Annex A

NEDA Board Resolution No. 5 (series of 1998)

APPROVING THE IRR ONTHE DELINEATION OF RESPONSIBILITIES IN THE DEVELOPMENT AND IMPLENTATION 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.

Annex B

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 o9f 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 initiate 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 bed 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.

Annex C

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 is 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 efficiency 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 form 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.

Annex D

MATRIX OF FINANCING AND MANAGEMENT OPTIONS

OPTION	DESCRIPTION
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 14
Content: **Water Source - General Information**			Date:	
Data Collection Level: **Provincial**	Province No.: 0860		Filename: Water Source.xls	
Region Number: VIII	Province Name: Samar			Form Number: P.4.1

	Type of Water Source		Shallow Well	Deep Well	Spring
	Total number of water sources	Number	956	602	313
Imple-mentor	Government Agency	Number	429	521	313
	Private	Number	527	81	
Level	Level I	Number	955	597	238
	Level II	Number	1	5	71
	Level III	Number			4
Ownership	Water District	Number			
	MEO/CEO	Number			
	RWSA	Number			
	BWSA	Number			19
	Institution	Number			
	Commercial Establishment	Number			
	Industrial/Agricultural Undertaking	Number			
	Public (Domestic)	Number	429	521	294
	Private (Domestic)	Number	527	81	
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	160	7	56
	Average Capacity >= 240 m^3/day	Number	796	595	257
	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 14
Content: **Water Source - General Information**						Date:		
Data Collection Level: **Provincial**			Province No.: 0860			Filename: Water Source.xls		
Region Number: VIII			Province Name: Samar			Form Number: P.4.1		
	Name of Municipalities	Character	Almagro			Basey		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	12	3	18	108	38	13
Imple-mentor	Government Agency	Number	6	2	18	73	38	13
	Private	Number	6	1		35		
Level	Level I	Number	12	1	11	108	38	13
	Level II	Number		2	7			
	Level III	Number						
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	6	2	18	73	38	13
	Private (Domestic)	Number	6	1		35		
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			
	Average Capacity >= 240 m^3/day	Number	12	3	14	108	38	13
	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 14	
Content: **Water Source - General Information**						Date:		
Data Collection Level: **Provincial**		Province No.: 0860				Filename: Water Source.xls		
Region Number: VIII		Province Name: Samar				Form Number: P.4.1		
	Name of Municipalities	Character	Calbayog City			Calbiga		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	365	168	46		28	28
Implementor	Government Agency	Number	45	133	46		27	28
	Private	Number	320	35			1	
Level	Level I	Number	365	168	46		28	27
	Level II	Number						
	Level III	Number						1
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	45	133	46		27	28
	Private (Domestic)	Number	320	35			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
	Average Capacity >= 240 m^3/day	Number	365	168	46		28	27
	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 14
Content: **Water Source - General Information**						Date:		
Data Collection Level: **Provincial**		Province No.: 0860				Filename: Water Source.xls		
Region Number:VIII		Province Name: Samar				Form Number: P.4.1		
	Name of Municipalities	Character	Catbalogan (Capital)			Daram		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	77	92	24	39	20	3
Implementor	Government Agency	Number	76	85	24	22	20	3
	Private	Number	1	7		17		
Level	Level I	Number	77	92	22	39	20	3
	Level II	Number			1			
	Level III	Number			1			
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	76	85	24	22	20	3
	Private (Domestic)	Number	1	7		17		
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	77	92	23	39	20	3
	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 14		
Content: **Water Source - General Information**						Date:		
Data Collection Level: **Provincial**		Province No.: 0860				Filename: Water Source.xls		
Region Number:VIII		Province Name: Samar				Form Number: P.4.1		
	Name of Municipalities	Character	Gandara			Hinabangan		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	8	35	8		3	17
Imple-mentor	Government Agency	Number	1	24	8		3	17
	Private	Number	7	11				
Level	Level I	Number	8	34	8		3	17
	Level II	Number		1				
	Level III	Number						
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	1	24	8		3	17
	Private (Domestic)	Number	7	11				
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	8	35	8		3	17
	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 14
Content: **Water Source - General Information**						Date:		
Data Collection Level: **Provincial**			Province No.: 0860			Filename: Water Source.xls		
Region Number: VIII			Province Name: Samar			Form Number: P.4.1		
	Name of Municipalities	Character	Jiabong			Marabut		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	2	5	16	10	1	2
Implementor	Government Agency	Number	2	5	16	10	1	2
	Private	Number						
Level	Level I	Number	2	5		10	1	2
	Level II	Number			15			
	Level III	Number			1			
Ownership	Water District	Number						
	MEO CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	2	5	16	10	1	2
	Private (Domestic)	Number						
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			14			
	Average Capacity >= 240 m^3/day	Number	2	5	2	10	1	2
	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 14		
Content: **Water Source - General Information**					Date:		
Data Collection Level: **Provincial**		Province No.: 0860			Filename: Water Source xls		
Region Number: VIII		Province Name: Samar			Form Number: P.4.1		
	Name of Municipalities	Character	Mateguinao			Motiong		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number			3	9	18	18
Implementor	Government Agency	Number			3	3	18	18
	Private	Number				6		
Level	Level I	Number			2	9	18	17
	Level II	Number			1			1
	Level III	Number						
Ownership	Water District	Number						
	MEO/CLO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number			3	3	18	18
	Private (Domestic)	Number				6		
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			2	9	18	18
	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 14		
Content: **Water Source - General Information**						Date:		
Data Collection Level: **Provincial**		Province No.: 0860				Filename: Water Source.xls		
Region Number: VIII		Province Name: Samar				Form Number: P.4.1		
	Name of Municipalities	Character	Pagsanghan			Paranas		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	34	17		10	32	5
Imple-mentor	Government Agency	Number	34	12		4	32	5
	Private	Number		5		6		
