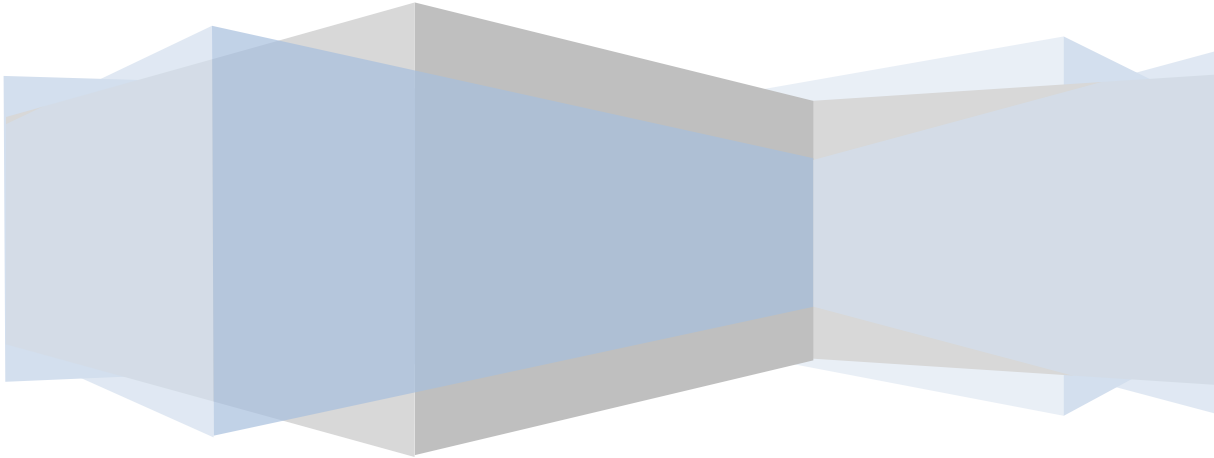

**Water Facility Construction Maintenance &
Quality Water Production Division**

QUALITY WATER PRODUCTION SECTION



2015 Edition

VISION

“A healthy and well-developed community living in harmony with nature conducive to social enhancement and economic productivity.”

MISSION

The San Francisco water District is committed to provide adequate potable water supply at a cost reasonable for the consumers using technologically advanced facilities, manned and maintained by highly trained and effective manpower working for stakeholder’s satisfaction.

GOALS AND OBJECTIVES

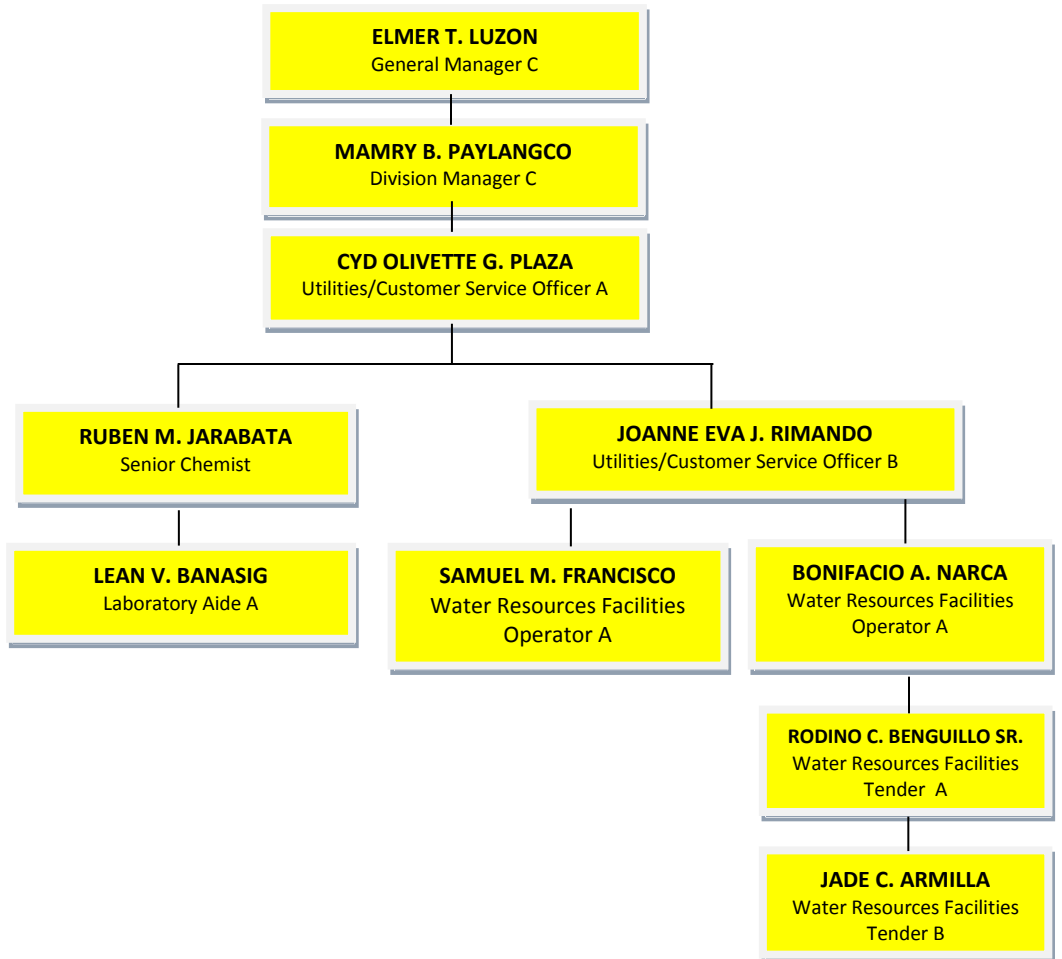
1. To initiate socio-ecological programs, implement watershed saving activities and conduct systematic monitoring, securing and ensuring sustainability of all water sources.
2. To establish enough water services and facilities in order to provide adequate potable water supply for the San Francisco and other neighboring municipalities.
3. To develop linkages with other water districts and other water providing institutions and have continuous dialogue with concerned government sectors.
4. To enhance capability of the personnel to effectively respond to the needs of water utility by sending employees to trainings, seminars and other activities that will equip them with advance technologies and knowledge for better performance.

