

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

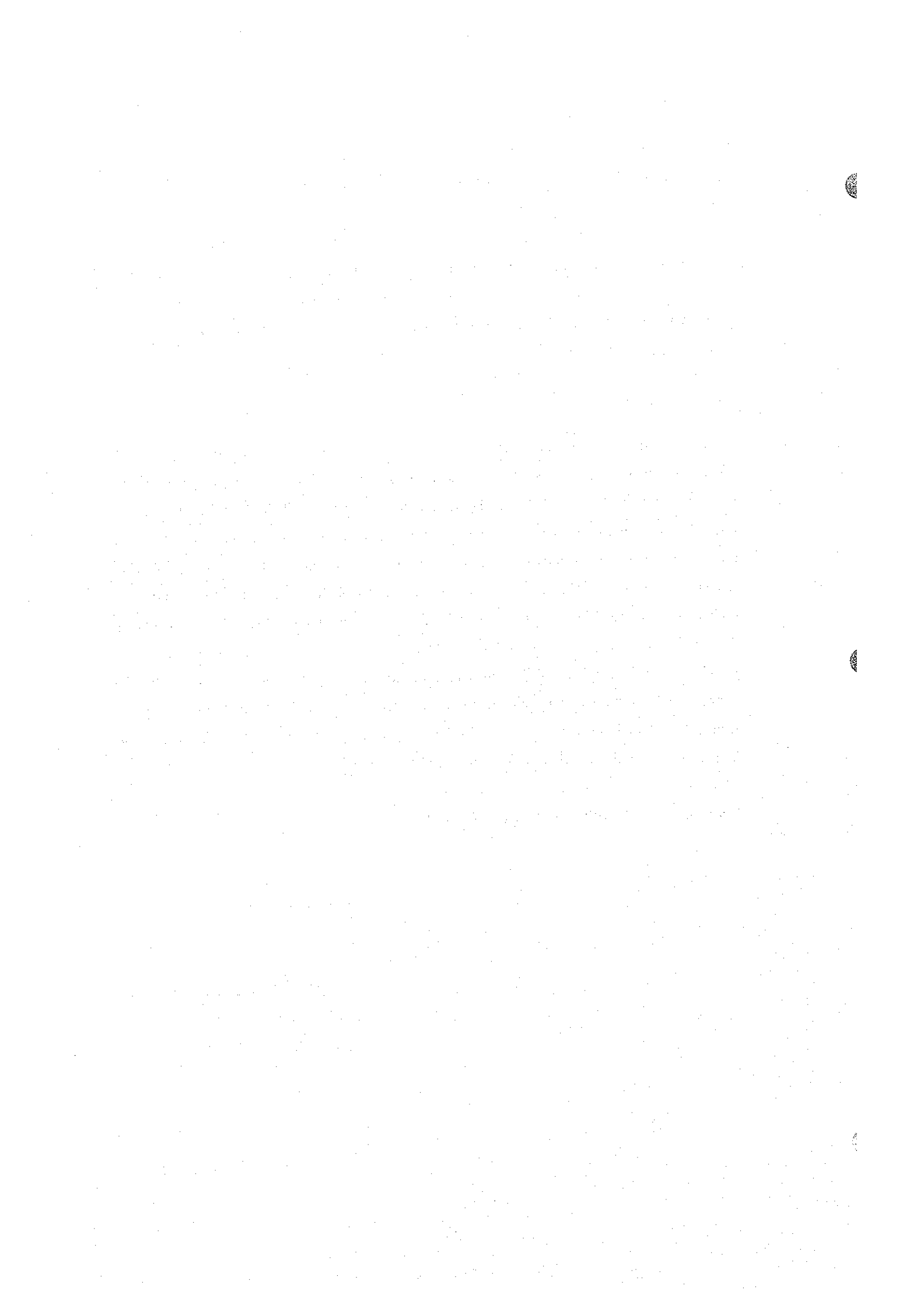
1. A CPSO shall be created and housed at LWUA with the LWUA Board exercising over-all jurisdiction over its operations. An Inter-departmental Advisory Committee (IAC) composed of representatives from DPWH, DOH, DILG, DOF, DBM, LWUA, DENR, MWSS and NEDA shall likewise be created and act as the coordination 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 Well Sources Information

