

Annex A

NEDA Board Resolution No. 5 (series of 1998)

**APPROVING THE IRR ON THE DELINEATION OF
RESPONSIBILITIES IN THE DEVELOPMENT AND
IMPLEMENTATION OF WATER
SUPPLY PROJECTS**

On motion duly seconded,

BE IT RESOLVED, as it is hereby resolved, to approve as it is hereby approved, the Implementing Rules and Regulations (IRR) on the Delineation of Responsibilities in the Development and Implementation of Water Supply Projects.

UNANIMOUSLY APPROVED, 17 March 1998.

NEDA Board Resolution No. 4 (series of 1994)

**APPROVING THE RECOMMENDATION OF THE
INFRASTRUCTURE
COMMITTEE (INFRACOM) ON THE REFORMS IN THE WATER
SUPPLY SECTOR**

On motion duly seconded,

BE ITS RESOLVED, as it is hereby resolved, to approve and confirm, as the same is hereby approved and confirmed the following recommendations of the INFRACOM:

- a. Registration with the National Water Resources board (NWRB) of all drilling and the extraction of water therefrom, irrespective of the use of extracted water and ownership of the land where the well is to be drilled. Amendment to Article 6 of the Water Code (PD No. 1067) shall be initiated by NWRB to this effect. Subsequently, NWRB shall formulate rules and regulations for the effective enforcement of this requirements within sixty (60) days after approval of the proposed amendment.
- b. Strengthening of the NWRB staff in order to effectively cope with the planning, monitoring and implementation activities of the water resources sector. NWRB shall submit an action plan to this effect to INFRACOM for review and endorsement to the President of the NEDA Board.
- c. Reorientation of the Local Water Utilities Administration (LWUA) to its original corporate mission as a "specialized lending institution" financing only viable water supply projects with tariff levels formulated towards full cost recovery. LWUA shall therefore upgrade its banking and finance expertise and immediately complete its financial restructuring. Further, it should radically improve its collection efficiency as well as its database and accounting systems.
- d. Privatization of all existing Water Districts (WDs) should be vigorously pursued whenever feasible and large commercially viable water services areas like Metro Manila, Cebu, Zamboanga, Davao should be formed or converted into SEC-style private water corporations, independent of LWUA and other government funding institutions by subject to regulation by NWRB.

- e. Procurement needs of WDs should be provided based on a competitive basis and not centrally imposed.
- f. LWUA shall submit an action plan to INFRACOM to effect the recommended reforms for review and endorsement.
- g. With respect to the delineation of responsibilities in the sector, NEDA Board Resolution No. 5 (series of 1998) is proposed to be amended to allow local government units (LGUs) to implement all levels of water supply projects consistent with government's decentralization and devolution process, mandating LWUA to implement only financially viable projects and further defining the roles of the agencies in the sector. The proposed amendment is as follows:

"Level I (point source system), Level II (communal faucet) and Level III (house connections?) water supply projects may be implemented by the concerned LGUs within their jurisdiction. LWUA shall implement only financially viable Level III water supply projects in areas outside the MWSS jurisdiction. DILG's participation will consist of general administration and institution building, such as assistance to the LGUs in the formation of Rural and/or Barangay Waterworks and Sanitation Associations (RWSAs/BWSAs) as well as in the identification of water supply systems. MWSS will be responsible for Level II water systems in Metro Manila and adjacent areas. DPWH, together with DILG and DOH, will provide technical assistance (within a period of about 2 years) to LGUs in the planning, implementation and operation and maintenance of water supply facilities".

UNANIMOUSLY APPROVED, 15 March 1994.

NEDA Board Resolution No. 6 (series of 1996)

**APPROVING THE RECOMMENDATIONS OF THE
INFRASTRUCTURE COMMITTEE (INFRACOM) ON THE
EXECUTING AGENCY ARRANGEMENT FOR THE DEVOLVED
INFRASTRUCTURE ACTIVITIES/FACILITIES**

On motion duly seconded,

BE IT RESOLVED as it is hereby resolved, to approve and confirm as the same is hereby approved and confirmed, the following recommendations of INFRACOM on national government (NG) assistance to Local Government Units (LGUs) in the implementation of devolved infrastructure activities/facilities under the Local Government Code in support of national priority programs in order to ensure efficiency, effectivity and more focused implementation consistent with the Government's decentralization and devolution objectives:

- a. DILG, which has administrative supervision over LGUs, shall be the lead national government agency (NGA) to oversee/administer NG assistance to LGUs in the implementation of devolved infrastructure programs/projects with the collaboration/participation of other concerned agencies. The identification and formulation of infrastructure programs/projects devolved to LGUs proposed for NG assistance shall therefore be coordinated with DILG to rationalize their development;
- b. The implementation of identified devolved infrastructure programs/projects shall be undertaken by the LGUs with DILG providing assistance in institution, capacity and capability building of the LGUs and with DPWH and other technical agencies providing and transferring technical expertise to the LGUs as necessary. The levels of capacities and capabilities of LGUs shall be determined by the DILG in coordination and collaboration with DPWH and other concerned agencies to determine, among others, the extent of support and assistance that these national agencies should provide in order to effect the successful implementation of devolved NG-assisted infrastructure programs/projects;
- c. DILG, as the lead agency, shall include in its annual budget the financial requirements necessary for the implementation of the identified and approved devolved infrastructure programs/projects.

This shall be without prejudice to any future funds arrangement that the national government may adopt with regard to NG assistance to LGUs for devolved projects particularly funds source from foreign loans and grants;

- d. For on-going and already committed devolved infrastructure programs/projects with NG assistance, the same shall be implemented with the previously identified NGA as lead in order not to disrupt its prosecution. However, there shall be phasing in at DILG and LGUs in the implementation arrangements for these devolved infrastructure projects in accordance with the provisions of this Resolution for purposes of policy and operational consistency and thus, effect a smooth transition;
- e. To efficiently and effectively implement the provisions of this Resolution, the INFRACOM shall formulate and periodically review the guidelines, rules and regulations that will already define the specific roles of the various concerned agencies in the implementation of NG assistance to LGUs for devolved infrastructure activities/utilities as well as the appropriate implementing mechanisms. In addition, INFRACOM shall likewise formulate the criteria and program for phasing out NG assistance to LGUs for devolved infrastructure activities/facilities;
- f. To carry out its tasks, the INFRACOM may request for financial and technical assistance from participating government agencies as well as from multilateral and bilateral sources; and
- g. The provisions of this Resolution shall apply to all NG assistance for devolved infrastructure activities/utilities unless otherwise explicitly provided for under the existing and future laws, such as the General Appropriations Act (GAA).

UNANIMOUSLY APPROVED, 12 March 1996.

MATRIX OF FINANCING AND MANAGEMENT OPTIONS

<u>O P T I O N</u>	<u>D E S C R I P T I O N</u>
LGU-Financed and Managed	The LGU finances the investment from its income and other resources available to it (e.g., URA, locally-generated taxes, grants) or borrows from a financial institution. It then establishes a profit center within the LGU office with a separate cost accounting system. Under this arrangement, the LGU directly manages the operations of the system. The LGU assumes the commercial risk.
Service Contract	The LGU finances the investment and directly operates and manages the system. It enters into contract with a private party to undertake billing and collection and/or repair and maintenance activities for a fee. The LGU maintains a profit center within the LGU office and assumes the commercial risk.
Management Contract	The LGU finances the investment and enters into contract with a private party to manage the system. The private party collects the water tariffs set by the LGU, operates and manages the system and in turn, is paid a management fee by the LGU. The LGU maintains a profit center within the LGU office and assumes the commercial risk.
Lease Contract	The LGU finances the capital expenditures and leases the facility to the private sector. The private sector assumes the commercial risks and the responsibility for operation and maintenance. To recover its costs, the private party is allowed to collect user fees as well as any other charges on behalf of the LGU.
Concession Contract	The LGU enters into contract with a private party to

undertake the investment. The private party assumes the assets of the LGU and undertakes to expand the services according to the terms and conditions of the contract. The private party is allowed to operate the system and to collect user fees to recover its costs and earn a reasonable return on its investment. After the contract expires, the system reverts to the LGU or may be contracted out again by the LGU.