GENERAL FUNCTIONS OF
QUALITY WATER PRODUCTION SECTION

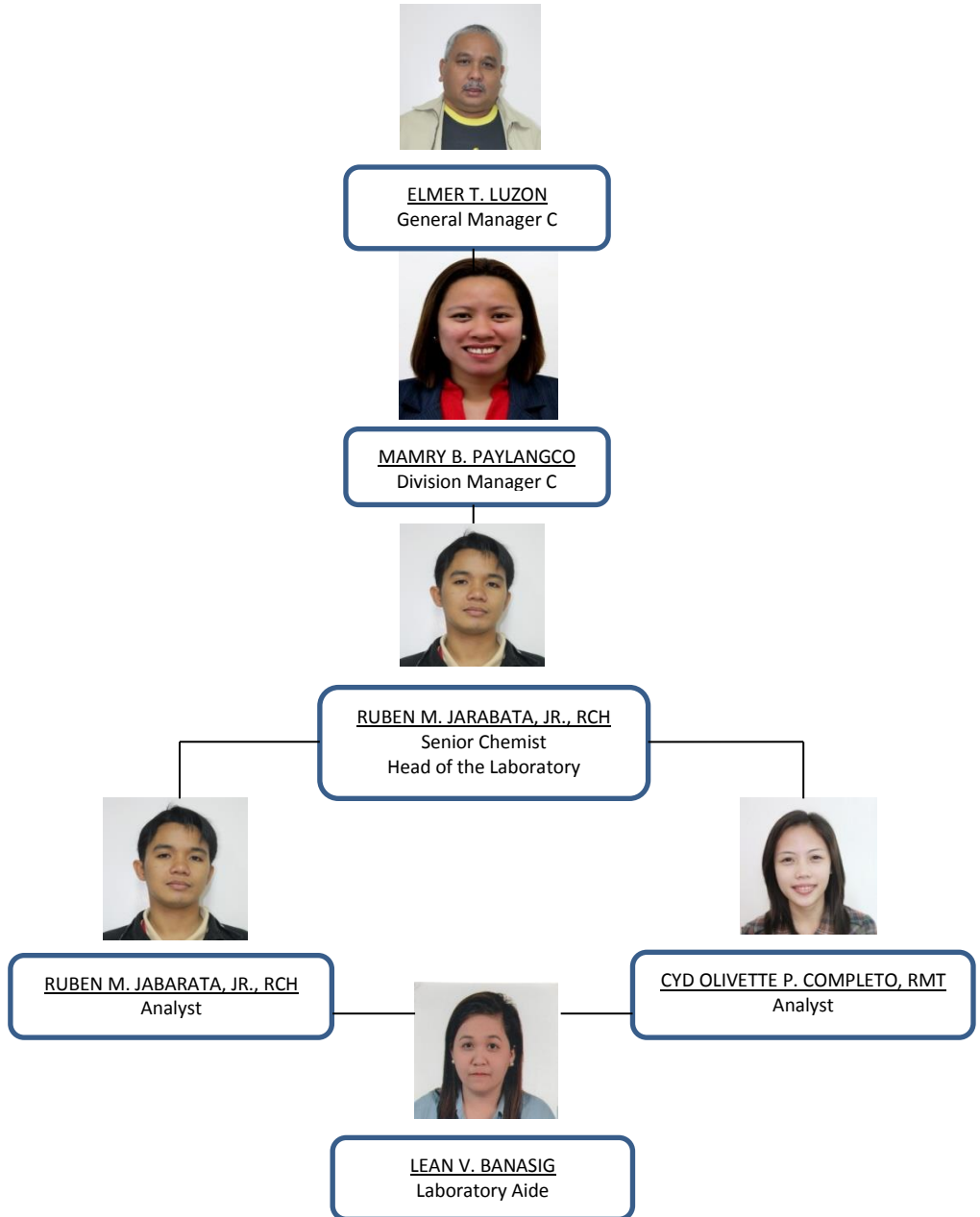
1. Determines water production requirements and ensure the steady supply of water to the service area.
2. Maintains reservoir and water treatment facilities.
3. Monitors water pressure, water level and water quality in accordance to PNSDW and WHO.
4. Conducts preventive maintenance and repair of water production facilities.
5. Initiates program for protection, conservation and development of water sources including monitoring thereof.

ORGANIZATIONAL STRUCTURE

A. Organizational Structure of QWPS



B. Organizational Chart of Water Testing Laboratory



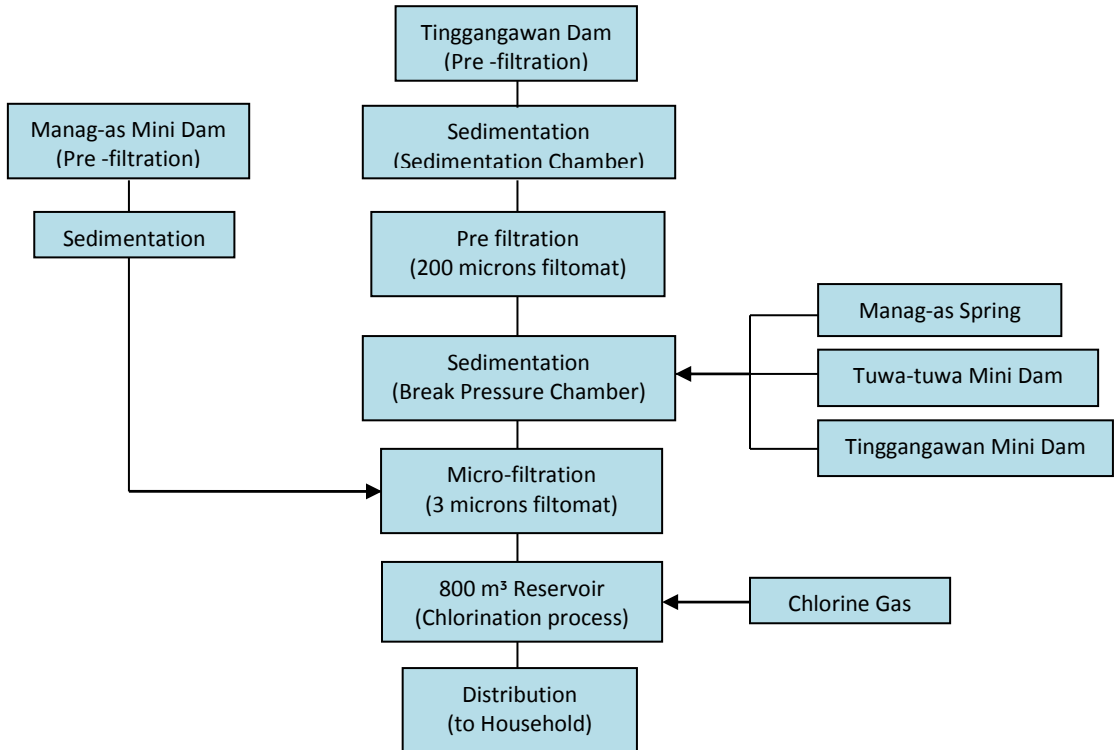
PERSONNEL COMPOSITION

NAME OF PERSONNEL	POSITION TITLE	NATURE OF WORK / CORE FUNCTION
Water Production & Treatment		
Samuel M. Francisco	WRFO-A (Water Resource Facility Operator A)	Responsible in monitoring & inspection of water sources & facilities, conduct maintenance & repair of intake structure & water treatment facilities.
Water Testing Laboratory		
Ruben M. Jarabata, Jr.	Senior Chemist	Accommodates and analyze water samples of both from outside clients and water district, Monitoring of Chlorine dosage for reservoir sources.
CydOlivette P. Completo	U/CSO-A (Utility Customer Service Officer-A)	Accommodates and analyze water samples of both outside clients and water district, Supervise water resources and operation of water treatment facilities and water testing laboratory facility.
Lean V. Banasig	Laboratory Aide	Responsible in collection of water samples for Bacteriological and Physical/Chemical Testing, Prepares reagents and media, ensures cleanliness of laboratory and inventory of laboratory supplies and reagent.
Watershed Monitoring		
Joanne Eva J. Rimando	U/CSO-B (Utility Customer Service Officer-B)	Prepared documentation/report on illegal activities apprehended, Implement watershed protection, intervention programs, IEC & Promote Watershed Awareness and Consciousness; Conduct seminar for the buffer zone program
Bonifacio A. Narca	WRFO-A (Water Resource Facility Operator A)	Responsible in monitoring of Mt. Magdiwata Watershed area and water sources, Protection maintenance of reforested area and apprehension of illegal activities conducted within the watershed area.
Rondino C. Benguillo	WRFO-A (Water Resource Facility Tender A)	Responsible in monitoring of Mt. Magdiwata watershed area and water sources, Protection maintenance of reforested area and apprehension of illegal activities conducted within the watershed area.
Jade C. Armilla	WRFO-A (Water Resource Facility Tender B)	Responsible in monitoring of Mt. Magdiwata watershed area and water sources, Protection maintenance of reforested area and apprehension of illegal activities conducted within the watershed area.

