Republic of the Philippines
CABAGAN WATER DISTRICT
Cabagan, Isabela
Telefax(078)396-0065

CABAGAN WATER DISTRICT
Water Safety Plan (WSP)
Revision No. 1.0 dated March 2019

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I. Introduction

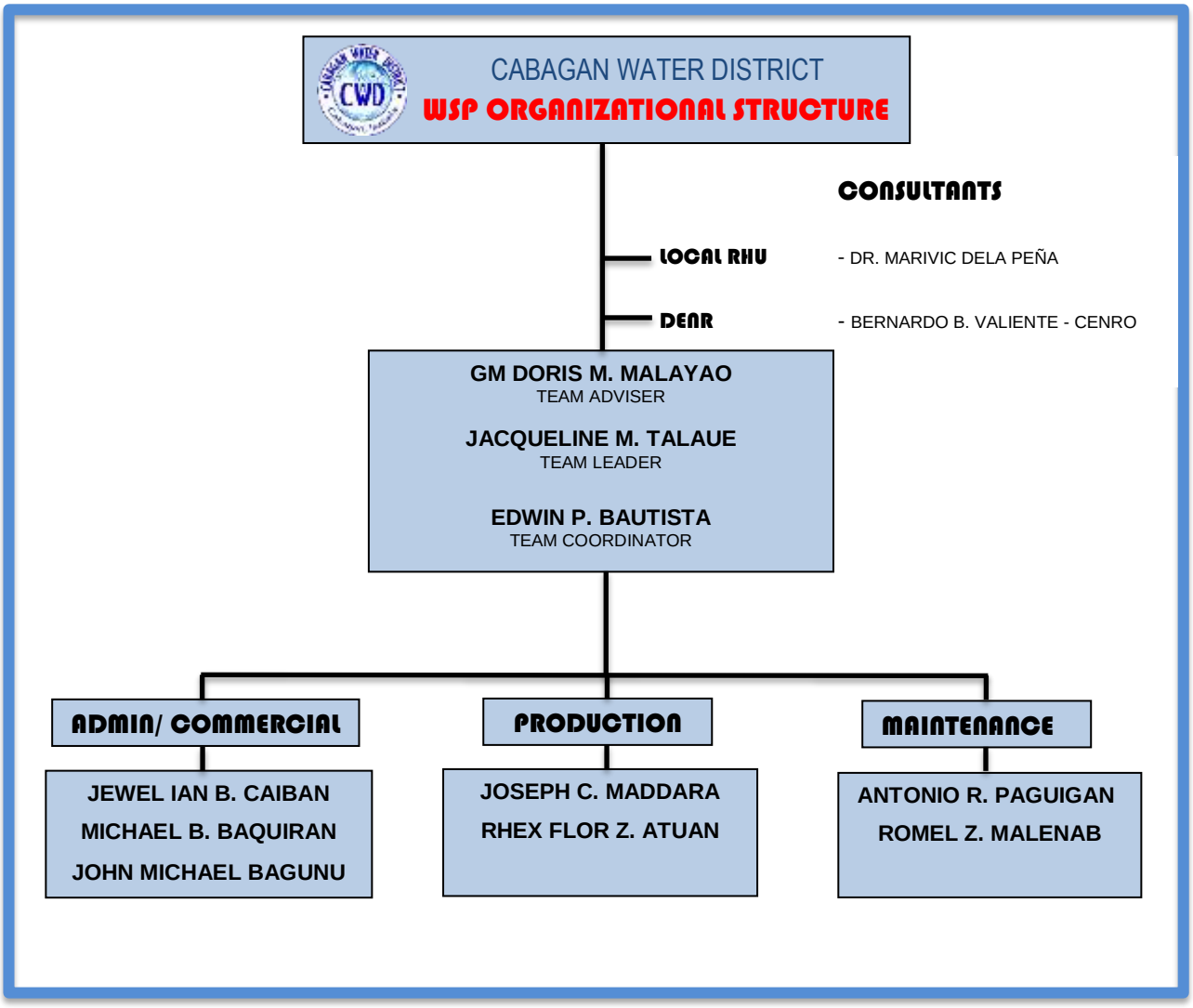
The national emphasis on self-reliance calls for the provision of adequate water supply. At present, only a few percent of the total Philippine population is benefited by the government-provided or assisted facilities. A sufficient supply of safe, reliable and low cost water not only in the cities but also in remote communities is therefore a pressing necessity. Water is now a Human Right. Without water, life will come to a standstill.

Our Goal to provide highest degree of services and continued delivery of safe, potable and affordable water supply to the consumers is the priority of the Cabagan Water District. World Health Organization (WHO) recognized that to deliver a safe water supply, all countries should adopt a Water Safety Planning to look at all the likely risks from the source to tap. With the support of Australian Agency for International Development (AusAID), in 2006 it was introduced in the Philippines and the concept was included in the 2017 Philippine National Standards for Drinking Water (PNSDW, 2017) as required by the Local Water Utilities Administration (LWUA) as part of our commitment to have safer water. Common problems encountered in the province of Isabela, Cagayan Valley is the soil component in the ground level which consists of high iron and manganese that cause discoloration in water. Ground level well development is common practice of the water district in the province. Surface water development is not feasible due to high demand for funds.