Level	Level I	Number	34	17		10	32	
	Level II	Number						4
	Level III	Number						1
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	34	12		4	32	5
	Private (Domestic)	Number		5		6		
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						5
	Average Capacity >= 240 m^3/day	Number	34	17		10	32	
	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 14		
Content: **Water Source - General Information**					Date:		
Data Collection Level: **Provincial**		Province No.: 0860			Filename: Water Source.xls		
Region Number: VIII		Province Name: Samar			Form Number: P.4.1		
	Name of Municipalities	Character	Pinabacdao			San Jorge		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	9	8	2	1	20	1
Implementor	Government Agency	Number	9	8	2	1	20	1
	Private	Number						
Level	Level I	Number	9	8	2	1	20	
	Level II	Number						1
	Level III	Number						
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	9	8	2	1	20	1
	Private (Domestic)	Number						
Abstraction	Submersible/Turbine	Number	9	8	2	1	20	1
	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	9	8	2	1	20	
	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 14			
Content: **Water Source - General Information**					Date:			
Data Collection Level: **Provincial**		Province No.: 0860			Filename: Water Source.xls			
Region Number: VIII		Province Name: Samar			Form Number: P.4.1			
	Name of Municipalities	Character	San Jose de Buan			San Sebastian		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number			11	1	6	
Implementor	Government Agency	Number			11	1	6	
	Private	Number						
Level	Level I	Number			10	1	6	
	Level II	Number			1			
	Level III	Number						
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number			11	1	6	
	Private (Domestic)	Number						
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			11	1	6	
	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 14		
Content: **Water Source - General Information**					Date:		
Data Collection Level: **Provincial**		Province No.: 0860			Filename: Water Source.xls		
Region Number: VIII		Province Name: Samar			Form Number: P.4.1		
	Name of Municipalities	Character	Santa Margarita			Santa Rita		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	46	23	8	18	38	25
Implementor	Government Agency	Number	34	10	8	10	34	25
	Private	Number	12	13		8	4	
Level	Level I	Number	46	23	8	18	37	13
	Level II	Number					1	12
	Level III	Number						
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						12
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	34	10	8	10	34	13
	Private (Domestic)	Number	12	13		8	4	
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	46	23	8	18	38	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:12 of 14
Content: **Water Source - General Information**						Date:		
Data Collection Level: **Provincial**			Province No.: 0860			Filename: Water Source.xls		
Region Number:VIII			Province Name: Samar					Form Number: P.4.1
	Name of Municipalities	Character	Santo Nino			Tagapul-an		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	8	1	11	3		9
Implementor	Government Agency	Number	7	1	11	3		9
	Private	Number	1					
Level	Level I	Number	7	1		3		4
	Level II	Number	1		11			5
	Level III	Number						
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	7	1	11	3		9
	Private (Domestic)	Number	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		9			
	Average Capacity >= 240 m^3/day	Number	7	1	2	3		9
	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: 13 of 14		
Content: **Water Source - General Information**					Date:		
Data Collection Level: **Provincial**		Province No.: 0860			Filename: Water Source.xls		
Region Number: VIII		Province Name: Samar			Form Number: P.4.1		
	Name of Municipalities	Character	Falalora			Tarangnan		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	20	7		139		20
Implementor	Government Agency	Number	7	7		59		20
	Private	Number	13			80		
Level	Level I	Number	20	7		139		13
	Level II	Number						7
	Level III	Number						
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						7
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	7	7		59		13
	Private (Domestic)	Number	13			80		
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	20	7		139		20
	Average Capacity >= 240 m^3/day	Number						
	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 (PWSSP)								Page:14 of 14
Content: **Water Source - General Information**						Date:		
Data Collection Level: **Provincial**			Province No.: 0860			Filename: Water Source.xls		
Region Number:VIII			Province Name: Samar			Form Number: P.4.1		
	Name of Municipalities	Character	Villareal			Zumarraga		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	26	13	12	11	26	13
Imple-mentor	Government Agency	Number	16	10	12	6	25	13
	Private	Number	10	3		5	1	
Level	Level I	Number	26	12	7	11	26	13
	Level II	Number		1	5			
	Level III	Number						
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number						
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	16	10	12	6	25	13
	Private (Domestic)	Number	10	3		5	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						
	Average Capacity >= 240 m^3/day	Number	26	13	12	11	26	13
	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)	SWL (mbgs)	Spe. Cap. (lpsm)
Almagro	Costa Rica	Level-II	DW	30.0	-	-
	San Jose	Level-II	DW	48.0	-	4.0
Basey	Bacubac	Level-I	DW	25.0	3.0	-
	Bacubac	Level-I	SW	15.0	6.0	-
	Balante	Level-I	SW	10.0	6.0	-
	Baloog	Level-I	DW	22.0	3.0	-
	Basiao	Level-I	DW	20.0	3.0	-
	Basiao	Level-I	SW	15.0	6.0	-
	Baybay (Pob.)	Level-I	DW	25.0	3.0	-
	Binongtu-an	Level-I	DW	20.0	6.0	-
	Buenavista	Level-I	DW	25.0	3.0	-
	Buenavista	Level-I	SW	15.0	6.0	-
	Bulao	Level-I	SW	15.0	6.0	-
	Burgos	Level-I	SW	15.0	6.0	-
	Buscada (Pob.)	Level-I	DW	30.0	3.0	-
	Cancaiyas	Level-I	DW	25.0	6.0	-
	Cancaiyas	Level-I	SW	15.0	6.0	-
	Canmanila	Level-I	DW	30.0	3.0	-
	Canmanila	Level-I	SW	15.0	3.0	-
	Catadman	Level-I	DW	30.0	3.0	-
	Catadman	Level-I	SW	15.0	6.0	-
	Cogon	Level-I	DW	30.0	3.0	-
	Cogon	Level-I	SW	15.0	6.0	-
	Del Pilar	Level-I	DW	25.0	6.0	-
	Del Pilar	Level-I	SW	18.0	6.0	-
	Dolongan	Level-I	DW	30.0	3.0	-
	Dolongan	Level-I	SW	18.0	6.0	-
	Guintigui-an	Level-I	DW	25.0	3.0	-
	Guintigui-an	Level-I	SW	15.0	6.0	-
	Guirang	Level-I	DW	25.0	3.0	-
	Guirang	Level-I	SW	15.0	6.0	-
	Inuntan	Level-I	DW	30.0	6.0	-
	Inuntan	Level-I	SW	15.0	6.0	-
	Lawa-an (Pob.)	Level-I	DW	20.0	6.0	-
	Lawa-an (Pob.)	Level-I	SW	15.0	6.0	-
	Loyo (Pob.)	Level-I	DW	25.0	6.0	-
	Loyo (Pob.)	Level-I	SW	15.0	6.0	-
	Mabini	Level-I	SW	15.0	6.0	-
	Magallanes	Level-I	DW	20.0	6.0	-
	Mercado (Pob.)	Level-I	SW	15.0	6.0	-
	Mongabong	Level-I	DW	25.0	3.0	-
	Mongabong	Level-I	SW	15.0	6.0	-
	New San Agustin	Level-I	SW	15.0	6.0	-
	Nouvelas Occidental	Level-I	DW	20.0	3.0	-
	Nouvelas Occidental	Level-I	SW	18.0	6.0	-
	Old San Agustin	Level-I	DW	30.0	3.0	-
	Old San Agustin	Level-I	SW	15.0	6.0	-

