3.3.3 Education

The province has a total of 561 schools consisting of 497 elementary schools, 41 high schools and 23 tertiary/technical schools. The 1997 figure in the Socio-economic Profile indicated that the province had 92.46% literacy rate of household population 5 years old and over. A large part of the population had attained elementary or high school levels of education as reflected in Figure 3.3.3 (refer to Table 3.3.3, Supporting Report).

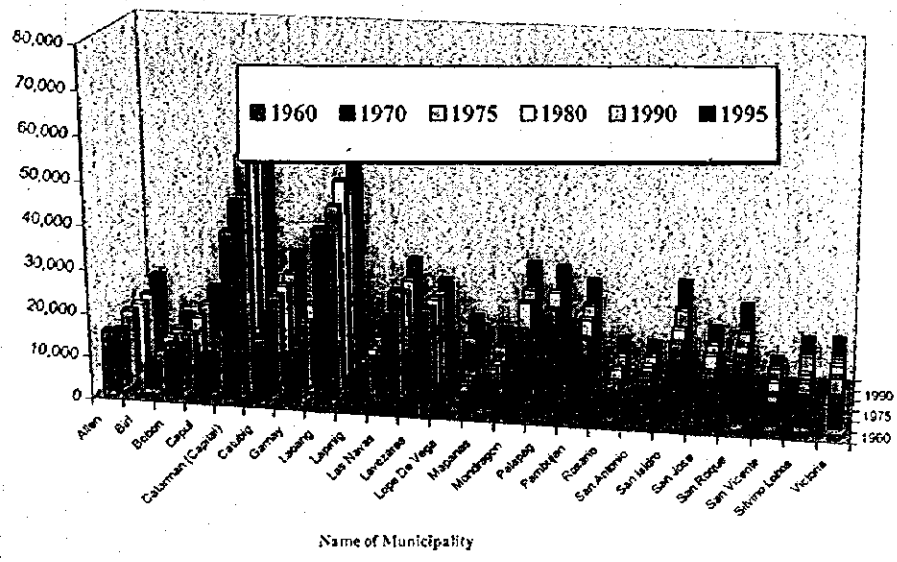
3.4 Population

3.4.1 Previous Population Development

A fluctuating provincial population growth rate had been experienced since the last six (6) census years (1960-1995) as indicated in Figure 3.4.1. From an average annual growth rate of 1.59% during the period 1960 to 1970, it increased to 2.99% (1970-1975), and then drastically decreased to 0.13% (1980-1990). A summary of the average annual growth rates of the province is as follows:

Year	Population	Ave. Annual Growth Rate (%)	Period
1970	306,114	1.59	1960 - 1970
1975	354,845	2.99	1970 - 1975
1980	378,516	1.31	1975 - 1980
1990	383,654	0.13	1980 - 1990
1995	454,195	3.21	1990 - 1995

Figure 3.4.1 Previous Population Development of the Province



A consideration on how the population growth behaved in the past and how it is likely to behave in the future is important because of the issue of resource allocation including the water supply and sanitation sector requirements.

The 1998 population was estimated to provide the planning base for this Master Plan (refer to Section 8.3.1 Population Projection, Main Report). Table 3.4.1 shows a breakdown of the past population development by municipality from 1948 to 1995.

Table 3.4.1 Previous Population Development by Municipality

Municipality	Previous Population						
	1948	1960	1970	1975	1980	1990	1995
Allen	20,760	15,275	13,474	15,668	15,166	15,404	17,972
Biri			5,577	6,517	7,437	7,467	8,866
Bobon	24,287	12,852	10,143	10,849	12,702	13,687	15,800
Capul	9,257	10,678	8,648	9,386	10,237	9,510	9,964
Catarman (Capital)	33,153	39,434	44,438	53,267	59,021	50,965	61,705
Catubig	23,456	15,553	18,974	21,063	21,212	22,057	25,190
Gamay	14,962	12,156	12,297	15,370	17,247	15,764	19,457
Laoang	29,748	41,158	37,382	42,498	46,545	42,048	47,438
Lapinig		7,610	6,598	7,426	7,481	8,232	9,813
Las Navas		14,043	19,925	23,715	21,216	22,017	25,031
Lavezares	18,508	15,186	16,336	20,251	20,007	19,058	20,492
Lope De Vega						9,254	11,947
Mapanas			5,716	6,669	5,549	7,553	9,377
Mondragon	9,741	12,302	14,974	15,834	20,423	21,399	25,504
Palapag	17,021	16,055	19,438	21,266	23,115	20,114	24,947
Pambujan	21,183	23,254	12,803	14,974	17,208	18,389	22,152
Rosario			3,782	5,176	5,872	6,699	8,626
San Antonio	6,781	5,898	6,291	7,250	7,008	7,164	7,984
San Isidro		9,453	12,697	15,182	15,994	18,353	22,991
San Jose		10,517	8,631	8,751	10,388	10,773	12,556
San Roque			10,375	12,767	13,106	13,856	18,094
San Vicente			4,122	4,184	4,786	5,777	5,970
Silvino Lobos			6,497	7,633	7,245	9,071	11,028
Victoria			6,996	9,149	9,551	9,043	11,291
Provincial Total	228,857	261,424	306,114	354,845	378,516	383,654	454,195

3.4.2 Classification of Urban and Rural Areas

NSO classifies a barangay as urban when it satisfies any of the following conditions on the economic and social functions.

(1) In their entirety, all cities and municipal jurisdictions having a population density of at least 500 persons per square kilometer.

(2) Poblaciones or central districts of municipalities and cities, which have a population density of at least 500 persons per square kilometer.

(3) Poblaciones or central districts (not included in nos. 1 and 2) regardless of population size, which have the following:

1) Street pattern, i.e., network of streets either at parallel or in right angle orientation;
2) At least six establishments (commercial, manufacturing, recreational and/or personal services); and
3) At least three of the following:
   a) a town hall, church or chapel with religious services at least once a month;
   b) a public plaza, park or cemetery;
   c) a market place or building where trading activities are carried on at least once a week; and
   d) a public building like school, hospital, health center or library.

(4) Barangays having at least 1,000 inhabitants, that meet the condition set forth in no. 3 above, and in which the occupation of the inhabitants is predominantly non-farming/fishing.

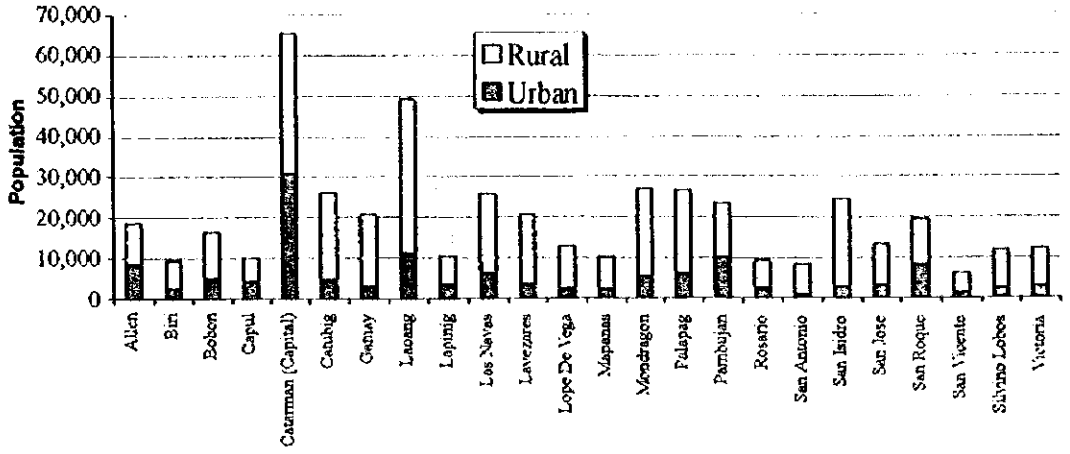
All areas not falling under the urban classification are defined as rural area. Considering the 1995 NSO classification of urban and rural barangays, there are 101 urban barangays and 468 rural barangays for a total of 569 barangays in 1998. Distribution of the classified areas is shown in Figure 3.4.1, Supporting Report.

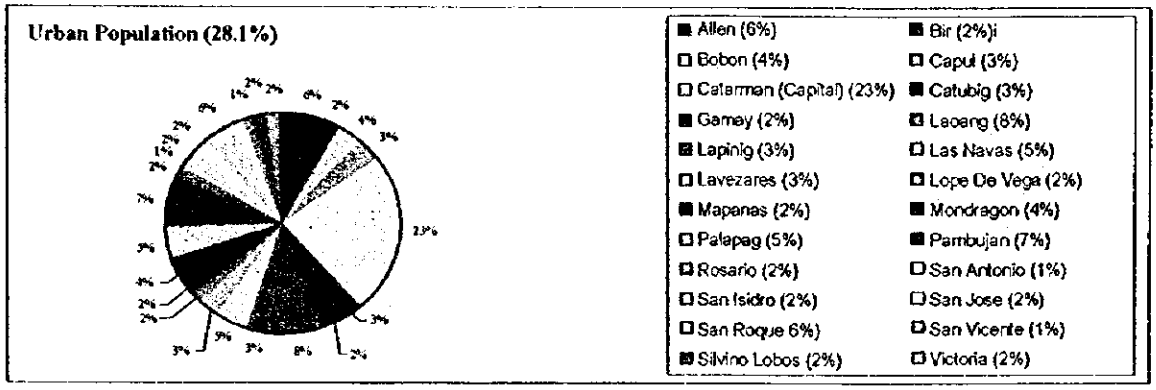
3.4.3 Present Population Distribution

From the 1995 NSO census, the 1998 urban-rural population was estimated. Rural population accounts for 72% of the provincial total, while 28% is urban as reflected in Figure 3.4.2. Table 3.4.2 presents the breakdown of the number of urban and rural barangays by municipality and its corresponding present population distribution.

There are 89,666 households with 65,370 residing in rural areas and 24,296 households in urban areas. The average provincial household size is 5.36 persons/household. Table 3.4.3 presents a breakdown per municipality on the number of households and household sizes by urban and rural area.

Figure 3.4.2 Present Population





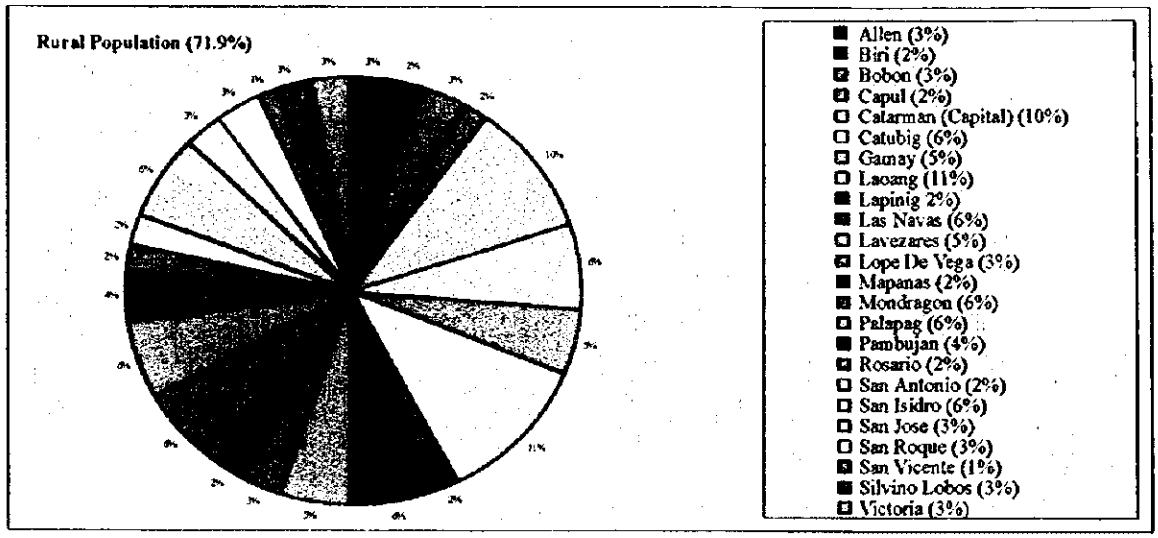


Table 3.4.2 Outline of Urban and Rural Areas in the Province

Municipality	Number of Barangay			Population (1998)		
	Urban	Rural	Total	Urban	Rural	Total
Allen	6	14	20	8,476	10,336	18,812
Biri	1	7	8	2,596	6,728	9,324
Bobon	3	15	18	5,041	11,451	16,492
Capul	5	7	12	4,286	5,827	10,113
Catarman (Capital)	19	36	55	31,015	34,205	65,220
Catubig	8	39	47	4,649	21,566	26,215
Gamay	3	23	26	2,753	17,913	20,666
Laoang	6	50	56	11,104	38,098	49,202
Lapinig	2	13	15	3,701	6,629	10,330
Las Navas	4	49	53	6,254	19,763	26,017
Lavezares	4	22	26	3,433	17,528	20,961
Lope De Vega	1	21	22	2,514	10,314	12,828
Mapanas	2	11	13	2,161	7,813	9,974
Mondragon	2	22	24	5,491	21,357	26,848
Palapag	4	28	32	6,243	20,286	26,529
Pambujan	8	18	26	9,970	13,414	23,384
Rosario	2	9	11	2,412	6,845	9,257
San Antonio	1	9	10	839	7,413	8,252
San Isidro	2	12	14	2,834	21,675	24,509
San Jose	4	12	16	3,088	10,052	13,140
San Roque	6	10	16	8,378	11,103	19,481
San Vicente	2	5	7	1,610	4,423	6,033
Silvino Lobos	3	23	26	2,615	9,053	11,668
Victoria	3	13	16	2,700	9,327	12,027
Provincial Total	101	468	569	134,163	343,119	477,282

Table 3.4.3 Household Numbers and Household Size

Municipality	Number of Households (1995)			Number of Households (1998)			1995 Household Size (person/household)		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Allen	1,518	2,129	3,647	1,685	2,131	3,816	5.03	4.85	4.93
Biri	450	1,076	1,526	450	1,154	1,604	5.77	5.83	5.81
Bobon	870	2,202	3,072	964	2,241	3,205	5.23	5.11	5.14
Capul	818	1,112	1,930	837	1,123	1,960	5.12	5.19	5.16
Catarman (Capital)	5,212	5,965	11,177	5,329	6,503	11,832	5.82	5.26	5.52
Catubig	869	4,022	4,891	884	4,204	5,088	5.26	5.13	5.15
Gamay	522	3,271	3,793	534	3,499	4,033	5.16	5.12	5.13
Laoang	2,029	6,991	9,020	2,030	7,327	9,357	5.47	5.20	5.26
Lapinig	572	1,109	1,681	616	1,153	1,769	6.01	5.75	5.84
Las Navas	1,001	4,030	5,031	1,173	4,042	5,215	5.33	4.89	4.98
Lavezares	654	3,446	4,100	654	3,541	4,195	5.25	4.95	5.00
Lope De Vega	395	1,590	1,985	436	1,696	2,132	5.77	6.08	6.02
Mapanas	352	1,326	1,678	400	1,385	1,785	5.40	5.64	5.59
Mondragon	927	3,943	4,870	1,023	4,107	5,130	5.37	5.20	5.24
Palapag	1,222	3,717	4,939	1,287	3,962	5,249	4.85	5.12	5.05
Pambujan	1,577	2,311	3,888	1,713	2,387	4,100	5.82	5.62	5.70
Rosario	363	1,098	1,461	363	1,209	1,572	6.64	5.66	5.90
San Antonio	168	1,467	1,635	168	1,522	1,690	4.99	4.87	4.88

Table 3.4.3 Household Numbers and Household Size

(Cont'd)

Municipality	Number of Households (1995)			Number of Households (1998)			1995 Household Size (person/household)		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
San Isidro	507	3,695	4,202	532	3,948	4,480	5.33	5.49	5.47
San Jose	570	1,841	2,411	579	1,944	2,523	5.33	5.17	5.21
San Roque	1,274	1,714	2,988	1,338	1,882	3,220	6.26	5.90	6.06
San Vicente	341	941	1,282	341	955	1,296	4.72	4.63	4.66
Silvino Lobos	351	1,481	1,832	404	1,532	1,936	6.47	5.91	6.02
Victoria	555	1,770	2,325	556	1,923	2,479	4.86	4.85	4.86
Provincial Total	23,117	62,247	85,364	24,296	65,370	89,666	5.52	5.25	5.32

3.5 Health Status

3.5.1 Morbidity, Mortality and Infant Mortality

The number one cause of morbidity in Northern Samar was acute respiratory infection, followed by diarrhea, a water-borne and water-washed disease. Pneumonia and influenza ranked third and fourth, respectively. Regarding mortality, the number one cause was pneumonia, followed by heart diseases. Diarrhea and septicemia ranked third and fourth, respectively. Pneumonia, diarrhea and septicemia were the 3 leading causes of infant mortality in the province (refer to Table 3.5.1, Data Report).

The general health status of the populace of the province in 1998 was relatively poor compared with the national condition. The incidence of diseases was higher in Northern Samar than the country as a whole. Table 3.5.1 presents a comparative statistics on the ten leading causes of morbidity, mortality and infant mortality of the province as well as of the Philippines.

Water-related diseases in the ten leading causes of morbidity include diarrhea (rank 2nd), schistosomiasis (6th) and dengue fever (8th) and typhoid/paratyphoid (10th). Diarrhea also ranked 3rd as the leading causes of mortality. Again, diarrhea (rank 2nd) is among the ten leading causes of infant mortality.