The Cabagan Water District Water Safety Plan will tell us how we protect our customers from water contaminants as it is travels from borehole sources through to your tap. The plan was modelled after the World Health Organization (WHO) which recommends identifying residual risks to water safety, determining the existing and proposed control measures, and develop improvement plan based on the significant risks identified. Details in the operational and monitoring of the WSP are also indicated to ensure that the water supply system components and control measures continue to work effectively. Verification process will also confirm that water quality standards are being met resulting to consumer satisfaction. The specific benefit of the planning process has been bring together to validate WSP effectiveness.

II. WSP TEAM

The CWD WSP Team is divided into two main groups: (a) the WSP Core Team and (b) the Stakeholders. The Cabagan Water District WSP Team came up as per Memo dated March 11, 2016 where it is made up of diverse and experienced technical personnel from every facet of our water system. Every key department and sections are well presented to address all concern, from engineering, production, administrative, finance and commercial. All will be working together, hand in hand to produce comprehensive and effective Water Safety Plan.



2.1 WSP Core Team

The WSP Core Team is composed of Cabagan WD employees from four (4) Divisions namely: Engineering, Production, Financial and Administrative who have technical expertise and knowledge on the operation and documentation needed for the development, implementation, auditing of the WSP, Table 1 shows the comprehensive checklist of skills or expertise needed by a WSP Team Member. Such helped the management to decipher the appropriate personnel to perform the tasks.

The WSP Core Team was formed to increase the awareness of stakeholders on WSP approach as a management tool; to adopt, develop and implement systems and procedures and eventually to strengthen capacity as drinking water service providers and partners in the development and implementation of WSP.

2.1.1 Stakeholders as Part of the WSP Team

WSP Component is equally important to partner with stakeholders. These are individuals and groups from the Local Government Units, National Agencies and Consumers' group.

The stakeholders provide pertinent data and coordination works that are keys to policy implementation. Their role and involvement in the Water Safety Planning will be important in the health risks reduction measures listed in the WSP. As one of the criteria, members of the stakeholders are individuals or groups that could affect or be affected by the activities carried out in relation to the CWD water service. Table 2 shows the complete list of CWD Stakeholders Team.

2.1.2 SKILLS REQUIRED FOR WSP TEAM

1	Technical expertise on the operation and maintenance of	
	a.	Source
	b.	Storage
	c.	Treatment
	d.	Distribution
2	Provide operational support for the WSP in terms of	
	a.	Administrative
	b.	Financial
	c.	Technical
3	Capable of communicating the WSP objectives and outcomes	
	a.	Inside the WD
	b.	Outside the WD
4	Understand water quality targets to be met	
5	Understand the impact of proposed water quality controls in the environment	
6	Knows the regulation	

7	Familiar with training and awareness programs	
8	With Authority	
9	Other team members	
	a.	Resource persons
	b.	Coordinator
	c.	Secretariat
	d.	Documentation/Committee/staff

2.2 CWD SP Team Members, Roles, Contact Details and Expertise

NAME	**Role in the WSP**	**EXPERTISE**																	
		1				2			3		4	5	6	7	8	9			
		a	b	c	d	a	b	c	a	b						a	b	c	d
Doris M. Malayao General Manager CP No. 09169629899	**Team Leader** Ensures that WSP is properly developed, implemented and maintained Supervises the overall function of the WSP Team Responsible in the planning and implementation of supporting programs	x	x	x	x			x	x	x	x	x	x	x	x				
Edwin P. Bautista Utilities/Cust Serv. Assistant A CP No. 09102611614	**Asst. Team Leader** Performs the function of the team leader in his or her absence **Document Control Officer** Conducts information to HWD concessionaires regarding consumption, conservation and protection of water Assists the Team Leader					x			x	x	x	x	x	x	x		x	x	x
Jacqueline Talaue Corp. Budget Specialist A CP No. 09972366624	**WSP Internal Audit Team Leader** Draw up and manage Audit					x			x	x	x	x	x	x	x		x	x	x
Jewel Ian B. Caiban Industrial Relation Mgmt Officer CP No. 09352336324	**Audit Plan for WSP** Prepares agenda, memorandum and all other WSP communications. Prepares and inform WSP members on updates.					x			x	x			x	x	x	x	x	x	x
Joseph C. Maddara Water Sew. Maintenance Man A CP No. 09756217421	**Source/Storage/Treatment** Provides data and expertise on water abstraction &	x	x	x	x			x	x	x	x	x	x	x	x				

Rhex Flor Z. Atuan Water Res. Facilities Operator CP. No. 09975443712	storage. Provides data in a daily basis on operation, maintenance of all pumping stations including storage facilities. Provides data on water quality and treatment procedures																	
Antonio R. Paguigan Utilities/Cust Serv. Assistant A CP No. 09993276945 Romel C. Malenab Water Sew. Maintenance Man CP No. 09555814375	**Distribution** Provides data and expertise on water expansions and all distribution lines including valves, blow offs and hydrants. **Customer Relations** Provides data on customer feedback on water service **Public Information** Conducts Information, education & campaign to CWD concessionaires regarding consumption, conservation and protection of water.	x	x	x	x			x	x	x	x	x	x	x	x			
Michael B. Baquiran Water Sew. Maintenance Man CP No. 09361330084 John Michael B. Bagunu Utility Worker A CP No. 09360418650	**Public Information** Conducts Information, education & campaign to CWD concessionaires regarding consumption, conservation and protection of water. **Customer Relations** Provides data on customer feedback on water service								x	x	x	x	x	x	x		x	x	x

III. SYSTEM DESCRIPTION

Water Supply system is the process of providing water in a systematic way through installed pipe lines. Before water is provided to a specific area, it undergoes a process called sanitation to ensure that quality water is safe for human consumption.