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbgs)	Spe. Cap. (lpsm)
Basey	Pelit	Level-I	SW	15.0	6.0 -	
	Roxas	Level-I	DW	30.0	3.0 -	
	Roxas	Level-I	SW	15.0	6.0 -	
	Salvacion	Level-I	DW	35.0	3.0 -	
	Salvacion	Level-I	SW	18.0	6.0 -	
	San Antonio	Level-I	DW	35.0	3.0 -	
	San Antonio	Level-I	SW	15.0	6.0 -	
	San Fernando	Level-I	DW	35.0	3.0 -	
	San Fernando	Level-I	SW	18.0	6.0 -	
	Sawa	Level-I	SW	15.0	6.0 -	
	Serum	Level-I	DW	30.0	3.0 -	
	Sugponon	Level-I	SW	15.0	6.0 -	
	Sulod (Pob.)	Level-I	SW	18.0	6.0 -	
	Tingib	Level-I	DW	30.0	3.0 -	
	Tingib	Level-I	SW	15.0	6.0 -	
	Villa Aurora	Level-I	SW	18.0	6.0 -	
Catbalogan	Bagongon	Level-III	SW	3.0	0.0	12.0
	Guindaponan	Level-III	DW	51.0	2.0	16.5
	Tumalistis	Level-III	DW	40.0	0.0	75.5
Daram	Arawane	Level-I	SW	6.0	3.0 -	
	Astorga	Level-I	DW	20.0	3.0 -	
	Bachaw	Level-I	SW	5.0	3.0 -	
	Baclayan	Level-I	SW	5.1	3.0 -	
	Bagacay	Level-I	SW	5.0	3.0 -	
	Bayog	Level-I	SW	8.0	3.0 -	
	Betaug	Level-I	SW	6.0	3.0 -	
	Birawan	Level-I	DW	21.0	3.0 -	
	Bono-anon	Level-I	SW	5.5	3.0 -	
	Buenavista	Level-I	SW	5.0	3.0 -	
	Burgos	Level-I	DW	22.0	3.0 -	
	Cabac	Level-I	SW	6.0	3.0 -	
	Cabil-isan	Level-I	DW	22.0	3.0 -	
	Cabiton-an	Level-I	DW	24.0	3.0 -	
	Cabugao	Level-I	DW	23.0	3.0 -	
	Cagboboto	Level-I	SW	8.0	3.0 -	
	Calawan-an	Level-I	SW	5.5	3.0 -	
	Cambuhay	Level-I	SW	10.0	3.0 -	
	Campelipa	Level-I	DW	21.0	3.0 -	
	Candugue	Level-I	SW	5.5	3.0 -	
	Cansaganay	Level-I	SW	6.5	3.0 -	
	Casab-ahan	Level-I	SW	10.0	3.0 -	
	Guindapunan	Level-I	SW	6.0	3.0 -	
	Guintampilan	Level-I	SW	6.5	3.0 -	
	Iquiran	Level-I	SW	10.0	3.0 -	
	Jacopon	Level-I	DW	22.0	3.0 -	
	Losa	Level-I	SW	6.5	3.0 -	
	Lucob-lucob	Level-I	SW	6.0	3.0 -	