Table 3.5.1 Number and Rates of Ten Leading Causes of Morbidity, Mortality and Infant Mortality

Rate: 1/100,000

	Causes	Northern Samar		Philippines		
		Number	Rate	Number	Rate	Ranking
Morbidity	1. ARI	93,623	20,613	903,508	1,349	2
	2. Diarrhea	63,724	14,030	1,337,449	1,997	1
	3. Pneumonia	29,082	6,403	470,574	703	4
	4. Influenza	13,376	2,945	609,471	910	3
	5. Tuberculosis	12,345	2,718	159,049	238	6
	6. Schistosomiasis	6,331	1,394			
	7. Anemia	5,382	1,185			
	8. Dengue Fever	5,346	1,177			
	9. Heart Diseases	5,219	1,149	111,847	167	7
	10. Typhoid/Parathyphoid	1,185	261			
Mortality	1. Pneumonia	922	203	35,582	53	3
	2. Heart Diseases	491	108	48,582	69	1
	3. Diarrhea	377	83	5,759	9	9
	4. Septicemia	350	77			
	5. Tuberculosis	327	72	24,580	37	5
	6. Other Accidents	195	43	13,477	20	6
	7. Congenital Anomalies	18	4			
	8. Prematurity	9	2			
Infant Mortality	1. Pneumonia	186	41	7,631	4.5	1
	2. Diarrhea	9	2	1,661	1.0	4
	3. Septicemia	9	2	1,252	0.7	5
	4. Nutritional Deficiencies	5	1	925	0.6	6
	5. Meningitis	5	1			
	6. Congenital Anomalies	5	1	2,366	1.4	3

3.5.2 Water Related Diseases

An indicator of health problems related to water supply and sanitation is the incidence of water-related diseases. The World Health Organization (WHO) has classified diseases related to water into four (4) categories: 1) water-borne diseases e.g., cholera, typhoid, hepatitis A, diarrhea and dysentery; 2) water-based diseases e.g., schistosomiasis; 3) water-washed diseases e.g., diarrhea, intestinal parasitism, scabies, conjunctivitis (sore eyes), and skin diseases; and 4) water-vector related diseases e.g., malaria, filariasis and dengue or H-fever. As with malaria, the control of filariasis is beyond this Master Plan. A safe water supply, sanitary toilet and proper hygiene practices are conditions necessary for the control and prevention of these diseases.

Water-related diseases reported in the province in 1998 were diarrhea, typhoid/parathyphoid, intestinal parasitism, conjunctivities, cholera, dengue fever, schistosomiasis and skin diseases. Table 3.5.2 presents the reported cases and deaths of notifiable water-related diseases in the province.

Table 3.5.2 Reported Cases and Deaths of Notifiable Water Related Diseases in 1998

Rate: 1/100,000

Diseases	Morbidity		Mortality		Infant Mortality	
	Number	Rate	Number	Rate	Number	Rate
Water-borne						
1. Diarrhea	63,724	14,030	377	83	9	2
2. Typhoid/Paratyphoid	1,185	261				
3. Cholera	68	15				
Water-based						
1. Schistosomiasis	6,331	1,394				
Water-washed						
1. Intestinal parasitism	159	35				
2. Skin disease	59	13				
3. Conjunctivities	82	18				
Water vector						
1. Dengue/H-fever	5,346	1,177				

3.5.3 Health Facilities and Practitioners

Present facilities serving the health care of the populace are 4 hospitals, 24 rural health units and 112 barangay health stations. The ratio of the population to these facilities and to the health practitioners are relatively higher as compared to the national average figures (refer to Table 3.5.1 number and ratio of population to health facilities and/or medical practitioners, Supporting Report).

3.6 Environmental Conditions

3.6.1 General

Environmental issues and problems directly affecting the sector and/or how the sector affects these environmental concerns are dealt with in this sub-section. Specifically, the problems of water pollution and solid waste disposal spawned by rapid population growth and increasing industrial and economic activities are discussed. These problems put a strain on the provincial water resources and hinder their optimum utilization.

3.6.2 Water Pollution

There are no existing sanitary sewerage systems in the province. Majority of the drainage facilities in all municipalities is open canals or ditches. The rivers and streams function as the drainage system. These rivers receive the domestic wastewater and storm water collected by the segmented drainage facilities in urban centers or poblacions (refer to the types of drainage facilities in Table 3.6.1, Supporting Report).

A major water pollution source in urban areas is domestic wastewater. Graywater generated by households is simply allowed to discharge into nearby channels. Effluent from septic tanks or cesspools is also flowing into the streams. The other major pollutant is dumped refuse that finds its way to the river systems during rain or is thrown indiscriminately into the rivers. In rural areas, natural assimilation of the river may be expected to purify organic substances. However, pollution or contamination is anticipated caused by agricultural activities especially with reference to fertilizers and pesticides.

Manufacturing establishments are identified as potential pollution sources if no control measures are in place. The rivers must be protected and conserved for their intended or beneficial use. As of now, the rivers in the province are not classified as to their use by the Department of Environment and Natural Resources (refer to general information in Table 3.6.2 DENR Water Quality Criteria/Water Usage and Classification, Supporting Report).

3.6.3 Solid Waste Disposal

Of the 24 municipalities, 7 have municipal refuse collection and disposal services as of 1998 (details are referred to Table 3.6.1, Data Report). These municipalities have 1 to 2 units of open dump truck. Only the capital town of Catarman has one unit of closed type truck. In the province, only 15% of the households is served, while the majority (85%) is unserved. Table 3.6.1 reflects the manner of solid waste collection and disposal, and service coverage by municipality in 1998.

Open dumping is commonly practiced by the LGUs as disposal of solid wastes. The dumped refuse is usually burned or left unattended. Some significant negative effects associated with this unsanitary method are surface and groundwater pollution, air pollution, scattered solid waste, breeding grounds for insects, rodents and other disease vectors and fire hazard. At the household level, unserved households by the LGUs primarily depend on individual waste disposal such as dumping in vacant lots or body of water, burying and composting.

Table 3.6.1 Municipal Solid Waste Collection and Disposal, and Service Coverage, 1998

Name of Municipality	Number of Households 1998	With Service						Without Service				Percentage of Households Served	Percentage of Households Unserved
		Number of Collection Trucks			Disposal			Manner of Disposal (Number of Household)					
		Open Dump Trucks	Closed Type Trucks	Total Units	Number of Households Served by Open Dump Site	Number of Households Served by Sanitary Landfill	Total Households Served	Dumping (Land and Water)	Burying	Composting	Total Households Unserved		
Allen	3,816							2,238	1,128	450	3,816		100
Biri	1,604							1,328	156	120	1,604		100
Bobon	3,205							2,195	730	280	3,205		100
Capul	1,960							1,929	21	10	1,960		100
Catarman (Capital)	11,832	1	1	2	5,788		5,788	2,508	2,165	1,371	6,044	49	51
Catubig	5,088							570	3,206	1,312	5,088		100
Gamay	4,033							2,160	1,612	261	4,033		100
Laoang	9,357	1		1	2,099		2,099	5,178	1,500	580	7,258	22	78
Lapinig	1,769							1,533	156	80	1,769		100
Las Navas	5,215							4,501	502	212	5,215		100
Lavezares	4,195	1		1	804		804	2,620	582	189	3,391	19	81
Lope De Vega	2,132							1,275	428	429	2,132		100
Mapanas	1,785							939	777	69	1,785		100
Mondragon	5,130	2		2	1,346		1,346	2,796	701	287	3,784	26	74
Palapag	5,249	1		1	1,541		1,541	3,650	58		3,708	29	71
Pambujan	4,100	1		1	1,541		1,541	2,151	344	64	2,559	38	62
Rosario	1,572	1		1	556		556	835	181		1,016	35	65
San Antonio	1,690							1,142	221	327	1,690		100
San Isidro	4,480							3,714	438	328	4,480		100
San Jose	2,523							1,890	461	172	2,523		100
San Roque	3,220							1,928	691	601	3,220		100
San Vicente	1,296							627	69	600	1,296		100
Silvino Lobos	1,936							1,691	184	61	1,936		100
Victoria	2,479							2,014	233	232	2,479		100
Provincial Total	89,666	8	1	9	13,675		13,675	51,412	16,544	8,035	75,991	15	85

Chapter 4

EXISTING FACILITIES AND SERVICE COVERAGE

4. EXISTING FACILITIES AND SERVICE COVERAGE

4.1 Water Supply

4.1.1 General

Existing water supply facilities and conditions were surveyed by municipality under the category of urban and rural areas (as of June 1999 and regarded as a figure in 1998). Facilities are classified into three service levels, of which Level I facilities are further classified into safe and unsafe for drinking purpose.

The percentages of service coverage by different service level were estimated covering urban and rural areas by municipality. The served population is defined as "population served adequately with access to safe water sources/facilities." The rest of the population with unsafe sources/facilities and without access to water supply facilities was then defined as "underserved population" and "unserved population," respectively. The service coverage was figured out using estimated population in 1998.

Service profile and operating conditions of existing facilities are summarized by service level to come up with problem areas and need of rehabilitation to reflect in the development plan.

As a provincial total, approximately 61% of the present population (of which 28% in urban area and 72% in rural area) is considered as adequately served (refer to 4.1, Supporting Report for the detailed study). Under the area classification, 65% of urban population and 60% of rural population have access to safe water sources/facilities, while the rest is underserved or unserved. About 276,200 persons or 95% of the served population depend on Level I facilities, while about 15,600 persons or 5% are served by Level III and/or Level II systems.

4.1.2 Types of Facilities and Definition of Service Level Standard

(1) Composition of water supply system/facility

The NSMP defines service level and system components of the water supply systems/facilities as shown in Table 4.1.1. NEDA Board Resolution No. 12 (s. 1995) also provides the approved definition of terms relative to water supply including levels of service (refer to 4.1.2 Data Report). These terms are to be adopted by all government agencies including LGUs.

Table 4.1.1 Composition of Water Supply System/Facility by Service Level

Description	Level I (Point Source Facility)	Level II (Communal Faucet System)	Level III (Individual House Connection)
1. Water Source	Drilled/driven shallow well Drilled/driven deep well Dug well Spring Rain collector	Drilled shallow/deep well Spring Infiltration gallery	Drilled deep well Spring Infiltration gallery Surface water intake
2. Water Treatment	Generally none. Disinfection of wells is conducted periodically by local health authorities. Iron removal facilities are provided in problem areas.	Generally none	Disinfection is provided. Systems with surface water source have series of water treatment facilities.
3. Distribution	None	Piped system provided with reservoir/s	Piped system provided with reservoir/s and pumping facilities.
4. Delivery & Service Level	At point (within 250m radius)	Communal faucet (within 25m radius)	Individual house connection/household tap
5. Consumption Rate (Adequately Served)	At least 20 lpcd	At least 60 lpcd	At least 100 lpcd

(2) Safe and unsafe classification of water sources

DOH has classified Level I water source facilities as safe (reliable water source) and unsafe sources/facilities based on the National Standard for Drinking Water (NSDW).

Safe source: Protected deep well, protected shallow well, improved/covered dug well and developed spring

Unsafe source: Unprotected deep well, unprotected shallow well, open dug well, undeveloped/unprotected spring and rainwater collector

Water sources other than the above, such as untreated surface water of rivers, lakes and ponds are also considered unsafe sources. On the other hand, Levels II and III water supply systems are regarded to have safe/reliable sources with provision of adequate treatment.

(3) Service level standard

The NSMP and NEDA Resolution No. 12 define "adequate service level" by different water supply system. Improvement in the number of households per water source/facility may be expected for Level I service in the future. On the contrary, the number of households served by a unit of private/public source is sometimes beyond the standard on a current basis.

Level III: 1 household/connection

Level II: 5 (4 to 6) households/communal faucet

Level I: 15 households/point source
1 household/private well

4.1.3 Level III Systems

Level III (individual house connection) systems at municipal level are usually established and operated by WD under the technical and financial assistance of LWUA. Some LGUs also implement and operate Level III systems commonly at barangay level.

There are only 3 Level III systems in the province operated under a water district, a municipal government and a private sector as reflected in Table 4.1.2 together with their service coverage in 1998 (details are referred to in Table 4.1.1, Supporting Report).

In the municipality of Catarman, there are 2 systems: a Water District and a privately owned Level III system. The Catarman WD covers 5 urban and 13 rural barangays using deep well sources. Present population served is about 2,600 (2,100 for urban and 500 for rural areas). The WD practices scheduled water supply distribution due to insufficient water source. The WD is planning to develop another deep well at present. Another waterworks is the privately managed Costa Real WWs, which supplies water to a sub-division in the urban area using a shallow well. The number of households served is 80.

In the municipality of San Isidro, there is a WD partially covering 2 urban and 1 rural barangays using a spring source. The system is under expansion at present. The served population is estimated at 1,100.

The other 22 municipalities have no Level III system/s both in urban and rural areas at present.

Table 4.1.2 Information on Existing Level III System

Name of Municipality	Name of Operating Body	Water Consumption			Service Coverage								
		Type of Water Source	Domestic Water Consumption (cu.m/day)	Domestic Supply (%)	No. of Brgys. Served			No. of Household Served			No. of Population Served		
					Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Catarman	Catarman WD	DW	266	81	15	3	18	388	97	485	2,128	532	2,660
	Costa Real WWs	SW	NA	100	1		1	80		80	439		439
	Municipal Total		266	90	16	3	19	468	97	565	2,567	532	3,099
San Isidro	San Isidro WD	SP	NA	NA	2	1	3	166	30	196	908	164	1,072
Provincial Total			266	90	18	4	22	634	127	761	3,475	696	4,171

Note: 1. Type of Water Source: *DW* - Deep Well, *SW* - Shallow Well, *SP* - Spring.
2. Domestic water consumption: - Estimated at 100 lpcd.
3. NA - No data available

Table 4.1.3 Information on Water Districts

Name of Water District	Number of Connections						Production (cu. m/mon)	Accounted for Water (cu. M/mon)
	Domestic	Institutional	Commercial	Industrial	Total	Metered		
Catarman WD	492	24	89		605	605	20,700	2,256
San Isidro WD	8	3	29		40	40	5,184	NA

Note: NA - No data available

4.1.4 Level II Systems

Level II (communal faucet) systems are designed to cater for barangay level water supply with limited service coverage and supply capacity. These systems have been implemented by different agencies (DPWH, DILG, LGUs) and encouraged the use of spring sources. Mostly, the Barangay Councils or the associations operate these systems.

There are a total of 42 Level II systems in 13 municipalities in the province. The majority of these is utilizing spring sources (40 systems), while 2 systems use shallow well or surface water (details are referred to in Table 4.1.2, Supporting Report). The municipalities of San Isidro and Victoria have the largest number, with 6 systems each or 14% of the total as shown in Table 4.1.4 together with service coverage in 1998.

Most of the systems (20 systems out of the total 42 systems) which replied to the questionnaire regarding current water supply status supply water 24 hrs. a day but, had experienced minimal discharges as a result of the El Nino phenomenon.

Problem areas, both in managerial and technical aspects, identified on existing Level II systems and the necessary countermeasures for the improvement are discussed below.

(1) Management practice

About 20% of the waterworks impose a flat rate water charge ranging from 5 to 20 Pesos/HH/month, while the rest supplies water free of charge. Regarding repair works, they requested assistance to the MEO, PEO or DEO, as required. This fact shows that the current management practices will lead to any one of these systems to become non-operational sooner or later. This is because the financial savings to cope with future repair and depreciation of existing facilities are not duly considered under the current management practice. Meanwhile, cost recovery by the operating bodies is a prerequisite in sector management.

To attain financial and managerial sustainability, reinforcement of RWSA or other operating body shall be promoted with reference to institutional development.

Table 4.1.4 Information on Existing Level II System

Name of Municipality	Name of Operating Body	Service Coverage								
		No. of Brgys. Served			No. of Household Served			No. of Population Served		
		Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Capul	Brgy. 1-5	5		5	110		110	563		563
	Oson		1	1		30	30		156	156
	Sawang		1	1		50	50		260	260
	Municipal Total	5	2	7	110	80	190	563	416	979
Catubig	Brgy. Nagoocan		1	1		35	35		180	180
	Brgy. San Jose BWSA		1	1		55	55		283	283
	Brgy. San Vicente		1	1		25	25		129	129
	Municipal Total		3	3		115	115		592	592
Lapinig	Can Omanio		1	1		15	15		86	86
	Pio del Pilar		1	1		15	15		86	86
	Municipal Total		2	2		30	30		172	172
Las Navas	Dapdap WS		1	1		25	25		124	124
	Las Navas WS	2	2	4	75	50	125	373	249	622
	San Miguel WS		1	1		55	55		274	274
	Municipal Total	2	4	6	75	130	205	373	647	1,020
Lavezares	Bali Cuatro		1	1		20	20		100	100
	Libas		1	1		50	50		250	250
	Villa		1	1		80	80		400	400
	Municipal Total		3	3		150	150		750	750
Lope De Vega	Bonifacio BWSA		1	1		30	30		182	182
	Getigo		1	1		50	50		304	304
	Osmeña		1	1		60	60		365	365
	Poblacion	1		1	60		60	346		346
	Municipal Total	1	3	4	60	140	200	346	851	1,197
Pambujan	Ginulgan WS		1	1		25	25		142	142
	Igot WS		1	1		15	15		85	85
	Tula WS		1	1		25	25		142	142
	Ynaguingayan WS		1	1		20	20		114	114
	Municipal Total		4	4		85	85		483	483
San Antonio	Rizal WS		1	1		10	10		49	49
San Isidro	BAS Water Sys.		3	3		255	255		1,400	1,400
	Caglanipao		1	1		50	50		275	275
	Mabuhay		1	1		55	55		302	302
	Palanit		1	1		60	60		329	329
	San Juan		1	1		75	75		412	412
	Veriato		1	1		70	70		384	384
	Municipal Total		8	8		565	565		3,102	3,102
San Jose	Aguadahan		1	1		20	20		103	103
	Bonglas		1	1		15	15		78	78
	Municipal Total		2	2		35	35		181	181
San Roque	Corocong		1	1		15	15		91	91
	Malobago		1	1		15	15		91	91
	Zone 3	1		1	15		15	91		91
	Municipal Total	1	2	3	15	30	45	91	182	273
Silvino Lobos	Deit de Turag		1	1		20	20		120	120
	Poblacion 1-3	3		3	111		111	668		668
	Municipal Total	3	1	4	111	20	131	668	120	788
Victoria	Acedillo		1	1		30	30		146	146
	Buenos Aires		1	1		20	20		97	97
	Frenas		1	1		90	90		437	437
	Lungib		1	1		25	25		121	121
	Pasabuena		1	1		15	15		73	73
	Pob. 1, 2 and 3	3		3	150		150	729		729
	Municipal Total	3	5	8	150	180	330	729	874	1,603
Provincial Total		15	40	55	521	1,570	2,091	2,770	8,419	11,189

(2) Technical skill for O&M of facilities

Utilization of spring source usually leads to less attention to the daily O&M practice, owing to gravity flow of water to the service area. However, inappropriate care of spring box and pipeline results to various problems, e.g. turbid water, less water flow by clogging at spring box and pipeline, etc. Physical damage may also happen to the transmission line exposed on the ground in the mountainous area due to landslide, etc. associated with heavy rainfall, when proper protection of pipeline is not taken up.