3.1 General Information

Cabagan Water District, a small water district located about 34 kilometers away from Tugugarao City, the regional center of Region II, the Cagayan Valley Region, and about 50 kilometers away from Ilagan City, Isabela the capital town of Isabela province. It is approximately 465 kilometers away from the city of Manila.

The Municipal Government sought the help of the Ministry of Public Works (MPW) to put up a well in the area. Thus, in 1981 a deepwell with a perforated casing diameter of 125mm and 35 cubic meter reinforced concrete elevated tank were constructed. Realizing to improve and expand the water supply development program, Presidential Decree No. 198, as amended Presidential Decree Nos. 768 and 1479, charters the Local Water Utilities Administration (LWUA) to promote the development of Water Districts as a means to establish, operate, maintain a reliable and economically viable water supply and wastewater disposal system for the provincial areas of the Philippines.

On September 30, 1981, The Sangguniang Bayan of Cabagan, upon learning of LWUA's assistance projects, decided to avail of the assistance and thus formed the Cabagan WD. On 14, 1981, the application to formalize the Cabagan Water District was filled at LWUA. On February 04, 1982, the Conditional Certificate of Conformance has been granted.

In 2009, the CWD received the 20.1 million NLIF-PSF which was a 70-30 loan grant from LWUA. A 6.7 km of transmission line installed to riverside barangays that serves five (5) barangays and 2.2 km transmission line parallel to the existing pipelines in the poblacion.

Today, the district has thirty (30) regular personnel and five (5) Job Orders serving 4,517 connections. The service area has 18 barangays to include 3 barangays from neighboring town which is San Pablo.

CWD produced water intended for household, commercial, industrial use safe for drinking, and meets the standard for Potable Drinking Water of the PNSDW.

The district maintain a regular random bacteriological testing and an annual raw water for physical and chemical testing done by a DOH accredited laboratory to ensure potability of water.

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CWD VISION AND MISSION

Committing to provide the Municipality of Cabagan a 24/7 delivery of safe and sufficient, affordable water and sanitation services.

GOALS AND OBJECTIVES

To provide reliable water and sewer services to protect public health and the environment with superior customer service.

CWD HIGHLIGHTS

Cabagan Water District was one of the nominees to the Most Outstanding Water District under Category C of the Local Water Utilities Administration during their 40th Anniversary held last September 17, 2019.

SERVICE AREA COVERAGE

1.) CATABAYUNGAN
2.) CASIBARAG SUR
3.) CASIBARAG NORTE
4.) LUQUILU
5.) CENTRO
6.) ANAO
7.) UGAD
8.) NGARAG
9.) CUBAG
10.) CANSAN
11.) SAN JUAN
12.) SAN BERANRDO
13.) SAUI
14.) TALLAG
15.) AGGUB
16.) CALAMAGUI (SAN PABLO)
17.) MINANGA SUR (SAN PABLO)
18.) MINANGA NORTE (SAN PABLO)