Provincial Water Supply, Sewerage And Sanitation Sector Plan (PW4SP)					Page: 1 of 12
Content: Water Source - General Information				Date:	
Data Collection Level: Provincial		Province No.: 1013	Filename: Water Source.xls		
Region Number: X		Province Name: Bukidnon	Form Number: P.4.1		
	Type of Water Source		Shallow Well	Deep Well	Spring
	Total number of water sources	Number	2,532	1,195	806
Imple-mentor	Government Agency	Number	468	171	669
	Private	Number	2,064	1,024	137
Level	Level I	Number	2,532	1,138	661
	Level II	Number		16	113
	Level III	Number		41	32
Ownership	Water District	Number		10	8
	MEO/CEO	Number		1	8
	RWSA	Number			5
	BWSA	Number			8
	Institution	Number		46	115
	Commercial Establishment	Number			
	Industrial/Agricultural Undertaking	Number			
	Public (Domestic)	Number	468	334	661
Private (Domestic)	Number	2,064	804	1	
Abstraction	Submersible/Turbine	Number		57	
	Centrifugal	Number			
	Handpump	Number	2,532	1,138	
	Bucket & Rope	Number			
	Free Flowing	Number			
Usage	Drinking	Number	1,269	1,195	806
	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 < 100 m ³ /day	Number	2,532	1,150	695
	Average Capacity ≥ 100 m ³ /day	Number		42	101
	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 12	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 1013		Filename: Water Source.xls			
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1		
	Name of Municipalities	Character	Baungon			Cabanglasan		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	53	14	104	1	14	13
Implementor	Government Agency	Number	53	13	102	1	11	5
	Private	Number		1	2		3	8
Level	Level I	Number	53	12	101	1	11	5
	Level II	Number		1	2		3	8
	Level III	Number		1	1			
Ownership	Water District	Number						
	MEO/CEO	Number		1	1			
	RWSA	Number						
	BWSA	Number						
	Institution	Number		1	2		3	8
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	53	12	101	1	11	5
	Private (Domestic)	Number						
Abstraction	Submersible/Turbine	Number		2			3	
	Centrifugal	Number						
	Handpump	Number	53	12		1	11	
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number	27	14	104	1	14	13
	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 < 100 m ³ /day	Number	53	13	103	1	12	5
	Average Capacity >= 100 m ³ /day	Number					2	8
	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 12		
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 1013			Filename: Water Source.xls		
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1		
	Name of Municipalities	Character	Damulog			Dangcagan		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number		3	18	22	4	11
Imple- mentor	Government Agency	Number		2	15	6	4	10
	Private	Number		1	3	16		1
Level	Level I	Number		2	15	22	4	9
	Level II	Number		1	3			1
	Level III	Number						1
Ownership	Water District	Number						
	MEO/CEO	Number						1
	RWSA	Number						
	BWSA	Number						
	Institution	Number		1	3			1
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number		2	15	6	4	9
Private (Domestic)	Number				16			
Abstraction	Submersible/Turbine	Number		1				
	Centrifugal	Number						
	Handpump	Number		2		22	4	
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number		3	18	11	4	11
	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 < 100 m ³ /day	Number		2	15	22	4	10
	Average Capacity ≥ 100 m ³ /day	Number						1
	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 12	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 1013			Filename: Water Source.xls		
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1		
	Name of Municipalities	Character	Don Carlos			Impasugong		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	1,930	43	18	4	21	22
Implic-mentor	Government Agency	Number	11	20	17	4	1	17
	Private	Number	1,919	23	1		20	5
Level	Level I	Number	1,930	41	17	4	21	17
	Level II	Number		1	1			3
	Level III	Number		1				2
Ownership	Water District	Number		1				
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number		1	1			4
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	11	20	17	4	1	17
Private (Domestic)	Number	1,919	21			20	1	
Abstraction	Submersible/Turbine	Number		2				
	Centrifugal	Number						
	Handpump	Number	1,930	41		4	21	
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number	965	43	18	2	21	22
	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 < 100 m ³ /day	Number	1,930	41	17	4	21	20
	Average Capacity >= 100 m ³ /day	Number						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: 5 of 12			
Content: Water Source - General Information						Date:			
Data Collection Level: Provincial			Province No.: 1013			Filename: Water Source.xls			
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1			
	Name of Municipalities		Character	Kadingitan			Kalilangan		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring	
	Total number of water sources	Number	8	4	34	4	140	26	
Imple- mentor	Government Agency	Number	3	1	33	4	12	21	
	Private	Number	5	3	1		128	5	
Level	Level I	Number	8	1	33	4	140	21	
	Level II	Number		3	1			4	
	Level III	Number						1	
Ownership	Water District	Number							
	MEO/CEO	Number							
	RWSA	Number							
	BWSA	Number							
	Institution	Number		3	1			5	