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbgs)	Spe. Cap. (lpsm)
Daram	Mabini	Level-I	DW	24.0	3.0	-
	Macalpe	Level-I	DW	21.0	3.0	-
	Mandoyucan	Level-I	SW	10.0	3.0	-
	Marupangdan	Level-I	DW	23.0	3.0	-
	Mayabay	Level-I	DW	55.0	3.0	-
	Mongolbongol	Level-I	DW	22.0	3.0	-
	Nipa	Level-I	SW	5.5	3.0	-
	Parasan	Level-I	SW	6.0	3.0	-
	Poblacion I (Hilaba)	Level-I	SW	10.0	3.0	-
	Poblacion 2 (Malingon)	Level-I	SW	10.0	3.0	-
	Poblacion 3 (Canti-il)	Level-I	SW	6.5	3.0	-
	Pondang	Level-I	SW	10.0	3.0	-
	Poso	Level-I	DW	21.0	3.0	-
	Rizal	Level-I	DW	23.0	3.0	-
	San Antonio	Level-I	SW	10.0	3.0	-
	San Jose	Level-I	SW	5.5	3.0	-
	San Miguel	Level-I	DW	22.0	3.0	-
	San Roque	Level-I	SW	9.0	3.0	-
	San Vicente	Level-I	SW	6.5	3.0	-
	Saugan	Level-I	SW	10.0	3.0	-
	So-ong	Level-I	DW	21.0	3.0	-
	Sua	Level-I	DW	24.0	3.0	-
	Sugod	Level-I	SW	10.0	3.0	-
	Talisay	Level-I	SW	5.5	3.0	-
	Tugas	Level-I	DW	23.0	3.0	-
	Ubo	Level-I	DW	22.0	3.0	-
	Valles-Bello	Level-I	SW	6.0	3.0	-
	Yangta	Level-I	SW	10.0	3.0	-
Gandara	Burabod II (Pob.)	Level-II	DW	27.0	3.0	66.3
Jiabong	Cantongtong	Level-I	DW	24.0	6.0	-
	Catalina	Level-I	DW	30.0	6.0	-
	Macabetas	Level-I	DW	24.0	3.0	-
	Macabetas	Level-I	SW	12.0	3.0	-
	Malino	Level-I	DW	24.0	3.0	-
	Salvacion	Level-I	SW	18.0	6.0	-
Motiong	Angyap	Level-I	DW	20.0	3.0	-
	Bayog	Level-I	DW	20.0	6.0	-
	Calantawan	Level-I	DW	24.0	6.0	-
	Calapi	Level-I	SW	12.0	3.0	-
	Candomacol	Level-I	DW	30.0	6.0	-
	Inalad	Level-I	SW	18.0	6.0	-
	Malobago	Level-I	DW	24.0	3.0	-
	Mararangsi	Level-I	DW	20.0	6.0	-
	Maypange	Level-I	DW	24.0	6.0	-
	New Minarog	Level-I	DW	30.0	6.0	-
	Oyandic	Level-I	DW	30.0	6.0	-
	Poblacion I	Level-I	DW	30.0	6.0	-