Expansion of distribution line and installation of additional public faucets are usually undertaken without appropriate technical study on the capacities of water sources and distribution facilities, resulting to decrease of supply pressure and quantity.

To attain technical sustainability of existing facilities, an appropriate technical guidance and skills training for operating bodies shall be arranged by concerned agencies/LGUs.

It is also common that water quality examination is not adequately conducted.

4.1.5 Level I Facilities

Level I facilities (point source) are common in rural barangays, mostly privately owned. Major facilities are different types of wells equipped with hand-pumps or developed spring with transmission line and one communal faucet.

Level I facilities are classified in terms of safe and unsafe sources referring to the definition of DOH and the data from PHO as presented in Table 4.1.5 (details are referred to the Supporting Report). Served population in 1998 is also estimated as shown in the same table.

Of the 5,008 operational Level I facilities, 94% are shallow wells. From the study on safe/unsafe percentage for shallow well, as a provincial average, 40% of the shallow wells are estimated to be unsafe (details are referred to the Supporting Report 4.1.5). All deep wells, covered/improved dug wells and developed springs are regarded as safe water sources. By applying the unsafe percentage to the number of shallow wells for each municipality, 3,127 Level I facilities are classified as safe sources, while 1,881 facilities are unsafe sources.

Percentage shares between public and private Level I facilities for rural water supply is 44% and 56%, respectively. The share of developed springs in public facilities is 20% (details are referred to the Supporting Report).

Table 4.1.5 Information on Existing Level I Facilities

Name of Municipality	Number of Safe Water Sources					Number of Unsafe Water Sources					Served by Safe Source					
											Number of Household			Number of Population		
	Deep Well	Shallow Well	Covered/ Improved Dug Well	Developed Spring	Total	Shallow Well	Open Dug Well	Undeveloped Spring	Rain Water Collector	Total	Urban	Rural	Total	Urban	Rural	Total
Allen	2	200		5	207	134				134	996	1,142	2,138	5,012	5,538	10,550
Biri	2	98	1	12	113	65	3			68	277	682	959	1,598	3,974	5,572
Bobon		364			364	243				243	685	1,351	2,036	3,581	6,903	10,485
Capul	4	17		6	27	12				12	562	686	1,249	2,880	3,562	6,442
Catarman (Capital)	19	1,393		1	1,413	929				929	3,402	3,649	7,051	19,799	19,196	38,995
Catubig		3		24	27	2				2	438	1,675	2,113	2,306	8,590	10,896
Gamay	4	88		9	101	58				58	276	1,903	2,179	1,426	9,744	11,170
Laoang	38	49		4	91	32				32	1,488	5,326	6,813	8,137	27,694	35,830
Lapinig	3	21		5	29	14				14	387	677	1,064	2,326	3,891	6,217
Las Navas	2	2		11	15	1				1	520	1,314	1,834	2,770	6,425	9,195
Lavezares	12	67		24	103	44				44	425	2,329	2,754	2,231	11,530	13,761
Lope De Vega	1			10	11						108	268	375	621	1,627	2,248
Mapanas	2	20			22	13				13	224	697	920	1,208	3,929	5,138
Mondragon	17	26		3	46	18				18	646	3,097	3,743	3,470	16,105	19,575
Palapag	1	60		8	69	40				40	689	1,990	2,679	3,344	10,187	13,531
Pambujan	12	39		5	56	26				26	1,031	1,391	2,422	5,999	7,818	13,818
Rosario	1	7		3	11	4				4	361	881	1,242	2,399	4,985	7,383
San Antonio	12	21		3	36	14				14	107	1,090	1,197	536	5,308	5,845
San Isidro	5	13		4	22	9				9	215	2,438	2,653	1,145	13,384	14,529
San Jose		102			102	68				68	360	1,113	1,473	1,918	5,757	7,674
San Roque	6	196		1	203	130				130	879	1,213	2,092	5,501	7,158	12,659
San Vicente	4	8		1	13	6				6	206	795	1,001	973	3,680	4,653
Silvino Lobos		2		6	8	2				2	78	457	534	502	2,701	3,202
Victoria	7	22		9	38	14				14	275	1,129	1,404	1,337	5,478	6,814
Provincial Total	154	2,818	1	154	3,127	1,878	3			1,881	14,635	37,292	51,927	81,018	195,163	276,181

Problem areas observed on Level I facilities and the necessary countermeasures for the improvement are summarized in terms of potability and functionality.

(1) Unsafe water sources

Most of the sources declared as unsafe are driven shallow wells which are unprotected against seepage of surface water and are usually located in nearby potential pollution sources, such as septic tank and piggery. (The Code on Sanitation requires a minimum distance of 25m between water source and pollution sources.)

These shallow wells shall be provided with concrete apron on the ground surface and proper drainage facility at the surrounding area. Relocation of wells or pollution sources may be another countermeasure. For new construction of shallow wells, proper site selection and appropriate construction method shall be applied together with periodic monitoring of water quality.

(2) Non-functioning/abandoned wells

There are several non-functioning public wells in the province as shown in Table 4.1.6.

Most of the beneficiaries are not aware of the manner for O&M of the facilities. A considerable number of public wells are abandoned/non-functional due to lack of O&M, dried-up of wells and other reasons. In most cases, the operating bodies for the facilities are not organized or non-functioning. Unauthorized private tapping to transmission line (spring water source) are also found at some Level I facilities, which caused insufficient water supply/water pressure.

The beneficiaries still rely on LGUs even for a simple replacement of parts (such as gasket). As for existing public Level-I, the barangay council takes care of the O&M using the IRA allotted to barangay. In cases where major repair is required (replacement of hand pump unit/major parts), the barangay council submits a barangay resolution of request for the repair to the municipal government. The municipal government assists them in case financial sources are secured. The beneficiaries contribute free labor.

Considering the current situation of the beneficiaries, the LGUs shall lead them to recognize the need for formation of association and participation for sound O&M of the facilities. Information dissemination to beneficiaries is therefore a requisite.

Table 4.1.6 Operating Status of Existing Wells in the Province

Operating Status	Unit	Public Facility		Private Facility		Total
		Deep Well	Shallow Well	Deep Well	Shallow Well	
Functioning	No.	146	725	8	3,971	4,850
	Percent	32%	85%	100%	97%	90%
Non-Functioning	No.	306	132		112	550
	Percent	68%	15%		3%	10%
Total Number		452	857	8	4,083	5,400

Note: Number of non-functioning wells includes abandoned wells, but details in number and reasons are not available.

Among others, deep wells usually necessitate repair/replacement of mechanical parts and redevelopment of the well itself. Apart from the same problems as deep wells, shallow wells have primary disadvantages such as the use of shallow aquifer which is easily affected by surrounding environmental conditions, and the simple construction method applied (driving well point) that makes rehabilitation works difficult.

To prolong the service life of public deep wells, periodic check-up entailing preventive maintenance and redevelopment of wells are to be performed. Meanwhile, proper site selection and protection of well sources are requisites for shallow wells.

4.1.6 Water Supply Service Coverage

According to the definition of DOH in terms of safe and unsafe sources, service coverage was studied under "served", "underserved" and "unserved" categories.

The present population of the municipalities as of 1998, base year for planning purpose, was estimated referring to the NSO population census results (1903 to 1995, conducted 10 times) and the 1995 Census-based National and Regional Population projection prepared by NSO. In addition, the population distribution in 1995 census by urban and rural barangay prepared by the NSO was adjusted to meet actual conditions in the classification of barangays. Details are referred to Section 8.3.1 Population Projection.

Water supply service coverage by service level is estimated for urban and rural areas covering all municipalities under the following conditions and assumptions:

- Service percentage/population by Level III and Level II systems was estimated based on the questionnaire survey results.
- Unserved population was estimated using the percentages of unserved households to the total number of households by urban and rural area based on questionnaire survey results

and the 1990 population census data; "Households by Main Source of Drinking Water and City/Municipality".

- The rest of the population was considered served by Level I facilities assuming that 50% of the private facilities were shared by neighbors to supplement insufficiency of public facilities.

The average number of households sharing at each Level I public/private facility was calculated to be 23 households/facility under the above assumptions (details are referred to the Supporting Report).

Table 4.1.7 presents the profile of the service coverage in terms of served, underserved and unserved. As a provincial total, 61% of the population is adequately served (65% of urban population and 60% of rural population). The percentage of underserved population is estimated at 21% of the total population (24% of urban population and 20% of rural population) who are depending on unsafe sources/facilities. The provincial service coverage at present is exhibited in Figure 4.1.1 (details are referred to Supporting Report).

Among different service levels, Level I water supply facilities have predominant service coverage in all municipalities of the province. Percentage shares of population coverage by Level I public and private facilities in rural water supply are estimated at 98% and 2%, respectively (details are referred to the Supporting Report).

Level III systems in the province do not take a major part of the service coverage in urban water supply in any municipalities.

Likewise, Level II systems are in operation in limited municipalities. Presently, piped systems (Level II and III system) are not fully developed in the entire province (2% for Level II and 1% for Level III systems).

Taking into account the municipal service coverage of the 24 municipalities of the province, 13 are above the average provincial service coverage of 61% in terms of served population. The highest coverage is seen in Rosario at 80%, followed by San Isidro (77%), San Vicente (77%), Capul (73%), Laoang (73%), Mondragon (73%) and Victoria (70%). In contrast to the above, 10 municipalities are below the provincial average. The lowest is Lope De Vega at 27%, followed by Victoria (34%), Las Navas (39%) and Catubig (44%). The low coverage of these municipalities is due to a large number of unserved population.

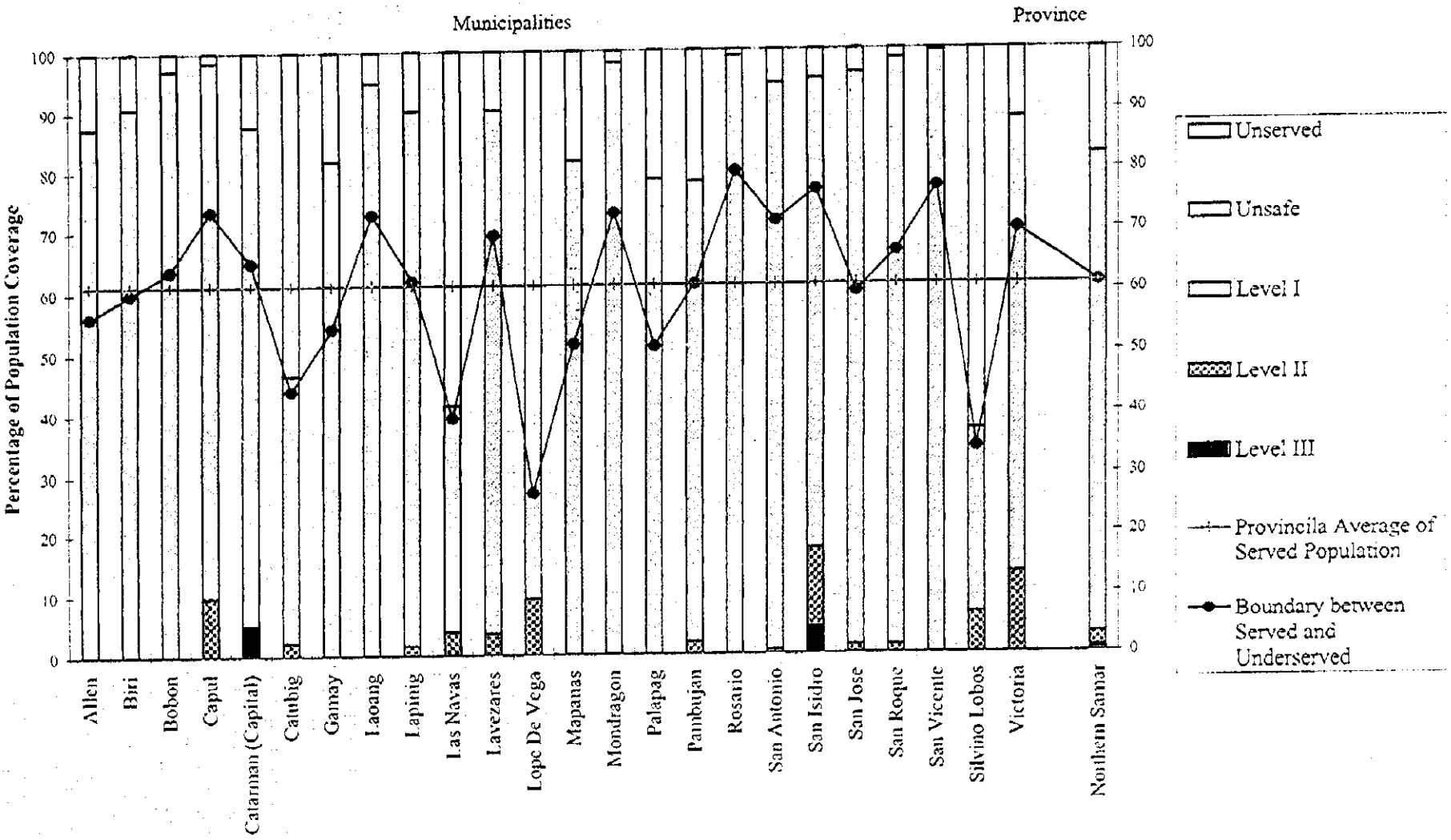
Table 4.1.7 Water Supply Service Coverage by Municipality

Name of Municipality	Area	Population (1998)	Population Coverage							Percentage of Population Coverage						
			Served by Safe Source				Underserved/Unserved			Served by Safe Source				Underseved/Unserved		
			Level III	Level II	Level I	Total	Unsafe Source	Unserved	Total	Level III	Level II	Level I	Total	Unsafe Source	Unserved	Total
Allen	Urban	8,476			5,012	5,012	3,017	447	3,464			59	59	36	5	41
	Rural	10,336			5,538	5,538	2,866	1,932	4,798			54	54	28	19	46
	Total	18,812			10,550	10,550	5,883	2,379	8,262			56	56	31	13	44
Biri	Urban	2,596			1,598	1,598	866	133	998			62	62	33	5	38
	Rural	6,728			3,974	3,974	2,029	725	2,754			59	59	30	11	41
	Total	9,324			5,572	5,572	2,894	858	3,752			60	60	31	9	40
Bobon	Urban	5,041			3,581	3,581	1,373	87	1,460			71	71	27	2	29
	Rural	11,451			6,903	6,903	4,168	380	4,548			60	60	36	3	40
	Total	16,492			10,485	10,485	5,541	467	6,007			64	64	34	3	36
Capul	Urban	4,286		563	2,880	3,443	817	26	843		13	67	80	19	1	20
	Rural	5,827		416	3,562	3,978	1,724	126	1,849		7	61	68	30	2	32
	Total	10,113		979	6,442	7,421	2,540	152	2,692		10	64	73	25	2	27
Catarman (Capital)	Urban	31,015	2,567	192	19,799	22,558	7,059	1,398	8,457	8	1	64	73	23	5	27
	Rural	34,205	532		19,196	19,728	7,791	6,686	14,477	2		56	58	23	20	42
	Total	65,220	3,099	192	38,995	42,286	14,849	8,085	22,934	5	0	60	65	23	12	35
Catubig	Urban	4,649			2,306	2,306		2,343	2,343			50	50		50	50
	Rural	21,566		592	8,590	9,182	716	11,668	12,384		3	40	43	3	54	57
	Total	26,215		592	10,896	11,488	716	14,011	14,727		2	42	44	3	53	56
Gamay	Urban	2,753			1,426	1,426	715	612	1,327			52	52	26	22	48
	Rural	17,913			9,744	9,744	5,026	3,143	8,169			54	54	28	18	46
	Total	20,666			11,170	11,170	5,741	3,755	9,496			54	54	28	18	46
Laoang	Urban	11,104			8,137	8,137	2,557	410	2,967			73	73	23	4	27
	Rural	38,098			27,694	27,694	8,372	2,033	10,404			73	73	22	5	27
	Total	49,202			35,830	35,830	10,928	2,443	13,372			73	73	22	5	27
Lapinig	Urban	3,701			2,326	2,326	1,194	181	1,375			63	63	32	5	37
	Rural	6,629		172	3,891	4,063	1,736	831	2,566		3	59	61	26	13	39
	Total	10,330		172	6,217	6,389	2,929	1,012	3,941		2	60	62	28	10	38
Las Navas	Urban	6,254		373	2,770	3,143		3,111	3,111		6	44	50		50	50
	Rural	19,763		647	6,425	7,072	559	12,132	12,691		3	33	36	3	61	64
	Total	26,017		1,020	9,195	10,215	559	15,244	15,802		4	35	39	2	59	61
Lavezares	Urban	3,433			2,231	2,231	850	352	1,202			65	65	25	10	35
	Rural	17,528		750	11,530	12,280	3,559	1,689	5,248		4	66	70	20	10	30
	Total	20,961		750	13,761	14,511	4,409	2,040	6,450		4	66	69	21	10	31
Lope De Vega	Urban	2,514		346	621	967		1,547	1,547		14	25	38		62	62
	Rural	10,314		851	1,627	2,478		7,836	7,836		8	16	24		76	76
	Total	12,828		1,197	2,248	3,445		9,383	9,383		9	18	27		73	73
Mapanas	Urban	2,161			1,208	1,208	634	319	953			56	56	29	15	44
	Rural	7,813			3,929	3,929	2,369	1,514	3,884			50	50	30	19	50
	Total	9,974			5,138	5,138	3,003	1,834	4,836			52	52	30	18	48