Creation of a Local Water District

The LGU may create a local water district. The local water district finances the investment from a loan from the Local Water Utilities Administration (LWUA) and operates and manages the system. The local water district is then supervised by LWUA.

LGU Company

The LGU may form a water company to handle the provision of the service. The water company shall be duly registered with the Securities and Exchange Commission (SEC) and shall have share holdings which can be sold to the private sector in the future. The LGU appoints the board members to be selected from the private sector who would then manage the company along commercial principles.

Build-Operate-Transfer or any of its variants (per RA 6970 as amended)

Under the BOT scheme, the private sector finances the investment, operates it for a certain period of time after which the asset is transferred to the LGU. The private party is allowed to collect user fees to recover its costs and earn a reasonable rate of return on its investment. The LGU and the BOT proponent negotiate on the risk sharing.

Joint Venture Agreement

Under a joint venture agreement, the LGU and the private party share in the risks of the project and operate the system through a shared management and organizational structure.

**NEDA BOARD RESOLUTION
No. 5 (s. 1994)**

**APPROVING THE RECOMMENDATION
OF THE INFRASTRUCTURE COMMITTEE
(INFRACOM) ON THE NATIONAL POLICY,
STRATEGY AND ACTION PLAN FOR
URBAN SEWERAGE (LIQUID WASTE)
AND SANITATION**

On motion duly seconded,

BE IT RESOLVED, as it hereby resolved to approve as the same is hereby approved and confirmed the following recommendations of the INFRACOM:

A. NATIONAL POLICY

1. Provision of improved sewerage/sanitation services in urban areas shall be considered a high priority.
2. On-site sanitation facilities for all urban households / establishments readily adaptable to further sewerage systems shall be required.
3. All new subdivisions/housing developments shall provide simplified or conventional sewerage system/sanitation facilities.
4. Conventional or low-cost sewerage for central business districts and for potentially high-income residential areas where economically and financially viable shall be provided.
5. Treatment of industrial as well as collected city/municipality wastewater to established standards set forth by the DENR prior to disposal into the drainage system shall be required.
6. Provision of services shall be based on consumer demand and willingness to pay.

B. NATIONAL STRATEGY

1. A sanitation/sewerage program and a Central Sanitation/Sewerage program Support Office (CPSO) to coordinate subsector activities at the national level and to assist LGUs to plan and manage sanitation/sewerage programs at the community level shall be established.

2. External sources of assistance shall be explored provided as may be appropriate to enable Municipal Development Fund (MDF) facility or other financing sources to extend loans to LGUs for sanitation and sewerage projects.
3. LGUs shall primarily be the implementors of the sanitation/sewerage programs with the national government providing assistance to develop their capacities in the following areas: community participation, sub-sector planning, program management, regulation of development, selection of technologies, financial management, construction supervision, O&M, monitoring and reporting.

C. ACTION PLAN

1. A CPSO shall be created and housed at LWUA with the LWUA Board exercising over-all jurisdiction over its operations. An Inter-departmental Advisory Committee (IAC) composed of representatives from DPWH, DOH, DILG, DOF, DBM, LWUA, DENR, MWSS and NEDA shall likewise be created and act as the coordination body in the implementation and monitoring of urban sewerage and sanitation programs particularly the five (5) pilot areas (Davao City, Calamba, Dagupan City, Roxas City and Cotabato City). The representatives to the IAC shall preferably be Asst. Sec. or Dir. level. The Chairman of the IAC and the Dir. of the CPSO shall be appointed by the LWUA Board.
2. LWUA shall fully staff the CPSO from within its existing manpower as soon as possible. An international institutional development consultant shall be engaged to assist the CPSO to design and implement the activities. The CPSO shall exist for a period of about 3 to 5 years or until after its functions have been fully devolved to the LGUs.

UNANIMOUSLY APPROVED, 15 March 1994.

Certified true copy:

FORTUNATO R. ABRENILLA
Acting Board Secretary
and Director, Legal Staff



7. WATER SOURCE DEVELOPMENT
7.1 General

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)					Page: 1 of 11
Content: Water Source - General Information				Date:	
Data Collection Level: Provincial		Province No.: 0864		Filename: Water Source.xls	
Region Number: VIII		Province Name: Southern Leyte		Form Number: P.4.1	
	Type of Water Source		Shallow Well	Deep Well	Spring
	Total number of water sources	Number	2,598	414	496
Implementor	Government Agency	Number	905	294	496
	Private	Number	1,693	120	
Level	Level I	Number	2,598	409	239
	Level II	Number		3	210
	Level III	Number		2	47
Ownership	Water District	Number			4
	MEO/CEO	Number		1	95
	RWSA	Number			1
	BWSA	Number		2	38
	Institution	Number			
	Commercial Establishment	Number			
	Industrial/Agricultural Undertaking	Number			
	Public (Domestic)	Number	707	217	358
Private (Domestic)	Number	1,891	194		
Abstraction	Submersible/Turbine	Number			
	Centrifugal	Number			
	Handpump	Number			
	Bucket & Rope	Number			
	Free Flowing	Number			
Usage	Drinking	Number			
	Washing/Bathing	Number			
	Gardening/Irrigation	Number			
	Big-Scale Irrigation	Number			
	Production	Number			
Water Quality	No Quality Problem	Number			
	High Iron/Mag. Content	Number			
	High Chloride Content	Number			
	Turbidity/Colored/Smell	Number			
	Polluted/Contaminated	Number			
	Chlorinated	Number			
	Treated	Number			
Production	Seasonal Production	Number			
	Average Capacity < 240 m ³ /day	Number		2	70
	Average Capacity >= 240 m ³ /day	Number	2,598	412	426
	Number of Household < 5	Number			
	Number of Household >= 5	Number			

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)							Page: 2 of 11		
Content: Water Source - General Information						Date:			
Data Collection Level: Provincial			Province No.: 0864			Filename: Water Source.xls			
Region Number: VIII			Province Name: Southern Leyte			Form Number: P.4.1			
	Name of Municipalities	Character	Anahawan			Bontoc			
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring	
	Total number of water sources	Number		3	18	100	57	16	
Imple- mentor	Government Agency	Number		3	18	77	31	16	
	Private	Number				23	26		
Level	Level I	Number		3	8	100	56	7	
	Level II	Number			5			8	
	Level III	Number			5		1	1	
Ownership	Water District	Number							
	MEO/CEO	Number			5		1	9	
	RWSA	Number							
	BWSA	Number			5				
	Institution	Number							
	Commercial Establishment	Number							
	Industrial/Agricultural Undertaking	Number							
	Public (Domestic)	Number		3	8	77	30	7	
	Private (Domestic)	Number				23	26		
Abstraction	Submersible/Turbine	Number							
	Centrifugal	Number							
	Handpump	Number							
	Bucket & Rope	Number							
	Free Flowing	Number							
Usage	Drinking	Number							
	Washing/Bathing	Number							
	Gardening/Irrigation	Number							
	Big-Scale Irrigation	Number							
	Production	Number							
Water Quality	No Quality Problem	Number							
	High Iron-Manganese Content	Number							
	High Chloride Content	Number							
	Turbidity/Colored/Smell	Number							
	Polluted/Contaminated	Number							
	Chlorinated	Number							
	Treated	Number							
Production	Seasonal Production	Number							
	Average Capacity < 240 m ³ /day	Number							
	Average Capacity >= 240 m ³ /day	Number		3	18	100	57	16	
	Number of Household < 5	Number							
	Number of Household >= 5	Number							

