	10,184	0	0	517	10,701	222	10,923	20,029
Bansud	16,717	10,492	0	0	488	10,980	229	11,209	27,926
Bongabong	14,079	0	27,041	0	2,038	29,079	357	29,436	43,515
Bulalacao	5,269	9,258	0	0	431	9,689	202	9,891	15,160
Calapan (Capital)	71,459	4,012	0	0	2,927	6,939	88	7,027	78,486
Gloria	6,679	16,510	0	0	0	16,510	361	16,871	23,550
Mansalay	6,767	9,104	0	0	1,148	10,252	199	10,451	17,218
Naujan	14,038	39,655	0	0	0	39,655	866	40,521	54,559
Pinamalayan	9,398	29,780	0	0	0	29,780	650	30,430	39,828
Pola	1,495	11,110	0	0	890	12,000	243	12,243	13,738
Puerto Galera	16,846	5,092	0	0	0	5,092	111	5,203	22,049
Roxas	13,146	9,567	0	0	1,205	10,772	209	10,981	24,127
San Teodoro	9,539	0	9,694	0	0	9,694	128	9,822	19,361
Socorro	16,927	0	13,265	0	1,005	14,270	175	14,445	31,372
Victoria	29,534	14,504	0	0	0	14,504	317	14,821	44,355
Provincial Total	240,999	169,268	50,000	0	10,649	229,917	4,357	234,274	475,273

Table 10.3.3 Costs of Sanitation Facilities Required for Phase I (2000)

Unit: 1,000 Pesos

Municipality	Urban Sanitation									Rural Sanitation							
	Household Toilets									Household Toilets							
	Flush	Pour Flush	VIP Latrine	Sub-total of Construction Cost	Sub-total of Public Investment Cost	Public School Toilets	Public Toilets	Total Construction Cost	Total Public Investment Cost	Flush	Pour Flush	VIP Latrine	Sub-total of Construction Cost	Sub-total of Public Investment Cost	Public School Toilets	Total Construction Cost	Total Public Investment Cost
Baco	1,125	235	0	1,361	10	0	626	1,987	636	4,610	7,768	0	12,378	324	1,228	13,606	1,552
Bansud	5,518	3,891	0	9,409	162	297	626	10,332	1,085	0	32,593	0	32,593	1,361	1,919	34,512	3,280
Bongabong	10,600	642	0	11,242	27	0	313	11,555	340	0	71,827	0	71,827	2,999	3,676	75,503	6,675
Bulalacao	6,641	1,742	0	8,383	73	0	313	8,696	386	0	22,336	0	22,336	933	1,485	23,821	2,418
Calapan (Capital)	22,131	0	4,850	26,981	0	2,263	626	29,870	2,889	24,950	2,397	9,385	36,732	100	3,775	40,507	3,875
Gloria	5,264	0	0	5,264	0	0	626	5,890	626	0	19,794	0	19,794	827	2,116	21,910	2,943
Mansalay	6,427	0	327	6,754	0	0	313	7,067	313	0	0	5,513	5,513	0	2,021	7,534	2,021
Naujan	7,413	0	0	7,413	0	355	313	8,081	668	2,541	73,308	2,316	78,165	3,061	5,018	83,183	8,079
Pinamalayan	0	3,105	0	3,105	130	588	626	4,319	1,344	0	33,759	3,356	37,115	1,410	4,295	41,410	5,705
Pola	359	0	238	597	0	0	626	1,223	626	6,244	29,069	973	36,286	1,214	1,591	37,877	2,805
Puerto Galera	5,481	0	465	5,946	0	0	626	6,572	626	0	1,755	1,472	3,227	73	1,176	4,403	1,249
Roxas	5,468	0	499	5,967	0	0	313	6,280	313	0	34,977	1,314	36,291	1,460	2,319	38,610	3,779
San Teodoro	3,231	996	0	4,227	42	0	313	4,540	355	0	7,519	0	7,519	314	0	7,519	314
Socorro	8,313	1,035	0	9,348	43	415	313	10,076	771	0	30,720	0	30,720	1,283	2,442	33,162	3,725
Victoria	4,828	4,205	0	9,033	176	386	0	9,419	562	0	10,126	0	10,126	423	1,534	11,660	1,957
Provincial Total	92,799	15,852	6,379	115,030	663	4,304	6,573	125,901	11,540	38,345	377,948	24,329	440,622	15,782	34,595	475,217	50,377