Table 4.1.7 Water Supply Service Coverage by Municipality

Name of Municipality	Area	Population (1998)	Population Coverage							Percentage of Population Coverage						
			Served by Safe Source				Underserved/Unserved			Served by Safe Source				Underseved/Unserved		
			Level III	Level II	Level I	Total	Unsafe Source	Unserved	Total	Level III	Level II	Level I	Total	Unsafe Source	Unserved	Total
Mondragon	Urban	5,491			3,470	3,470	1,927	95	2,021			63	63	35	2	37
	Rural	21,357			16,105	16,105	4,824	428	5,252			75	75	23	2	25
	Total	26,848			19,575	19,575	6,751	523	7,273			73	73	25	2	27
Palapag	Urban	6,243			3,344	3,344	2,000	899	2,899			54	54	32	14	46
	Rural	20,286			10,187	10,187	5,329	4,770	10,099			50	50	26	24	50
	Total	26,529			13,531	13,531	7,329	5,669	12,998			51	51	28	21	49
Pambujan	Urban	9,970			5,999	5,999	3,054	917	3,971			60	60	31	9	40
	Rural	13,414		483	7,818	8,301	922	4,191	5,113		4	58	62	7	31	38
	Total	23,384		483	13,818	14,301	3,976	5,107	9,083		2	59	61	17	22	39
Rosario	Urban	2,412			2,399	2,399		13	13			99	99		1	1
	Rural	6,845			4,985	4,985	1,785	75	1,860			73	73	26	1	27
	Total	9,257			7,383	7,383	1,785	88	1,874			80	80	19	1	20
San Antonio	Urban	839			536	536	228	75	303			64	64	27	9	36
	Rural	7,413		49	5,308	5,357	1,687	369	2,056		1	72	72	23	5	28
	Total	8,252		49	5,845	5,894	1,915	444	2,358		1	71	71	23	5	29
San Isidro	Urban	2,834	908	82	1,145	2,135	509	190	699	32	3	40	75	18	7	25
	Rural	21,675	164	3,102	13,384	16,650	4,046	980	5,025	1	14	62	77	19	5	23
	Total	24,509	1,072	3,184	14,529	18,785	4,554	1,170	5,724	4	13	59	77	19	5	23
San Jose	Urban	3,088			1,918	1,918	1,089	81	1,170			62	62	35	3	38
	Rural	10,052		181	5,757	5,938	3,694	420	4,114		2	57	59	37	4	41
	Total	13,140		181	7,674	7,855	4,783	502	5,285		1	58	60	36	4	40
San Roque	Urban	8,378		91	5,501	5,592	2,733	53	2,786		1	66	67	33	1	33
	Rural	11,103		182	7,158	7,340	3,523	240	3,763		2	64	66	32	2	34
	Total	19,481		273	12,659	12,932	6,256	292	6,549		1	65	66	32	2	34
San Vicente	Urban	1,610			973	973	632	5	637			60	60	39	0	40
	Rural	4,423			3,680	3,680	724	19	743			83	83	16	0	17
	Total	6,033			4,653	4,653	1,356	24	1,380			77	77	22	0	23
Silvino Lobos	Urban	2,615		668	502	1,170		1,445	1,445		26	19	45		55	55
	Rural	9,053		120	2,701	2,821	340	5,893	6,232		1	30	31	4	65	69
	Total	11,668		788	3,202	3,990	340	7,338	7,678		7	27	34	3	63	66
Victoria	Urban	2,700		729	1,337	2,066	420	214	634		27	50	77	16	8	23
	Rural	9,327		874	5,478	6,352	1,811	1,165	2,975		9	59	68	19	12	32
	Total	12,027		1,603	6,814	8,417	2,231	1,379	3,610		13	57	70	19	11	30
Provincial Total	Urban	134,163	3,475	3,044	81,018	87,537	31,672	14,953	46,626	3	2	60	65	24	11	35
	Rural	343,119	696	8,419	195,163	204,278	69,598	69,243	138,841	0	2	57	60	20	20	40
	Total	477,282	4,171	11,463	276,181	291,815	101,270	84,197	185,467	1	2	58	61	21	18	39

Figure 4.1.1 Water Supply Coverage of the Province



4.2 Sanitation and Sewerage

4.2.1 General

The national strategy for sanitation and sewerage is demand-oriented. It aims to stimulate sustainable improvements in sanitation service coverage, public health, and environmental pollution abatement. To achieve this goal, the Government has made investment choices based on demand and the extent to which choices contribute to efficiency and cost-effectiveness.

This sub-sector focuses on household toilets, school toilets and public toilets (public markets, bus/jeepney terminals and parks/playgrounds). The latest data from the PHO on household and public toilets as well as from DECS on school toilets were gathered by municipality. For household toilets, data were compiled by urban and rural area. These facilities were classified into sanitary and unsanitary in terms of structure rather than the surrounding conditions.

The Code on Sanitation of the Philippines provides the minimum standards for services dealing with public health. Specifically, Chapter XVII on Sewage Collection and Disposal, Excreta Disposal and Drainage (Implementing Rules and Regulations, 1995) defines alternatives for on-site sanitation and sewage collection and disposal. At present, the development of sewerage systems, even in the urban centers of the province is not given priority because of the huge investment cost it entails.

In the NEDA Board Resolution No. 12 (series of 1995), definitions of approved types of sanitary toilets were outlined (refer to 4.1.2, Data Report). There were 4 approved types of sanitary toilets including the sanitary pit privy where water is not used but provided with cover to minimize the emission of foul odor and also to keep away flies and rodents. These definitions were applied in this Master Plan.

4.2.2 Types of Facilities and Definition of Service Level Standard

As set forth in the above-mentioned Resolution, the types of household toilet facilities commonly used are categorized into: 1) sanitary toilets - approved types of toilet facilities include water-sealed pour flush or flush-type toilets either with receiving pit or septic tanks/vaults, and ventilated improved pit latrines and sanitary pit privy (dry type) considering its low construction cost especially in rural areas and in areas where water is scarce; and 2) unsanitary facilities - include the types of facilities used for receiving and disposing human waste which do not fall under the category of approved types of toilet facilities such as open pit privy and

over-hung latrines (refer to Figure 4.2.1 DOH standard structure of a household toilet that meets the minimum requirements of a sanitary facility, Supporting Report).

In terms of service level, households are classified into: 1) served households - households with at least one (1) sanitary toilet; 2) underserved households - households with unsanitary toilets; and 3) unserved households - households without toilet. Coverage of adequately served households (with sanitary toilets) was estimated by urban and rural area of municipalities. The remaining households were considered as underserved or unserved. The service coverage was determined using the estimated number of households in 1998.

Service level standard for both elementary and secondary school toilets is translated in terms of: 1) served students - students who are adequately covered by the DECS standard ratio of one (1) unit per 40 students with access to sanitary toilets (number of sanitary toilet units multiplied by 40); and (2) underserved or unserved students - those with unsanitary and without toilet facilities, and students unserved (based on the standard ratio) even though they have access to sanitary toilets. Service coverage of adequately served students was estimated both for public and private schools by municipality. Figure 4.2.2, Supporting Report shows a standard structure of a school toilet facility adopted by the DOH through the JICA-DPWH and DOH Rural Environmental Sanitation Project.

For public toilets, the service level is classified into: 1) served - utilities that have at least one (1) sanitary toilet, and 2) underserved or unserved - utilities that have unsanitary or without toilet facilities. Service coverage of public utilities was estimated as a percentage of sanitary facilities to the total number of utilities. Figure 4.2.3, Supporting Report shows a standard structure of a public toilet facility adopted by the DOH.

4.2.3 Sanitation Facilities and Service Coverage

(1) Household Toilets

The service coverage of sanitary toilets in the province is 59% of the total number of households. The rest is underserved or unserved. Data for the underserved and unserved is combined in the inventory, hence no information is available for households without toilet facility (refer to 4.2.1, Supporting Report and 4.2.3, Sanitation Facilities and Service Coverage, Data Report).

Municipalities that have higher or equal service coverage from the provincial average of 59% are Catubig (86%), Lavezares (77%), San Roque (75%), Laoang (74%), Palapag

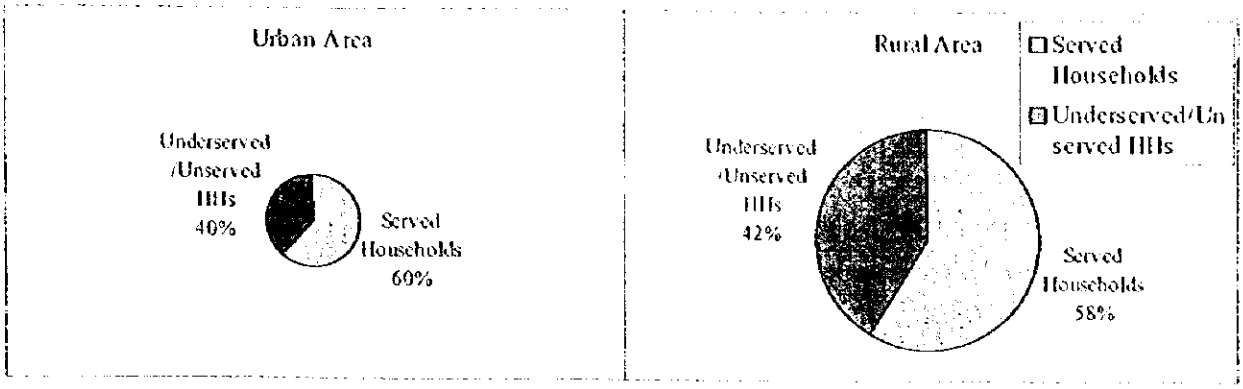
(70%), Catarman (63%), Las Navas (62%), San Antonio and San Jose (60%), and Allen (59%). On the other hand, the first 5 municipalities that registered the lowest service coverage are Biri (28%), Silvino Lobos (32%), Victoria (35%), Lapinig and San Vicente (39%). It was observed that in municipalities that have high water supply service coverage (Laoang, San Antonio), high sanitation coverage occurs and correspondingly, in low water supply service coverage (Victoria, Silvino Lobos), low sanitation coverage occurs. This can be attributed by the fact that the development of water supply almost always follows the upgrading of the household sanitation facilities because of access to water.

In urban areas, about 60% of the total households are served. A lower served household of 58% exists in rural area. Table 4.2.1 shows the municipal breakdown in the number of urban and rural household toilets by category, and service coverage. Figure 4.2.1 reflects the provincial service coverage of household toilet facilities for urban and rural areas.

Table 4.2.1 Sanitation Facilities and Service Coverage of Household Toilets, Urban and Rural, 1998

Municipality	No. of Households, 1998			Household Toilet Facilities and Service Coverage											
				Urban				Rural				Municipal Total			
	Urban	Rural	Total	HHs Served by Sanitary Toilets		Underserved/ Unserved HHs		HHs Served by Sanitary Toilets		Underserved/ Unserved HHs		HHs Served by Sanitary Toilets		Underserved/ Unserved HHs	
				Number	% of HHs	Number	% of HHs	Number	% of HHs	Number	% of HHs	Number	% of HHs	Number	% of HHs
Allen	1,685	2,131	3,816	996	59	689	41	1,264	59	867	41	2,260	59	1,556	41
Biri	450	1,354	1,604	131	29	319	71	320	28	834	72	451	28	1,153	72
Bobon	964	2,241	3,205	424	44	540	56	1,315	59	926	41	1,739	54	1,466	46
Capul	837	1,123	1,960	418	50	419	50	548	49	575	51	966	49	993	51
Catarman	5,329	6,503	11,832	3,386	64	1,943	36	4,049	62	2,454	38	7,435	63	4,397	37
Catubig	884	4,204	5,088	796	90	88	10	3,573	85	631	15	4,369	86	719	14
Gamay	534	3,499	4,033	253	47	281	53	1,533	44	1,966	56	1,786	44	2,247	56
Laoang	2,030	7,327	9,357	1,591	78	439	22	5,353	73	1,974	27	6,944	74	2,413	26
Lapinig	616	1,153	1,769	262	43	354	57	430	37	723	63	692	39	1,077	61
Las Navas	1,173	4,042	5,215	658	56	515	44	2,588	64	1,454	36	3,246	62	1,969	38
Lavezares	654	3,541	4,195	527	81	127	19	2,702	76	839	24	3,229	77	966	23
Lope De Vega	436	1,696	2,132	209	48	227	52	816	48	880	52	1,025	48	1,107	52
Mapanas	400	1,385	1,785	183	46	217	54	675	49	710	51	858	48	927	52
Mondragon	1,023	4,107	5,130	486	48	537	52	2,010	49	2,097	51	2,496	49	2,634	51
Palapag	1,287	3,962	5,249	930	72	357	28	2,765	70	1,197	30	3,695	70	1,554	30
Pambujan	1,713	2,387	4,100	762	44	951	56	955	40	1,432	60	1,717	42	2,383	58
Rosario	363	1,209	1,572	221	61	142	39	655	54	554	46	876	56	696	44
San Antonio	168	1,522	1,690	107	64	61	36	914	60	608	40	1,021	60	669	40
San Isidro	532	3,948	4,480	263	49	269	51	1,859	47	2,089	53	2,122	47	2,358	53
San Jose	579	1,944	2,523	367	63	212	37	1,148	59	796	41	1,515	60	1,008	40
San Roque	1,338	1,882	3,220	971	73	367	27	1,456	77	426	23	2,427	75	793	25
San Vicente	341	955	1,296	136	40	205	60	367	38	588	62	503	39	793	61
Silvino Lobos	404	1,532	1,936	372	92	32	8	252	16	1,280	84	624	32	1,312	68
Victoria	556	1,923	2,479	228	41	328	59	649	34	1,274	66	877	35	1,602	65
Provincial Total	24,296	65,370	89,666	14,677	60	9,619	40	38,196	58	27,174	42	52,873	59	36,793	41

Figure 4.2.1 Provincial Service Coverage of Household Toilet Facilities, 1998



Even if high percentages of sanitary toilets are revealed in urban areas, problems arise from the unsatisfactory disposal of the effluent from the septic tanks or the direct discharge of wastewater to the local drains. Generally, there is little concern about the unsatisfactory disposal of wastes once it is outside their dwelling units. Practically, almost all the households dispose their wastes in the manner that poses risks to public health. Sullage waste management is unheard of.

(2) School and Public Toilets

Toilet facilities in elementary and secondary schools for both public and private schools were investigated. The province has a total of 985 toilet units found in 534 schools. Sanitary toilets adequately serve 34% of the students. The rest, 66% is underserved or unserved. Meanwhile, sanitary toilets adequately serve 34% of the public school students. Table 4.2.2 provides the number and service coverage of school toilet facilities.

The number of sanitary school toilets is low to meet the service level standard of 40 students per sanitary facility. At present, the average ratio is about 115 students per sanitary toilet, very much below the standard level. A number of school toilets are not being used due to lack of water supply, destroyed plumbing fixtures and water tank seepage. Proper operation and maintenance are not usually done. In some areas, this problem is compounded when access to the sanitary facility is limited to only the teachers and guests.

DECS is currently promoting the practice of having one toilet within the classroom. This practice should be thoroughly reviewed with respect to maintaining sanitary condition, provision of water faucet/supply in every toilet/unit, proper design of depository to avoid groundwater pollution, and provision of regular sludge collection and disposal.

There are 21 public toilets found in public markets, bus/jeepney terminals and parks/playgrounds in the province. About 86% of these public toilets is sanitary, while the remaining 14% or 3 public toilets are considered unsanitary. Table 4.2.3 shows the number and service coverage of public utilities.

Public toilets at markets, bus/jeepney terminals and parks/playgrounds, although culturally acceptable, are improperly used and maintained resulting to unsanitary conditions. In most cases, no specific arrangements are made for the operation and maintenance and for the collection of fees to cover such costs. Although considered as sanitary because of the structure, most of the facilities have unsanitary conditions due to inadequate/lack of water supply and destroyed appurtenances because of vandalism.