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)							Page: 3 of 11	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 0864			Filename: Water Source.xls		
Region Number: VIII			Province Name: Southern Leyte			Form Number: P.4.1		
	Name of Municipalities	Character	Hinunangan			Hinundayan		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	168	14	40	8	12	15
Imple- mentor	Government Agency	Number	16	2	40	1	9	15
	Private	Number	152	12		7	3	
Level	Level I	Number	168	14	26	8	12	2
	Level II	Number			12			8
	Level III	Number			2			5
Ownership	Water District	Number						
	MIO/CEO	Number			12			
	RWSA	Number						
	BWSA	Number						8
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	16	2	28	1	9	7
Private (Domestic)	Number	152	12		7	3		
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number						
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number						
	Washing/Bathing	Number						
	Gardening/Irrigation	Number						
	Big-Scale Irrigation	Number						
	Production	Number						
Water Quality	No Quality Problem	Number						
	High Iron/Manganese Content	Number						
	High Chloride Content	Number						
	Turbidity/Colored/Smell	Number						
	Polluted/Contaminated	Number						
	Chlorinated	Number						
	Treated	Number						
Production	Seasonal Production	Number						
	Average Capacity < 240 m ³ /day	Number						3
	Average Capacity >= 240 m ³ /day	Number	168	14	40	8	12	12
	Number of Household < 5	Number						
	Number of Household >= 5	Number						

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)							Page: 4 of 11	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 0864			Filename: Water Source.xls		
Region Number: VIII			Province Name: Southern Leyte			Form Number: P.4.1		
	Name of Municipalities	Character	Libagon			Liloan		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	55		17	5	1	20
Imple-mentor	Government Agency	Number	35		17	3	1	20
	Private	Number	20			2		
Level	Level I	Number	55		10	5	1	5
	Level II	Number			6			15
	Level III	Number			1			
Ownership	Water District	Number						
	MEO/CEO	Number			7			15
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	35		10	3	1	5
	Private (Domestic)	Number	20			2		
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number						
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number						
	Washing/Bathing	Number						
	Gardening/Irrigation	Number						
	Big-Scale Irrigation	Number						
	Production	Number						
Water Quality	No Quality Problem	Number						
	High Iron/Manganese Content	Number						
	High Chloride Content	Number						
	Turbidity/Colored/Smell	Number						
	Polluted/Contaminated	Number						
	Chlorinated	Number						
	Treated	Number						
Production	Seasonal Production	Number						
	Average Capacity < 240 m ³ /day	Number			4			10
	Average Capacity >= 240 m ³ /day	Number	55		13	5	1	10
	Number of Household < 5	Number						
	Number of Household >= 5	Number						

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)							Page: 5 of 11	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 0864			Filename: Water Source.xls		
Region Number: VIII			Province Name: Southern Leyte			Form Number: P.4.1		
	Name of Municipalities	Character	Limasawa			Maasin (Capital)		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	302	6	2	459	74	71
Implementor	Government Agency	Number	43	6	2	155	74	71
	Private	Number	259			304		
Level	Level I	Number	302	4	1	459	73	55
	Level II	Number		2	1		1	15
	Level III	Number						1
Ownership	Water District	Number						1
	MEO/CEO	Number						
	RWSA	Number			1			
	BWSA	Number		2				
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number		4	1			70
	Private (Domestic)	Number	302			459	74	
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number						
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number						
	Washing/Bathing	Number						
	Gardening/Irrigation	Number						
	Big-Scale Irrigation	Number						
	Production	Number						
Water Quality	No Quality Problem	Number						
	High Iron/Manganese Content	Number						
	High Chloride Content	Number						
	Turbidity/Colored/Smell	Number						
	Polluted/Contaminated	Number						
	Chlorinated	Number						
	Treated	Number						
Production	Seasonal Production	Number						
	Average Capacity < 240 m ³ /day	Number		2				1
	Average Capacity >= 240 m ³ /day	Number	302	4	2	459	74	70
	Number of Household < 5	Number						
	Number of Household >= 5	Number						

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)						Page: 6 of 11		
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 0864			Filename: Water Source.xls		
Region Number: VIII			Province Name: Southern Leyte			Form Number: P.4.1		
	Name of Municipalities	Character	Macrohon			Malibog		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	185	90	32	695	72	49
Implementor	Government Agency	Number	2	90	32	127	34	49
	Private	Number	183			568	38	
Level	Level I	Number	185	90	22	695	71	29
	Level II	Number			7			20
	Level III	Number			3		1	
Ownership	Water District	Number						
	MEO/CEO	Number			8			
	RWSA	Number						
	BWSA	Number						20
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	2	90	24	127	34	29
Private (Domestic)	Number	183			568	38		
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number						
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number						
	Washing/Bathing	Number						
	Gardening/Irrigation	Number						
	Big-Scale Irrigation	Number						
	Production	Number						
Water Quality	No Quality Problem	Number						
	High Iron/Manganese Content	Number						
	High Chloride Content	Number						
	Turbidity/Color/Smell	Number						
	Polluted/Contaminated	Number						
	Chlorinated	Number						
	Treated	Number						
Production	Seasonal Production	Number						
	Average Capacity < 240 m ³ /day	Number			7			
	Average Capacity >= 240 m ³ /day	Number	185	90	25	695	72	49
	Number of Household < 5	Number						
Number of Household >= 5	Number							

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)							Page: 7 of 11	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 0864			Filename: Water Source.xls		
Region Number: VIII			Province Name: Southern Leyte			Form Number: P.4.1		
	Name of Municipalities		Padre Burgos			Pintayan		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
Implic-mentor	Total number of water sources	Number	51	3	11			23
	Government Agency	Number	44	2	11			23
	Private	Number	7	1				
Level	Level I	Number	51	3	7			3
	Level II	Number			4			16
	Level III	Number						4
Ownership	Water District	Number						
	MEO/CEO	Number			4			20
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	44	2	7			3
Private (Domestic)	Number	7	1					
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number						
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number						
	Washing/Bathing	Number						
	Gardening/Irrigation	Number						
	Big-Scale Irrigation	Number						
	Production	Number						
Water Quality	No Quality Problem	Number						
	High Iron/Manganese Content	Number						
	High Chloride Content	Number						
	Turbidity/Colored/Smell	Number						
	Polluted/Contaminated	Number						
	Chlorinated	Number						
	Treated	Number						
Production	Seasonal Production	Number						
	Average Capacity < 240 m ³ /day	Number			1			16
	Average Capacity >= 240 m ³ /day	Number	51	3	10			7
	Number of Household < 5	Number						
	Number of Household >= 5	Number						