Table 10.3.4 Costs of Sanitation Facilities Required for Phase II (2010)

Unit: 1,000 Pesos

Municipality	Urban Sanitation								Rural Sanitation							
	Household Toilets								Household Toilets							
	Flush	Pour Flush	Sub-total of Construction Cost	Sub-total of Public Investment Cost	Public School Toilets	Public Toilets	Total Construction Cost	Total Public Investment Cost	Urban Sewerage	Flush	Pour Flush	Sub-total of Construction Cost	Sub-total of Public Investment Cost	Public School Toilets	Total Construction Cost	Total Public Investment Cost
Baco	10,854	733	11,588	31	0	0	11,588	31	0	3,557	56,959	60,516	2,378	2,691	63,207	5,069
Bansud	18,876	2,594	21,470	108	563	313	22,346	984	0	0	52,885	52,885	2,208	2,986	55,871	5,194
Bongabong	13,939	4,493	18,432	188	536	313	19,281	1,037	0	0	113,708	113,708	4,748	6,521	120,229	11,269
Bulalacao	9,004	3,249	12,253	136	328	0	12,581	464	0	0	49,806	49,806	2,080	2,803	52,609	4,883
Calapan (Capital)	134,358	48,483	182,841	2,024	4,322	626	187,789	6,972	199,173	49,901	106,045	155,946	4,428	5,708	161,654	10,136
Gloria	6,607	2,175	8,782	91	0	0	8,782	91	0	0	80,762	80,762	3,372	3,794	84,556	7,166
Mansalay	7,584	2,738	10,322	114	312	0	10,634	426	0	0	76,714	76,714	3,203	3,443	80,158	6,647
Naujan	15,347	5,541	20,888	231	658	0	21,546	889	0	1,779	169,750	171,529	7,088	8,826	180,355	15,914
Pinamalayan	16,916	9,105	26,021	380	1,128	626	27,775	2,134	39,092	42,725	108,887	151,612	4,547	7,681	159,293	12,228
Pola	4,142	1,493	5,635	62	0	0	5,635	62	0	3,449	60,221	63,670	2,515	2,770	66,440	5,285
Puerto Galera	24,611	5,292	29,903	221	637	0	30,540	858	0	0	31,217	31,217	1,303	1,734	32,951	3,037
Roxas	16,384	5,908	22,292	247	583	0	22,875	830	0	0	75,377	75,377	3,147	3,848	79,225	6,995
San Teodoro	10,854	1,467	12,321	61	0	0	12,321	61	0	0	26,370	26,370	1,101	954	27,324	2,055
Socorro	24,103	5,751	29,854	240	865	0	30,719	1,105	0	0	59,684	59,684	2,492	4,004	63,688	6,496
Victoria	45,266	5,423	50,689	226	998	0	51,687	1,224	42,868	0	70,622	70,622	2,949	3,377	73,999	6,326
Provincial Total	358,845	104,446	463,291	4,360	10,930	1,878	476,099	17,168	281,132	101,411	1,139,007	1,240,418	47,559	61,141	1,301,559	108,700

10.4 Costs of Sector Management

10.4.1 Breakdown of Community Development and Training Cost

Cost of community development and training was estimated at 12% of the total construction cost of Level I & II water supply facilities and public toilets and at 3% of the total construction cost of Level III water supply systems. This was formulated based on the following:

(1) The 12% was derived on the basis of DILG's past experience in BWSA formation; and

(2) The 3% was derived on the basis of LWUA's past experience in the institutional strengthening needs of W.Ds.

These ratios adopted for estimating community development and training cost will allow the province to meet with its needs for community development in the sector management. The following breakdown provides a view of the components under this category.