Table 4.2.2 School Toilet Service Coverage by Municipality

Municipality		Number of School	Total No. of Student	Number of Toilet		Service Coverage			
				Sanitary	Unsanitary	Served	%	Unserved	%
Allen	Public	14	3,928	14		560	14	3,369	86
	Private	3	530	7		280	53	250	47
	Total	17	4,458	21		840	19	3,618	81
Biri	Public	13	2,252	17		680	30	1,572	70
	Private								
	Total	13	2,252	17		680	30	1,572	70
Bobon	Public	17	4,228	46		1,840	44	2,388	56
	Private	1	92	2		80	87	12	13
	Total	18	4,320	48		1,920	44	2,400	56
Capul	Public	11	2,870	31		1,240	43	1,630	57
	Private								
	Total	11	2,870	31		1,240	43	1,630	57
Catarman (Capital)	Public	47	13,884	54		2,160	16	11,724	84
	Private	4	1,207	8		320	27	887	73
	Total	51	15,091	62		2,480	16	12,611	84
Catubig	Public	41	5,693	66		2,640	46	3,053	54
	Private								
	Total	41	5,693	66		2,640	46	3,053	54
Gamay	Public	22	6,230	78		3,120	50	3,110	50
	Private								
	Total	22	6,230	78		3,120	50	3,110	50
Laoang	Public	60	9,837	90		3,600	37	6,237	63
	Private	1	480	4		160	33	320	67
	Total	61	10,317	94		3,760	36	6,557	64
Lapinig	Public	14	2,874	10		400	14	2,474	86
	Private								
	Total	14	2,874	10		400	14	2,474	86
Las Navas	Public	53	5,502	36		1,440	26	4,062	74
	Private								
	Total	53	5,502	36		1,440	26	4,062	74
Lavezares	Public	24	5,404	35		1,400	26	4,004	74
	Private	2	253	4		160	63	93	37
	Total	26	5,657	39		1,560	28	4,097	72
Lope De Vega	Public	25	2,227	27		1,080	48	1,147	52
	Private								
	Total	25	2,227	27		1,080	48	1,147	52
Mapanas	Public	10	2,548	13	9	520	20	2,028	80
	Private								
	Total	10	2,548	13	9	520	20	2,028	80
Mondragon	Public	25	4,528	30		1,200	27	3,328	78
	Private	1	105	2		80	76	25	24
	Total	26	4,633	32		1,280	28	3,353	72

Table 4.2.2 School Toilet Service Coverage by Municipality

(contd)

Municipality		Number of School	Total No. of Student	Number of Toilet		Service Coverage			
				Sanitary	Unsanitary	Served	%	Unserved	%
Palapag	Public	29	6,873	24		960	14	5,913	86
	Private								
	Total	29	6,873	24		960	14	5,913	86
Pambujan	Public	19	6,243	54		2,160	35	4,083	65
	Private								
	Total	19	6,243	54		2,160	35	4,083	65
Rosario	Public	11	2,391	71		2,391	100		
	Private								
	Total	11	2,391	71		2,391	100		
San Antonio	Public	9	2,200	20		800	36	1,400	64
	Private								
	Total	9	2,200	20		800	36	1,400	64
San Isidro	Public	15	5,635	70		2,800	50	2,835	50
	Private								
	Total	15	5,635	70		2,800	50	2,835	50
San Jose	Public	12	3,132	46	5	1,840	59	1,292	41
	Private	1	196	6		196	100		
	Total	13	3,328	52	5	2,036	61	1,292	39
San Roque	Public	12	3,652	37		1,480	41	2,172	59
	Private								
	Total	12	3,652	37		1,480	41	2,172	59
San Vicente	Public	5	1,450	34		1,360	94	90	6
	Private								
	Total	5	1,450	34		1,360	94	90	6
Silvino Lobos	Public	17	1,647	17		680	41	967	59
	Private								
	Total	17	1,647	17		680	41	967	59
Victoria	Public	16	3,337	18		720	22	2,617	78
	Private								
	Total	16	3,337	18		720	22	2,617	78
Provincial Total	Public	521	108,565	938	14	37,071	34	71,494	66
	Private	13	2,863	33		1,276	45	1,587	55
	Total	534	111,428	971	14	38,347	34	73,081	66

Table 4.2.3 Public Toilet Facilities and Service Coverage in 1998

Municipality	Number of Sanitary Toilet			Number of Unsanitary Toilet			Total Number of PU Toilet	Served		Underserved	
	Public Market	Bus/Jeepney Terminal	Parks/ Playground	Public Market	Bus/Jeepney Terminal	Park/ Play-ground		Number of Sanitary Toilet	%	Number of Unsanitary Toilet	%
Allen											
Biri	1						1	1	100		
Bobon											
Capul			1				1	1	100		
Catarman (Capital)											
Catubig	1		2				3	3	100		
Gamay	1		2				3	3	100		
Laoang											
Lapinig				2			2			2	100
Las Navas				1			1			1	100
Lavezares	1		1				2	2	100		
Lope De Vega	1						1	1	100		
Mapanas											
Mondragon											
Palapag			1				1	1	100		
Pambujan	1		2				3	3	100		
Rosario											
San Antonio											
San Isidro											
San Jose			1				1	1	100		
San Roque											
San Vicente											
Silvino Lobos			1				1	1	100		
Victoria	1						1	1	100		
Provincial Total	7		11	3			21	18	86	3	14

4.2.4 Sewerage Facilities

There are no existing sewerage facilities in the province. Most of the wastewater from the dwelling units with acceptable facilities finds its way to open drains and eventually to water-courses. These deficiencies are the major contributing factors to the poor condition of the water environment in some areas of the province.

Chapter 5

EXISTING SECTOR ARRANGEMENT AND INSTITUTIONAL CAPACITY

5 EXISTING SECTOR ARRANGEMENT AND INSTITUTIONAL CAPACITY

5.1 General

Much has happened in the sector since 1987 when the national master plan for the sector was initially prepared. Its development targets to be attained for the medium term was renewed in 1996 through the Updated Medium Term Development Plan. The water supply, sewerage and sanitation sector today is still in a transition stage. As a recent development, a national level comprehensive plan, "The Philippine National Development Plan: Directions to the 21st Century," was published in 1998 by the NEDA.

As for the institutional aspect, the Local Government Code (1991) has essentially re-defined the role, relationship and linkages of central, provincial, municipal and barangay institutions in the provision of social basic services, including water and sanitation. Before the issuance of the Code, the responsibilities for water supply and sanitation functions were lodged with various national agencies. The new direction mandates the Local Government Units (LGUs) to play a larger role in planning and implementing water supply and sanitation projects; however this has raised serious institutional capacity and resource reallocation issues.

Chapter Five provides an overview of existing sector policies and arrangements as a basis for formulating modifications and improvements. It identifies current capacity building issues that need to be addressed in the early stages of master plan implementation. More importantly, it assesses the impact of the present devolved delivery system at the local levels.

5.2 Sector Reforms

The GOP has set the future agenda for sector reform. These initiatives followed the completion of the Water Supply Sector Reform Study and the National Urban Sewerage and Sanitation Strategy Study. The GOP has endorsed the major recommendations of these studies through the following NEDA resolutions. Further, these resolutions are reflected in the above mentioned National Development Plan.

(1) NEDA Resolution No. 4 (series of 1994)

In the context of the LGC and related decentralization efforts, LGUs now play a lead role in basic service delivery. NEDA Resolution No. 4 allows LGUs to implement all levels of water supply projects and redefines the roles of other sector agencies.

With the purpose of ensuring common interpretation of clause (g) of NEDA Board Resolution No. 4 (series of 1994), the Implementing Rules and Regulations or IRR was prepared by the DILG and was approved by the NEDA in 1998. It delineates the responsibilities of government agencies involved in the sector and defines the role of LGUs in the provision of water supply and sanitation services, including O&M of the facilities. The new direction mandates the LGUs to play a larger role with an emphasis on institutional strengthening which is needed to adequately perform their devolved functions.

(2) NEDA Resolution No.5 (series of 1994)

This resolution reaffirms the provision of urban sewerage and sanitation services. It designates LGUs as primary implementors of the sanitation/sewerage programs, also mandates the establishment of a Central Project Support Office (CPSO) at LWUA to assist LGUs in the formulation, preparation and implementation of sewerage/sanitation projects.

(3) NEDA Resolution No.6 (series of 1996)

Providing national government assistance to LGUs in the implementation of devolved infrastructure activities/facilities under the LGC in support of national priority programs in order to ensure efficiency, effectivity and more focused implementation. It affirms DILG's responsibilities for overseeing and administrating the NG assistance to LGUs in the implementation of devolved infrastructure programs/projects, and institutional, capacity and capability building of the LGUs (refer to 5.2, Data Report for the full text of NEDA Resolution No.4, 5 and 6).

5.3 Sector Institutions

(1) Existing Institutional Arrangements

Although the LGC mandates major changes on sector structure and performance within LGUs, the sector is still in transition. The new sector role and respective responsibilities of the LGUs and national agencies are defined in the IRR.

At the national government level, there are three line agencies (DILG, DPWH, and DOH) and two government-owned and controlled corporations (MWSS and LWUA) which are responsible for sector project implementation (refer to Figure 5.3.1). A regulatory board, the National Water Resource Board (NWRB) coordinates the overall policy framework for water resources development and management. In addition, there are other government agencies involved but these are mainly concerned with macro planning, natural resources allocation decisions and environmental protection and management.

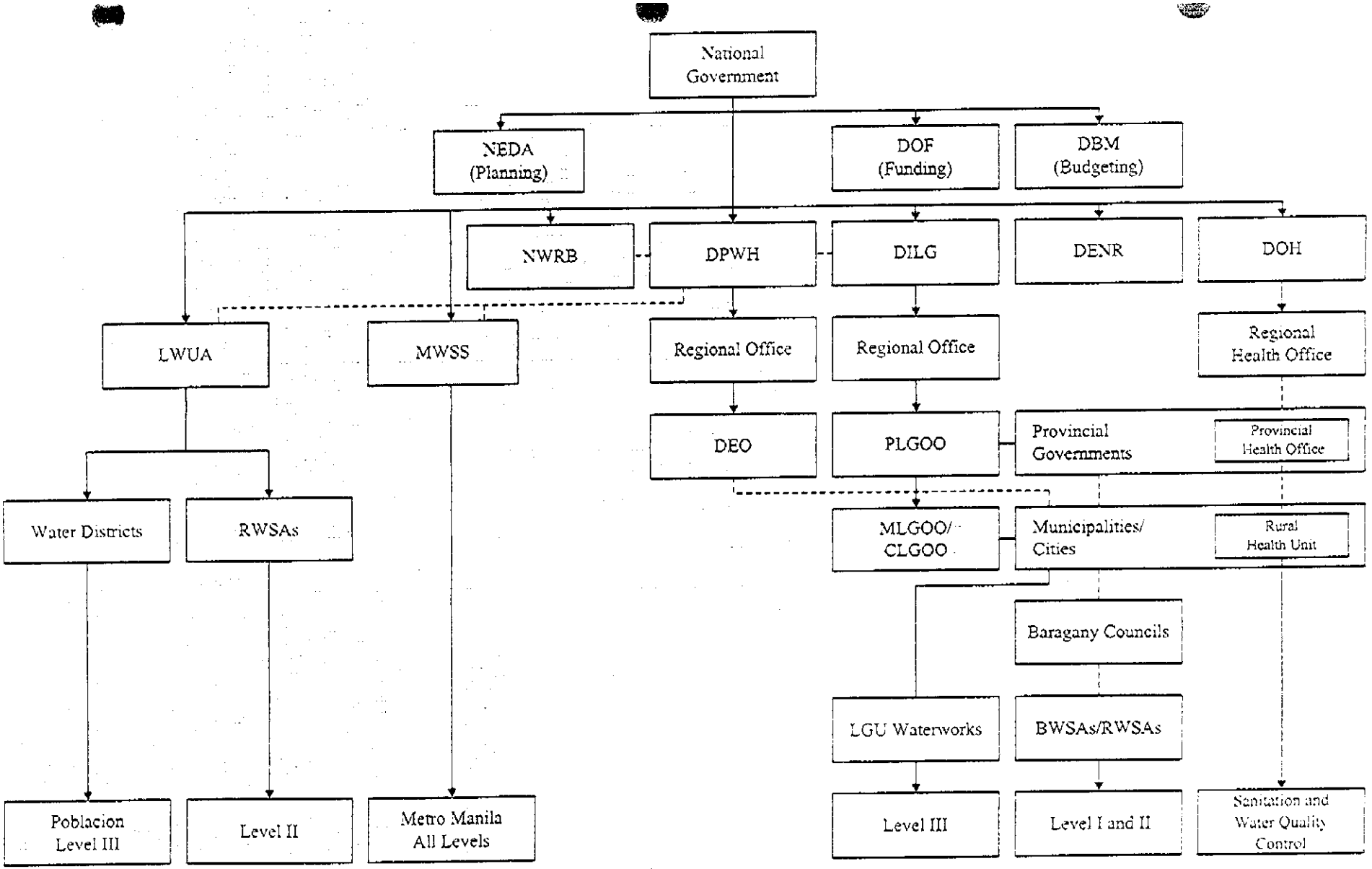


Figure 5.3.1 Functional Relationships

At the local level, field offices of national government agencies are present to guide and assist LGUs. The water districts and the BWSAs deal with the actual delivery of water in different service levels. Also, some LGUs operate provincial and municipal water supply systems by themselves. The private sector, non-government organizations and community-based organizations also undertake water supply and sanitation activities in the rural communities.

With the government decentralization and issuance of the NEDA Board Resolution No. 4, drastic changes took place among the DPWH, DILG, DOH and LGUs. The transition functions of these agencies are presented in Table 5.3.1. As shown, the function of implementing water supply projects (which DPWH used to undertake) has now been transferred to the LGUs. The functions of PHO under the DOH have likewise been devolved to the LGUs. The overall coordination function for the implementation of the WATSAN projects is now the responsibility of DILG.

Table 5.3.1 Transition Functions of the DPWH, DILG and DOH

Activities	Previous Involvement (Before NEDA Board Resolution No. 4 in 1994)	Present Involvement (After NEDA Board Resolution No. 4, s. of 1994)
Identify projects	DPWH	DILG
Design/Construct Level I	DPWH	LGU (PEO/MEO)
Repair/Rehabilitate Level I	DPWH	LGU (PEO/MEO)
Formulate/Evaluate maintenance program	DPWH	LGU (PEO/MEO)
Organize BWSA	DPWH	LGUs w/ DILG assistance
Train BWSAs on O&M	DPWH	LGUs w/ DILG assistance
Procure/supply materials/spare parts	DPWH	LGU (PEO/MEO)
Sector/Project monitoring and data-management	DPWH	LGUs w/ DILG assistance.
Overall coordination for project implementation (project identification, training of BWSAs on O&M, monitoring and data management). These functions were transferred from DPWH.	DILG	DILG
Assist LGUs to identify water supply systems, Level I, II and III. This function was transferred from DPWH.	DILG	DILG
Develop and implement rural sanitation programs nationwide	DOH	LGU (PHO)
Implement the sanitation component of integrated water supply and sanitation projects	DOH	LGU (PHO)
Monitor, inspect and disinfect water supply systems	DOH	LGU (PHO)
Provide its health workers with training on water quality surveillance, hygiene education, and water purification treatment processes	DOH	LGU (PHO)
Conduct health education campaigns	DOH	LGU (PHO)
Produce information, education and communication (IEC) materials on water supply	DOH	LGU (PHO)

(2) Sector Finance

In financing WATSAN activities, LGUs have fund sources as follows:

LGUs may tap their Internal Revenue Allotments (IRAs) which come from the national government regularly, and/or locally generated revenues. These resources can also be used as leverage to borrow from government or private financing institutions.

In addition, grant funds from National Government are provided to LGU under its social infrastructure development. However, availing these funds are regulated with conditions, e.g., zero to 50 percent of development costs will be subsidized but limited only to Level I systems for 5th and 6th class municipalities. No subsidy will be provided for Level II and III systems.

LGUs can access ODA loans for devolved activities. However, they must pass through the Municipal Development Fund (MDF) and a Government Financial Institution (GFI). The policy-making bodies of MDF and GFI determine the re-lending/on-lending terms passed on to the LGUs. The policy on accessing loans through the MDF is currently under review by the central government to make the terms and conditions more concessional towards the LGUs.

LGUs may either finance the sector projects directly or involve the participation of the private sector through concession, management or service-contracts. (Details on the sector finance are provided in Chapter 6.)

5.4 Sector Agencies at the National Level

(1) Department of the Interior and Local Government (DILG)

The DILG is responsible, through the promulgation of rules and regulations and by means of technical assistance and training, for facilitating the implementation of the LGC. Accordingly, it is the lead national coordination agency responsible for the supervision and administration of water supply and sanitation projects implemented by LGUs. It is also mandated to strengthen local capacity for delivery of the services.

General administration and institution building support to LGUs entail the following: i) assistance in the formation and training of BWSAs, ii) coordination of master plan preparation, iii) provision of external funds, and iv) formulation and installation of sector management systems (including O&M) and BWSA management systems. The DILG also

provides assistance to LGUs in terms of technical support for evaluation of water sources and design of simple water systems (Level I and II).

The Water Supply and Sanitation-Program Management Office (WSS-PMO), a unit within DILG, is primarily responsible for water and sanitation activities in the department. The Provincial Planning and Development Office (PPDO) and the Municipal Planning and Development Office (MPDO) are the immediate links of the DILG at the LGU level. For the purpose of ensuring coordination in implementing projects where there are other agencies involved, DILG facilitates the formation of Task Forces with the PPDO and the MPDO still assuming overall responsibility. Through the PPDO and MPDO, barangays that need improvements in water supply and sanitation are identified. Water supply and sanitation associations are then formed.