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)							Page: 8 of 11	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 0864			Filename: Water Source.xls		
Region Number: VIII			Province Name: Southern Leyte			Form Number: P.4.1		
	Name of Municipalities	Character	Saint Bernard			San Francisco		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	21	18	10	50	1	51
Imple- mentor	Government Agency	Number	15	1	10	20	1	51
	Private	Number	6	17		30		
Level	Level I	Number	21	18		50	1	32
	Level II	Number			8			18
	Level III	Number			2			1
Ownership	Water District	Number						
	MEO/CEO	Number			5			
	RWSA	Number						
	BWSA	Number			5			
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	15	1		20	1	51
Private (Domestic)	Number	6	17		30			
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number						
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number						
	Washing/Bathing	Number						
	Gardening/Irrigation	Number						
	Big-Scale Irrigation	Number						
	Production	Number						
Water Quality	No Quality Problem	Number						
	High Iron/Manganese Content	Number						
	High Chloride Content	Number						
	Turbidity/Colored/Smell	Number						
	Polluted/Contaminated	Number						
	Chlorinated	Number						
	Treated	Number						
Production	Seasonal Production	Number						
	Average Capacity < 240 m ³ /day	Number			8			
	Average Capacity >= 240 m ³ /day	Number	21	18	2	50	1	51
	Number of Household < 5	Number						
Number of Household >= 5	Number							

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)							Page: 9 of 11	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 0864			Filename: Water Source.xls		
Region Number: VIII			Province Name: Southern Leyte			Form Number: P.4.1		
	Name of Municipalities		San Juan (Cabalian)			San Ricardo		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	70	19	15	2	1	13
Implementor	Government Agency	Number	58	11	15	2	1	13
	Private	Number	12	8				
Level	Level I	Number	70	19		2	1	
	Level II	Number			15			9
	Level III	Number						4
Ownership	Water District	Number						
	MEO/CLO	Number						9
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	58	11	15	2	1	4
Private (Domestic)	Number	12	8					
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number						
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number						
	Washing/Bathing	Number						
	Gardening/Irrigation	Number						
	Big-Scale Irrigation	Number						
	Production	Number						
Water Quality	No Quality Problem	Number						
	High Iron/Manganese Content	Number						
	High Chloride Content	Number						
	Turbidity/Colored/Smell	Number						
	Polluted/Contaminated	Number						
	Chlorinated	Number						
	Treated	Number						
Production	Seasonal Production	Number						
	Average Capacity < 240 m ³ /day	Number			10			3
	Average Capacity >= 240 m ³ /day	Number	70	19	5	2	1	10
	Number of Household < 5	Number						
	Number of Household >= 5	Number						

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)						Page: 10 of 11		
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 0864			Filename: Water Source.xls		
Region Number: VIII			Province Name: Southern Leyte			Form Number: P.4.1		
	Name of Municipalities	Character	Sitago			Sogod		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	12	9	41	385	26	27
Imple- mentor	Government Agency	Number	8	9	41	283	11	27
	Private	Number	4			102	15	
Level	Level I	Number	12	9	24	385	26	6
	Level II	Number			4			18
	Level III	Number			13			3
Ownership	Water District	Number						3
	MEO/CEO	Number			1			
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	8	9	40	283	11	24
	Private (Domestic)	Number	4			102	15	
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number						
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number						
	Washing/Bathing	Number						
	Gardening/Irrigation	Number						
	Big-Scale Irrigation	Number						
	Production	Number						
Water Quality	No Quality Problem	Number						
	High Iron/Manganese Content	Number						
	High Chloride Content	Number						
	Turbidity/Colored/Smell	Number						
	Polluted/Contaminated	Number						
	Chlorinated	Number						
	Treated	Number						
Production	Seasonal Production	Number						
	Average Capacity < 240 m ³ /day	Number			4			2
	Average Capacity >= 240 m ³ /day	Number	12	9	37	385	26	25
	Number of Household < 5	Number						
	Number of Household >= 5	Number						

Table 7.1.1 Water Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)						Page: 11 of 11		
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 0864			Filename: Water Source.xls		
Region Number: VIII			Province Name: Southern Leyte			Form Number: P.4.1		
Name of Municipalities	Character	Tomas Oppus						
		Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well
Total number of water sources	Number	30	8	25				
Implementor	Government Agency	Number	16	8	25			
	Private	Number	14					
Level	Level I	Number	30	8	2			
	Level II	Number			21			
	Level III	Number			2			
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	16	8	25			
	Private (Domestic)	Number	14					
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number						
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number						
	Washing/Bathing	Number						
	Gardening/Irrigation	Number						
	Big-Scale Irrigation	Number						
	Production	Number						
Water Quality	No Quality Problem	Number						
	High Iron/Manganese Content	Number						
	High Chloride Content	Number						
	Turbidity/Colored/Smell	Number						
	Polluted/Contaminated	Number						
	Chlorinated	Number						
	Treated	Number						
Production	Seasonal Production	Number						
	Average Capacity < 240 m ³ /day	Number			1			
	Average Capacity >= 240 m ³ /day	Number	30	8	24			
	Number of Household < 5	Number						
	Number of Household >= 5	Number						

Table 7.1.2 Major References

Report/Information	Agency/Author	Contents	Reference Data/Description	Output
1. Topographic Map (1:250,000)	NAMRIA	political boundary, topographic contour, river, road, etc.	major river basins & road	Location Map (Base Map of the Province)
2. Rapid Assessment of Water Supply Sources	NWRB	groundwater availability, well inventory	well depth, static water level, specific capacity, etc.	Groundwater Availability Map
3. Individual Well Information Database	NWRB	location & well inventory	location with well depths & water levels	Individual Well Location Map
4. Groundwater Resources Investigation	NWRB	groundwater potential	high yielding and water quality problem areas	Groundwater Availability Map
5. Geological Map of the Philippines	BMGS	lithologic distribution and structures	aquifers distribution	Groundwater Availability Map
6. Philippine Water Resources Summary Data	NWRB	location map & runoff records	runoff record & statistical data	River Flow Duration Curve & Probability of Surface Water
7. Road Network Map of the Province	PPDC	major road & municipality boundaries	municipal boundaries	Distribution Map of Urban & Rural Areas
8. Feasibility Study Reports of the Water Districts	LWUA	well field information	groundwater potential & quality	Groundwater Availability Map
9. Water Quality Analysis Result	Water Districts	water quality results	water sources quality	Groundwater Availability Map & Groundwater Quality
10. Water Quality Analysis Result	PHO, PSPT	water quality results	water sources quality	Groundwater Availability Map & Water Sources Quality
11. Assessment of the Mineral Production	DENR	location, activity of the mining sites	location & activity of the mining sites	River Network Map
12. General Information of Groundwater	DEO, PSPT	groundwater availability	low yielding and water quality problem area	Groundwater Availability Map
13. Well Inventory	DEO, PSPT	location and well information	well depth, static water level, specific capacity, etc.	Existing Well Inventory
14. Spring Inventory	DEO, PSPT	location and spring information	discharge, distance & elevation	Water Sources Information
15. Pumping Test Data	DEO	pumping test results	well capacity	Groundwater Availability Map