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbgs)	Spe. Cap. (lpsm)
Motiong	Poblacion I-A	Level-I	DW	30.0	6.0	-
	Pusongan	Level-I	DW	20.0	3.0	-
	Pusongan	Level-I	SW	18.0	3.0	-
Paranas (Wright)	Bagsa	Level-I	DW	60.0	3.0	-
	Balbagan	Level-I	DW	60.0	3.0	-
	Buray (Binogho)	Level-I	DW	40.0	3.0	-
	Canteguic	Level-I	DW	60.0	3.0	-
	Cantao-an	Level-I	DW	60.0	3.0	-
	Cantato (Canturab)	Level-I	DW	60.0	3.0	-
	Casandig I	Level-I	DW	20.0	0.0	-
	Casandig I	Level-I	DW	60.0	0.0	-
	Casandig II	Level-I	DW	60.0	0.0	-
	Cawayan	Level-I	DW	60.0	3.0	-
	Concepcion	Level-I	DW	60.0	0.0	-
	Lawaan I	Level-I	DW	60.0	3.0	-
	Lawaan II	Level-I	DW	60.0	3.0	-
	Lipata	Level-I	DW	60.0	3.0	-
	Lokilokon	Level-I	DW	60.0	3.0	-
	Mangcal	Level-I	DW	60.0	3.0	-
	Minarog	Level-I	DW	60.0	3.0	-
	Patag	Level-I	DW	60.0	3.0	-
	Pequit	Level-I	DW	60.0	3.0	-
	Poblacion 1	Level-I	DW	40.0	0.0	-
	Poblacion 3	Level-I	DW	40.0	3.0	-
	Poblacion 4	Level-I	DW	20.0	3.0	-
	Poblacion 5	Level-I	DW	40.0	3.0	-
	Salay	Level-I	DW	60.0	3.0	-
	Sulopan	Level-I	DW	20.0	3.0	-
	Sulopan	Level-I	DW	60.0	3.0	-
	Tabucan	Level-I	DW	20.0	3.0	-
	Tabucan	Level-I	DW	60.0	3.0	-
	Tutubigan	Level-I	DW	80.0	3.0	-
Santa Rita	Alegria	Level-I	DW	24.0	3.0	-
	Anibongan	Level-I	SW	6.0	3.0	-
	Bokinggan Pob. (Zone I)	Level-II	DW	48.0	-	-
	Bougainvilla Pob. (Zone II)	Level-II	DW	48.0	-	-
	Cabacungan	Level-I	SW	18.0	3.0	-
	Camayse	Level-I	SW	4.5	3.0	-
	Cansadong	Level-I	SW	5.0	3.0	-
	Caticugan	Level-I	SW	18.0	3.0	-
	Dampigan	Level-I	SW	4.5	3.0	-
	Dampigan	Level-I	SW	18.0	3.0	-
	Guinbalot-an	Level-I	DW	24.0	3.0	-
	Gumamela Pob. (Zone III)	Level-II	DW	48.0	-	-
	Hinangudtan	Level-I	DW	24.0	3.0	-
	La Paz	Level-I	SW	4.0	3.0	-
	Magsaysay	Level-I	DW	24.0	3.0	-

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbgs)	Spc. Cap. (lpsm)
Santa Rita	New Manunca	Level-I	DW	24.0	3.0 -	
	Rosal Pob. (Zone IV)	Level-II	DW	48.0 -	-	
	Salvacion	Level-I	DW	24.0	3.0 -	
	San Eduardo	Level-I	SW	3.0	3.0 -	
	San Juan	Level-I	SW	3.0	3.0 -	
	San Pedro	Level-I	DW	24.0	3.0 -	
	San Roque	Level-I	SW	5.0	3.0 -	
	Santa Elena	Level-I	SW	18.0	3.0 -	
	Santan Pob. (Zone V)	Level-II	DW	48.0 -	-	
	Tulay	Level-I	DW	24.0	3.0 -	
	Union	Level-I	SW	5.0	3.0 -	
Santo Nino	Balatguti	Level-I	SW	15.0	3.0 -	
	Balatguti	Level-II	SW	15.0 -		0.6
	Baras	Level-I	DW	40.0	3.0 -	
	Baras	Level-I	DW	48.0	3.0 -	
	Baras	Level-I	SW	15.0	6.0 -	
	Basud (Pob.)	Level-I	DW	40.0	6.0 -	
	Basud (Pob.)	Level-I	SW	15.0	3.0 -	
	Basud (Pob.)	Level-II	SW	15.0 -		0.6
	Corocawayan	Level-II	SW	15.0 -		0.7
	Ilijan	Level-I	SW	15.0	6.0 -	
	Ilijan	Level-II	SW	15.0 -		0.6
	Lobelobe	Level-I	SW	15.0	0.0 -	
	Lobelobe	Level-II	SW	15.0 -		0.9
	Pinanangnan	Level-II	SW	15.0 -		0.7
	Sevilla	Level-I	SW	15.0	3.0 -	
	Sevilla	Level-II	SW	15.0 -		0.6
Talalora	Navatas Daku	Level-I	DW	30.0	3.0 -	
	Navatas Daku	Level-II	DW	30.0	0.0	0.3
	Navatas Guti	Level-I	SW	12.0	3.0 -	
	Poblacion Barangay 1	Level-I	DW	30.0	6.0 -	
	Poblacion Barangay 1	Level-I	SW	18.0	6.0 -	
	Poblacion Barangay 1	Level-II	DW	30.0	0.0	0.2
	Poblacion Barangay 1	Level-II	SW	18.0 -		0.2
	Poblacion Barangay 2	Level-I	DW	30.0	3.0 -	
	Poblacion Barangay 2	Level-I	SW	18.0	3.0 -	
	Poblacion Barangay 2	Level-II	DW	30.0	0.0	0.2
	Poblacion Barangay 2	Level-II	SW	18.0 -		0.2
	San Juan	Level-I	DW	30.0	3.0 -	
	San Juan	Level-II	DW	30.0	0.0	0.3
	Victory	Level-I	SW	18.0	3.0 -	
Tarangan	Alcazar	Level-I	SW	6.7	3.0 -	
	Awang	Level-I	SW	11.3	3.0 -	
	Bahay	Level-I	SW	9.8	3.0 -	
	Balugo	Level-I	SW	18.2	6.0 -	
	Bangon Gote	Level-I	SW	6.0	3.0 -	
	Baras	Level-I	SW	11.6	3.0 -	