	Commercial Establishment	Number							
	Industrial/Agricultural Undertaking	Number							
	Public (Domestic)	Number	3	1	33	4	12	21	
Private (Domestic)	Number	5				128			
Abstraction	Submersible/Turbine	Number		3					
	Centrifugal	Number							
	Handpump	Number	8	1		4	140		
	Bucket & Rope	Number							
	Free Flowing	Number							
Usage	Drinking	Number	4	4	34	2	140	26	
	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 < 100 m ³ /day	Number	8	1	34	4	140	21	
	Average Capacity ≥ 100 m ³ /day	Number		3				5	
	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 12	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 1013			Filename: Water Source.xls		
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1		
	Name of Municipalities	Character	Kibawe			Kitaotao		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	4	6	24	60	11	74
imple- mentor	Government Agency	Number	4	3	24	60	8	74
	Private	Number		3			3	
Level	Level I	Number	4	3	24	60	8	74
	Level II	Number					3	
	Level III	Number		3				
Ownership	Water District	Number		3				
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number					3	
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	4	3	24	60	8	74
Private (Domestic)	Number							
Abstraction	Submersible/Turbine	Number		3			3	
	Centrifugal	Number						
	Handpump	Number	4	3		60	8	
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number	2	6	24	30	11	74
	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 < 100 m ³ /day	Number	4	3	24	60	8	74
	Average Capacity >= 100 m ³ /day	Number		3			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: 7 of 12		
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 1013			Filename: Water Source.xls		
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1		
	Name of Municipalities	Character	Lantapan			Libona		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	4	1	11	3	61	15
Implementor	Government Agency	Number	4	1		2	20	13
	Private	Number			11	1	41	2
Level	Level I	Number	4	1		3	55	13
	Level II	Number			10		1	2
	Level III	Number			1		5	
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number			11		6	2
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	4	1		2	20	13
Private (Domestic)	Number				1	35		
Abstraction	Submersible/Turbine	Number					6	
	Centrifugal	Number						
	Handpump	Number	4	1		3	55	
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number	2	1	11	2	61	15
	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 < 100 m ³ /day	Number	4	1		3	59	14
	Average Capacity >= 100 m ³ /day	Number			11		2	1
	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 12	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 1013			Filename: Water Source.xls		
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1		
	Name of Municipalities	Character	Malaybalay			Malitbog		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	54	172	86		77	42
Institution	Government Agency	Number	52		60			34
	Private	Number	2	172	26		77	8
Level	Level I	Number	54	165	60		77	34
	Level II	Number		2	21			8
	Level III	Number		5	5			
Ownership	Water District	Number		2	4			
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						8
	Institution	Number		5	22			
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	52		60		77	34
Private (Domestic)	Number	2	165					
Abstraction	Submersible/Turbine	Number		7				
	Centrifugal	Number						
	Handpump	Number	54	165			77	34
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number	27	172	86		77	42
	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 < 100 m ³ /day	Number	54	167	68		77	41
	Average Capacity >= 100 m ³ /day	Number		6	18			1
	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 12		
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 1013			Filename: Water Source.xls		
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1		
	Name of Municipalities	Character	Maramag			Monolo Fortich		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	61	1	14	10	52	31
Implementor	Government Agency	Number	1	1	13	1	6	18
	Private	Number	60		1	9	46	13
Level	Level I	Number	61	1	13	10	31	18
	Level II	Number						10
	Level III	Number			1		21	3
Ownership	Water District	Number			1			
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number					21	13
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	1	1	13	1	6	18
Private (Domestic)	Number	61			9	25		
Abstraction	Submersible/Turbine	Number					21	
	Centrifugal	Number						
	Handpump	Number	61	1		10	31	
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number	31	1	14	5	52	31
	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 < 100 m ³ /day	Number	61	1	13	10	34	21
	Average Capacity >= 100 m ³ /day	Number			1		18	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 12	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 1013			Filename: Water Source.xls		
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1		
Name of Municipalities	Character	Pangantucan			Quezon			
		Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well
Total number of water sources	Number		21	48	37	42	17	
Implementor	Government Agency	Number		34	35	2	8	
	Private	Number	21	14	2	40	9	