Table 10.4.1 Breakdown of Community Development and Training Cost

Component	% Share of Cost
1. Preparation for Training Activities	10
1.1 Transportation	1
1.2 Technical Assistance	1
1.3 Food	1
1.4 Supplies and Materials including Production of Training Kits	6
1.5 Generation of Training Aids	1
2. Conduct of Training Activities	53
2.1 Transportation	5
2.2 Food	12
2.3 Accommodation	33
2.4 Training Room Rental	1
2.5 Miscelleneous	2
3. Field Visits to Support BWSA Formation	37
3.1 Transportation	5
3.2 Food	15
3.3 Accommodation	12
3.4 Field	4
Total	100

C. SECTOR IMPLEMENTATION ARRANGEMENTS

C. SECTOR IMPLEMENTATION ARRANGEMENTS

11. FINANCIAL ARRANGEMENTS

11.3 Additional Funding Requirements

Percentages for Annual Investment

Percentages of annual investment for different fields of implementation activities are assumed for each sub-sector as general indication and summarized in Table 11.3.1. Assumptions on investment timing shall be subject to change, especially for individual projects depending on fund availability and relevant conditions such as land acquisition and institutional set-up.

Table 11.3.1 Percentages for Annual Investment

Sub-Sector	Component	1996	1997	1998	1999	2000	Total
Urban Water Supply	Level III System						
	Feasibility Study and Detail Design	50	50	0	0	0	100
	Construction & Supervision	0	20	30	30	20	100
	Community Development & Training	30	20	20	20	10	100
Rural Water Supply	Level I Facility						
	Detail Design	50	50	0	0	0	100
	Construction & Supervision	12	22	22	22	22	100
	Community Development & Training	22	22	22	22	12	100
	Level II System						
	Detail Design	100	0	0	0	0	100
	Construction & Supervision	50	50	0	0	0	100
	Community Development & Training	50	50	0	0	0	100
Sanitation	Urban Household Toilet	12	22	22	22	22	100
	Rural Household Toilet	12	22	22	22	22	100
	Public School Toilet	12	22	22	22	22	100
	Public Toilet	12	22	22	22	22	100
	Disinfection of Level I Wells	12	22	22	22	22	100
	Detail Design	100	0	0	0	0	100
	Construction & Supervision	12	22	22	22	22	100
	Community Development & Training	22	22	22	22	12	100

Urban water supply:

- Engineering services for feasibility study and detailed design will be undertaken in the first two years.
- Construction work accompanied by supervisory services will be commenced partially in 2nd year and in full operation from 3rd year to 4th year.
- Community development will take place from the first year.

Rural water supply (Level I):

- Engineering services for detailed design will be undertaken during the first two years for Level I and completed within the first year for Level II.

- Construction work accompanied by supervisory services will be partially commenced from the first year and in full operation from 2nd year for Level I, while Level II will be completed within first two years.
- Community development and training will take place from the first year for Level I, while Level II will be completed within the first two years.

Sanitation:

- Engineering services for detailed design will be completed within the first year.
- Construction work accompanied by supervisory services will be partially commenced in the first year and in full operation from 2nd year.
- Community development and training will be in full operation from the first year.