7.3 Groundwater Sources

7.3.1 Classification of Groundwater Availability

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWI. (mbgs)	Spe. Cap. (psm)
Anahawan	Amagusan	Level-I	SW	7.0	3.0	0.2
	Canlabian	Level-I	SW	7.0	3.0	0.2
	Canlabian	Level-I	SW	12.0	3.0	0.2
	Cogon	Level-I	SW	7.0	3.0	0.2
	Cogon	Level-I	SW	8.0	3.0	0.2
	Lewing	Level-III	SW	12.0	0.5	2.3
	Lo-ok	Level-I	SW	12.0	3.0	0.2
	Mahato	Level-I	SW	6.0	3.0	0.2
	Mainit	Level-I	SW	18.0	3.0	0.2
	Poblacion	Level-III	SW	10.0	6.0	6.9
	Bontoc	Anahao	Level-I	SW	6.0	3.0
Beniton		Level-I	SW	3.0	3.0	0.2
Buenavista		Level-I	DW	48.0	3.0	0.2
Bunga		Level-I	DW	35.0	3.0	0.2
Casao		Level-I	DW	21.0	3.0	0.2
Casao		Level-I	SW	18.0	3.0	0.2
Cawayanan		Level-I	SW	6.0	3.0	0.2
Dao		Level-I	DW	23.0	3.0	0.2
Divisoria		Level-I	DW	36.0	3.0	0.2
Esperanza		Level-I	SW	12.0	3.0	0.2
Guinsangaan		Level-I	DW	33.0	3.0	0.2
Hibagwan		Level-I	DW	25.0	3.0	0.2
Hilaan		Level-I	SW	15.0	3.0	0.2
Himakilo		Level-I	DW	23.0	3.0	0.2
Mahayahay		Level-I	SW	12.0	3.0	0.2
Malbago		Level-I	SW	15.0	3.0	0.2
Maugop		Level-I	SW	15.0	3.0	0.2
Maulyab		Level-I	SW	9.0	3.0	0.2
Paku		Level-I	DW	24.0	3.0	0.2
Pamahawan		Level-I	SW	12.0	3.0	0.2
Poblacion		Level-I	SW	12.0	3.0	0.2
Pong-on		Level-I	SW	15.0	3.0	0.2
Sampongon		Level-I	SW	9.0	3.0	0.2
San Ramon		Level-I	SW	12.0	3.0	0.2
San Vicente		Level-I	DW	36.0		0.2
Santa Cruz		Level-I	DW	36.0	3.0	0.2
Santo Nino		Level-I	SW	12.0	3.0	0.2
Talisay		Level-I	DW	39.0	3.0	0.2
Taylagan	Level-I	SW	19.0	3.0	0.2	
Union	Level-I	DW	36.0	3.0	0.2	
Hinunangan	Badiangon	Level-I	SW	12.0	3.0	0.2
	Bangcas A	Level-I	SW	18.0	3.0	0.2
	Bangcas B	Level-I	SW	18.0	3.0	0.2
	Biasong	Level-I	SW	18.0	3.0	0.2
	Bugho	Level-I	SW	12.0	3.0	0.2
	Calayugan	Level-I	SW	12.0	3.0	0.2
	Calinao	Level-I	SW	12.0	3.0	0.2

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbgs)	Spe. Cap. (lpsm)
Hinunangan	Canipaan	Level-I	SW	18.0	3.0	0.2
	Ingan	Level-I	SW	12.0	3.0	0.2
	Labrador	Level-I	SW	18.0	3.0	0.2
	Manalog	Level-I	SW	12.0	3.0	0.2
	Nava	Level-I	SW	18.0	3.0	0.2
	Otama	Level-I	SW	12.0	3.0	0.2
	Panalaron	Level-I	SW	18.0	3.0	0.2
	Patong	Level-I	SW	12.0	3.0	0.2
	Poblacion	Level-I	SW	18.0	3.0	0.2
	Pondol	Level-I	SW	18.0	3.0	0.2
	Salog	Level-I	SW	18.0	3.0	0.2
	San Pablo Island	Level-I	DW	60.0	3.0	0.2
	San Pedro Island	Level-I	DW	60.0	3.0	0.2
	Santo Nino I	Level-I	SW	12.0	3.0	0.2
	Tahusan	Level-I	SW	18.0	3.0	0.2
	Talisay	Level-I	SW	18.0	3.0	0.2
	Tawog	Level-I	SW	12.0	3.0	0.2
	Toptop	Level-I	SW	12.0	3.0	0.2
Union	Level-I	SW	12.0	3.0	0.2	
Hinundayan	Ambao	Level-I	SW	5.0	3.0	0.2
	Ambao	Level-I	SW	9.0	3.0	0.2
	An-an	Level-I	SW	12.0	3.0	0.2
	Lungsodaan	Level-I	SW	5.0	3.0	0.2
	Lungsodaan	Level-I	SW	10.0	3.0	0.2
	Sagbok	Level-I	SW	5.0	3.0	0.2
Libagon	Biasong	Level-I	SW	5.4	3.0	0.2
	Bogasong	Level-I	SW	5.7	6.0	0.2
	Cawayan	Level-I	SW	6.0	3.0	0.2
	Gakat	Level-I	SW	6.0	3.0	0.2
	Gakat	Level-I	SW	6.0	3.0	0.2
	Jubas (Pob.)	Level-I	SW	6.0	6.0	0.2
	Magkasag	Level-I	SW	5.7	3.0	0.2
	Mayuga	Level-I	SW	6.0	3.0	0.2
	Mayuga	Level-I	SW	6.0	3.0	0.2
	Nahaong	Level-I	SW	6.0	3.0	0.2
	Nahulid	Level-I	SW	6.0	3.0	0.2
	Onkon	Level-I	SW	6.0	3.0	0.2
	Pangi	Level-I	SW	6.0	3.0	0.2
	Punta	Level-I	SW	6.0	6.0	0.2
	Talisay (Pob.)	Level-I	SW	6.0	6.0	0.2
Tigbao	Level-I	SW	6.0	3.0	0.2	
Liloan	Himayangan	Level-I	SW	10.0	3.0	0.2
	Molopolo	Level-I	SW	8.0	3.0	0.2
	President Roxas	Level-I	SW	10.0	3.0	0.2
	Tabugon	Level-I	SW	6.0	3.0	0.2
Limasawa	Cabulihan	Level-I	SW	6.0	3.0	0.2
	Cabulihan	Level-I	SW	17.6	3.0	0.2

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbgs)	Sp. Cap. (lpsm)
Limasawa	Lugsongan	Level-I	SW	8.5	3.0	0.2
	Lugsongan	Level-I	SW	16.0	3.0	0.2
	Lugsongan	Level-II	SW	7.0	2.0	6.7
	Magallanes	Level-I	SW	6.0	3.0	0.2
	Magallanes	Level-I	SW	15.2	3.0	0.2
	Magallanes	Level-II	SW	6.5	2.0	6.7
	San Bernardo	Level-I	SW	7.6	3.0	0.2
	San Bernardo	Level-I	SW	9.0	3.0	0.2
	Triana	Level-I	SW	6.0	3.0	0.2
	Triana	Level-I	SW	13.0	3.0	0.2
Maasin	Abgao (Pob.)	Level-I	SW	6.0	3.0	0.2
	Asuncion	Level-I	SW	12.0	3.0	0.2
	Bactul I	Level-I	SW	6.0	3.0	0.2
	Bactul I	Level-I	SW	18.0	-	0.2
	Bactul II	Level-I	SW	9.0	3.0	0.2
	Bactul II	Level-I	SW	18.0	-	0.2
	Badiang	Level-I	SW	9.0	3.0	0.2
	Badiang	Level-I	SW	18.0	-	0.2
	Basak	Level-I	SW	12.0	3.0	0.2
	Basak	Level-I	SW	18.0	-	0.2
	Bato I	Level-I	SW	15.0	3.0	0.2
	Bato I	Level-I	SW	18.0	-	0.2
	Bato II	Level-I	DW	21.2	3.0	0.2
	Batuan	Level-I	SW	6.0	3.0	0.2
	Baugo	Level-I	SW	12.0	3.0	0.2
	Bilibol	Level-I	SW	12.0	3.0	0.2
	Bilibol	Level-I	SW	18.0	-	0.2
	Bogo	Level-I	SW	6.0	3.0	0.2
	Cabadiangan	Level-I	SW	4.0	3.0	0.2
	Cagnituan	Level-I	SW	9.0	3.0	0.2
	Cagnituan	Level-I	SW	18.0	-	0.2
	Cansirong	Level-I	SW	9.0	3.0	0.2
	Canturing	Level-I	DW	29.0	-	0.2
	Canturing	Level-I	SW	9.0	3.0	0.2
	Canyuom	Level-I	SW	12.0	3.0	0.2
	Canyuom	Level-I	SW	18.0	-	0.2
	Combado	Level-I	SW	8.0	3.0	0.2
	Combado	Level-I	SW	18.0	-	0.2
	Dongon	Level-I	SW	8.0	3.0	0.2
	Dongon	Level-I	SW	18.0	-	0.2
	Guadalupe	Level-I	SW	9.0	3.0	0.2
	Guadalupe	Level-I	SW	18.0	-	0.2
	Hanginan	Level-I	SW	12.0	3.0	0.2
Hantag	Level-I	SW	18.0	3.0	0.2	
Hinapu Daku	Level-I	SW	9.0	-	0.2	
Hinapu Gamay	Level-I	SW	12.0	-	0.2	
Ibarra	Level-I	SW	9.0	-	0.2	