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ADMINISTRATIVE MAP

CITY OF CABAGAN
PROVINCE OF ISABELA
REGION 2

0 5 km

N
W E
S

17°25′48″N 121°45′36″E

17°26'15"N 17°26'1''N 17°25'47"N 17°25'34"N 17°26'20"N

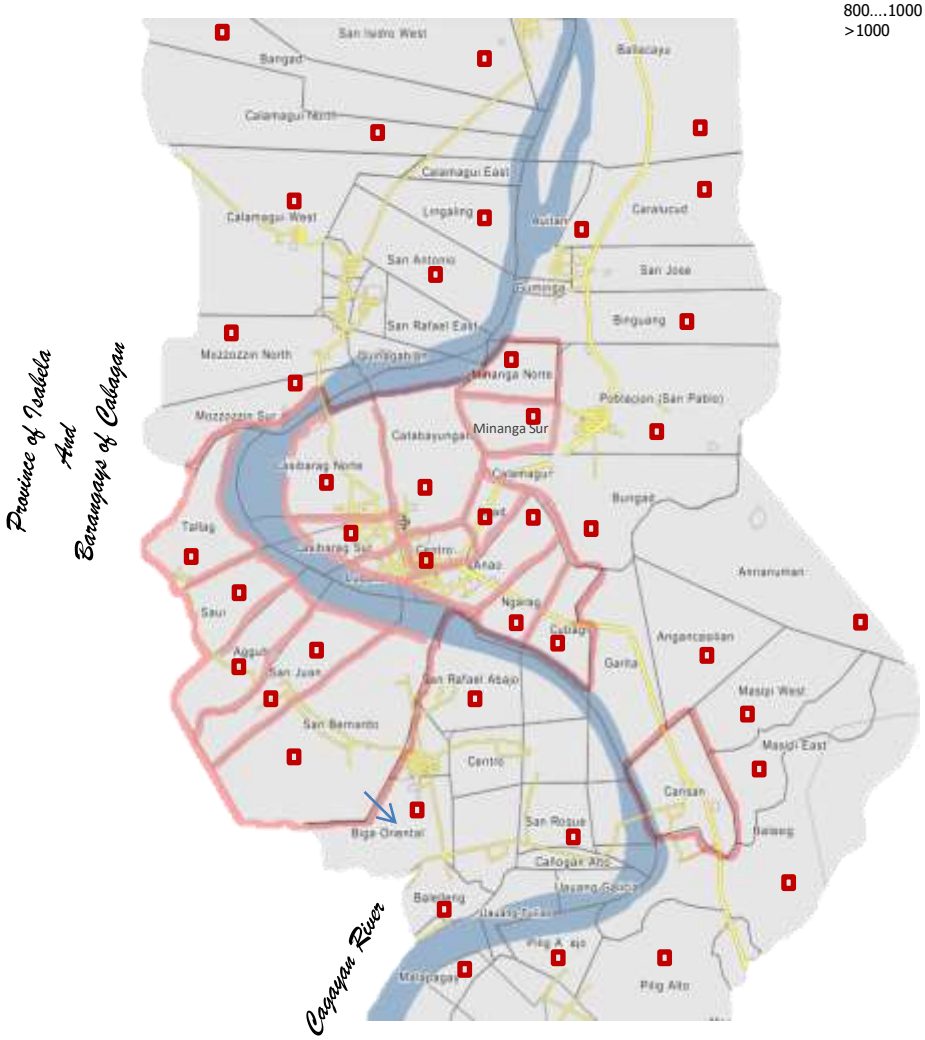
121°46"E 121°46'18"E 121°46'4"E 121°45'50"E 121°45'36"E

LOCATION

LEGEND:

- ngay Hall
- ngay Boundary
- Network
- s and Creeks
- icipal Waters

<200
200....400
400....600
600....800
800....1000
>1000



3.2 CWD WSP Stakeholder Identification and Interaction

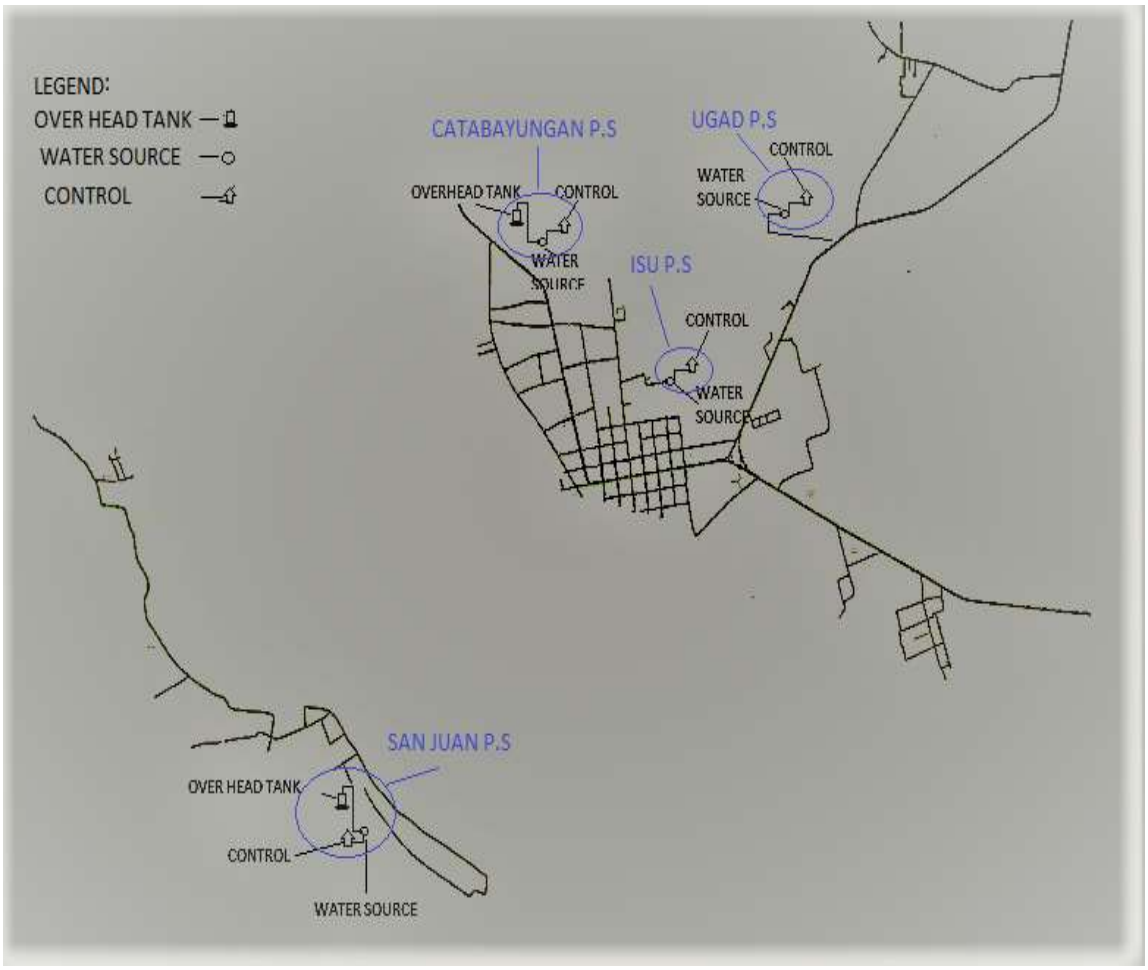
Stakeholders					
Name	**Relationship to drinking water supply issues**	**Point of contact with WSP Team**	**Issues with drinking water supply**	**Interaction Mechanism**	**Record of Interaction**
Local Water Utilities Administration	Regulator on water quality	Submission of water quality results	Compliance to water quality standards	Reporting of water quality	Monthly Data Sheet
Department of Health	Provide National Standard for Drinking Water (PNSWD)	Dialogue/ Memoranda	Compliance to water quality standards	Dialogue/Memoranda	Reports
Municipal Planning and Development Council	Regulator on the disposal of waste in the community	Dialogue	Chemical, microbial contamination from improper disposal	Dialogue	Minutes of meeting
Local Government Unit	Regulator on water quality/ Sources of information on reported diseases, illness & outbreaks in relation to water quality	Community Assemble/ Dialogue	Compliance to water quality standards/ Diseases, illnesses brought by contaminants of water	Reporting of Water quality results/ Informing CWD on health related issues	Report
Supplier	Source of chemicals, materials and equipment	Dialogue	Chemical, microbial physical contamination	Purchasing of materials	Report
ISELCO II	Source of power supply	Dialogue	No water supply	Dialogue	Report
Department of Public Works & Highways	Possible damage to pipelines	Dialogue	Water contamination and/or interruption	Dialogue	Report
Municipal Engineering	Possible damage to	Dialogue	Water contamination	Dialogue	Report