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbgs)	Spe. Cap. (lpsm)
Tarangan	Binalayan	Level-I	SW	11.2	3.0	-
	Bisitahan	Level-I	SW	8.5	3.0	-
	Bonga	Level-I	SW	12.0	6.0	-
	Cabunga-an	Level-I	SW	7.2	6.0	-
	Cagtutulo	Level-I	SW	12.0	6.0	-
	Cambatutay Nuevo	Level-I	SW	6.7	6.0	-
	Cambatutay Viejo	Level-I	SW	18.3	3.0	-
	Canunghan	Level-I	SW	6.0	3.0	-
	Catan-agan	Level-I	SW	15.2	3.0	-
	Dapdap	Level-I	SW	12.2	3.0	-
	Gallego	Level-I	SW	6.5	6.0	-
	Imelda Pob. (Posgo)	Level-I	SW	12.2	6.0	-
	Lahong	Level-I	SW	9.8	6.0	-
	Libucan Dacu	Level-I	SW	9.2	3.0	-
	Lucerdoni (Irong-irong)	Level-I	SW	9.8	3.0	-
	Majacob	Level-I	SW	9.2	6.0	-
	Mancares	Level-I	SW	9.2	3.0	-
	Marabut	Level-I	SW	12.0	3.0	-
	Oeste - A	Level-I	SW	8.5	6.0	-
	Oeste - B	Level-I	SW	8.6	6.0	-
	Pajo	Level-I	SW	9.2	3.0	-
	Poblacion A	Level-I	SW	11.2	6.0	-
	Poblacion B	Level-I	SW	13.7	3.0	-
	Poblacion C	Level-I	SW	6.0	3.0	-
	Poblacion D	Level-I	SW	6.4	3.0	-
	Poblacion E	Level-I	SW	8.2	6.0	-
	San Vicente	Level-I	SW	7.6	6.0	-
	Santa Cruz	Level-I	SW	15.2	6.0	-
	Sugod	Level-I	SW	12.0	3.0	-
	Talinga	Level-I	SW	9.8	3.0	-
	Tigdaranao	Level-I	SW	9.0	3.0	-
	Tizon	Level-I	SW	12.2	6.0	-
Villareal	Banquil	Level-I	SW	12.0	6.0	-
	Bino-ongan	Level-I	SW	12.0	3.0	-
	Cambaguio	Level-I	SW	19.0	6.0	-
	Canmucat	Level-I	DW	20.0	6.0	-
	Central (Pob.)	Level-I	SW	12.0	6.0	-
	Guintarcan	Level-I	SW	12.0	6.0	-
	Himyangan	Level-I	DW	20.0	3.0	-
	Igot	Level-I	DW	20.0	6.0	-
	Inarumbacan	Level-I	SW	12.0	3.0	-
	Inasudlan	Level-I	SW	12.0	3.0	-
	Macopa	Level-I	SW	12.0	3.0	-
	Mahayag	Level-I	SW	9.0	3.0	-
	Malonoy	Level-I	DW	20.0	6.0	-
	Mercado (Pob.)	Level-I	SW	12.0	6.0	-
	Miramar (Pob.)	Level-I	SW	12.0	3.0	-

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbgs)	Spe. Cap. (lpsm)
Villareal	Nageaduba	Level-I	DW	20.0	6.0	-
	Pacao	Level-I	SW	12.0	6.0	-
	Pangpang	Level-I	SW	12.0	3.0	-
	Plaridel	Level-I	DW	20.0	6.0	-
	Polangi	Level-I	DW	20.0	6.0	-
	San Fernando	Level-I	SW	12.0	3.0	-
	San Rafael (Buaya)	Level-I	SW	12.0	6.0	-
	Santo Nino	Level-I	SW	9.0	6.0	-
	Soledad (Pob.)	Level-I	SW	9.0	6.0	-
	Tayud (Pob.)	Level-II	DW	66.0	6.0	4.4
	Tonabe	Level-I	SW	12.0	3.0	-
	Ulayan	Level-I	SW	12.0	6.0	-
	Villarosa Pob. (Campiatot)	Level-I	DW	20.0	6.0	-