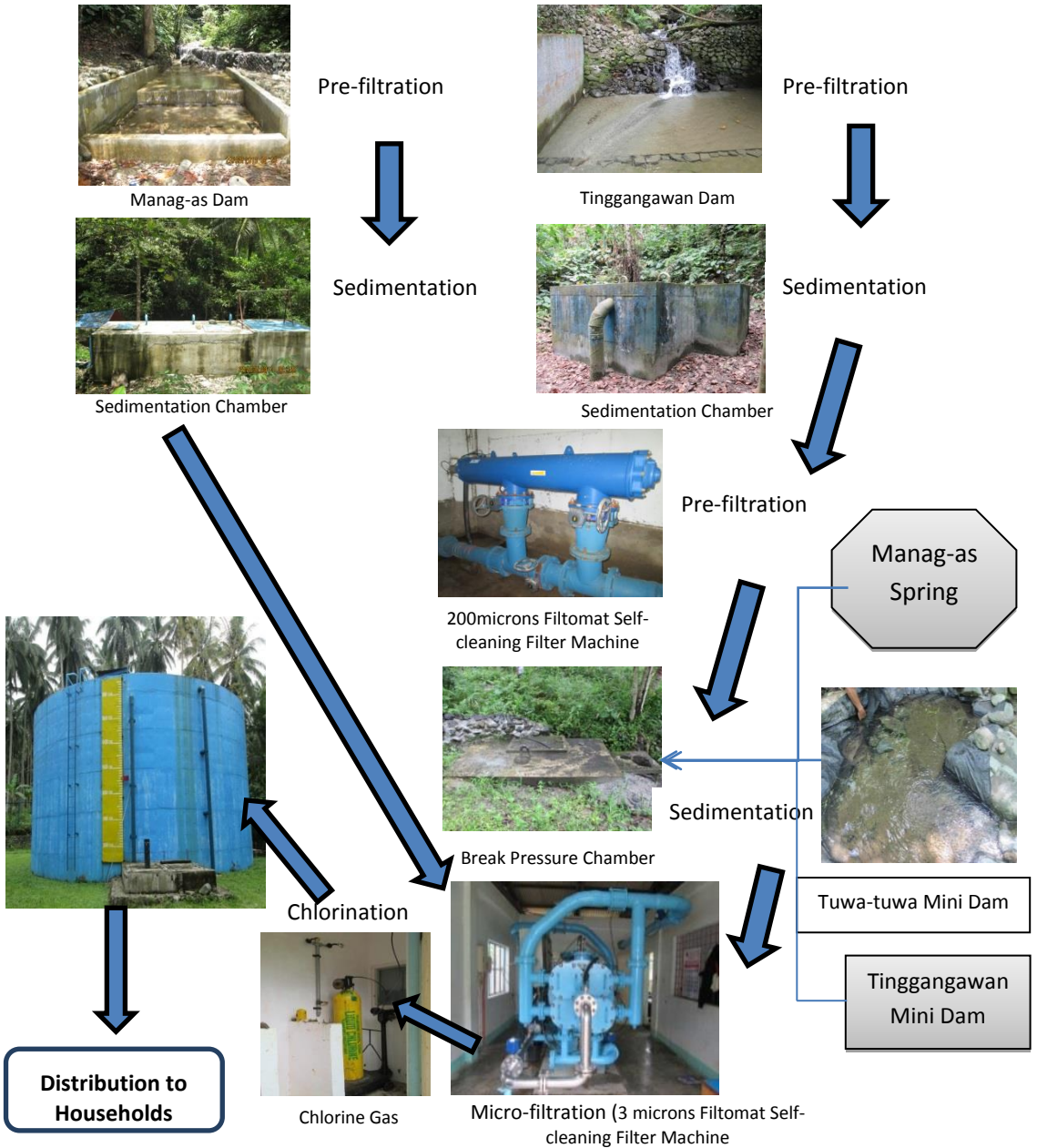
WATER SOURCES & TREATMENT FACILITIES

1. Process flow

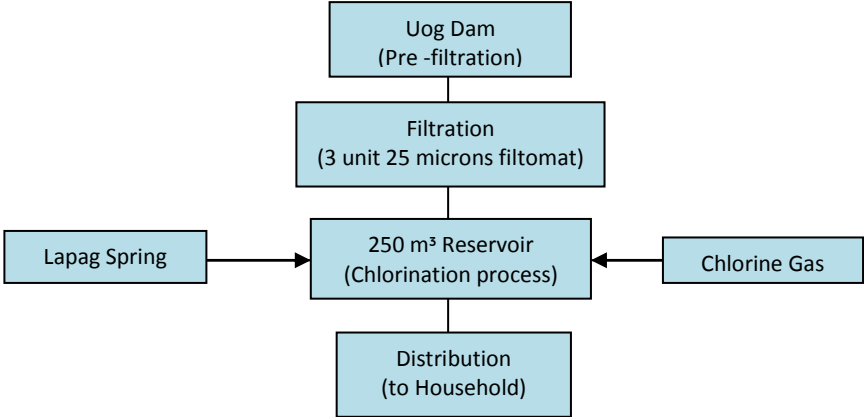
a) AlegriaSubsystem



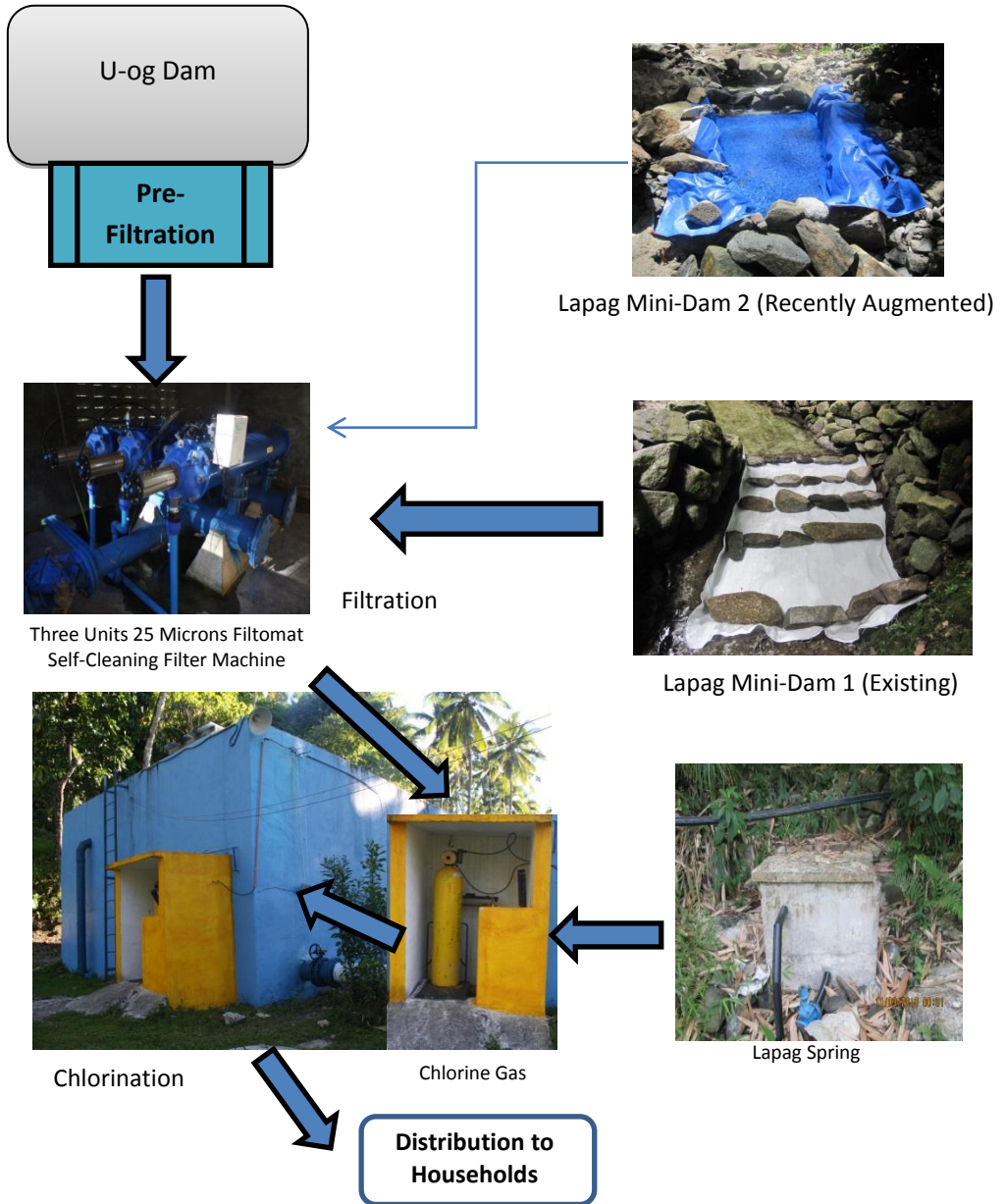
ALEGRIA SUBSYSTEM PROCESS FLOW



b) Karaos Subsystem



KARAOS SUBSYSTEM PROCESS FLOW



U-og Dam

Pre-Filtration



Lapag Mini-Dam 2 (Recently Augmented)