Level	Level I	Number	21	34	37	42	2	
	Level II	Number		13			9	
	Level III	Number		1			6	
Ownership	Water District	Number						
	MEO/CEO	Number					6	
	RWSA	Number						
	BWSA	Number						
	Institution	Number		14			9	
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number		34	35	2	2	
Private (Domestic)	Number		21		2	40		
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number		21		37	42	
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number		21	48	19	42	17
	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 < 100 m ³ /day	Number		21	34	37	42	2
	Average Capacity >= 100 m ³ /day	Number			14			15
	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 12	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 1013			Filename: Water Source.xls		
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1		
	Name of Municipalities	Character	San Fernando			Sumilao		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	42	99	37	2	3	8
Imple- mentor	Government Agency	Number	36	13	34	2	2	3
	Private	Number	6	86	3		1	5
Level	Level I	Number	42	99	34	2	3	3
	Level II	Number			3			4
	Level III	Number						1
Ownership	Water District	Number						
	MEO/CEO	Number						
	RWSA	Number						
	BWSA	Number						
	Institution	Number			3			5
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	42	99	34	2	3	3
Private (Domestic)	Number							
Abstraction	Submersible/Turbine	Number						
	Centrifugal	Number						
	Handpump	Number	42	99			3	3
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number	21	99	37	1	3	8
	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 < 100 m ³ /day	Number	42	99	34	2	3	6
	Average Capacity >= 100 m ³ /day	Number						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: 12 of 12	
Content: Water Source - General Information						Date:		
Data Collection Level: Provincial			Province No.: 1013			Filename: Water Source.xls		
Region Number: X			Province Name: Bukidnon			Form Number: P.4.1		
	Name of Municipalities	Character	Talakag			Valencia		
	Type of Water Source	Number	Shallow Well	Deep Well	Spring	Shallow Well	Deep Well	Spring
	Total number of water sources	Number	4	20	15	229	386	138
Imple- mentor	Government Agency	Number	4	4	13	185	47	121
	Private	Number		16	2	44	339	17
Level	Level I	Number	4	19	13	229	381	121
	Level II	Number		1	1			9
	Level III	Number			1		5	8
Ownership	Water District	Number					4	3
	MEO/CEO	Number						
	RWSA	Number						5
	BWSA	Number						
	Institution	Number		1	2		1	9
	Commercial Establishment	Number						
	Industrial/Agricultural Undertaking	Number						
	Public (Domestic)	Number	4	4	13	185	47	121
Private (Domestic)	Number		15		44	334		
Abstraction	Submersible/Turbine	Number		1			5	
	Centrifugal	Number						
	Handpump	Number	4	19		229	381	
	Bucket & Rope	Number						
	Free Flowing	Number						
Usage	Drinking	Number	2	20	15	115	386	138
	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						
Production	Treated	Number						
	Seasonal Production	Number						
	Average Capacity < 100 m ³ /day	Number	4	19	14	229	382	125
	Average Capacity >= 100 m ³ /day	Number		1	1		4	11
	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 (mhs)	Spe. Cap. (lpsm)
BAUNGON	Kalilangan	Level I	DW	52.3	5.0	
BAUNGON	Liboran	Level II	DW	60.0	15.0	0.4
BAUNGON	Niedao	Level I	DW	52.4	5.0	
BAUNGON	Pob. Imbatug	Level III	DW	61.0	36.0	0.2
BAUNGON	Pualas	Level I	DW	72.3	5.0	
BAUNGON	Salimbalan	Level I	SW	18.3	3.0	
CABANGLASAN	Anlugan	Level II	DW	61.0	17.7	0.1
CABANGLASAN	Cabulohan	Level I	DW	37.2	5.0	
CABANGLASAN	Capinonan	Level I	DW	36.6	5.0	
CABANGLASAN	Iba	Level I	SW	18.9	3.0	
CABANGLASAN	Iba	Level II	DW	26.0	15.0	0.2
CABANGLASAN	Mandaing	Level II	DW	63.7	14.0	0.2
DAMULOG	Pob. New Damulog	Level II	DW	26.5	14.0	
DANGCAGAN	Barongcot	Level I	DW	21.3	5.0	
DANGCAGAN	Kianggat	Level I	DW	20.4	5.0	
DANGCAGAN	Lourdes	Level I	SW	19.8	3.0	
DANGCAGAN	Macarthur	Level I	DW	27.1	5.0	
DANGCAGAN	Osmena	Level I	DW	60.0	5.0	
DON CARLOS	Bocboc	Level I	SW	18.3	3.0	
DON CARLOS	Buyot	Level I	DW	24.7	5.0	
DON CARLOS	Calaocalao	Level I	DW	88.4	5.0	
DON CARLOS	Kalubihon	Level I	DW	54.3	5.0	
DON CARLOS	Kasigkot	Level I	DW	25.0	5.0	
DON CARLOS	Kiara	Level I	SW	16.8	3.0	
DON CARLOS	Kiara	Level I	DW	23.5	5.0	
DON CARLOS	Kibatang	Level II	DW	23.5	12.5	0.2
DON CARLOS	Manlamonay	Level II	DW	25.9	13.0	0.2
DON CARLOS	Maraymaray	Level I	DW	26.5	5.0	
DON CARLOS	Minsalagan	Level I	DW	94.0	5.0	
DON CARLOS	New Nongnongan	Level II	DW	85.4	5.0	
DON CARLOS	New Visayas	Level I	SW	16.8	3.0	
DON CARLOS	Pob. Don Carlos Sur	Level I	SW	15.2	3.0	
DON CARLOS	Pob. Don Carlos Sur	Level III	DW	54.0	5.0	1.3
DON CARLOS	San Francisco	Level I	DW	35.7	5.0	
IMPASUGONG	Poblacion	Level I	SW	18.3	3.0	
IMPASUGONG	Poblacion	Level III	DW	30.5	13.1	0.6
KADINGILAN	Cabadiangan	Level I	DW	71.6	5.0	
KADINGILAN	Poblacion	Level I	DW	59.5	5.0	
KADINGILAN	Salvacion	Level I	SW	18.3	3.0	
KADINGILAN	Sibonga	Level II	DW	82.4	45.7	0.1
KALILANGAN	Canituan	Level I	DW	33.5	5.0	
KALILANGAN	Lampanusan	Level I	DW	22.4	5.0	
KALILANGAN	Poblacion	Level I	DW	42.7	5.0	
KALILANGAN	Public	Level I	DW	35.1	5.0	
KIBAWA	Natulongan	Level I	SW	19.8	3.0	
KIBAWA	Natulongan	Level I	DW	24.4	5.0	