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWI. (mbgs)	Spe. Cap. (lpsm)
Maasin	Laboon	Level-I	SW	6.0	-	0.2
	Lanao	Level-I	SW	12.0	-	0.2
	Libertad	Level-I	SW	12.0	-	0.2
	Libhu	Level-I	SW	9.0	-	0.2
	Libhu	Level-I	SW	18.0	-	0.2
	Lib-og	Level-I	SW	18.0	-	0.2
	Lonoy	Level-I	SW	12.0	-	0.2
	Lunas	Level-I	SW	12.0	-	0.2
	Mahayahay	Level-I	SW	9.0	-	0.2
	Malapoc Norte	Level-I	SW	12.0	-	0.2
	Mambajao (Pob.)	Level-I	SW	6.0	-	0.2
	Manhilo	Level-I	SW	6.0	-	0.2
	Mantahan (Pob.)	Level-I	SW	12.0	-	0.2
	Mantahan (Pob.)	Level-I	SW	18.0	-	0.2
	Maria Clara	Level-I	SW	12.0	-	0.2
	Maria Clara	Level-I	SW	18.0	-	0.2
	Matin-ao	Level-I	SW	9.0	-	0.2
	Nonok Norte	Level-I	SW	9.0	-	0.2
	Nonok Norte	Level-I	SW	18.0	-	0.2
	Panan-awan	Level-I	SW	12.0	-	0.2
	Panan-awan	Level-I	SW	18.0	-	0.2
	Rizal	Level-I	SW	9.0	-	0.2
	Rizal	Level-I	SW	18.0	-	0.2
	San Jose	Level-I	DW	24.4	-	0.2
	San Rafael	Level-I	SW	6.0	-	0.2
	Santa Cruz	Level-I	SW	9.0	-	0.2
	Santa Rosa	Level-I	SW	6.0	-	0.2
	Santo Nino	Level-I	SW	6.0	-	0.2
	Santo Rosario	Level-I	SW	9.0	-	0.2
	Soro-soro	Level-I	SW	6.0	-	0.2
	Tagnipa (Pob.)	Level-I	SW	9.0	-	0.2
Tam-is	Level-I	SW	9.0	-	0.2	
Tawid	Level-I	SW	6.0	-	0.2	
Tigbawan	Level-I	SW	18.0	-	0.2	
Macrohon	Aguinaldo	Level-I	SW	7.0	3.0	0.2
	Amparo	Level-I	SW	6.0	3.0	0.2
	Amparo	Level-I	SW	18.0	3.0	0.2
	Amparo	Level-I	SW	18.0	3.0	0.2
	Amparo	Level-III	DW	24.0	9.5	6.7
	Asuncion	Level-I	DW	30.0	6.0	0.2
	Buscayan	Level-I	DW	30.0	3.0	0.2
	Cambaro	Level-I	DW	35.0	6.0	0.2
	Canlusay	Level-I	DW	24.0	3.0	0.2
	Flordeliz	Level-I	DW	24.0	3.0	0.2
	Guadalupe	Level-I	SW	15.0	3.0	0.2
	Ichon	Level-I	SW	12.0	3.0	0.2
	Hihan	Level-I	SW	6.0	3.0	0.2

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbgs)	Spe. Cap. (lpsm)
Macrohon	Mabini	Level-I	SW	6.0	3.0	0.2
	Mohon	Level-I	SW	6.0	3.0	0.2
	Rizal	Level-I	SW	5.0	3.0	0.2
	Rizal	Level-I	SW	15.0	3.0	0.2
	San Joaquin	Level-I	SW	4.0	3.0	0.2
	San Joaquin	Level-I	SW	6.0	3.0	0.2
	San Roque	Level-I	SW	6.0	3.0	0.2
	San Roque	Level-I	SW	18.0	3.0	0.2
	San Vicente Poblacion	Level-I	SW	5.0	3.0	0.2
	San Vicente Poblacion	Level-I	SW	12.0	3.0	0.2
	Santa Cruz (Pob.)	Level-I	SW	5.0	3.0	0.2
	Santa Cruz (Pob.)	Level-I	SW	12.0	3.0	0.2
	Santo Rosario (Pob.)	Level-I	SW	5.0	3.0	0.2
	Santo Rosario (Pob.)	Level-I	SW	6.0	3.0	0.2
	Malibog	Abgao	Level-I	DW	27.0	3.0
Asuncion		Level-I	SW	5.4	3.0	0.2
Benit		Level-I	DW	28.0	3.0	0.2
Benit		Level-I	SW	5.5	3.0	0.2
Caaga		Level-I	SW	5.4	3.0	0.2
Cabul-anonan (Pob.)		Level-I	SW	5.7	3.0	0.2
Candatag		Level-I	DW	22.0	6.0	0.2
Candatag		Level-I	SW	5.9	3.0	0.2
Cantamuac		Level-I	SW	5.7	3.0	0.2
Concepcion		Level-I	DW	22.0	3.0	0.2
Concepcion		Level-I	SW	5.9	3.0	0.2
Iba		Level-I	SW	5.9	3.0	0.2
Juargon		Level-I	DW	28.0	6.0	0.2
Juargon		Level-I	SW	5.7	3.0	0.2
Mahayahay		Level-I	DW	23.0	6.0	0.2
Maujo		Level-I	SW	5.5	3.0	0.2
Pansil		Level-I	SW	5.5	3.0	0.2
Sabang		Level-I	DW	21.0	3.0	0.2
Sabang		Level-I	SW	5.9	3.0	0.2
San Antonio (Pob.)		Level-I	SW	5.7	3.0	0.2
San Isidro		Level-I	SW	5.9	6.0	0.2
San Jose		Level-I	DW	22.0	3.0	0.2
San Jose		Level-I	SW	5.5	3.0	0.2
San Roque		Level-I	DW	21.0	3.0	0.2
San Roque		Level-I	SW	6.0	3.0	0.2
San Vicente		Level-I	DW	22.0	6.0	0.2
San Vicente		Level-I	SW	6.0	3.0	0.2
Santo Nino		Level-I	DW	23.0	6.0	0.2
Santo Nino		Level-I	SW	6.0	3.0	0.2
Taliwa (Pob.)		Level-I	SW	6.0	3.0	0.2
Tigbawan I		Level-I	DW	22.0	6.0	0.2
Padre Burgos		Buenavista	Level-I	SW	5.0	3.0
	Buenavista	Level-I	SW	9.0	3.0	0.2