Three Units 25 Microns Filtomat Self-Cleaning Filter Machine

Filtration



Lapag Mini-Dam 1 (Existing)



Chlorination

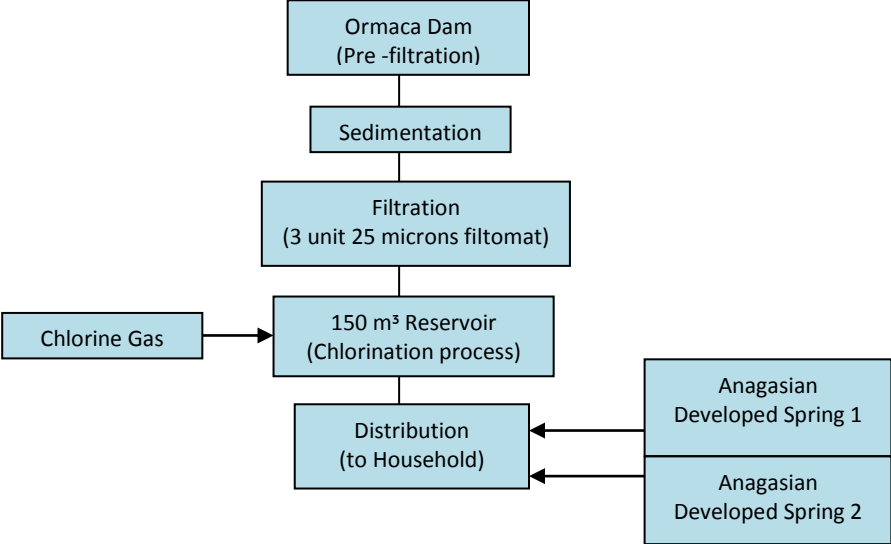
Chlorine Gas



Lapag Spring

Distribution to Households

c) Ormaca Subsystem

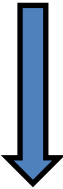


ORMACA SUBSYSTEM PROCESS FLOW



Anagasian Creek

Pre-filtration



Sedimentation



Three Units 25 Microns Filtomat Self-Cleaning Filter Machine

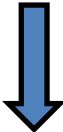
Filtration



Anagasian Spring 1



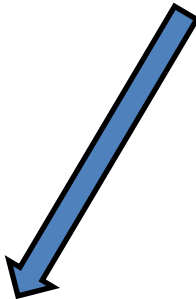
Anagasian Spring 2



Chlorination

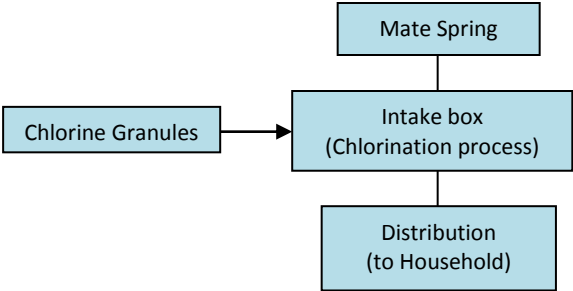


Chlorine Gas

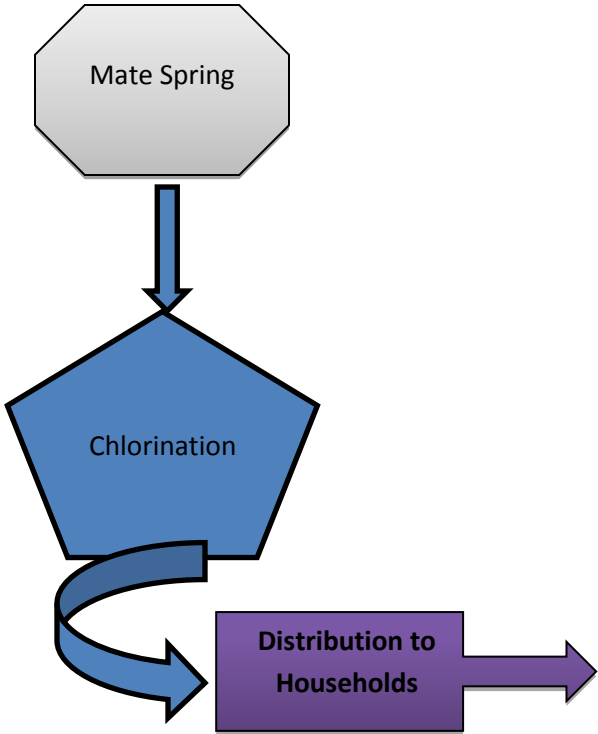


Distribution to Households

d) Mate Subsystem

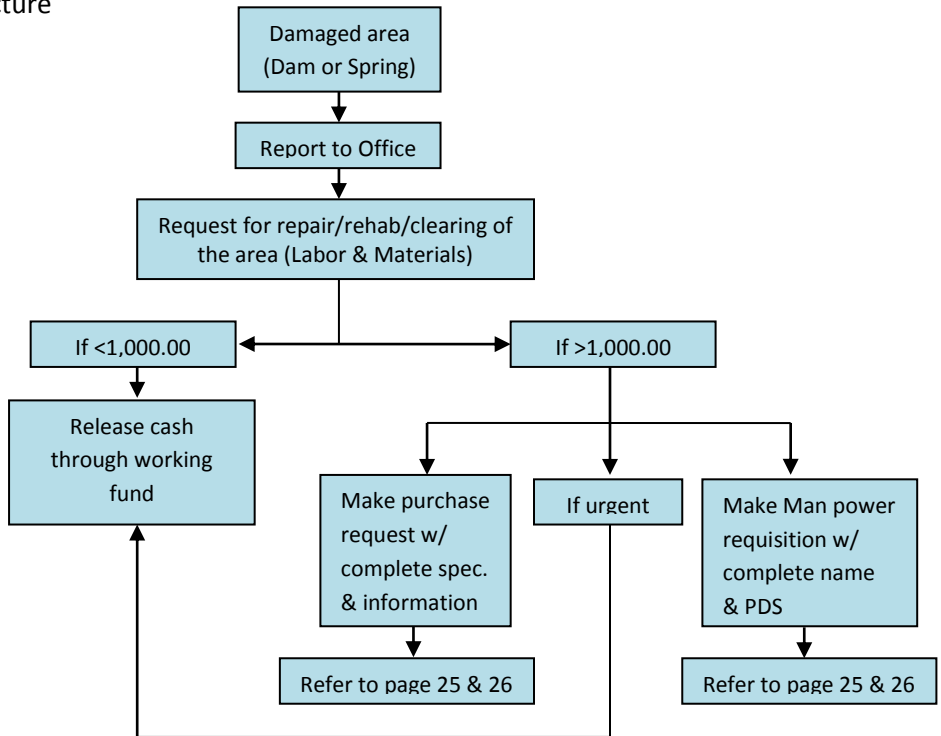


MATE SUBSYSTEM PROCESS FLOW

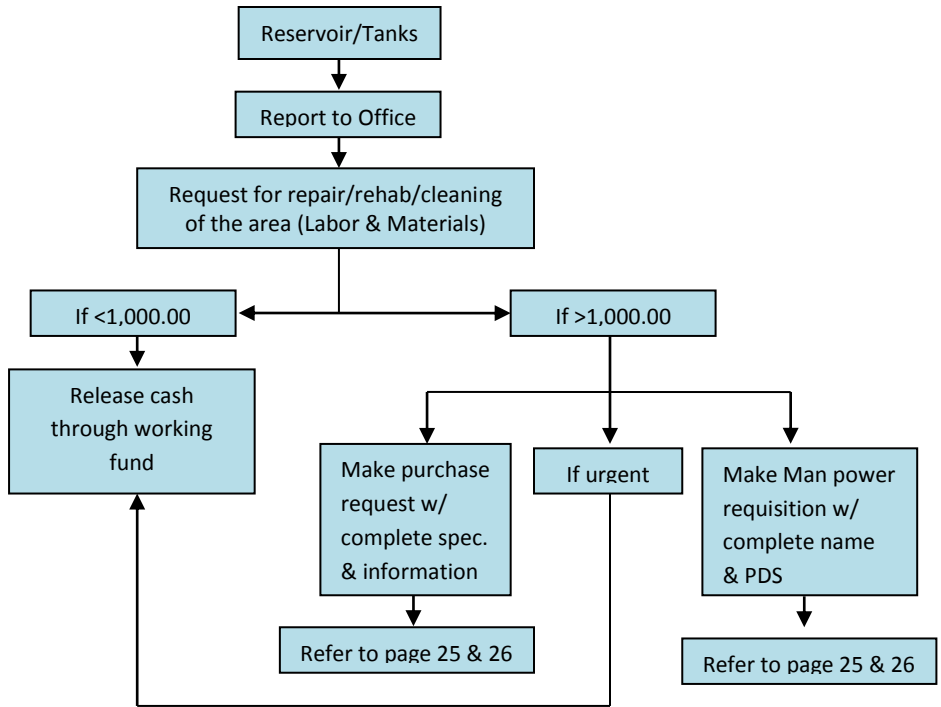


2. Maintenance of Structure, Reservoir & Tanks & Treatment Equipment