Office	pipelines		and/or interruption		
Schools	Feedback on water quality	Dialogue	Water contamination	Dialogue	Report

CWD WSP team chooses the above mentioned stakeholders for developing the water safety plan because of the huge impact and influenced in the quality safe drinking water. Their inputs are of essential to the water districts operations and clearly it give us insights on how we maintain and manage the delivery of water for human consumption to reduce health hazards and risks.

3.3 Water Source

Groundwater is the main and only water source of Cabagan Water District (CWD). As of December 2018, CWD has six (5) pumping stations strategically located at the municipality of Cabagan and nearby areas operating 24/7.



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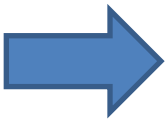
3.4 PUMPING STATIONS PROCESS FLOW DIAGRAM

LEGEND:

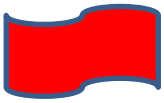
Storage at Elevated Tank

Monitoring & Chlorine Residual



Transfer

Pumping and Chlorination



Filtration Facilities

PUMPING STATION SETTINGS

No.	Pumping Station	Location	Rated Capacity	Production Capacity	Date Installed	Service Area
1	Catabayungan	Brgy. Catabyungan	15 h.p	21lps	1987	Casibarag & Catabayungan
2	ISU	Brgy. Catabayungan	10 h.p.	11 lps	1995	Catabayungan, Luquilu, & Centro
3	Ugad	Brgy. Ugad	15 h.p.	18 lps	2002	Ugad, Anao, Ngarag, Cubag, Minanga & Calamagui
4	Cansan	Brgy. Cansan	5 h.p.	2.5 lps	2018	Cansan
5	San Juan	Brgy San Juan	5 h.p	7 lps	2010	San Juan, San Bernardo, Aggub

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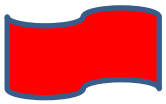
CATABAYUNGAN PUMPING STATION

Catabayungan is the oldest pumping station put up in 1982 under LWUA loans that supplies about 1500 concessionaires in the area. High iron and manganese has been detected to be the causes of yellowish to dark brownish water drawn from the well. It was equipped with chlorinator and filtration facilities to make water safe for drinking.

CATABAYUNG PROCESS FLOW DIAGRAM		
DESCRIPTION	**STEP**	**RESPONSIBILITY**
Pumping & Chlorination		Pump Operator
Monitoring Residual and Water Quality		Pump operator
Filtration Media Tanks		Pump Operator
Elevated Tank		Utility
Transport at Transmission Lines		Concessionaires

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ISU PUMPING STATION

Water is pumped at 42 meter below ground level, water quality is not a problem because all parameters set by the Philippine National Standards for Drinking Water (PNSDW) has met.

ISU PROCESS FLOW DIAGRAM		
DESCRIPTION	**STEP**	**RESPONSIBILITY**
Pumping & Chlorination		Pump Operator
Monitoring Residual and Water Quality		Pump operator
Transport at Transmission Lines		Concessionaires

UGAD PUMPING STATION

Ugad pumping station produces 16 litters per seconds to serve about 2,000 concessionaires with quality and potable water safe for drinking. Pumped setting is at 18 meters below ground. It is equipped with Generator Sets for a continuous delivery of water in case of brownouts.

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UGAD PROCESS FLOW DIAGRAM		
DESCRIPTION	**STEP**	**RESPONSIBILITY**
Pumping & Chlorination		Pump Operator
Monitoring Residual and Water Quality		Pump operator
Transport at Transmission Lines		Concessionaires

SAN JUAN PUMPING STATION

Riverside pumping station covered five (5) barangays with 7 lps pumped at 21 meters 2inches diameter below ground level.