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWI. (mbgs)	Spe. Cap. (lpsm)
Padre Burgos	Bunga	Level-I	SW	6.0	3.0	0.2
	Bunga	Level-I	SW	9.0	3.0	0.2
	Cantutang	Level-I	SW	6.0	3.0	0.2
	Cantutang	Level-I	SW	9.2	3.0	0.2
	Dinahugan	Level-I	SW	7.0	3.0	0.2
	Dinahugan	Level-I	SW	12.0	3.0	0.2
	Lungsodaaan	Level-I	SW	6.0	3.0	0.2
	Lungsodaaan	Level-I	SW	9.0	3.0	0.2
	Poblacion	Level-I	SW	6.0	3.0	0.2
	Poblacion	Level-I	SW	8.0	3.0	0.2
	San Juan	Level-I	SW	6.5	3.0	0.2
	San Juan	Level-I	SW	6.5	3.0	0.2
	Santa Sofia	Level-I	SW	6.0	3.0	0.2
	Santo Rosario	Level-I	SW	7.0	3.0	0.2
	Santo Rosario	Level-I	SW	7.5	3.0	0.2
	San Francisco	Central (Pob.)	Level-I	SW	5.0	3.0
Central (Pob.)		Level-II	SW	5.0	4.0	0.9
Dakit (Pob.)		Level-I	SW	5.0	3.0	0.2
Dakit (Pob.)		Level-II	SW	5.0	4.0	1.4
Gabi		Level-I	SW	5.0	3.0	0.2
Gabi		Level-II	SW	5.0	4.0	0.5
Marayag		Level-I	SW	5.0	3.0	0.2
Marayag		Level-II	SW	5.0	4.0	1.9
Napantao		Level-I	SW	4.0	3.0	0.2
Napantao		Level-II	SW	4.0	3.5	0.5
Santa Paz Norte		Level-I	SW	7.0	3.0	0.2
Santa Paz Norte		Level-II	SW	11.0	6.0	1.9
Santa Paz Sur		Level-I	SW	7.0	3.0	0.2
Santa Paz Sur		Level-II	SW	7.0	6.0	1.9
Ubos (Pob.)		Level-I	SW	5.0	3.0	0.2
Ubos (Pob.)		Level-II	SW	5.0	4.0	1.9
San Juan (Cabalian)	Agay-ay	Level-I	SW	6.0	3.0	0.2
	Basak	Level-I	SW	8.0	3.0	0.2
	Basak	Level-I	SW	10.0	3.0	0.2
	Bobon A	Level-I	SW	8.0	3.0	0.2
	Bobon A	Level-I	SW	10.0	3.0	0.2
	Bobon B	Level-I	SW	8.0	3.0	0.2
	Bobon B	Level-I	SW	10.0	3.0	0.2
	Dayanog	Level-I	SW	12.0	3.0	0.2
	Minoyho	Level-I	SW	8.0	3.0	0.2
	Minoyho	Level-I	SW	8.0	3.0	0.2
	Osao	Level-I	SW	8.0	3.0	0.2
	Osao	Level-I	SW	8.0	3.0	0.2
	Pong-oy	Level-I	SW	8.0	3.0	0.2
	Pong-oy	Level-I	SW	10.0	3.0	0.2
	San Jose (Pob.)	Level-I	DW	20.0	3.0	0.2
	San Jose (Pob.)	Level-I	SW	15.0	3.0	0.2

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbgs)	Spe. Cap. (lpsm)
San Juan (Cabalian)	Santa Cruz (Pob.)	Level-I	DW	21.0	3.0	0.2
	Santa Cruz (Pob.)	Level-I	SW	16.0	3.0	0.2
	Santo Nino (Pob.)	Level-I	DW	20.0	3.0	0.2
	Santo Nino (Pob.)	Level-I	SW	15.0	3.0	0.2
	Somoje	Level-I	SW	10.0	3.0	0.2
	Timba	Level-I	SW	8.0	3.0	0.2
San Ricardo	Benit	Level-I	SW	12.0	3.0	0.2
	Benit	Level-I	SW	18.0	3.0	0.2
Sifago	Balagawan	Level-I	SW	8.6	6.0	0.2
	Hingatungan	Level-I	SW	4.6	4.6	0.2
	Mercedes	Level-I	SW	9.2	6.0	0.2
	Pob. District I	Level-I	SW	6.1	6.0	0.2
	Pob. District II	Level-I	SW	4.6	4.6	0.2
	Pob. District II	Level-I	SW	9.2	6.0	0.2
	Sap-ang	Level-I	SW	4.6	3.0	0.2
	Sap-ang	Level-I	SW	9.2	3.0	0.2
	Sudmon	Level-I	SW	6.1	3.0	0.2
Sogod	Concepcion	Level-I	SW	12.0	3.0	0.2
	Consolacion	Level-I	SW	9.0	3.0	0.2
	La Purisima Concepcion	Level-I	SW	6.0	3.0	0.2
	Mac	Level-I	SW	12.0	3.0	0.2
	Salvacion	Level-I	SW	9.0	3.0	0.2
	San Jose	Level-I	SW	8.0	3.0	0.2
	Tampoong	Level-I	SW	6.0	3.0	0.2
	Zone I (Pob.)	Level-I	SW	9.0	3.0	0.2
	Zone II (Pob.)	Level-I	SW	6.0	3.0	0.2
	Zone III (Pob.)	Level-I	SW	9.0	3.0	0.2
	Zone III (Pob.)	Level-II	SW	9.0	2.0	1.4
	Zone IV (Pob.)	Level-I	SW	12.0	3.0	0.2
	Zone V (Pob.)	Level-I	SW	8.0	3.0	0.2
	Zone V (Pob.)	Level-I	SW	19.0	3.0	0.2
Tomas Oppus	Banday (Pob.)	Level-I	SW	18.0	3.0	0.2
	Bogo (Pob.)	Level-I	SW	12.0	3.0	0.2
	Canlupao	Level-I	SW	18.0	3.0	0.2
	Higosoan	Level-I	DW	24.0	3.0	0.2
	Inguihan Pob. (Salvacion)	Level-I	SW	6.0	3.0	0.2
	Looc	Level-I	SW	18.0	3.0	0.2
	San Agustin	Level-I	SW	6.0	3.0	0.2
	San Antonio	Level-I	SW	18.0	3.0	0.2
	San Roque	Level-I	DW	24.0	3.0	0.2
Tinago	Level-I	DW	24.0	3.0	0.2	