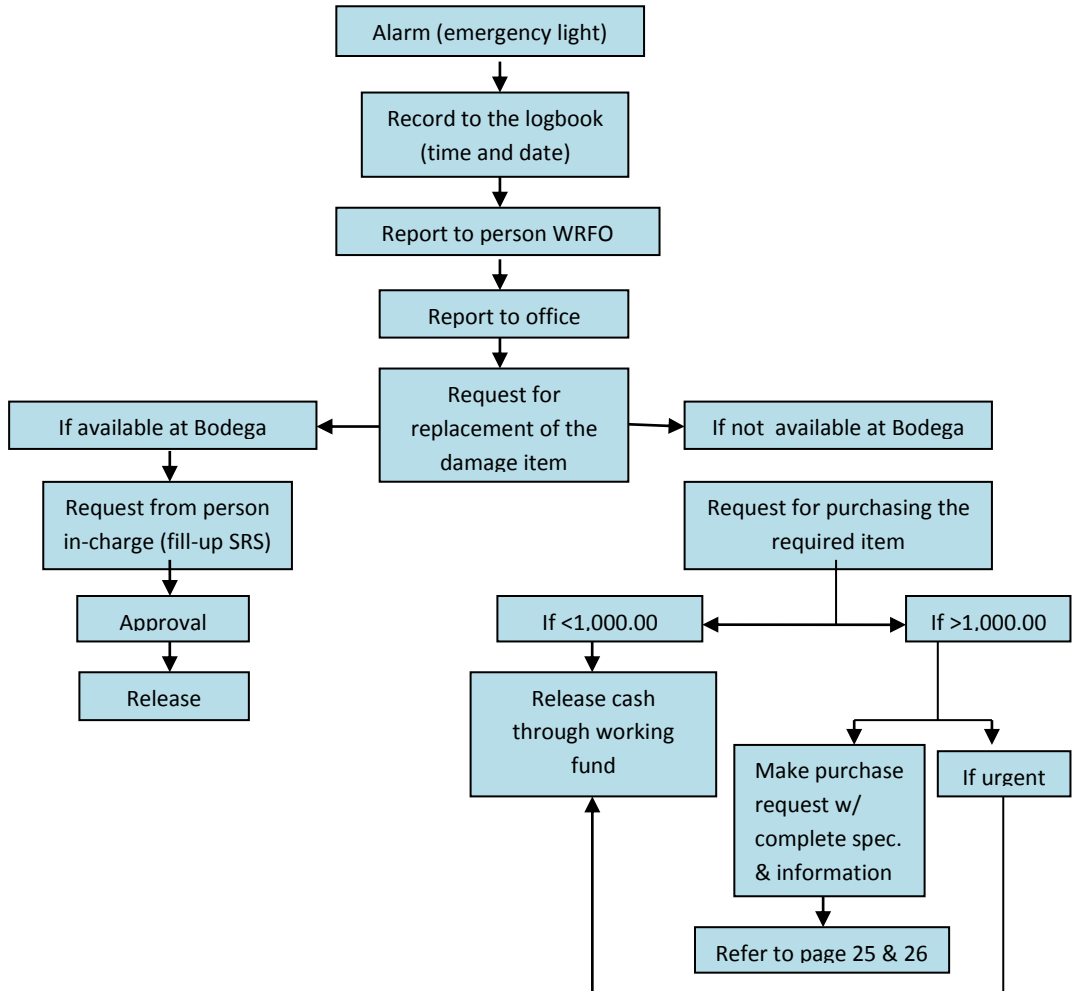
a. Structure



b. Reservoir & Tanks

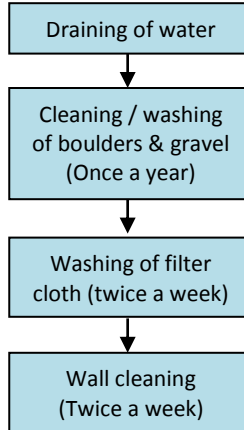


c. Water Treatment Equipment

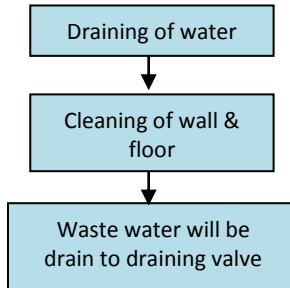


3. Water Storage Cleaning

a. Dam (4-5 hrs.) / Intake box (1-2 hrs.)



b. Reservoir (tank)



WATER LABORATORY

1. Laboratory Equipment / Apparatus



Autoclave



Incubator



Oven



Colony counter



Exhaust Fan



Refrigerator



Hotplate



Analytical Balance



Water Bath



Distiller



Hotplate w/ stirrer



Potable pH meter



Biosafety Cabinet



2. Schedule of Accepting Sample

Physical & Chemical: Monday to Friday (except holiday)
(8:00am-12:00nn / 1:00pm-5:00pm)

Bacteriology: Monday to Friday (except holiday)
(8:00am-12:00nn / 1:00pm-3:00pm)

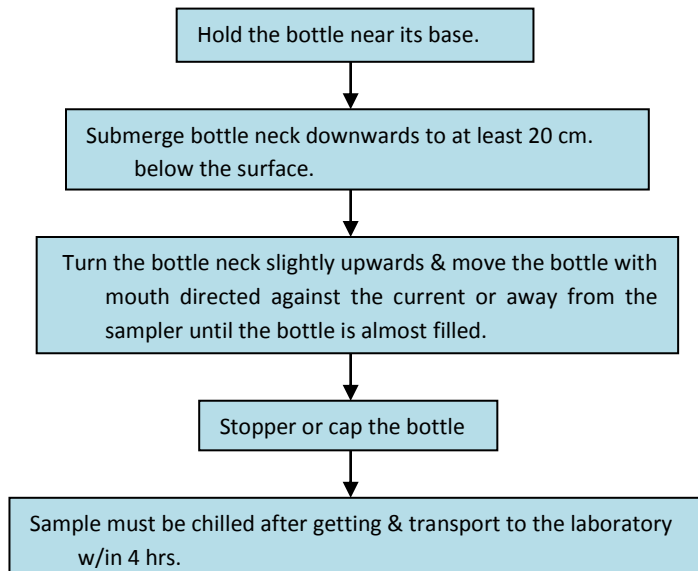
3. Schedule of Release of Results

Physical & Chemical: The result will be available two weeks after the samples were submitted.