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbs)	Spe. Cap. (l/s)
KIBAWÉ	New Kidapawan	Level I	DW	42.7	5.0	
KIBAWÉ	Old Kibawe	Level I	DW	21.1	5.0	
KIBAWÉ	Pob. East Kibawe	Level III	DW	150.0	9.4	1.7
KIBAWÉ	Talahiron	Level I	SW	17.4	3.0	
KIBAWÉ	Talahiron	Level I	DW	23.8	5.0	
KITAOTAO	Calapaton	Level I	DW	35.0	5.0	
KITAOTAO	Kauyonan	Level I	DW	79.3	5.0	
KITAOTAO	Malobalo	Level I	DW	80.0	5.0	
KITAOTAO	Pagan	Level I	SW	18.0	3.0	
KITAOTAO	Poblacion	Level I	SW	16.2	3.0	
KITAOTAO	Poblacion	Level II	DW	70.7	9.1	0.3
KITAOTAO	White Kulaman	Level I	SW	18.0	3.0	
LANTAPAN	Alanib	Level I	SW	15.3	3.0	
LANTAPAN	Kulasihan	Level I	SW	16.2	3.0	
LANTAPAN	Kulasihan	Level I	DW	49.0	5.0	
LANTAPAN	Songco	Level I	SW	17.0	3.0	
LIBONA	Capihan	Level I	DW	67.5	5.0	
LIBONA	Crossing	Level III	DW	67.1	10.0	0.2
LIBONA	Gango	Level I	DW	39.9	5.0	
LIBONA	Kilog	Level I	DW	39.9	5.0	
LIBONA	Kinawe	Level I	DW	36.9	5.0	
LIBONA	Laturan	Level I	DW	34.1	5.0	
LIBONA	Maambong	Level I	DW	33.5	5.0	
LIBONA	Nangka	Level I	DW	30.5	5.0	
MALAYBALAY	Aglayan	Level III	DW	79.0	9.1	0.2
MALAYBALAY	Apo Macote	Level I	DW	23.0	5.0	
MALAYBALAY	Bangcud	Level III	DW	25.0	10.7	0.1
MALAYBALAY	Cabangahan	Level I	DW	62.5	5.0	
MALAYBALAY	Can-ayan	Level I	DW	30.5	5.0	
MALAYBALAY	Casisang	Level III	DW	160.0	73.0	
MALAYBALAY	Dalwangan	Level II	DW	27.0	12.0	
MALAYBALAY	Indalaza	Level I	SW	6.1	3.0	
MALAYBALAY	Indalaza	Level II	DW	30.0	9.0	
MALAYBALAY	Kulaman	Level I	DW	20.4	5.0	
MALAYBALAY	Linabo	Level I	SW	18.3	3.0	
MALAYBALAY	Linabo	Level I	DW	22.9	5.0	
MALAYBALAY	Managok	Level I	SW	16.8	3.0	
MALAYBALAY	Managok	Level I	DW	23.0	5.0	
MALAYBALAY	San Jose	Level III	DW	33.0	9.0	0.1
MALAYBALAY	Simaya	Level I	DW	38.1	5.0	
MALAYBALAY	Sinanglanan	Level I	SW	15.2	3.0	
MALAYBALAY	Sinanglanan	Level I	DW	25.0	5.0	
MALITBOG	San Luis	Level I	DW	48.8	5.0	
MONOLO FORTICH	Agusan Canyon	Level III	DW	90.0	5.0	2.8
MONOLO FORTICH	Alae	Level III	DW	54.0	9.0	1.1
MONOLO FORTICH	Dahilayan	Level I	DW	50.0	5.0	