7.3.3 Groundwater Quality

Table 7.3.2 Groundwater Quality

No. Municipality	Type	Bacterio.		Physical Analysis				Chemical Analysis				Major Cations				Major Anions			Trace Etc.				
		Coli. Cnt.	Bact. Cnt.	T	NTU	TCU	Odor	TDS	EC	pH	TH	Alka.	Acid.	Na	K	Ca	Mg	CO ₃	HCO ₃	Cl	SO ₄	Fe	Mn
				C				mg/l	mmpc		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Philippine National Standard for Drinking Water -1994-		0	0	-	>5	>5	unobj.	500	-	6.5	to 8.5	-	-	-	200	-	-	-	200	250	>1	>0.5	
1	Maasin DW				7.2	0.0				7.2												0.1	0.1
2	Macrohon DW				7.2	0.0				7.2												0.1	0.2
3	Burgos DW				2.7	18.0				7.3												0.0	0.0
4	Mahitbog SW	10	100		10.0	15.0				7.3												0.4	0.1
5	Oppus SW	50	100		2.3	15.0				7.3												0.0	0.0
6	Liloan SW	10	30		6.3	137.0				7.5												0.1	0.3
7	Libagon DW	-	-		6.2	18.0				7.5												0.1	0.1
8	Saint Bernard DW	-	-		0.6	138.0				7.5												0.1	0.2
9	San Juan SW	0	10		0.5	0.0				6.6												0.0	0.0
10	Silago USP	-	-		0.1	103.0				5.9												0.0	0.0
11	Hinunangan USP	-	-		3.3	83.0				6.0												0.0	0.0
12	Himundayan USP	-	-		1.1	138.0				6.0												0.0	0.0

Source: Water quality results were collected from respective Water Districts or analyzed by PSPT on site in the field survey using procured instruments.
 Notes: Sampling point is located at handpump (L-I) or submersible pump (L-II/III).

Table 7.5.1 Surface Water Quality

Major Surface Water	Surface Water Information		Parameter														PNSDW, 1994		Surface Water Pollutants in upstream	
	Stream & Main Systems	Location	Color TCU	pH	D.Oxy. mg/l	BOD mg/l	SS mg/l	TDS mg/l	MBAS mg/l	O/G ml	N mg/l	P mg/l	Coli. MPN/100ml	Cl mg/l	Cu mg/l	Tur. NTU	Fe mg/l	Mn mg/l		
DENR Water Quality Criteria for Fresh Water:			15	6.5-8.5	70	1	25	500	nil	nil	1	10	0.1	1,000	250	1	1	0.5		
Class AA			50	6.5-8.5	70	5	50	1,000	0.2	1	10	0.1	1,000	250	1					
Class A																				
Das-ay	Das-ay A	Hinandayan																		
		Hinunangan																		
	Das-ay B	Silago																		
		Hinunangan	109	7.3													8.6	0.1	0.1	
		Silago																		
		Sogod																		
		Libagon																		
		Hinunangan																		
		St. Bernard	33	8.1													2.5	0.0	0.0	
		Sogod	0	8.5													8.5	0.1	0.0	
Buac		Maasin																		
Salog	Bonbon	Malibog																		
		Tomas Oppus	0	7.6													3.0	0.0	0.0	
		Bontoc																		
	Main	Bontoc																		
		Maasin																		
Amparo		Malibog	46	8.0													1.5	0.0	0.1	
		Macrohon																		
Canturing		Maasin	17	8.2													3.0	0.0	0.1	

Source: Water quality results were collected from respective Water Districts or analyzed by PSPT on site in the field survey using procured instruments.

Notes: Sampling point is located at upstream boundary of each river in respective municipalities.

If several streams are present in an area, the stream nearest from populated area was selected.

If there is no upstream, sampling point was selected near populated area.

Remarks: Class AA - Public Water Supply Class-I;

Intended for waters having watersheds which are uninhabited and otherwise protected and which require only approved disinfection in order to meet the PNSDW.

Class A - Public Water Supply Class-II;

Sources of water supply that will require complete treatment (coagulation, sedimentation, filtration & disinfection) in order to meet the PNSDW.

7.6 Future Development Potential of Water Sources

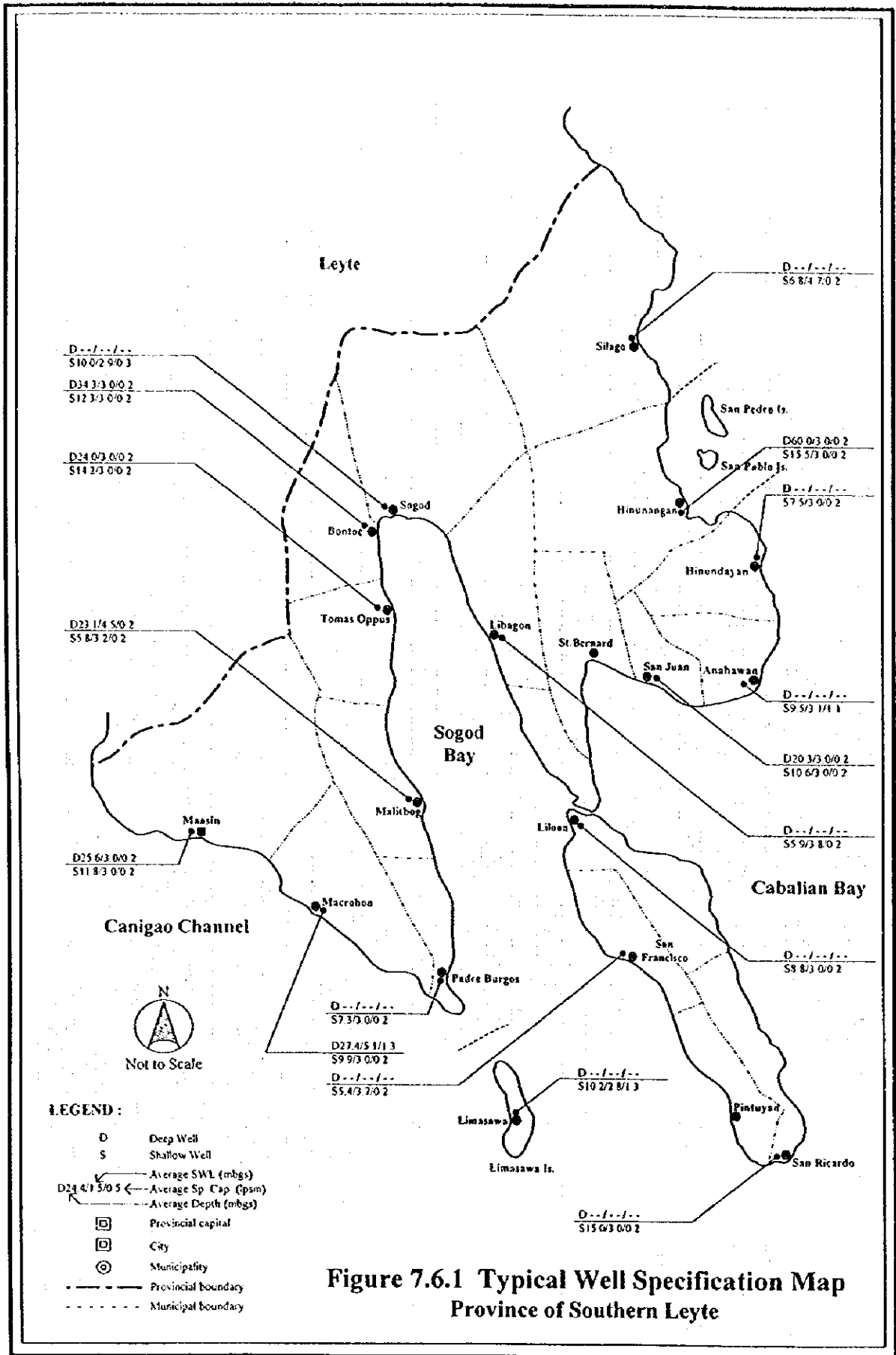


Figure 7.6.1 Typical Well Specification Map Province of Southern Leyte





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