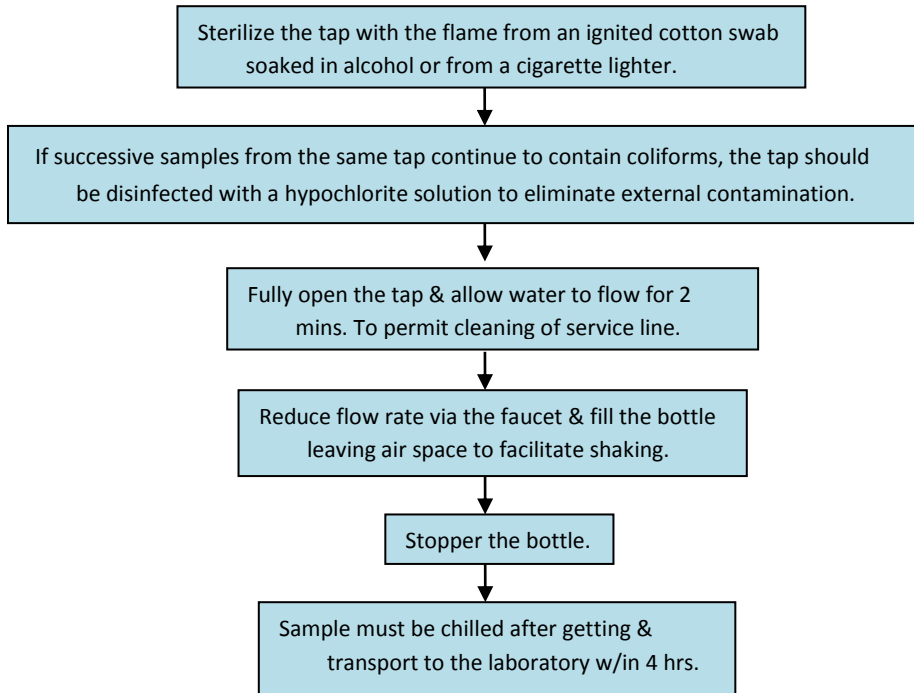
Bacteriology: Test results will be available one week after the Samples are submitted.

4. Process flow of Collecting Sample

a. Sampling from river, lake, or reservoir



b. Sampling from a tap on a piped distribution system



5. Process flow of Receiving Samples

- a. Inquire about water testing laboratory services.(client)
- b. Advise the client to bring the requirements. (lab)
- c. Submit empty bottles for deposit and trade new sterilized empty bottle. (client)
- d. Submit water sample and properly labeled water information. (client)
- e. Give to the customerthe receiving/releasing logbook (if the client has record) or visitors logbook (if the client inquire) prior the receiving of samples. (lab)
- f. Fill-out receiving/releasing logbook. (Client)
- g. Give to the customer the request form for analysis with complete instructions. (lab)
- h. Fill-out the requesting form for Bacteriological or Physical/Chemical with complete information.(client)
- i. Fill-out the order of payment slip. (lab)
- j. Give the OP slip to the customer. (lab)
- k. Present the OP slip to cashier for payment. Present the official receipt together with the OP slip to laboratory personnel. (client)
- l. Write the OR no, amount & date paid to OP slip. Advise the availability of the result. (lab)
- m. Record to the control logbook by the lab personnel.
- n. Analyze for 5 working days.
- o. Get the result of water test by presenting the original or xerox official receipt. (client)
- p. Ask the client if he or she was the one who submit the sample. If other person will get the result, submit authorization letter.
- q. Encode and print the result of the analyze water sample by lab personnel
- r. Present the official receipt.
- s. Give to the customer the receiving/releasing logbook prior the release of the duly signed result. (lab)
- t. Release the duly signed result. (lab)

6. Parameters & Cost per Testing

a. PHYSICAL AND CHEMICAL ANALYSIS

PARAMETERS	COST (Php)
1. TEMPERATURE	P 1,350.00
2. COLOR	
3. TURBILITY	
4. ODOR	
5. TASTE	
6. ph	
7. TOTAL DISSOLVED SOLIDS	
8. SALINITY	
9. SPECIFIC CONDUCTANCE	
10. CHLORIDE	
11. IRON	
12. MANGANESE	
13. SULFATE	
14. CHLORINE, FREE	
15. CHROMIUM HEXAVALENT	
16. COPPER	
17. CYANIDE	

ADDITIONAL PARAMETER

TOTAL HARDNESS	200.00
FLOURIDE	200.00
BROMINE	200.00
CHLORINE, TOTAL	200.00
ACIDITY	230.00
ALKALINITY	230.00
CALCIUM HARDNESS	200.00
LEAD	900.00

b. BACTERIOLOGICAL ANALYSIS

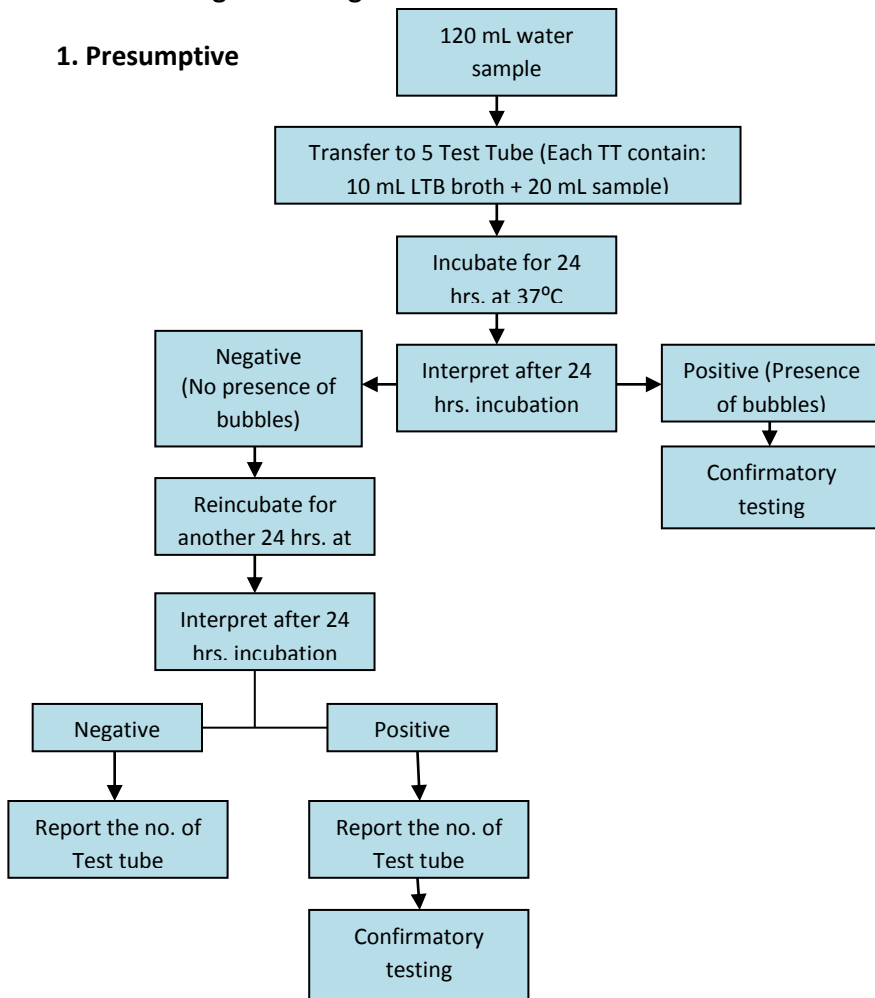
- PARAMETERS
- 1. TOTAL COLIFORM
 - 2. FECAL COLIFORM
 - 3. HETEROTROPIC PLATE COUNT