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbs)	Spe. Cap. (lpsm)
MONOLO FORTICH	Dalirig	Level I	DW	38.7	5.0	
MONOLO FORTICH	Damilag	Level III	DW	60.0	5.0	1.1
MONOLO FORTICH	Dic-lum	Level III	DW	54.0	5.0	0.5
MONOLO FORTICH	Lindaban	Level I	DW	39.6	5.0	
MONOLO FORTICH	Pob. Tankulan	Level III	DW	75.0	20.0	0.8
MONOLO FORTICH	San Miguel	Level III	DW	60.0	9.0	0.9
MARAMAG	Anahawon	Level I	DW	48.8	5.0	
MARAMAG	Bagongsilang	Level I	DW	40.9	5.0	
MARAMAG	Camp I	Level I	DW	21.3	5.0	
MARAMAG	Dagumba-an	Level I	DW	35.0	5.0	
MARAMAG	Danggawan	Level I	DW	35.0	5.0	
MARAMAG	Dologon	Level I	DW	29.3	5.0	
MARAMAG	Panadtalan	Level I	DW	38.0	5.0	
MARAMAG	Panalsalan	Level I	DW	30.0	5.0	
MARAMAG	Tubigon	Level I	DW	28.0	5.0	
PANGANTUCAN	Bangahan	Level I	DW	21.2	5.0	
PANGANTUCAN	Kipadukan	Level I	DW	22.3	5.0	
QUEZON	Butong	Level I	DW	25.0	5.0	
QUEZON	C-Handumanan	Level I	DW	55.0	5.0	
QUEZON	Dumalama	Level I	SW	19.0	3.0	
QUEZON	Kiburiao	Level I	DW	33.5	5.0	
QUEZON	Mahayag	Level I	SW	18.3	3.0	
QUEZON	Mibantang	Level I	DW	20.0	3.0	
QUEZON	Minongan	Level I	SW	18.3	3.0	
QUEZON	Paitan	Level I	SW	19.0	3.0	
QUEZON	Poblacion	Level I	SW	19.0	3.0	
QUEZON	Salawagan	Level I	SW	18.3	3.0	
QUEZON	San Roque	Level I	SW	18.0	3.0	
QUEZON	Santa Cruz	Level I	SW	19.0	3.0	
QUEZON	Santa Filomena	Level I	SW	19.8	3.0	
SAN FERNANDO	Candelaria	Level I	SW	14.6	3.0	
SAN FERNANDO	Cayaga	Level I	SW	14.6	3.0	
SAN FERNANDO	Dao	Level I	SW	13.5	3.0	
SAN FERNANDO	Kalagangan	Level I	SW	14.6	3.0	
SAN FERNANDO	Little Baguio	Level I	DW	36.7	5.0	
SAN FERNANDO	Mabuhay	Level I	DW	33.8	5.0	
SAN FERNANDO	Nacabuklad	Level I	DW	30.0	5.0	
SAN FERNANDO	Namnam	Level I	DW	28.0	5.0	
SAN FERNANDO	Pob. Halapitan	Level I	DW	33.5	5.0	
SAN FERNANDO	Tugop	Level I	SW	18.3	3.0	
SUMILAO	Ocasion	Level I	DW	61.0	5.0	
SUMILAO	Poblacion	Level I	SW	19.2	3.0	
SUMILAO	Poblacion	Level I	DW	68.0	5.0	
SUMILAO	Puntian	Level I	DW	62.0	5.0	
TALAKAG	Cacaon	Level I	DW	70.1	5.0	
TALAKAG	Dagumbaan	Level I	DW	106.7	5.0	