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SAN JUAN PROCESS FLOW DIAGRAM		
DESCRIPTION	**STEP**	**RESPONSIBILITY**
Pumping & Chlorination		Pump Operator
Monitoring Residual and Water Quality		Pump operator
Elevated Tank		Utility
Transport at Transmission Lines		Concessionaires

CANSAN PUMPING STATION

Cansan Pumping Station is equipped with filtration facilities and steel tank for positive pressure within transmission lines. Water taste salty due to the soil formation. Water is pumped at 62 meters below the ground.

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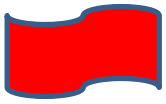
CANSAN PROCESS FLOW DIAGRAM		
DESCRIPTION	**STEP**	**RESPONSIBILITY**
Pumping & Chlorination		Pump Operator
Monitoring Residual and Water Quality		Pump operator
Filtration Media Tanks		Pump Operator
Elevated Tank		Utility
Transport at Transmission Lines		Concessionaires

Pumping stations was installed with Automatic water level detector and timer as a way of conserving water and energy and easy monitoring without the presence of pump operators. All pumping station is being monitored 24/7 by pump operators to ensure all facilities, generator set and equipment are properly maintained and for a continuous delivery of water in case of power supply interruption.

At present, the high iron and manganese in Cagayan Valley as a whole contributes to the discoloration of water from source that requires treatment facilities to meet the Philippine National Standards for Drinking Water (PNSDW). To eliminate the bacterial contamination along the distribution line, chlorine granules is pre-mixed in the discharge line thus, ensuring that potable water is provided to our consumers.

3.5 WATER TREATMENT PROCESS

CWD is using chlorine granules in all water sources as means of disinfectant. Installed filtration facilities for Catabayungan and Cansan pumping station because of high iron and manganese to ensure potability of delivered water for the general consumption of the public both for drinking and food preparation and to conform to the standards set by Philippine National Standard for Drinking Water (PNSDW, 2017). The filtration facility is located within the pumping station area using filter media wherein the water derived from the source is directly passing through the filtration facilities to storage tank.



3.6 DISTRIBUTION SYSTEM

To augment the demand during low pressure, the CWD utilizes its storage tank with capacity of 115 cubic meter for poblacion, 100 cubic meter for cansan and 50 cubic meter for riverside barangays. Said elevated tank is continuously filled and drawn during rush hour in the morning.

Storage Tank

Transmission & Distribution Pipelines

The CWD transmission & distribution system covers fourteen (14) barangays of Cabagan and three (3) barangays of San Pablo nearby municipality. As of December 2018 data revealed a total of 41,401 linear meter of pipeline has been installed. Other appurtenances include blow-offs, gate valves, fire hydrants and bridge crossing. Table below shows the summary of laid pipelines and appurtenances.

Summary of Laid Pipelines

Pipelines			
Diameter	**Length**	**Size**	**Type of Material**
200 mm	780	8”	GI Pipes
150 mm	3,506	6”	UPVC
100 mm	12,366	4”	UPVC
75 mm	14,692	3”	UPVC
50 mm	10,057	2”	UPVC

Distribution Line

3.7 CUSTOMERS

Customers of CWD are classified into five types, namely: residential/government, commercial a, commercial b & commercial c.

Below is the current water rate of Cabagan Water District as per LWUA approval.

Type	Minimum Charge	11-20	21-30	31-40	41 UP
Residential/Government	204.00	30.10	36.10	43.40	43.40
Commercial/Industrial	408.00	60.20	72.20	86.80	86.80
Commercial A	357.00	52.65	63.15	75.95	86.80
Commercial B	306.00	45.15	54.15	65.10	86.80

3.8 Water quality required

The significance of being a water utility is to adhere with the Philippine National Standards for Drinking Water (PNSDW, 2017) as the basis for quality water.

Mandatory Parameters	PNSDW Max. Allowable Level	Method
A. Microbiological		
1. Total Coliform	<1.1 MPN	Multiple Tube Fermentation
2. Fecal Coliform	<1.1 MPN	Multiple Tube Fermentation
3. Heterotrophic Plate Count (HPC)	<500 CFU/ml	Pour Plate Method
1. Arsenic (mg/L)	0.01	AAS
2. Cadmium (mg/L)	0.003	AAS
3. Lead (mg/L)	0.01	AAS
4. Nitrate (mg/L)	50	Colorimetry – Cd Reduction
5. Color Apparent (CU)	10	Visual Comparison
6. Turbidity (NTU)	5	Turbidimeter
7. pH	6.5-8.5	Glass Electrode
8. Total Dissolved Solids (mg/L)	600	Gravimetry
9. Disinfection Residual		
Residual Chlorine (mg/L)	0.-1.5	
Chlorine Dioxide (mg/L)	0.2-0.4	

3.9 Delivery point, intended users of water and intended uses of the water

Cabagan Water District is currently servicing 4,500 customers from Municipality of Cabagan and three (3) barangays of San Pablo nearby municipality. The district has five (5) ground level well source with an independent source covering five (5) barangays in the riverside which is San Juan, Tallag, Saui, San Bernardo and Aggub about 25 kilometers away from poblacion.

Our plan to request Financial Assistance from LWUA will be part of the planning process of the Board of Directors to increase area coverage by at least four (4) barangays (Garita, Balasig, Angancasillia and Magassi. Improving water quality will be our utmost concern. Current issues on high iron and manganese have been addressed by installing Filtration Facilities.