Likewise, the DILG is now one of the leading institutions tasked to promote gender-responsive project management. Under the leadership of focal points, gender awareness training seminars have been conducted at the regional and provincial levels.

(2) Department of Public Works and Highways (DPWH)

The Department was responsible for the construction and major repair/rehabilitation of rural water supply systems (Level I) and for the planning and execution of sewerage projects in some cities and larger poblaciones in the country with participation of LGUs. DPWHs' responsibility drastically changed with the implementation of NEDA Board Resolution No. 4. Based on the new mandate, the functions of DPWH are now limited to setting technical standards and assisting LGUs, upon agreement and in coordination with LGUs, in the conduct of surveys, preparation of plans, specifications, and programs of work, construction management, and technical researches in WATSAN project.

The DPWH maintains about 92 District Engineering Offices (DEOs) nationwide at the field level. The DEO have a water engineer and drilling crews and equipment. With the diminishing role, most of the staff members have transferred to the private sector.

(3) Department of Health (DOH)

The DOH is the principal health policy-making and implementing agency. Its main function is to develop and implement sanitation programs nationwide. It also administers health education campaigns aimed at reducing morbidity due to waterborne and sanitation-related illnesses, specifically diarrhea, which is the second leading cause of morbidity in the past years.

Under the current sector arrangement, DOH shall assume the following responsibilities: i) set and/or update standards on water quality testing, treatment and surveillance and sanitary practices; ii) assist LGUs in the conduct of periodic water quality control and surveillance-related activities; and iii) monitor and evaluate health and hygiene education.

Through the Provincial Health Offices and Rural Health Units, the DOH conducts health and hygiene education campaigns that focus on women and children health improvement in rural communities. The DOH has produced and distributed the Information, Education and Communication (IEC) materials on water supply and hygiene behavior nationwide. Through its field health workers, it gives orientation to BWSAs on protection and disinfection of water sources and construction and maintenance of toilets.

(4) Local Water Utilities Administration (LWUA)

Presidential Decree 198 created the LWUA to act as a specialized lending institution for local Water Districts (WDs) and oversee the development of these water utilities based on the twin concepts of financial viability and self-reliance. In 1987, its responsibilities were expanded to include assistance to Level II Rural Waterworks and Sanitation Associations (RWSAs). The provision of Level II and III services and of wastewater disposal systems in communities outside Metropolitan Manila is largely coordinated by the LWUA. However, NEDA Resolution No. 4 directed LWUA to focus on its development-banking role to finance only viable WDs.

Financial services include economic and financial analysis, tariff analysis and fund sourcing. Various types of loans are available to finance the following activities: i) construction of water systems; ii) reactivation of non-operating systems; iii) rehabilitation and expansion of facilities; and iv) training. Special loans finance watershed management projects, construction of administration buildings, purchase of service vehicles, communication and computer facilities, restoration of facilities damaged by calamities, and initial or emergency operational needs. Commodity loans support generation of additional service connections.

LWUA maintains and fields a pool of management advisors, trainers, engineers and other professionals to give WDs and RWSAs proper guidance in their operation and administration. In addition, the Central Sewerage and Sanitation Program Support Office (CPSO) was established at LWUA to coordinate the implementation of sewerage and sanitation projects at the national level and to assist LGUs and WDs plan and manage sewerage and sanitation at the local level.

(5) Other National Agencies

There are other national agencies that provide macro planning, funding support, and regulatory guidelines for the water supply and sanitation sector.

The National Economic and Development Authority (NEDA), the country's central planning office, ensures that all agencies' plans and programs are consistent with national priorities in the Medium-Term Public Investment Program and the Priority Sub-Sector Activity Layout. External grants and loan proposals are reviewed and approved at NEDA through the Investment Coordination Committee (ICC). Together with the DILG, NEDA coordinates the establishment of a system for national sector master planning and monitoring system.

The Department of Finance (DOF) is responsible for the generation and management of the financial resources of the government. It reviews and approves all public sector debt, and sets the fiscal deficit of major government corporations (as part of the public sector-borrowing program).

The Department of Budget and Management (DBM) plans the budget allocations for government agencies, including capital and operating expenditures, equity infusion to public corporations, and grants and subsidies. The budget is sent annually to Congress for approval. DBM also ensures that budget releases conform to approved plans and programs.

The National Water Resources Board (NWRB) coordinates the overall policy framework for water resources development and management. NWRB was created by Presidential Decree No.424 in 1974 and is a high level ex-officio body responsible for coordinating and integrating all activities related to water resources development and management. As such, it formulates policies, evaluates and coordinates water resources programs, regulates and controls the utilization, exploration, development, conservation and projection of the country's water resources including the regulation of private and LGU-operated utilities.

The Department of Environment and Natural Resources (DENR) formulates and enforces policies and guidelines for environmental protection and pollution control. It is responsible for watershed protection and water resources management. It also checks compliance of major projects with environmental guidelines. DENR works with all environmental management agencies and special regulatory bodies.

The Department of Education, Culture and Sports (DECS) implements hygiene education programs through schools using the Teacher-Child-Parent (TCP) approach. Health and sanitation messages are integrated in the curricula and special activities are designed to make the parents and other family members practice what they learn. A wide range of learning materials is available and prototypes of safe water sources and water sealed toilets are set up in schools. DECS identifies priority schools for the GOP school toilet project and supports the DOH integrated health information, education and communication campaign using the formal and non-formal educational system.

5.5 Sector Agencies at the Local Level

(1) Provincial Level

The Provincial Governor, as the chief executive of the provincial government, exercises such power and performs such duties and functions in pursuing general supervision and control over all programs, projects, services, and activities of the provincial government, including ensuring the delivery of basic services and the provision of adequate facilities.

The Sangguniang Panlalawigan, as a legislative body of the province, enacts ordinances, approves resolutions and appropriates funds for the general welfare of the province and its inhabitants. It approves ordinances that ensure the efficient and effective delivery of basic services and facilities, including the establishment and maintenance of a waterworks system or district waterworks for supplying water to inhabitants of component municipalities and cities.

The offices of the provincial government directly involved in WATSAN activities are the Provincial Planning and Development Office (PPDO), the Provincial Engineering Office (PEO) and the Provincial Health Office (PHO)

1) Provincial Planning and Development Office (PPDO)

The PPDO is in charge of the formulation of integrated and sectoral development plans and policies for the consideration of the Provincial Development Council (PDC) which is headed by the Governor. It conducts continuing studies and research and training programs to evolve plans and programs for implementation and promotes people participation in its planning activities. It likewise integrates and coordinates all sectoral plans and studies undertaken by different functional groups or agencies. It monitors and evaluates the implementation of the different development programs, projects and activities in the LGU concerned in accordance with the approved devel-

opment plan. This office is composed of the Administrative Staff and three divisions: Plans & Programs, Monitoring & Evaluation, and Special Project (refer to the organization chart in Supporting Report, Figure 5.5.1).

- Administrative Division -- The section's function is to provide efficient administration and timely and adequate support services. It has four (4) staff.
- Plans and Program Division - The division is responsible for undertaking planning and programming of various sector development activities: agriculture, social, water source, investments, trade and industry, tourism, capital improvements and annual implementation. Six (6) staff members man it.
- Monitoring & Evaluation Division -- The division conducts field surveys and inspection of proposed projects; prepares statistical reports and other documents necessary for the evaluation, planning and programming of projects; and project implementation. It likewise supports the plans and programs division in the preparation of needed documents. It has four (4) staff members.
- Special Projects Division – The division is primarily responsible for the plan formulation of special projects. It undertakes project proposals and project studies preparation, conducts ocular surveys and investigation, and prepares recommendations. It also coordinates community involvement in project execution and liaises with concerned national, regional and local government units. Two (2) staff members are undertaking tasks of the division.

2) Provincial Engineering Office (PEO)

The Office of the Provincial Engineer is responsible for planning, designing, programming, construction and maintenance of provincial infrastructure including roads, bridges, water systems, buildings and other infrastructure which are within the jurisdiction of the province. It is also the responsibility of the PEO to extend technical assistance and advice to the municipalities as well as barangays of the province in planning, construction and repairs of infrastructure. It maintains the quality control of all projects under the provincial government. The office has four (4) divisions: Planning, Designing & Programming, Material Quality Control, Construction & Maintenance and Equipment, Motorpool (refer to Organization Chart - Figure 5.5.2, Supporting Report).

- Administrative Staff -- The function is to provide efficient administration and timely and adequate support services. It has five (5) staff members.
- Planning & Designing and Programming Division -- The division is responsible for the conduct/preparation of surveys and investigations, detailed designs and programs of work, specifications of roads and bridges, waterworks and other in-

frastructure and public work requirements of the province.

- Construction & Maintenance Division - It provides administrative and technical supervision of all construction and maintenance of roads, bridges, waterworks, drainage systems, and other engineering and public work projects of the province.
- Material Quality Control Division -- This division is tasked on formulating/undertaking testing and quality control procedures to ensure the conformance of materials to preset quality and test specification.
- Equipment, Motorpool Service Division - The division is responsible with the maintenance of light and heavy equipment necessary for the construction and maintenance activity of the office.

3) Provincial Health Office (PHO)

The provision of health services to the people in the province is rather unique. The organizational set-up and services accountability is divided into the following: field operation, which is under the supervision of the Provincial Health Officer; and hospital services, under the Chief of Hospitals. The PHO provides technical assistance to rural health units (RHU) and to barangay health stations (BHS). It also assists in the promotion and maintenance of public sanitation. The office also conducts field health information campaigns and renders health intelligence services. There are eight (8) provincial government-run hospitals that are strategically located in 1st and 2nd districts throughout the province. These hospitals have 6 major services: Administrative, Medical, Nursing, Ancillary, Dietary, and Technical.

(2) Municipal and Barangay Level

1) Municipality

The municipal LGU functions primarily as a general purpose government agency that delivers basic, regular, and direct services and provides effective governance of the inhabitants within its territorial jurisdiction. It has a similar organizational structure and legislative authority as that of the province. For WATSAN projects, the following offices are directly involved.

The Municipal Planning and Development Office (MPDO) is tasked to prepare municipal development plans toward formulating an integrated economic, social and physical development plan for consideration of the Municipal Development Council (MDC). It is also mandated to monitor and evaluate the implementation of different development programs and activities in the municipality. The regular activities of MPDO include are: preparation of the municipal comprehensive plans and other

planning documents; assessment, monitoring and evaluation of different projects of the municipal government; and assistance in the integration and coordination of all sectoral plans.

The Municipal Engineering Office (MEO) is responsible for the administration, coordination, and supervision of all construction, repairs and maintenance of public works in the municipality. It initiates reviews and recommends innovation in policies and objectives, plans, programs, techniques, procedures and practices in infrastructure development, including zoning policies in the municipality. It performs engineering surveys to gather data for designs, layout or construction of waterworks system, sanitation facilities, and other infrastructure projects.

The Municipal Health Office (MHO) provides, through Rural Health Units/Barangay Health Stations (RHUs/BHSs) health services to the barangay residents such as family-planning activities, emergency/relief services especially in far-flung barangays and other similar activities that promote the general well-being and health needs of the residents. Midwives and other health workers schedule periodic visits to these health units/stations. It also undertakes water quality testing through its Rural Sanitary Inspector (RSI) who works under the supervision of the Supervising Sanitary Inspector of the province.

2) Barangay

The LGC has designated barangays as independent units of local government. The Barangay Council (BC) acts as a legislative body of the barangay. The barangays receive their shares in the IRA from the National Government. Apart from this, the BCs can enact tax and revenue ordinances to raise funds for discharge of the responsibilities conferred upon them by law and for the promotion of the general welfare of the inhabitants. They may also solicit funds for the construction of barangay facilities and charge reasonable fees for the use thereof.

(3) Field Offices of Central Sector Agencies

1) District Engineer's Office (DEO) of DPWH

There is only one (1) DEO in the province. The DEO is mandated to undertake and evaluate the planning, design and construction and work supervision functions for all public works within the district. It coordinates with other departments, agencies, institutions and LGUs within the district in the implementation of infrastructure projects. Currently, the previous water supply section (a unit under the Construction Di-

vision) is maintained by the DEO. The staff members of this section consist of a water supply engineer, a well driller, and a supervisor.

2) DILG Provincial/Municipal Offices

The Provincial Director and the Municipal Local Government Operations Officers belong to DILG and are tasked to provide general administration and institution-building support to LGUs and other government agencies to strengthen their capacity to deliver basic services.

3) NEDA Regional Office and Regional Development Council

Various public and private sector organizations coordinate with DILG to establish the system for regional sector master planning and the monitoring system. The NEDA Regional Office acts as a secretariat of the Regional Development Council and ensures that sector plans are consistent with regional and national priorities. The office requires project proposals/plans and programs to be approved and endorsed by the Provincial Development Council, whose task is to incorporate, consolidate, and prioritize municipal plans, programs and projects.

(4) Community Institutions and Water Supply System Operation Bodies

1) Barangay Waterworks and Sanitation Associations/Rural Waterworks and Sanitation Associations (BWSAs)

RWSAs and BWSAs are non-stock corporations that own and manage water supply systems. RA 6716 requires its formation to ensure the provision of adequate, potable and accessible water supply to their members through the proper operation and maintenance of water supply facilities. There are 29 BWSAs that were organized in the last three years. Their aim is to improve the health and economic well-being of their members by providing them with safe and potable water for domestic use at a reasonable charge. They are also responsible for setting up their own financial contributions through collection of monthly dues for the operation and maintenance of the system. However, only a few number of operating bodies (BCs/BWSAs) are collecting fees from the beneficiaries.

The BWSA's organizational size depends on the number of facilities and the need, culture and situation in a particular barangay. Its structure is quite simple, as consisting of the board of directors, a bookkeeper, and caretaker/s. There are three phases involved in forming a BWSA: pre-formation/social preparation, formation, and post formation. During the formation phase, pre-membership training and elec-

tion of the Board of Director (BOD) and Officers are held. In this phase, individual membership in the association is by signing of a Manifesto Resolution.

2) Water Districts (WDs)

A Water District is a government corporation formed pursuant to Presidential Decree No.198 and organized for the purpose of serving the water supply requirements of the residents within its franchise area. Technical and financial assistance (loans) are provided by LWUA to WDs. LWUA also exercises regulatory functions vis-a-vis the districts. To be self-sufficient, a WD is operated in a business-like manner to generate enough revenue from its water services. The income is used to meet operational expenses, debt service, and reasonable reserves for future rehabilitation of facilities and contingencies. Presently, two (2) WDs are supplying water to the respective franchise areas of the province through Level III systems.

3) LGU Waterworks

Some municipalities of the province established LGU waterworks within their organizations for delivering Level III water supply services in areas that are not covered by the Water Districts. These waterworks are presently undertaking the operation and maintenance of the respective Level III water supply systems by themselves. The fees are being collected from water users for recovering cost of operation and maintenance of facilities.

(5) Private sector and NGO

Many water and sanitation systems are implemented by the private sector, NGO and community-based organizations (CBOs) which often times undertake the operation and maintenance of the systems. NGOs and the private sector for the past decade have been involved in water supply development through investments, technical studies and construction of water supply and sanitation facilities. They have also demonstrated capability to undertake project implementation through community participation.

5.6 External Support Agencies Active in the Sector

(1) World Bank

The World Bank supported the First Water Supply, Sewerage and Sanitation Sector Project or FW4SP. This project provided capital funds (US$58.0M) for rural water supply system in Luzon provinces and sanitation system nationwide based on completed provincial master plans. The project concept called for a community-based approach through

BWSAs. The project was implemented from 1991 to 1995 with an extension up to 1997. Subsequently, the Capacity Enhancement Program (CEP) with DILG as implementing agency was conducted until the end of 1997. In addition, the Bank prepared a new loan for DILG implementation - the Local Government Urban Water Supply & Sanitation Project. This project will assist municipalities of the lower tier income class i.e. 4th, 5th, and 6th (approximately 50 municipalities in 20 provinces nationwide which, are not covered by Water Districts. Its aim is to improve water supply and sanitation services. Through its various trust fund facilities, the bank has also arranged for various technical assistance grants and other support activities.

(2) UNICEF

The United Nations Children's Fund (UNICEF) supports the sector through the Philippines Plan of Action for Children. Apart from hardware support in the priority project site, UNICEF assisted NEDA in updating the national master plan. UNICEF works through the inter-agency committee on environmental health and through NGOs. With the World Health Organization (WHO), UNICEF has been assisting in the preparation of Information, Education and Communication (IEC) materials and in strengthening the sector monitoring system. As part of these various assistance, UNICEF supported NEDA in 1997 for the assessment of WATSAN Sector of Eastern Visayas (Region VIII) and Southern Mindanao (This was compelled by the sudden and unexpected occurrence of water-borne epidemics that hit Region XI).

Other external agencies' activities on WATSAN projects are shown in the Supporting Report. The terms and conditions, priority areas, programs and projects by donor are shown in Table 5.6.1, Supporting Report.

5.7 Project Management Arrangement, and Issues and Problems

With reference to project management of the province, current vision, policies and practices in the implementation of WATSAN projects were investigated. The findings are discussed in terms of technical, institutional, financial, and community development aspects. Problems/issues are also discussed by sub-component. Current conditions of the municipalities investigated are referred to. Furthermore, some of the discussion items covered the entire sector management field.