Table 7.3.2 Groundwater Quality

No.	Municipality	Type	Bacterio.		Physical Analysis						Chemical Analysis				Major Cations				Major Anions				Trace Ele.	
			Coli. Cnt.	Bact. Cnt.	T C	NTU -	TCU -	Odor -	TDS mg/l	EC mmpc	pH -	TH mg/l	Alka. mg/l	Acid. mg/l	Na mg/l	K mg/l	Ca mg/l	Mg mg/l	CO3 mg/l	HCO3 mg/l	Cl mg/l	SO4 mg/l	Fe mg/l	Mn mg/l
Philippine National Standard for Drinking Water -1994-			0	0	-	5>	5>	unobj.	500>	-	6.5 to 8.5	300>	-	-	-	200>	-	-	-	-	200>	250>	1>	0.5>
1	Catbalogan	DW	0	384	-	1.0	2.6	-	-	-	7.1	-	-	-	-	-	-	-	-	-	-	-	0.2	0.2
2		DW	0	256	-	5.3	5.0	-	-	-	7.4	-	-	-	-	-	-	-	-	-	-	-	0.0	0.1
3		DW	0	512	-	45.3	13.2	-	-	-	6.9	-	-	-	-	-	-	-	-	-	-	-	-	0.2
4		DW	0	448	-	0.6	1.8	-	-	-	7.2	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0
5		DW	0	640	-	48.4	3.9	-	-	-	7.1	-	-	-	-	-	-	-	-	-	-	-	0.2	0.2
6		DW	100	100	-	2.1	72.0	-	-	-	7.2	-	-	-	-	-	-	-	-	-	-	-	0.0	0.1
7	Paranas	USP	-	-	-	4.3	46.0	-	-	-	7.2	-	-	-	-	-	-	-	-	-	-	-	0.1	0.3
8		USP	-	-	-	4.4	47.0	-	-	-	7.6	-	-	-	-	-	-	-	-	-	-	-	0.2	0.1
9	Hinabangan	DW	-	-	-	2.3	3.0	-	-	-	7.3	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1
10	Calbiga	SP	-	-	-	0.0	0.0	-	-	-	7.3	-	-	-	-	-	-	-	-	-	-	-	0.0	0.3
11	Santa Rita	DW	100	10	-	3.7	25.0	-	-	-	7.3	-	-	-	-	-	-	-	-	-	-	-	0.1	0.3
12	Basey	DW	-	-	-	3.5	0.0	-	-	-	7.3	-	-	-	-	-	-	-	-	-	-	-	0.0	0.3
13	Gandara	DW	-	-	-	0.9	39.0	-	-	-	7.0	-	-	-	-	-	-	-	-	-	-	-	0.1	0.3

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

Surface Water Information				Parameter												PNSDW-1994			Surface Water Pollutants
Major Surface Water	Stream & Main Systems	Sampling Location	Date (m/d/y)	Color TCU	pH -	D.Oxy. mg/l	BOD mg/l	SS mg/l	TDS mg/l	MBAS mg/l	O/G mg/l	N mg/l	P mg/l	Coli. MPN/100ml	Cl mg/l	Cu mg/l	Tur. NTU	Fe mg/l	Mn mg/l	in upstream
DENR Water Quality Criteria for Fresh Water			Class AA	15	6.5-8.5	70	1	25	500	nil	nil	1	nil	50	250	1	5>	1>	0.5>	
			Class A	50	6.5-8.5	70	5	50	1,000	0.2	1	10	0.1	1,000	250	1				
Jibatan	Main	Calbayog City		2.0	7.2	-	-	-	-	-	-	-	-	0	-	-	1.6	0.3	0.3	
	Panas	The results are adopted from the F/S on surface water quality conducted by LWUA in 1991	Feb. '90	0.0	7.1	-	-	-	66	-	-	-	-		-	-	0.9	0.5	nil	
	Tonok			0.0	6.9	-	-	-	121	-	-	-	-		-	-	0.8	0.1	nil	
	Cabatuan			0.0	6.1	-	-	-	120	-	-	-	-		-	-	0.9	0.2	nil	
	Cagdaras			0.0	6.8	-	-	-	76	-	-	-	-		-	-	0.9	0.1	nil	
	Dawpl			2.5	6.6	-	-	-	86	-	-	-	-		-	-	1.2	0.1	nil	
Gandara	Dolores-E	San Juan de Buan				-	-	-	-	-	-	-	-		-	-				
	Dolores-W	Matuguinao				-	-	-	-	-	-	-	-		-	-				
		San Juan de Buan				-	-	-	-	-	-	-	-		-	-				
		San Jorge				-	-	-	-	-	-	-	-		-	-				
		Gandara				-	-	-	-	-	-	-	-		-	-				
	Gandara	Matuguinao				-	-	-	-	-	-	-	-		-	-				
		Gandara				-	-	-	-	-	-	-	-		-	-				
Tenane	Candacan	Catbalongan				-	-	-	-	-	-	-	-		-	-				
		Jiabong				-	-	-	-	-	-	-	-		-	-				
		Motiong				-	-	-	-	-	-	-	-		-	-				
		Paranas		8.0	7.7	-	-	-	-	-	-	-	-	-	-	-	5.3	0.1	0.3	
	Tanane	Hinabangan				-	-	-	-	-	-	-	-		-	-				
		Paranas				-	-	-	-	-	-	-	-		-	-				
		Motiong				-	-	-	-	-	-	-	-		-	-				
		Jiabong				-	-	-	-	-	-	-	-		-	-				
Silaga		Basey				-	-	-	-	-	-	-	-		-	-				
		Santa Rita		98.0	7.4	-	-	-	-	-	-	-	-	-	-	-	17.2	0.3	0.2	
Basey		Basey				-	-	-	-	-	-	-	-		-	-				