COST (Php)
} P 550.00 /
SAMPLE

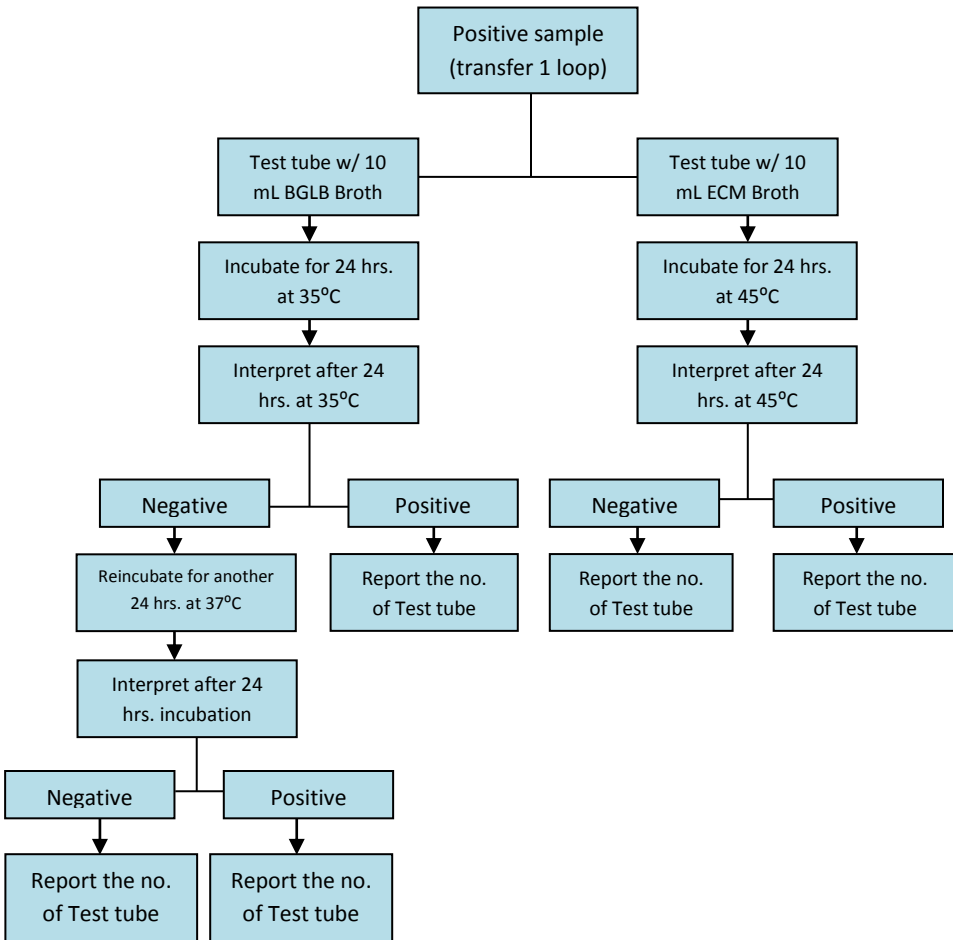
7. Process flow of Water Testing

A. Bacteriological Testing

1. Presumptive



2. Confirmatory



B. Physical & Chemical Testing

Color

1. fill sample cell(the blank) with 25mL of distilled water.
2. enter the stored program " 120 ENTER"
3. rotate the wavelength dial "455 nm"
4. fill a second sample cell with 25 mL of sample water.
5. place the blank into the cell holder and close the light shield.
6. press "ZERO".
7. place the prepared sample into the cell holder and close the light shield.
8. press" READ".
9. the result in platinum-cobalt units will be displayed.

Sulfate

1. fill a clean sample cell with 25 mL of sample.
2. add the contents of one sulfaver 4 pillow to the sample cell (prepared sample). Swirl to mix.
3. enter the desired program "680 ENTER" or 9?? ENTER".
4. rotate the wavelength dial to 450 nm.
5. press SHIFT TIMER.
6. fill a second sample cell with 25 mL of sample (blank).
7. when the timer beeps, place the blank into the cell holder and close the light shield.
8. press ZERO.
9. within 5 min. after the timer beeps, place the prepared sample into the cell holder and close the light shield.
10. press READ.

Manganese

1. fill a sample cell with 10 mL of sample.
2. add the contents of one buffer powder pillow. Swirl to mix.
3. add the contents of one sodium periodate powder pillow to the sample cell. Swirl to mix.
4. enter the stored program "295 ENTER".
5. Rotate the wavelength dial to 525 nm.
6. place the 10 mL cell riser.
7. press SHIFT TIMER".
8. fill another 10 mL of sample to sample cell (blank).
9. when the timer beeps, place the blank into the cell holder and close the light shield.
10. press ZERO.
11. within 8 min. after the timer beeps, place the prepared sample into the cell holder and close the light shield.
12. press "READ".

Iron

1. fill a clean sample cell with 10 mL of ample.
2. add the contents of one ferrover iron pillow to the sample cell (prepared sample). Swirl to mix.
3. enter the stored program "265 ENTER".
4. rotate the wavelength dial to 510 nm.
5. insert the cell riser.
6. press "SHIFT TIMER".
7. fill another sample cell with 10 mL sample (blank).
8. when the timer beeps, place the blank into the cell holder and close the light shield.
9. press ZERO.
10. within 30 min. after the timer beeps, place the prepared sample into the cell holder and close the light shied.
11. press READ.

Chloride

1. select a sample volume and Mercuric nitrate titration cartridge corresponding to the expected acidity concentration.

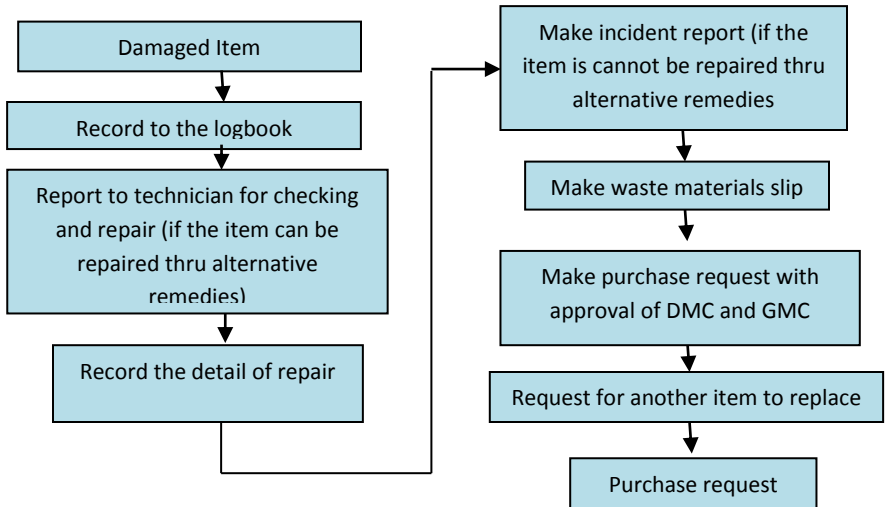
Range (mg/L) as CaCO ₃)	Sample volume (mL)	Titration cartridge (N Hg(NO ₃) ₂)	Digit Multiplier
10-40	100	0.2256	0.1
40-160	25	0.2256	0.4
100-400	100	2.256	1.0

2. add the contents of one diphenylcarbazone powder pillow and swirl.
3. titrate with Hg(NO₃)₂ from yellow to light pink color.