5.7.4 Technical Aspect

(1) Project Identification and Prioritization

1) Project conceptualization and series of procedures to select a project

Every year, the provincial government identifies and prioritizes projects based on perceived needs, the PPDO consolidates WATSAN data extracted from the Barangay and Municipal Development Plans and resolutions. The PPDO conducts fieldwork together with their counterparts at the MPDO in order to identify and support project needs. This is accomplished through a series of meetings with barangay people/officials. They then conduct the required survey in the barangay where the project may be located.

Barangay Council/s (BC/s) regularly submit barangay resolutions regarding priority projects to the municipality, in addition to the Barangay Development Plan. These project proposal/s are incorporated in the Municipal Development Plan. The Municipal Development Council, through its sectoral committee reviews, gives recommendations for endorsement to the Sangguniang Bayan (SB) for adoption and approval.

Before incorporating it into the Provincial Development Plan, the PDC through its sectoral committees endorses the municipal development plan for consideration and prioritization.

2) Criteria for selection of the projects

Project selection criteria are based on the indicators prepared by the NEDA Regional Office. These were meant to identify the existence of problems constraining the achievement of certain development objectives and/or to determine the perception of development potentials. However, it is still the Barangay Development Plan prepared by the barangay council and ratified during a barangay assembly, which serves as the benchmark for the realization of the people's aspiration.

To further ensure the sustainability of the project, it is essential to involve the people, starting from demand identification during the basic survey stage. This is especially true for Level I water supply systems. A simplified coordination mechanism showing responsibilities/activities required among concerned parties is necessary. Periodic follow-up by LGUs at the barangays is also important to ensure logistic support and manpower requirements of the LGUs.

After submission of a project request by the barangay, a series of steps including identification, validation and prioritization has to be undertaken by the concerned LGUs. These steps result in considerable time consumed before funding is finalized. A systematic and coherent project identification and prioritization among concerned parties is required.

With reference to the implementation of the medium-term target plan, review and modification of selection/prioritization criteria is done by LGUs taking into consideration the said barangay profile. The LGUs, together with barangay officials should prepare the requirements (including barangay profile) in an expeditious manner as part of their annual activities.

(2) Preparation of Feasibility Studies (F/S) and Detailed Design (D/D) of Facilities, and Contract Procedures

1) Water source development experience in survey, planning and design of facilities

The provincial government is able to conduct water source development for both spring and ground water sources. In the case of spring development, technical-related information is collected from the barangay. This involves the location of untapped springs and determining its discharge rate during the dry season. The preliminary topographic survey (elevation and distance) is then conducted to prepare the hydraulic profile of the transmission pipeline. For groundwater development, its technical feasibility is evaluated based on available technical data along with information from the barangay duly supported by field inspection of the existing wells.

2) Feasibility Study (F/S) of water supply systems

The F/S for developing water supply systems is usually done by the PEO jointly with PPDO. In addition to the preliminary study on water source development, water production and water demand are determined as required by the project. Tentative locations of communal faucets are identified in a Level II system. The hydraulic profile (pipe size, length) and size of the intake box/reservoir are determined using methods learned in the International Training Network (ITN)/DILG training seminar. The BWP design standard is also applied in this case. Finally, a cost estimate of the required facilities is made. The F/S report is submitted to the Provincial Governor for approval.

3) Detailed Design (D/D) of facilities and tendering

The D/D of WATSAN facilities is prepared by the PEO based on the F/S report. It

must also be within the available budget. Design of Level II systems is made using existing manuals and references. Hydraulic calculation is limited to a single pipeline while the design of the spring box/reservoir is a standard design of the RWDC (Rural Waterworks Development Corporation). However, the PEO has no experience in planning and designing large waterworks facilities including pumping stations/water treatment facilities.

Future water supply system/s will require water treatment facilities, particularly those using surface water sources. The PEO will need more knowledge/practice in hydraulic analysis, structural calculation, and water treatment technology. Measures to increase the capacity of LGU technical staff in the area of planning and designing have to be considered. This may also involve the utilization of consulting services.

(3) Procurement of Materials and Equipment, and Facility Construction and Rehabilitation

1) Procurement of materials and equipment

In the water supply sector, bidding is done to purchase materials (pipes, valves and fittings). Although the Pre-qualification, Bid and Awards Committee (PBAC) conducts the bidding, the technical capability to prepare bid documents and to evaluate bids is very minimal.

Because of the large workload required in implementing the Medium-Term Development Plan (which includes the preparation of the required tender documents), there must be a thorough evaluation of pre-qualification documents and contract procedure. Presently, with the limited volume of work/projects, the procurement procedure already requires a long process which, always results in delays in project implementation. The provincial government should examine the current procurement system so that it could handle/manage forthcoming projects more efficiently.

2) Construction, Supervision and Rehabilitation

Construction of WATSAN facilities is usually done by the LGUs, either by the municipal or the provincial office. The barangay council and the users mobilized labor. The PEO together with the MPDO and MEO managed project implementation by hiring skilled laborers. The PEO personnel supervised the construction work, and the technical personnel of the Project Monitoring Committee regularly monitored the projects. In the rehabilitation of Level I facilities, some projects employed skilled labor at the request of waterworks/beneficiaries.

In spite of the LGUs' efforts, it is apparent that their present implementation capability is limited to a certain number of projects due to insufficiency of manpower resources and the shortage of supporting vehicles/equipment. Contracting-out to the private sector may be practical. It is also necessary to increase the number of experienced water supply engineers to supervise future projects.

(4) Operation and Maintenance (O&M) of Facilities

1) O&M of facilities by service level

For Level I facilities, the BWSAs or beneficiaries are responsible for O & M; however their performance has not been sufficient. This can be gleaned from the presence of numerous non-functioning/abandoned wells previously constructed by DPWH. This problem arises due to lack of spare parts, drying up of water source, and water quality problems such as colored water, salty water, etc. In some cases, the BWSA encountered problems related to the water source just a few months after turnover of the facility. Thus, the beneficiaries revert to using their private dug wells.

O&M of Level I facilities is not properly done by BWSAs/beneficiaries due to lack of sense of ownership. There was a case, however, where the users contributed money to purchase spare parts when pump facilities broke down. It is necessary for the users to consider not only repair/replacement of mechanical parts but also re-development of wells and the future upgrading of the service level.

Level II and III systems, which are rather small in size, are mostly managed by Barangay Councils/communal associations. The required staff (permanent/casual) are designated to operate/maintain the facilities. There have been some cases, however, where expansion of distribution pipelines and additional service connections were undertaken without considering the technical aspects, e.g., capacity of water sources and distribution facilities. F/S and D/D should be prepared on a timely basis by the qualified engineer/s to avoid the decrease of supply pressure and quantity. Preventive maintenance of the system cannot be followed due to the shortage of major spare parts because of budgetary constraints.

2) Communication mechanism practiced in case of facility breakdown

It was observed that in cases where major repairs were required (non-functioning of hand pump parts, etc. for Level I), the BWSA or barangay council merely passed a resolution to the municipality/DEO - DPWH requesting for immediate repair. However, most BWSAs have inadequate knowledge of the channel of communication

with LGUs or the private sector. The request for repair is therefore improperly addressed. A better communication system has to be prepared and put into service.

For major repairs of Level II and III (e.g. burst pipe/leakage), the municipal government permanent/casual staff restore/repair the system. When the budget is insufficient, the waterworks/RWSAs submit a funding request to the municipal or provincial government. Under the LGC, the LGUs are responsible for developing a system that will ensure sustainable O&M of water systems.

(3) Water Quality Examination

It is not uncommon to find fecal contamination at some water sources in all service levels. Water quality problems usually occur during floods. This is aggravated by poor sanitation conditions in most villages – e.g. inadequate toilet facilities, improper construction of depositories/latrines, lack of sludge/sullage disposal management, and absence of drainage facilities.

The MHOs (through the RSIs) perform water sampling analysis by using PHC Media to detect E.coli. Sampling and disinfection in communities is done only when there is a need to do so. Collected water samples are analyzed at the provincial laboratory. Those found positive for bacteria content are disinfected by the RSI. A regular program of disinfection for all levels of services should be followed and not done only when the source is found positive of bacteriological contamination.

The analysis of the samples at the provincial laboratory depends upon the availability of chemical reagents, equipment, and manpower. It is also possible that improper handling of samples, particularly for samples from areas that are far from the laboratory, results in wrong findings. It is important that the laboratory is adequately supplied with equipment, chemicals and manpower, and that water sample is handled properly.

The water quality examination usually done in the province examines only bacteriological content and the physical characteristics of the water samples; chemical parameters are not studied. The provincial laboratory should consider other water quality parameters (both physical and chemical) which are necessary to determine the potability of water as indicated in the National Drinking Water Standards.

The PHO does not have enough budget for water quality control. The provincial government has yet to address this problem. Meanwhile, the incidence of water-borne/related

diseases and the percentage of contaminated sources of drinking water remain alarmingly high. There is an obvious need for a budget for water quality surveillance.

(6) Private Sector Capability for the Sector Project

For the Level I water supply facilities, locally based private contractors have no capability in the construction of deepwells because they do not have the necessary drilling equipment. The LGU must have a list of qualified contractors in large cities so that they can call them when needed. There are also few contractors that are capable in construction and rehabilitating Level II and small size Level III in the province. The same as for Level I, the LGUs need to have this list.

5.7.2 Institutional Aspect

(1) Implementing Capacity of LGUs

In spite of the LGUs' efforts, it is apparent that their present implementation capability is limited to a certain number of projects due to insufficiency of manpower resources, no clear procedure and the shortage of supporting vehicles/equipment. Contracting-out to the private sector may be practical. It is also necessary to increase the number of experienced water supply engineers and establish clear procedure to consider and supervise future projects.

Implementing capacity of municipal government is also limited, though a larger water supply system is managed by WDs with a higher expertise. Sanitation projects are under the direct responsibility of municipalities and barangays with coordination of the province. Commonly, qualified staff members are lacking and training for strengthening capacity building is not sufficient due to budgetary constraint. The assistance from existing WDs to the associations (Level I & II) may be one of the practical arrangements to ensure transfer of technical and management know-how.

(2) Linkages among Concerns

The PPDO is a lead provincial office responsible for the implementation of WATSAN projects. It either works directly or indirectly with the national government's local offices and municipalities as well as with other provincial offices. There is, however, no established arrangement and responsibility delineation among the agencies involved in the WATSAN sector implementation in the province wherein interrelationship/linkages are clearly shown. Administrative and functional linkages are not spelled out, although in the area of PBME, the province is adopting the participatory monitoring and feed-back

mechanism developed by a UNDP-assisted project (refer to 5.10.1 Project and Sector Monitoring). Subsequently, fragmental planning and implementation of sector projects happens, and a number of agencies and offices had overlapping activities and functions.

For tri-agency program such as DPWH, DILG and DOH implementing water supply projects, weak coordination had been demonstrated. There was difficulty in synchronizing activities which deals on physical construction of facilities (DPWH) as to activities that entails training of provincial and municipal water and sanitation task forces and formation of BWSAs where target facilities will be constructed (DILG) and the installation of latrines and promotion of health and education programs (DOH). This assistance granted by NG agencies needs an integrated approach for an efficient WATSAN project implementation.

(3) Organizational Set-up

LGU is composed of province, municipality and barangay, and these units have respective responsibilities in implementing WATSAN project. However, to support the delivery of water and sanitation services, the operating structure at the provincial, municipal and barangay levels and other identified organizational tasks should be put in place. This will enable smooth implementation of the projects.

Before, organizing the association at the barangay level was undertaken by the PWDTF that was spearheaded by the DPWH. Since locally-funded water supply projects had been devolved to the LGUs, DPWH no longer initiated the organization of BWSAs. In the existing organization set-up of the province, the implementation of the Provincial Water Program is placed under the PPDO and PEO. However, it was observed that the provincial staff (and also the municipal staff) responsible for planning, managing, coordinating, implementing and monitoring WATSAN projects are unable to devote full time because they are assigned to other works of various sectors.

(4) Operation bodies

In most cases, the operating bodies for the Level I facilities are not organized or non-functioning. A considerable number of public wells are abandoned/non-functional due to lack of O&M, drying-up of wells and other reasons. Most of the beneficiaries are not aware of the manner for O&M of the facilities. Beneficiaries still rely on LGUs even for a simple replacement of parts. Consequently, the barangay council often takes care of O&M. Considering the current situation of beneficiaries' involvement and experiences of abandoned/non-functional facilities, LGUs shall lead them to recognize the need of for-

mation of association and participation for sound O&M of the facilities (information dissemination to beneficiaries is a requisite), and encourage the formation of association responsible for the facility's O&M.

The organization responsible for the O&M of Level II has some complexity comparing with that of Level I facility. Most of the Level II systems (and small Level III) in the province are managed by BCs. The merger or consolidation of these operation bodies can be explored to increase the capacity of BWSAs for more effective and efficient system operation as well as system expansion and new development. This arrangement entails collaboration and agreement among concerned parties and the LGUs shall act as a coordinator and facilitator for the purpose.

The idea for Level II systems can also be adopted for an effective and efficient operation and development of Level III water supply systems.

(4) Health and Hygiene Education with typical program

There was a time when PWDTF was active and performed the job of IEC campaign in selected barangays in the province. The current practice is that the PHO undertakes health and hygiene education as part of its regular programs. However, due to lack of financial support and manpower at the PHO, relevant activities are quite limited at the present time, unless it is a component of a DOH/UNICEF/NGO projects/program. It is recommended to put more attention to the needs of LGUs to ensure sustainable implementation for the development of the sector.

(5) Training programs

The central government agencies provide technical training for the LGUs' staff on a project basis. The DILG-PMO conducted recently the "Trainers Training and Community Organizing Training/Workshop" for the WATSAN sector where some of the topics discussed dealt on gender and development (GAD). Since LGUs have employed the cascade-type assistance in implementing WATSAN projects, strengthening LGUs' staff capability in technical and institutional training for effective and efficient project implementation is important and periodic trainers training program would be necessary.

The provincial government provides technical assistance to the municipalities and barangays on a project basis or when the training is requested. The PPDO, PEO and other departments and national government agencies who are members of the Provincial WATSAN Team usually conduct the training, which is aimed at strengthening the capa-

bility of O&M personnel at the municipal and barangay levels. The 3-day training course is to be participated in by BWSA officials. It covers technical and management matters of a Level I facility before its turn-over. Effective training program/s should be continued by the LGUs to ensure demand-responsiveness in community development.

(6) Database management

The main problems concerning data-base management are the inadequacy of the network coverage, outdated monitoring equipment, dispersed data collection responsibilities, lack of continuous data records and lack of an integrated water resources database. Most data collection efforts are project related and are usually discontinued once the project is terminated. Good database will contribute toward an effective and efficient sector planning and project implementation. It is necessary to establish the database management system, at both national and local levels, which defines what, when, by whom the data/information shall be collected and where, how, how long it shall be kept.

5.7.3 Financial Aspect

(1) Budgetary Allocation to the Sector

Due to limited resources of the province, it has to prioritize projects that require capital allocation in the budget. The GOP recently issued an administrative order directing all government agencies, government corporations, and units (including LGUs) to implement austerity measures, i.e. to limit government spending and to cut capital outlays in order to mitigate the negative effects of the peso devaluation. In view of the high social impact of the WATSAN sector however, the province gives the sector funding priority.

Projects being programmed for implementation in the Annual Implementation Plan are those funded only by the 20% Development Fund for the very reason that the AIP forms part of the General Fund Annual Budget. However, in the Local Development Investment Program (LDIP) which is a component of the Comprehensive Development Plan, all the projects funded by the NLA's and municipalities find its way to the document to include the WATSAN sector.

(2) Access to External Funds

The Provincial Government is open to finding out other means by which the province can access funds to the sources other than its IRA, local taxes and economic enterprises. The limitation that the province encounters is the lack of information by which it could access other financing options.

External assistance experienced by the province for the sector comes from foreign assisted projects in the past, although participation of the province in foreign funded projects for the sector was minimal. But with the devolution of the sector, the LGU, pursuant to the LGC, its participation has increased. Before the devolution of the sector, the province was a beneficiary of foreign assisted projects through central agencies. After the devolution, the province became a direct recipient of foreign grants.

In addition to its own funds source and foreign assistance, the province can also access funds from other sectors, such as the private sector through any of the Build-Transfer-Operating schemes that can provide incentives to the private sectors by minimizing the bureaucracy.

(3) Cost Recovery Practices by LGUs and by Users

During the period when the DPWH was still constructing Level I water supply facilities, the DPWH itself formed many BWSAs. A few of the BWSAs are still active and are collecting monthly fees. However, most are no longer in existence and therefore no longer collecting water fees. As a consequence, the users have to ask the government (usually barangay or municipal) to solve the problem. In some cases, the users still approach the DPWH for assistance. Although the DPWH has no budget for operations and maintenance, it extends assistance in the form of materials (such as gaskets or joint pipes) from their supplies, if these are available.

Recovery of the capital cost in the sector is dependent on how the community or the beneficiaries perceive its role in the sector. If the beneficiaries have a sense of ownership of the facilities, they will contribute to the sustainability of the facilities. For financing capital expenditures, a sense of ownership of the facilities can be achieved by asking the beneficiaries to contribute their labor when building the facility. This will translate to a sense of responsibility for the sustainability of the system.

Similarly, for O&M cost recovery, the monthly contributions of beneficiaries for the sustainability of the water supply facilities establish a sense of ownership and responsibility towards the system. The government should initiate community empowerment programs and encourage active participation of the beneficiaries even before the start of the construction period.