Table 7.3.1 Well Inventory by Municipality

Municipality	Barangay	Utilization	Type	Depth (m)	SWL (mbs)	Spe. Cap. (lism)
TALAKAG	Pob. Barangay 05	Level II	DW	105.0	5.0	0.9
TALAKAG	Santo Nino	Level I	DW	76.0	5.0	
VALENCIA	Bagonta-as	Level III	DW	80.0	5.0	
VALENCIA	Banlag	Level I	DW	50.3	5.0	
VALENCIA	Batangan	Level I	DW	22.3	5.0	
VALENCIA	Catumbalon	Level I	DW	39.6	5.0	
VALENCIA	Colonia	Level I	DW	37.2	5.0	
VALENCIA	Dagat-Kidavao	Level I	DW	21.0	5.0	
VALENCIA	Guinoyuran	Level I	DW	96.9	5.0	
VALENCIA	Kahapunan	Level I	DW	39.6	5.0	
VALENCIA	Lumbayao	Level I	SW	16.8	3.0	
VALENCIA	Lumbayao	Level I	DW	47.2	5.0	
VALENCIA	Maapag	Level I	SW	18.3	3.0	
VALENCIA	Mabuhay	Level I	DW	29.0	5.0	
VALENCIA	Mailag	Level I	SW	18.3	3.0	
VALENCIA	Nabag-o	Level I	SW	15.2	3.0	
VALENCIA	Nabag-o	Level I	DW	30.5	5.0	
VALENCIA	San Carlos	Level I	DW	28.0	5.0	
VALENCIA	San Isidro	Level I	SW	18.0	3.0	
VALENCIA	San Isidro	Level I	DW	22.0	5.0	
VALENCIA	Sinabuagan	Level I	SW	18.3	3.0	
VALENCIA	Sinayawan	Level II	DW	32.0	7.0	0.2
VALENCIA	Sugod	Level I	DW	25.6	5.0	
VALENCIA	Tongantongan	Level I	DW	39.6	5.0	

7.3.3 Groundwater Quality

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	NTU	TCU	Odor	TDS	EC	pH	TH	Alka.	Acid.	Na	K	Ca	Mg	CO3	HCO3	Cl	SO4	Fe
Philippine National Standard for Drinking Water -1994-			0	0	-	5>	5>	unobj.	500>	-	6.5	-	-	-	200>	-	-	-	-	200>	250>	1>	0.5>
1	Danggagan	SP	0	0		0.0	55.0				7.5												
2	Danggagan	DW	0	50		0.8	52.0				5.9											5.0	
3	Don Carlos	DW	10	300		0.6	-				5.9												5.0
4	Don Carlos	SP	100	100		0.0	-				7.4												3.0
5	Impasugong	SP	10	10		0.0	13.0				6.4												
6	Kadangilan	DW				0.0	66.0				7.8												
7	Kadangilan	DW	30	50		0.5	58.0				5.9											62.0	
8	Kibawe	DW	0	0		0.3	27.0				7.2											14.0	
9	Kitatiao	DW	0	0		6.4	7.0				7.2												
10	Lantapan	DW	0	10		0.0	4.0															42.0	4.0
11	Lantapan	SP	100	10																			
12	Libona	DW	100	100		0.0	4.0																
13	Malaybalay	SP	0	50																			
14	Malaybalay	SW	300	300																			
15	Malaybalay	SW	TNTC	TNTC		0.5	72.0				5.9												
16	Maramag	SP	50	100																			
17	Maramag	SP	300	300		8.9	15.0				6.1												
18	Monolo Fortich	SP	100	100																			
19	Sumilao	SP	10	30																			
20	Valencia	DW	50	50		0.0	20.0				8.5											11.7	5.0
21	Valencia	DW				11.8	10.0				7.1												33.0

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).

7.5 Surface Water Sources

Table 7.5.1 Surface Water Quality

Major Surface Water	Surface Water Information			Parameter																PNSDW 1994			Surface Water Pollutants in upstream
	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				
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	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	18.6	Lo	Lo				
Tagoloan	Main	Malaybalay		6	7.5	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	Mining		
		Impasugong																			Mining		
		Sumilao																					
		Manolo Fortich																					
Cañayan	Bubunauan	Libona		24	7.5	-	-	-	-	-	-	-	-	TNTC	-	-	21.6	Lo	Lo	-	Mining		
	Samalauan	Baungon																					
	Main	Talakag																					
Mindanao	Sawaga	Malaybalay		5	7.2	-	-	-	-	-	-	-	-	TNTC	-	-	25.4	Lo	Lo	-	Fertilizer		
		Valencia																					
		Lantapan																					
		Valencia																					
		Malibog		400													139	Lo	Lo	-			
	Pulangí	Impasugong																					
		Malaybalay																					
		Cabanglasan																					
		San Fernando																					
		Valencia																					
		Quezon																					
		Don Carlos																					
		Kitatiao																					
		Danggagan																					
		Kibawe																					
		Darnulog																					
	Muleta	Kalilangan		140	7.5	-	-	-	-	-	-	-	-				87	Lo	Lo	-			
		Panganmucan																					

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.