11.4 Medium-Term Implementation Arrangements

11.4.2 Alternative Countermeasures

Comprehensive Investment Need Ranking for the Municipalities

Table 11.4.1 Comprehensive Investment Need Ranking of the Municipalities

Municipality	Evaluation Factor (% of Underserved and Unserved Population or Households)				Score by Sub-Sector				Weighted Score by Sub-Sector					Synthetic Invest-ment Need Ranking
	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Total Weighted Score	
Baco	N.A.	5	0	18	0.79	0.20	0.20	0.20	0.20	0.05	0.05	0.05	0.35	14
Bansud	N.A.	35	18	40	0.66	0.40	0.40	0.40	0.17	0.10	0.10	0.10	0.47	11
Bongabong	N.A.	50	18	47	0.93	0.60	0.40	0.60	0.23	0.15	0.10	0.15	0.63	7
Bulalacao	N.A.	90	23	61	1.00	1.00	0.60	1.00	0.25	0.25	0.15	0.25	0.90	1
Calapan (Capital)	N.A.	23	10	39	0.70	0.20	1.00	0.40	0.18	0.05	0.25	0.10	0.58	9
Gloria	N.A.	44	38	53	0.93	0.60	0.80	0.80	0.23	0.15	0.20	0.20	0.78	3
Mansalay	N.A.	51	20	48	0.93	0.80	0.40	0.60	0.23	0.20	0.10	0.15	0.68	6
Naujan	N.A.	32	6	62	0.46	0.40	0.20	1.00	0.12	0.10	0.05	0.25	0.52	10
Pinamalayan	N.A.	20	13	42	0.20	0.20	0.40	0.60	0.05	0.05	0.10	0.15	0.35	14
Pola	N.A.	73	10	65	0.57	1.00	1.00	1.00	0.14	0.25	0.25	0.25	0.89	2
Puerto Galera	N.A.	8	0	30	0.46	0.20	0.20	1.00	0.12	0.05	0.05	0.25	0.47	11
Roxas	N.A.	31	15	66	0.56	0.40	0.40	1.00	0.14	0.10	0.10	0.25	0.59	8
San Teodoro	N.A.	63	33	33	0.66	1.00	0.80	0.40	0.17	0.25	0.20	0.10	0.72	4
Socorro	N.A.	48	27	61	0.66	0.60	0.60	1.00	0.17	0.15	0.15	0.25	0.72	5
Victoria	N.A.	22	27	20	0.79	0.20	0.60	0.20	0.20	0.05	0.15	0.05	0.45	13
Provincial Total	N.A.	37	15	47										

Note:

(1) Scoring to Underserved and Unserved Percentage. 2. Assumed Weight by Sub-Sector for Synthetic Evaluation by Municipality.

Score	Range of Underserved and Unserved Percentage			0.25	0.25	0.25	0.25	Allocated Weight
1.0	61 < %	41 < %	61 < %					
0.8	51 < % < 60	31 < % < 40	51 < % < 60					
0.6	41 < % < 50	21 < % < 30	41 < % < 50					
0.4	31 < % < 40	11 < % < 20	31 < % < 40					
0.2	% < 30	% < 10	% < 30					

Table 12.4.1 Draft Formats for Annual Sector Performance Summary Report (Provincial and Municipal Levels)

Form P-1

Province of _____

Provincial Water & Sanitation Monitoring System

Annual Sector Performance Summary Report

Period Covered : _____ to _____

I. Service Coverage

Municipality (1)	LAST YEAR				THIS YEAR			
	Population (2)	Persons with Safe Water & Sanitary Toilets (3)	Persons with Safe Water Only (4)	Persons with Sanitary Toilets Only (5)	Population (6)	Persons with Safe Water & Sanitary Toilets (7)	Persons with Safe Water Only (8)	Persons with Sanitary Toilets Only (9)
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
Total								
% Served								
Targets								

II. Sources & Uses of Capital Development Funds

Source of Fund (1)	Budget for Water Supply & Sanitation (2)	Actual Disbursement (3)	Uses of Funds						
			Water Source Development (4)	Water Supply Transmission (5)	Water Storage/ Treatment & Distribution (6)	Household Toilets (7)	School Toilets (8)	Public Toilets (9)	Others (10)
A. Local Funds.									
Provincial Funds									
Municipal Funds									
A.									
B.									
C.									
D.									
E.									
F.									
G.									
H.									
I.									
J.									
SUB-TOTAL									
B. National Funds									
DPWH									
DOH									
LWUA									
SUB-TOTAL									
C. External Funds									
NGO									
NGO									
NGO									
SUB-TOTAL									
TOTAL									

III. School Sanitation (Source, DECS)

School (Location) (1)	No. of Students Enrolled (2)	Water Supply Adequate ? (Y/N) (3)	No. of Functioning Toilet Units (4)	Facility: Student Ratio (5)

IV. Incidence of Diarrhea (Source IPHO)

Month (1)	Last Year (2)	This Year (3)
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

V. Water Resources: Report any major changes in the availability and quality of water in the province. Attach map.

VI. Unit Cost Summary : Based on projects actually implemented and paid for during the reporting period, indicate the following average unit costs

1. Shallow Well (w/o hand pump) = _____ / Meter Depth
2. Deep Well (w/o pump) = _____ / Meter Depth
3. Pipeline = _____ / meter
4. Storage Tanks =
5. Others,