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Pictures below will tell us who are our users and intended uses of water we produced.

"Water is life, Save it"

3.10 Current delivered water quality

CWD is following the standards set by the Philippine National Standards for Drinking Water (PNSDW, 2017). The use of chlorine granules and installation of filtration facilities helps a lot in the delivery of quality water to every household both for drinking and food preparation. Bacteriological test shows negative result from coliform organisms, samples meets Bacteriological Standards for Drinking Water. Test is done in monthly basis using PHC bottle. Physical characteristics in water are generally the basis of customer complaints - color, odor and taste. This factor affects the delivery of water into the household. But due to high technology, high iron and manganese can now be removed or reduced their limits. At present CWD is compliant with the Philippine National Standard for Drinking Water (PNSDW, 2017). Our mandate to deliver, safe, reliable water to every household has been complied with.

3.11 Persistent Problems

The water produced from the sources has different quality issues that were addressed during the treatment process. Here are some persistent problems from the sources:

- Catabayungan Pumping Station
  - High iron and manganese
- Cansan Pumping Station
  - High iron and Manganese
  - High salinity in water
- San Juan Pumping Station
  - High iron and manganese

IV. RISK ASSESSMENTS, HAZARD TABLE AND EXISTING CONTROL

Water is Life, Save It. The essence of the CWD WSP is to ensure that it provides adequate and safe drinking to the people of Cabagan. Dealing with potentially hazardous agents in water is a big responsibility to handle with, and immediate action should be executed right away to avoid water contamination that maybe dangerous to our health. These hazards should be taken seriously and accurately with correct methods of approach, whether it comes from the catchment/source, distribution lines, reservoir, treatment facilities, ageing transmission lines or even at the concessionaires tap.

The CWD Team identifies possible hazards that can affect the safety of the drinking water. Evaluation and careful assessment of each identified hazards with high risks will be given priority.

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VIII. MANAGEMENT PRCEDURES

The strategy for any organization to have a smooth operation for a well-managed water supply system is to install a management procedure that will give insights to employees on what should be done and to be done to improve customer satisfaction in providing safe, reliable and affordable drinking water.

Standard Operating Procedures	Description
Water Source Operation	**CATABAYUNGAN Pumping Station** 1. Inspection of pumping equipment 2. Record daily flow meter reading and kilowatt hour used 3. Backwashing of Filter Media 4. Check-up chlorinator 5. Cleaning of Pumping station 6. Maintenance of Facilities 7. Cleaning of Storage Tank
	SAN JUAN Pumping Station 1. Inspection of pumping equipment 2. Record daily flow meter reading and kilowatt hour used 3. Backwashing 4. Check-up chlorinator 5. Cleaning of Pumping station 6. Maintenance of Facilities 7. Cleaning of Steel Tank
	CANSAN Pumping Station 1. Inspection of pumping equipment 2. Record daily flow meter reading and kilowatt hour used 3. Backwashing of Filter Media 4. Check-up chlorinator 5. Cleaning of Pumping station 6. Maintenance of Facilities 7. Cleaning of Steel Tank

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	ISU and UGAD Pumping Station 1. Inspection of pumping equipment 2. Record daily flow meter reading and kilowatt hour used 3. Backwashing at bypass 4. Check-up chlorinator 5. Cleaning of Pumping station 6. Maintenance of Facilities
Chlorination Procedure	1. Fill up 200 liters of water to the chlorine mixing tank 2. Weigh 3.5 kilos of chlorine granules 3. Pour granules on the mixing tank 4. Stir the solution for about an hour or until granules fully dissolved 5. Cover the mixing tank and wait for 24 hours to allow sediments to settle down. 6. Remove the syphon hose from the chlorinator and fill with water to wash clogged granules. 7. Install the hose to the chlorinator and start chlorinating. 8. Prepare chlorine test kit for chlorine residual at 0.5ppm but not to exceed 1.5ppm from the source and 0.3ppm from the end point.
Treatment Plant Operation	CATABAYUNGAN and CANSAN Pumping Station 1. Regeneration of filter media every six months. 2. Check filter media tank if there is leak 3. Backwash the filter media every 11 am and 6 pm. 4. Open filter tank to check on the status of media for cleaning. 5.
Transmission & Distribution & Mainline Leak Repair Procedure	1. Received reports from concessionaires and prepare job order for approval. 2. Policy of the district that reported leakages especially on mainline services will be prioritized to avoid contamination of water and to reduce Non-Revenue Water of the district 3. Investigate the gravity of leak 4. Closing of gate valves 5. Stop pumping of water if necessary 6. Information of water interruption/public advisory. 7. Check availability of materials for repair