5.7.4 Institutional Arrangements/Capability of the Municipal Government

(1) General scheme in WATSAN project implementation

The municipalities are responsible for the construction of infrastructure facilities to service the needs of the residents of the municipality. For bigger projects, the LGU taps the PEO. For WATSAN projects, if the barangay is not able to finance the project from its own funds, the BDC endorses the project to the municipality. If the municipality has available funds, it finances the said project. This is in addition to providing technical and material support. If the municipality has no funds, the request is elevated to the provincial government.

The municipality, through the MPDO, prepares municipal development plans and formulates an integrated economic, social and physical development plan. It identifies and prioritizes water projects and secures the necessary funding. The MEO provides technical services such as investigation and survey, engineering design, feasibility studies, and project management. It is also responsible for the organization and training of the BWSAs within the administrative boundary.

(2) Experiences in project implementation

Generally, MEOs developed Level I and Level II facilities with barangay counterpart (mostly labor). The requests for assistance from the province will be made when the municipalities consider such as beyond their funding capability. In addition, the provincial government extends direct assistance only upon request of the barangay officials. O&M is the responsibility of the barangay LGUs or communities.

In such cases, the following are pre-requisites: i) formation of the association in the relevant barangays, ii) exchange of MOA with the association, and iii) understanding that the association shall collect water charges. A certain amount will be remitted to the municipality and the rest, to be retained for O&M.

There are LGU waterworks providing Level III water supply systems besides the WDs providing water supply services to their franchise areas. Because of the low income generation at the initial operation stage, the employees of the municipality are required to work on the waterworks without additional compensation. Bookkeeping and accounting functions are also integrated into the regular municipal accounting function. However, to manage the waterworks properly, at least the accounts of the waterworks shall be segregated from the general account of the LGUs.

5.8 Community Development

5.8.1 General

This section presents the current status or the existing condition for community development (CD) in the Province of Northern Samar for the WATSAN sector from the side of the government, on one hand; and the point of view of the people and the communities served, on the other. Thus, it traces the development of CD through policy measures promulgated and/or enacted on the national level and shows how CD has filtered down to the local level.

The discussions are focused on the experience of the LGUs in performing CD work with reference to the typical manner through which the participation of the community is secured for the sector, whether these be Level I, Level II or Level III projects. The experience reveals the degree of readiness of the LGUs in doing CD work by examining the structures and linkages in place in the province that may either enhance or be an obstacle to the successful execution of sector projects. It also provides the true state of information, education and communication (IEC) processes in the province in so far as these relate to supporting sector projects.

The valuable information were taken from the following: i) The interviews undertaken with LGU officials during the study period; ii) The answers to the CD/GAD Questionnaire distributed to select provincial and municipal officials involved in sector development; iii) The Result of the Barangay Key Informant Survey, a survey administered to the officials of the select local communities (details are referred to the Supporting Report); and iv) Other documents provided by the national, regional, provincial, municipal and barangay level offices.

The other major part of this section presents the different levels of community participation in sector projects as determined by the people or the beneficiaries themselves. As such, it reveals the type and degree of involvement of the people in past sector projects and whether or not this involvement was adequate. It also illustrates the manner through which the beneficiaries want to actively participate in future sector projects, thereby demonstrating the predisposition and willingness of the community to commit themselves to new development projects.

The responses of the beneficiaries to the information desired are gender sensitive and were derived from the following: i) The Result of the Group Interview Survey (details are referred to the Supporting Report); ii) The Result of the Barangay Key Informant Survey; and iii) The results of studies conducted on CD by the national/regional/provincial agencies.

Due to time limitation, only two barangays were made to participate in the group interviews and three barangays in the key informant survey. But the results of these group interviews and surveys are highly indicative of the situation prevailing in the entire province in so far as participatory community development is concerned on both the government's point of view and the side of the community. The current CD status is not without its share of problems; but this is exactly the purpose of the study, that is, to improve the WATSAN sector's performance by plugging all leaks that may get in the way of the successful implementation of sector projects, CD included.

5.8.2 Provincial CD Structure and Linkages for WATSAN Sector Projects

The 1987 Philippine Constitution recognizes and mandates the participation of every Filipino in attaining overall national development. Thus, community development is utilized as a national strategy and has been adopted in the Medium Term Philippine Development Plan-1993-1998 (MTPDP) and the Updated MTPDP (1996-1998) to address the country's problems of poverty and unemployment. As a general policy, the Plan gives the greater masses of the people a voice in charting and implementing programs in the country while encouraging the collaboration of the private sector, non-government organizations and all other sectors of society in the formulation and implementation of plans, policies and programs supportive of the development goals of the country.

The Philippine National Development Plan: Directions for the 21st Century which was released early 1998 gives more focus to building the capacities of communities for self-reliance. By recognizing the people's self-dignity and inherent capacity to improve their own lives, community-based approaches will be utilized when delivering basic services to the people. Towards this end, a development planning system that institutionalizes the bottom-up planning process was adopted.

In the 1980s up to the mid 1990s, sector projects under the Barangay Water Program (BWP) and those funded out of OECF, WB and ADB were required some level of community participation but this was limited to the provision of free labor by a few beneficiaries during the construction of Level I facilities.

5.8.3 Assignment of CD Specialist to Sector Projects

There is a person trained on community development and focused on the WATSAN sector who is assigned to the Plans and Programs Division of the PPDO. Another person trained on

CD belongs to the DILG. These two are part of a WATSAN Team (composed of members from the DILG, PPDO, PEO and the PHO) which was responsible for organizing 29 Level I BWSA last year as well as providing training to 24 municipalities on CD, health and hygiene education, bookkeeping and O&M. Follow-up work, however, is direly needed to sustain the BWSAs' operational momentum.

The Provincial Health Office (PHO), on the other hand, also has a unit that undertakes, implements and conducts CD work. This unit is staffed; but no one is assigned to do CD work for the WATSAN sector because of the lack of manpower.

Generally, the Municipal Planning and Development Offices (MPDOs) and the municipal health offices (MHOs) in the municipalities do not have a CD unit to undertake barangay-level community development work for the WATSAN sector. The reasons cited were the lack of a plantilla position, insufficient budget as well as the scarcity of manpower.

Although there presently exists a CD unit within the PPDO, staffed with one CD specialist who is concentrated only on the WATSAN sector, there still is an apparent lack of identified major responsible players on CD in the LGUs. This creates a serious gap to the critical linkage and support of sector projects, from the provincial to the municipal and as far down as the barangay levels. Firstly, there is no CD framework in place and no permanent structure within the LGUs that serve as guideposts in doing CD work, except for the manner/experience done in the past WATSAN projects.

This leads to the second situation. CD work, to be successful, is a continuous and consistent undertaking. Without a CD framework, a permanent structure or identified responsible people for the undertaking, then any CD work started cannot prosper to its successful completion.

The third condition is really a question of whether the provincial and municipal officials are cognizant of and committed to the true importance of CD as a foundation activity for sustainable sector projects. This awareness on the importance of CD must be translated to giving full support -- financial, human and material -- to sector projects in their entirety. The LGU officials are in agreement that there should be better community participation in future WATSAN activities and projects for the facilities to be sustained. However, there is a need to reorient staff who would be involved in sector-related projects in order for them to learn some up-to-date techniques and strategies that are otherwise not present in previous CD processes.

5.8.4 Training on CD

The only training on CD for the province was the one conducted by the UNICEF and the Kabalikat Foundation sometime in October and November 1994 entitled: "Trainors Training on Community Organizing and Organizational Development." This training has not been followed up since.

The municipality of Lavezares received training on community organizing conducted more than 13 years ago.

The provincial and municipal LGUs showed willingness to facilitate CD training programs that are pertinent to the achievement of the sector plan under preparation as borne out by the discussions with the relevant officials and the Results of the Barangay Key Informant Survey.

Water district personnel also attended various training and seminars conducted by the Local Water Utilities Administration (LWUA) and other private training institutions that focused on administrative, financial and technical aspects of Level III water supply systems. The varied skills that WD staff learned can also be made applicable to small systems and therefore can be replicated or transferred to BWSA/RWSA personnel.

5.8.5 Utilization of NGOs

The provincial government considers non-government organizations or NGOs as partners in development in Northern Samar. Most of these NGOs' expertise, however, are focused on agriculture, livelihood and rural improvement. Two have been identified which can be tapped to do work for sector related projects. These are Melbourga Corrigedor and NOSERDEF, whose experience in community organizing can be utilized in CD groundwork needed for the WATSAN sector.

In any case, the different NGOs currently working in the province are known to have wide experience in dealing with the grassroots levels. They have knowledge of strategies on how to enter a community and blend with the local people. The provincial officials believe that tapping the assistance of other NGOs will not be difficult for the sector. The list of NGOs that have a track record of doing work in the province is updated on a yearly basis (refer to the Supporting Report for the List of NGOs and CBOs for Northern Samar).

5.8.6 Existing Community Development Processes

(1) Manner of Participation in Sector Development

The practice of the LGUs in encouraging community participation for sector projects was generally confined to the organization of a BWSA for Level I systems, a RWSA for Level II systems and a water district or LGU waterworks for a Level III system or combination of a Level II and Level III system. Once formed, the organized BWSA, RWSA, LGU-WS and WD became responsible for soliciting the participation and involvement of the users-beneficiaries in ensuring the sustainability of the WATSAN organization and its various projects and activities.

For the BWSA/RWSA, the users' participation was usually in the provision of free labor and in the donation of cash during the construction phase of the sector project. Left to the central and local government planners was the responsibility for the other stages of project development such as planning and design, monitoring and evaluation which included activities as project identification, site selection, water rate setting, and operation and maintenance. As a result, only a few BWSA/RWSA are presently in operation because WATSAN facilities have not been properly maintained and very few users continue to pay their water fees.

The results of the group interviews show that there has been little participation of the people in sector projects. However, these same survey results indicate that a big majority of the people are now receptive to playing a more dynamic role in sector projects as well as assume the responsibilities that go with the benefits derived from improvements in their water and sanitation facilities. Both the male and female beneficiaries professed willingness to form themselves into water associations, contribute cash, materials, and even site for the construction of WATSAN facilities. In addition, they are already primed to assume higher responsibilities in managing, operating and maintaining the self-reliant WATSAN facilities.

Water Districts (WDs), on the other hand, generally practice participatory community development. Users-beneficiaries are consulted on practically all phases of project development, that is, from the start of the water district's operation, before loans to be contracted, and before water rates are set and/or adjusted. Maintenance of the WATSAN facilities before the water meter, however, remains the responsibility of the water district.

(2) Typical CD Work

The typical CD work for the sector is a carry over from the manner it was done in past WATSAN programs. This includes the organization/formation of a water supply and sanitation association that follow the general guidelines set forth by the government such as project orientation at the barangay level. Such CD work also comprises regular general assemblies/meetings particularly on health and hygiene matters, and the conduct of skills training participated in by members of the beneficiary community.

More often than not, the agreement to organize the BWSA/RWSA was reached after one general assembly or organizational meeting called for the purpose. The BWSA/RWSA was tasked to operate and maintain the water supply and sanitation facilities. Annually, the WATSAN association members in Northern Samar are given different types of training, such as pre-organizational teach-ins, pre-operational and post completion training and operation and maintenance seminars.

The typical CD work for the PHO is described in part as the actual conduct of skills training on basic sanitation, water disinfection/chlorination, toilet bowl making and installation. It also includes the conduct of general assembly meetings to educate the community on health and hygiene as well as proper waste management and disposal. Education and work begins with identifying the potential leaders of the community.

In the result of the Barangay Key Informant Survey among the barangay officials and other community heads, it was found out that the barangay councils are willing to participate in sector projects specifically on the operation and maintenance of WATSAN facilities. The barangay councils are also willing to facilitate and/or pay for the training cost of volunteers who would eventually operate and maintain constructed facilities. The same survey showed the willingness of local residents to contribute cash or provide free labor for the repair and maintenance works as a manifestation of their active involvement with the BWSA.

In forming the water districts, LWUA, in coordination with the LGUs concerned, conducts a series of sectoral consultation with the community. Since water districts are formed at the option of the LGU, LWUA first consults the people, through a series of public hearings, to arrive a consensus on whether or not to form the water district. LWUA also encourages the community to participate in the selection of the WDs' five-man board of directors, who are nominated from various sectors. Once formed and operating, the water district conducts regular dialogues with its concessionaires on various is-

sues such as water rates formulation/adjustment, expansion program and other matters that may affect the people-WD relationship.

5.8.7 Information, Education and Communication (IEC) As Foundation Activities for Community Development

The province does not have an integrated IEC program on sector plans and programs. As such, CD, as the effective tool for getting full support and cooperation of the people toward the sustainability of WATSAN sector projects, is loosely established. The lack of an integrated provincial IEC program creates a gap in linking the municipalities and the barangays, important entities that could help generate the complete flow of community participation on sector projects. The provincial officials have attributed the lack of an IEC program to financial difficulties.

In a few municipalities, MPDOs collaborate with MHOs in undertaking comprehensive IEC programs. However, this has been limited in scale, again because of the lack of logistical support for such activities. What is done is the conduct of community assemblies, house-to-house and school visits to discuss health-related matters.

On the other hand, the water districts (WDs) generally implement a systematic and comprehensive IEC program. Most WDs produce printed information materials such as newsletters, leaflets and posters that are disseminated to the concessionaires. Regular press releases on WD development issues are submitted to local newspapers. There are some WDs that sponsor radio programs while others conduct regular dialogues with the community. Those that do not possess enough expertise are assisted by bigger WDs within the province/region (the concept of Godfather Water District) or by the Public Affairs Office of LWUA. A region-wide Water Information Network has been established with all WDs as members. This network undertakes regular public information drive and helps smaller WDs to disseminate information.

5.8.8 Health and Hygiene Education

Health and sanitation education is within the responsibility of the Provincial Health Office and its municipal counterpart. These offices have their own health and sanitation education programs collaborated in by the MPDO, the MLGOO, the municipal engineer, the rural health units, the Association of Barangay Councils (ABC) President and the local barangay units.

The programs being implemented by the PHO that have health and sanitation education components are supported by lecture-discussion formats and the actual demonstration through the use of IEC materials such as flip charts and posters. Printed fliers are also distributed to the target audiences, augmented by community assemblies, house-to-house and school visits to discuss health-related matters.

The key informant survey and barangay group interviews revealed that the people recognize the importance of good health and hygiene practices. Most of the women learned about health and sanitation matters from mostly health workers, health clinics, and hospitals. The men, on the other hand, learned health education from radio/TV and from family and friends

5.9 Gender

5.9.1 General

This section presents the current status or the existing condition for gender and development in the Province of Northern Samar for the WATSAN sector from the side of the government, on one hand; and the point of view of the people and the communities served, on the other. As such, it elucidates on the evolvement of gender policies on the national level and shows how these have filtered down to the local level where gender responsive planning has become a requirement for all development efforts on the WATSAN sector. It also reveals the extent of the awareness that the people and/or beneficiary communities have on gender matters as seen through their participation in past sector projects as well as their perceived participation in future projects.

Gender-related information were taken from the following: i) The interviews undertaken with LGU officials during the study period; ii) The answers to the CD/GAD Questionnaire distributed to select provincial and municipal officials involved in sector development; iii) The Result of the Barangay Key Informant Survey for Northern Samar administered to the officials of the select local communities; iv) The Result of the Group Interviews for Northern Samar conducted at the barangay level; and v) Other documents researched on and provided by the national, regional, provincial, municipal and barangay level offices.

5.9.2 The Evolution of Gender and Development

The 1987 Philippine Constitution recognizes and ensures the fundamental equality of women and men before the law and cites their respective roles in nation building. The National Commission on the Role of Filipino Women (NCRFW), established in 1975, ensures the inte-

gration of gender concerns in all aspects of the project development. In 1991, Republic Act 7192, better known as "Women in Development and Nation Building" was enacted to strengthen the mandate of the NCRFW. The Act called for the allocation of a substantial portion of the official development assistance funds from foreign governments and multilateral agencies to support programs and activities for women.

The adoption of the Philippine Plan for Gender Responsive Development (1995-2025) paved the way for full participation of women and men in planning and implementation of technology for infrastructure projects, including those in the water supply and sanitation sector. In 1995, the Office of the President issued Memorandum Order No. 282 directing various government training institutions to incorporate "Gender and Development (GAD) Concerns and Programs" in their curricula in order to further institutionalize gender and development programs. The General Appropriations Act of 1997 mandated all departments, offices and agencies to set aside a minimum amount of 5% out of their 1997 appropriations to be used for projects designed to address gender issues. The Local Government Code includes a provision giving political empowerment to women by creating sectoral seat for women to be elected in every local legislative assembly all over the country. To facilitate the whole process, a gender conscious system of data gathering, processing and generation has been established.

The significance of RA 7192 has started to gradually filter down to the LGU levels. The DILG gives Gender Awareness Orientation and Training to its officials and employees, from the central down to the municipal level. The purpose for this is not only to establish a common awareness on gender, but also to recognize that they are catalysts of growth and development for LGUs. In compliance with the policies enunciated in RA 7192, all government departments and agencies were directed to revise, review all their regulations, circulars, issuance and procedures to remove any gender bias. Thus, recent projects that national government agencies have incorporated gender concepts including the projects from the water and sanitation sector.

The DILG implements gender responsive WATSAN projects. The DPWH implemented in 1991 the First Rural Water Supply and Sanitation Project which adopted the "Women in Development" (WID) approach aimed to create support mechanisms to enable women to surmount problems regarding water and sanitation thereby increasing their productivity efforts and giving them greater participation in decision-making. Most of the water and sanitation projects of the DOH are directed towards the improvement of women's health and physical condition and their social status in the community. As such, implementation of most health and sanitation projects, including water supply, utilizes the women's sector in the community.