Form M - 1

Municipality of _____

Provincial Water & Sanitation Monitoring System

Annual Sector Performance Summary Report

Period Covered : _____ to _____

I. Service Coverage

	LAST YEAR				THIS YEAR			
Name of Barangay (1)	Population (2)	Persons with Safe Water & Sanitary Toilets (3)	Persons with Safe Water Only (4)	Persons with Sanitary Toilets Only (5)	Population (6)	Persons with Safe Water & Sanitary Toilets (7)	Persons with Safe Water Only (8)	Persons with Sanitary Toilets Only (9)
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
Total								
% Served								

II. Sources & Uses of Capital Development Funds.

Source of Funds (1)	Budget (2)	Actual Disbursement (3)	Uses of Funds						
			Water Source Development (4)	Water Supply Transmission (5)	Water Storage/ Treatment & Distribution (6)	Household Toilets (7)	School Toilets (8)	Public Toilets (9)	Others (10)
Municipal Funds									
Barangay Funds									
A.									
B.									
C.									
D.									
E.									
F.									
G.									
H.									
I.									
J.									
K.									
L.									
M.									
N.									
O.									
P.									
Q.									
R.									
S.									
T.									
U.									
W.									
SUB-TOTAL									
NGO									
NGO									
NGO									
SUB-TOTAL									
TOTAL									

DATA REPORT

DATA REPORT

1. INTRODUCTION

1.3 The Provincial Plan for the Province of Oriental Mindoro

1.3.2 Outline of the Report

Table 1.3.1 List of Report/Data/Information/Materials collected (1/2)

No.	Title	Year	Prepared by	Related Subjects						Remarks
				WS	HD	SE	CD	SE	O	
	LAWS AND REGULATIONS									
1	The Local Government Code of 1991.	1991	Congress of the Phil.				x			
2	The Code of Sanitation of the Philippines Presidential Decree No. 856	1976	DOH			x				
3	National Handbook on Land and Other Water Resources.	Jul-91	NLUC,NEDA					x		
	STATISTICS - National Level									
1	1991 Family Income and Expenditures Survey of Households Bulletin Series 72.	1991	NSO					x		
2	1992 Philippine Statistical Yearbook.	Oct-92	NSCB			x		x		
3	1992 Philippine Yearbook.	Dec-92	NSO					x		
4	National Health Survey.	1992	DOH			x				
	STATISTICS - Provincial Level									
1	1990 Census of Population and Housing Report No. 3-66 D: Socio-Economic and Demographic	1990	NSO	x		x		x		
	Characteristics Oriental Mindoro.									
2	Socio-Economic Profile of Oriental Mindoro 1986-1993	1993	PPDO	x	x	x	x	x		
	NATIONAL DEVELOPMENT PLAN/ SECTOR PLAN									
1	Water Supply, Sewerage and Sanitation Master Plan of the Philippines 1988-2000.	1988	NEDA	x	x	x				
2	National Physical Framework Plan 1993-2022.	Oct-92	Nat'l. Land Use Com.					x		
3	Philippines : Water Supply Sector Reform Study.	Aug-93	WORLD BANK	x	x	x				Working Papers
4	Philippine Development Report 1987-1992	1993	NEDA					x		
5	Project Benefit Monitoring and Evaluation (PBME).	Oct-93	NJS/Basic Team				x			Final Report
6	Study for the Groundwater Development in Manila Volume 2.	Jun-92	JICA							Main Report
7	First Water Supply, Sewerage and Sanitation Sector Project BWSA Package Phase I & II.	Mar-93	DILG-PMO				x			Training Manual 2nd Edition
8	The Special Assistance for Project Sustainability Program for Rural Water Supply Project.	Mar-92	OECF	x						Final Report (Main Report)
9	BWSA Primer English Version.	Sep-92	DILG,DPWH,DOH				x			Second Edition
10	Database Application for Provincial Water Supply, Sewerage & Sanitation Sector Plan.	Apr-93	WORLD BANK						x	Mission Report
11	Master Plan for the Areas of Central Luzon Affected by the Eruption of Mt. Pinatubo.	Oct-93	USAID	x	x	x	x	x		Preliminary Report
12	Skills Training for Sanitary Engineers	Sep-92				x				Training Manual 1st Edition
13	National Strategy and Action Plan Philippine National Urban Sewerage and Sanitation Strategy and	May-93	World Bank Proj.			x				
	Feasibility Studies Project.		Loan 3242-DH							
14	PAG-ASA Climatological Data				x					
15	Sanitation and Water Supply : Practical Lessons from the Decade.	1992	Sandy Cairncross			x	x			Discussion Paper Series
16	Community Water Supply and Sanitation	1989	WHO			x	x			
17	Institutional Development in Community Water Supply and Sanitation Themes and Questions.	1986	WHO,Geneva				x			
18	Guidelines for Planning Community Participation in Water Supply & Sanitation Projects.		Anne Whyle				x			
19	Participatory Evaluation : Tools for Managing Change in Water and Sanitation.	Feb-93	Deepa Narayan				x			
20	Community Participation and Hygiene Education on Water Supply and Sanitation (CPHE).	Oct-89	Technical Coop.				x			