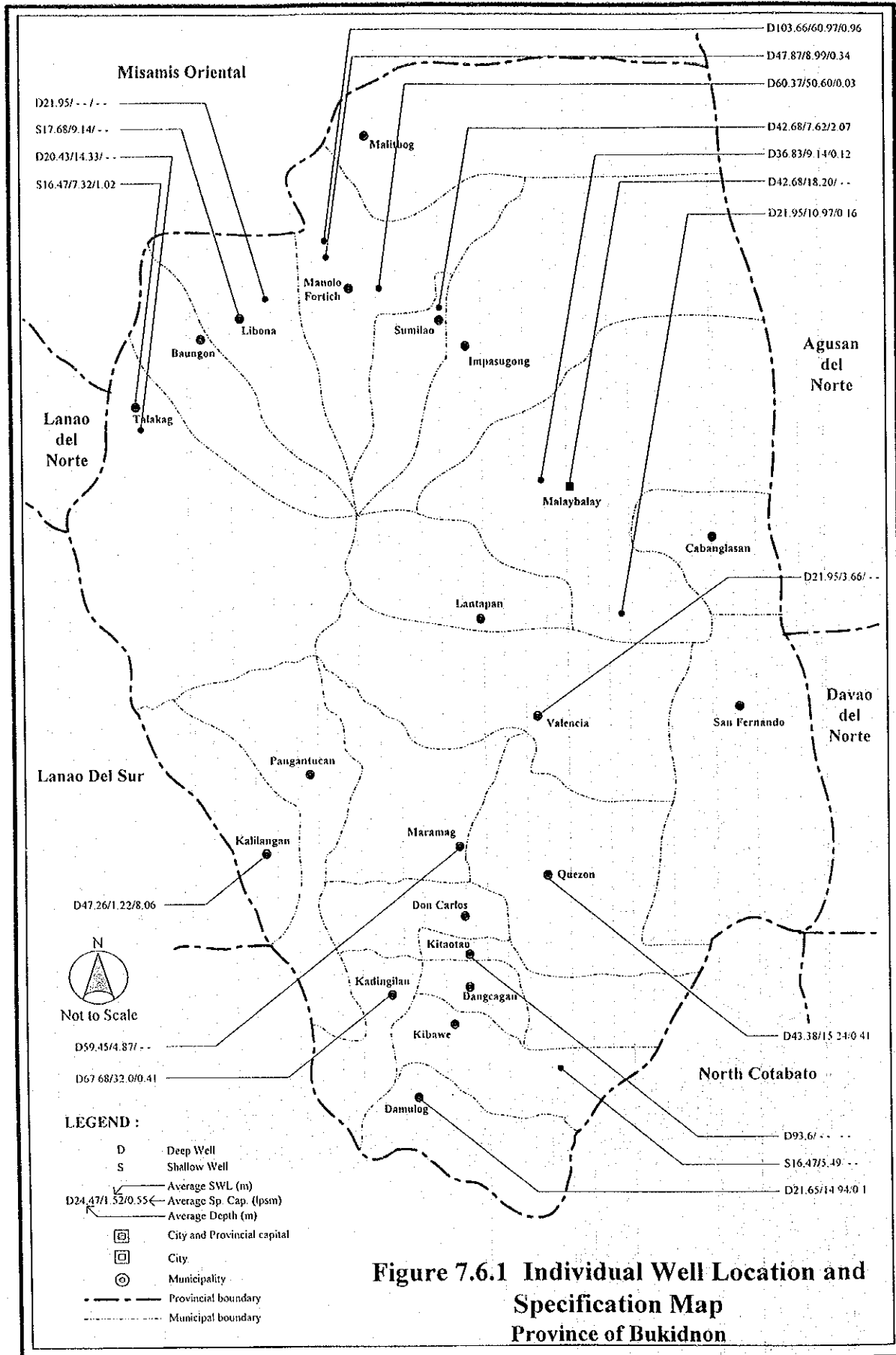
If there is no upstream, sampling point was selected near populated area.

Lo : Analyzer light is below range. The zero sample is too dark for proper zeroing.

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







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