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 these 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

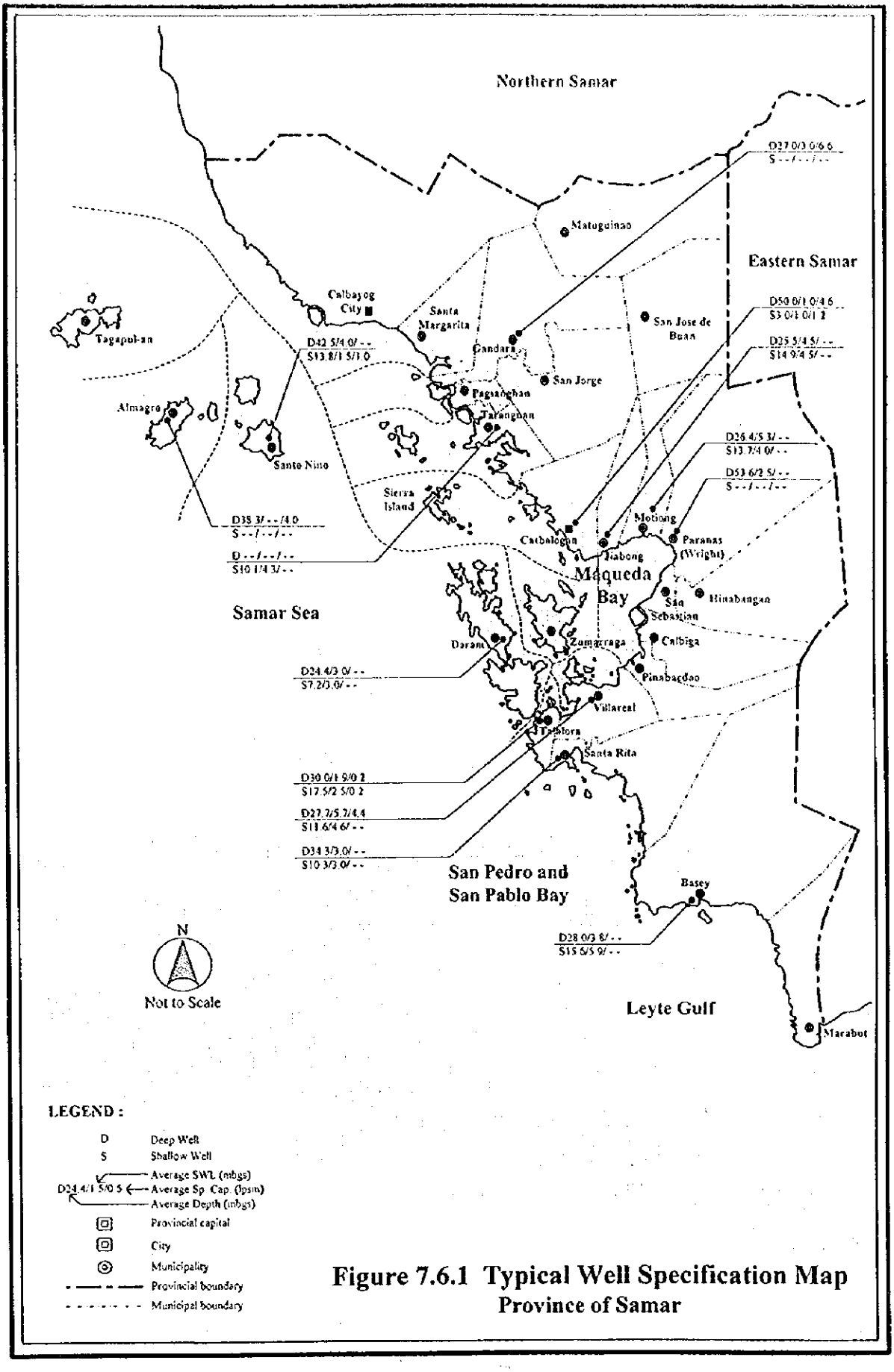

Figure 7.6.1 Typical Well Specification Map
Province of Samar