Related Subject : WS Water Supply, HD Hydrogeology, SE Sanitation and Environment, CD Community Development, SE Socio-Economy, O Others

List of Report/Data/Information/Materials collected (2/2)

No.	Title	Year	Prepared by	Related Subjects						Remarks
				WS	HD	SE	CD	SE	O	
21	Geological Maps of the Phils.		BMGS		x					
22	Water Resource Investigation	1986	NWRC		x					
23	Philippine Atmospheric, Geo-Physical and Astronomical Services Admin. Data.		PAG-ASA		x					
24	Philippine Water Resources Summary Data, Vol-I Stream Flow and Lake or River Stage.		Bureau of Research		x					
25	Hydrogeology of Central Luzon	Aug-70	B.M.Sandoval & Mamaril		x					
	PROVINCIAL SECTOR PLAN/DEVELOPMENT PROGRAM									
1	Major Development Programs and Projects 1986-1992 Oriental Mindoro.		Aquino Admin					x		
2	The Oriental Mindoro Strategic Plan	1993	Likas Kalakasan Found'n, Inc.					x		
3	Annual Investment Plan Oriental Mindoro	1993	PPDO					x		
4	Rapid Assessment of Water Supply Source, Province of Oriental Mindoro Report No. 36, Vol. 27.	May-82	NWRB		x					
	OTHER REFERENCES									
1	Microsoft Windows Version 3.1	1992	Microsoft Corporation						x	User's Manual
2	Microsoft Excel Version 5.0	1994	Microsoft Corporation						x	User's Manual
3	Microsoft Word Version 6.0	1994	Microsoft Corporation						x	User's Manual

Related Subject : WS Water Supply, HD Hydrogeology, SE Sanitation and Environment, CD Community Development, SE Socio-Economy, O Others

Table 1.4.1 List of Persons and Institutions Who Participated in the Preparation of PW4SP

Name	Position	Office
Provincial Sector Planning Team:		
1. Mr. Jaime G. Nuevas, Jr.	Provincial Planning & Dev't. Coordinator	Provincial Planning & Dev't. Office
2. Ms. Mely M. Manalo	Planning Officer III	- do -
3. Ms. Marina B. dela Cruz	Engineer II	Provincial Engineer's Office
4. Mr. Roberto O. Mendoza	Project Development Officer III	Provincial Planning & Dev't. Office
5. Mr. Edward Badillo	Sanitary Engineer	Provincial Health Office
6. Mr. Pedrito E. Abogado, Jr.	Sr. Sanitary Inspector	- do -
7. Ms. Juanita M. Javier	Planning Officer I	Provincial Planning & Dev't. Office
8. Mr. Edmin L. Distajo	Project Development Officer I	- do -
9. Ms. Lennie C. Bautista	Statistician I	- do -
10. Mr. Norman M.Tolentino	CAA I	- do -
Water Supply and Sanitation - Project Management Office:		
1. Mr. Orville M. Roque	Program Manager	WSS-PMO, DILG
2. Ms. Ellen I. Pascua	Asst. Program Manager	- do -
3. Mr. Rogelio B. Ocampo	Chief, Planning Division	- do -
4. Mr. Mario V. De Dios	Development Management Officer V	- do -
5. Ms. Fe Crisilla M. Banluta	PW4SP Project Officer	- do -
6. Ms. Josephine G. Ramos	Coordinator	- do -