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	8. The assigned plumber will prepare the materials needed. 9. Place warning devices to avoid accidents 10. Using of water pump to drain water from the pipes if necessary 11. Cutting or pull-out of affected pipe or fitting. 12. Disinfection of busted pipe by putting 200 grams of chlorine to the system 13. Repair of the pipe is done 14. Opening of gate valves and nearest blow off to flush accumulated sediment 15. Close all blow off and observe if there is leak in the installed pipe, if none proceed to 16. Backfilling and compaction of site 17. Report to the office of the General Manager /Technical Supervisor that the repair is done. 18. Restoration of concrete pavement will be done next day after repair is done make sure the soil compaction ion is properly done.
Service Connection Procedures	New Service Connection 1. Inquire at the Customer Service & Complaint Desk for the requirements in the application of NSC. 2. Fill up application form and submit requirements, if requirements is complete 3. The designated employee will investigate, verify the area and estimate materials to be installed 4. Upon receipt of the estimated materials, pay to the Cashier. 5. Present the Official Receipt to the CSCD for contract signing and orientation of CWD policies. Pamphlet will be given. 6. Prepare Job Order for the schedule of installation. All documents must be properly signed by the Commercial supervisor and the GM 7. Job Order will be given to plumbers for the preparation of materials 8. Site preparation and mainline tapping 9. Concessionaire will conform to the Job order that NSC is properly done & sealed. 10. Submit Job order for proper filling and registration to the system Reconnection of water meter

	1. Go to CSCD, verify the status of SC 2. Pay reconnection fee to the cashier and water bills if any 3. Submit OR to CSCD for preparation of Job Order. 4. Upon signing of Job order by the GM, schedule of reconnection will be done. 5. Concessionaire will conform to the Job order that NSC is properly done & sealed 6. Submit Job order for proper filling and registration to the system. Disconnection of water meter 1. Frontline employees received request for disconnection. 2. Sign the request form for disconnection and prepare Job Order. 3. Signing of Job order by GM, then schedule of disconnection will be done. 4. The pulled out water meter will be deposited to the store keeper. 5. Job order must be properly signed, filled up and accomplished (last reading, water meter serial number and date of disconnection) submitted to Commercial supervisor.
Repair of Leakages	Before and after the meter 1. CSCD received report for request to repair leakages. 2. Prepare Job order and mark required action to be done 3. Signing of Job order by GM, then schedule of repair 4. Site visit of plumber and check service line: before the meter CWD plumber will repair, if leak is after the water meter concessionaire is advice to hire private plumber. 5. If leak before the meter, plumber will request materials at storekeeper for the repair. 6. Confirmation of concessionaire that leak is repaired. 7. Submit accomplished job order for proper recording.

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IX. SUPPORTING PROGRAMS

CWD has only 18 regular employees, 10 Job Orders (Data as of February 2015) Office Order No. 001 Series of 2016 dated March 11, 2016, WSP team was officially organized, supported by Board Resolution No. 06 series of 2016 ensuring that the water district has a quality safe drinking water 24/7 from the source to the tap water of the consumers. The district treats water to prevent and control water related problems and to provide consumers for easy access to drinking water through their tap/faucet.

There are programs provided to reduce risks from distributing water to consumer taps which can enhance personnel ability and understanding their respective duties and responsibilities by meeting the standards set by the Philippine National Standards for Drinking Water.

It is in this way we commit for a safe drinking water by attending Trainings and Seminars, Research and Development, Outreach Programs and Visiting big water district for their facilities that we can adopt so as to improve operation and distribution of safe drinking water as illustrated:

PROGRAM	PURPOSE	ACTIVITY	TARGET DATE	RESPONSIBLE UNIT
Rehabilitation of Ageing/dilapidated GI pipes	To upgrade working pressure at the distribution lines. To reduce leaks that cause contaminants to drinking water	Substitution of all existing GI Pipes to uPVC pipes	2019	Engineering Division
Training & Awareness	To ensure that all employees of the district is aware of the importance Water Safety Plan in the organization.	Attendance to seminar on WSP. Orientation of new WSP member	2019	Administrative Division

Research and Development	Gives information on how we handle risk and hazardous components to minimize the occurrence of contamination in the drinking water in innovative way.	Attendance to convention, trainings and networking.	2019	Administrative Division/ Manager

X. WSP REVIEW PROCEDURE

The CWD is committed to review annually the Water Safety Plan if there are changes in the system that will improve the quality of drinking water provided to the concessionaires.

Purpose of Review	Schedule	Responsible Unit
Changes in Distribution and Treatment	Any changes in the water system	WSP Team
Revised Procedures	Any changes made in the Office Procedures	WSP Team
Staff changes	Any changes in the workforce	WSP Team & HR
WSP Committee information changes	Any changes in the information of WSP Committee	WSP Team Secretariat

XI. INCIDENT RESPONSE PLAN

In case of incidents, near miss or in emergency cases wherein the water quality is at stake, it is the duty of the Water Safety Plan Team to conduct review & process the situation to prepare for the necessary steps that will assure concessionaires that the water they drink is free from contaminants. WSP Team must always be ready to accommodate possible occurrence of incidents.

Purpose of Review	Schedule	Responsible Unit
Incident	After fortuitous event (e.g. Typhoon, Earthquake, Landslide)	WSP Team
Near Miss	After fortuitous event (e.g. Typhoon, Earthquake, Landslide)	WSP Team

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WATER SAFETY PLAN (WSP)

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7. **Verification Procedures**
8. **Management Procedures**
9. **Supporting Programs**
10. **WSP Review Procedures**
11. **Incident Response Plans**

ABBREVIATIONS:

WHO	World Health Organization
WSP	Water Safety Plan
CSCD	Customer Service Complaint Desk
PNSDW	Philippine Standard for Drinking Water
NSC	New Service Connection

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