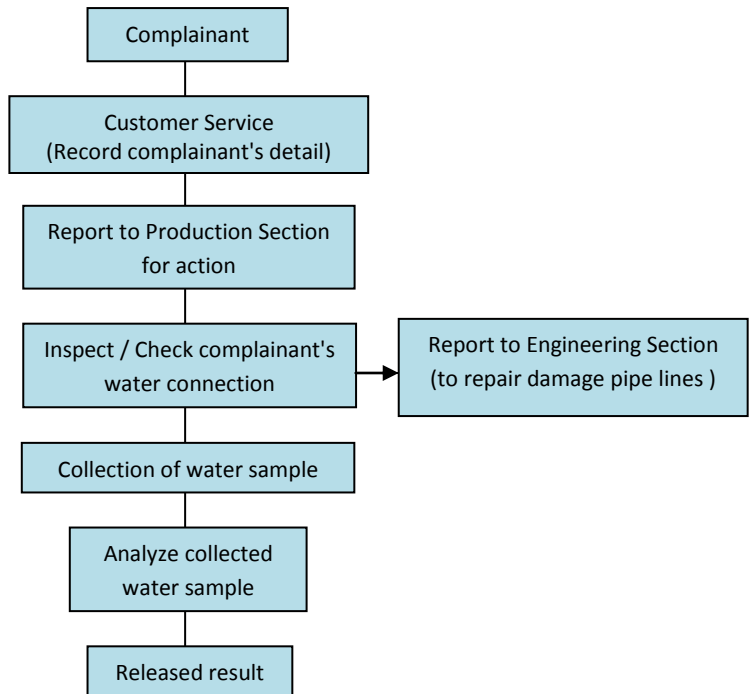
Chlorine Free and Chlorine Total Using DPD Method (Powder Pillows)

1. fill the two 25 mL sample cell with 10 mL sample.
2. add one DPD free chlorine pillow to the one sample and mix.
3. add distilled water up to 25 mL to each of the sample cell.
4. enter the stored program "88 ENTER"
5. rotate the wavelength dial to "530 nm".
6. place the diluted sample(without reagent) into the cell holder and close the light shield.
7. press "ZERO".
8. place the prepared reacted sample and close the light shield.
9. press READ.

8. Equipment Maintenance



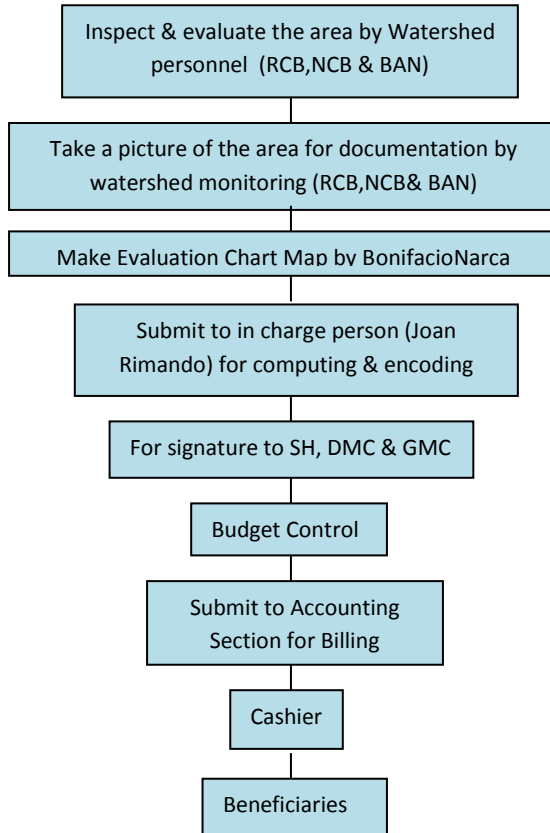
9. Complaint Flow Chart



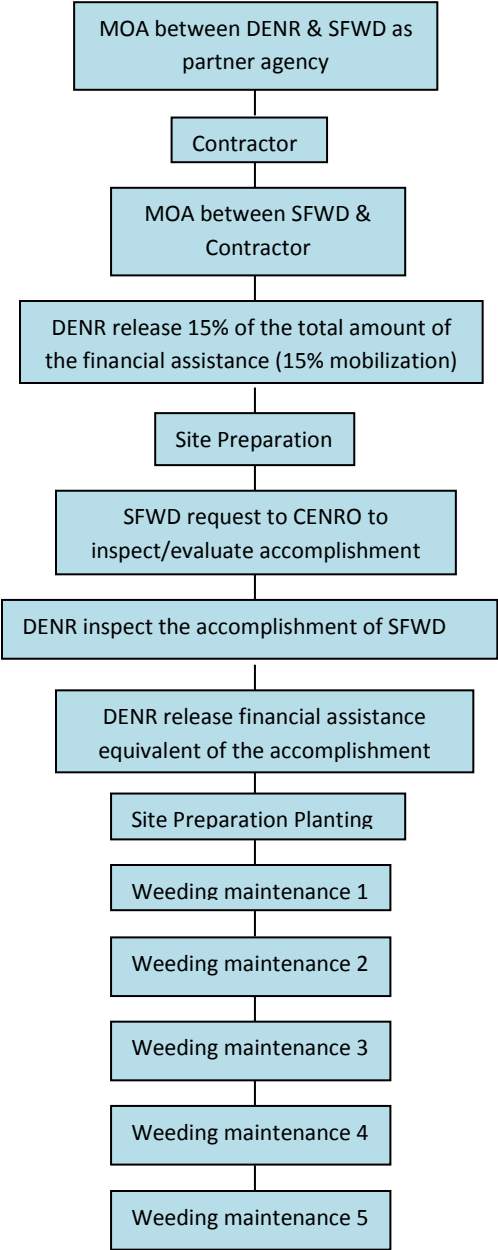
WATERSHED

1. Process flow of Programs

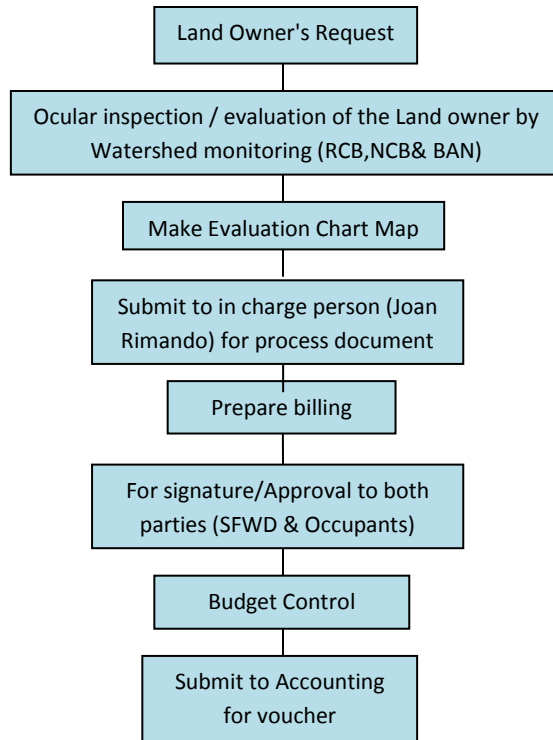
a. "ImuYutaUgmara Kay BayaranKa"



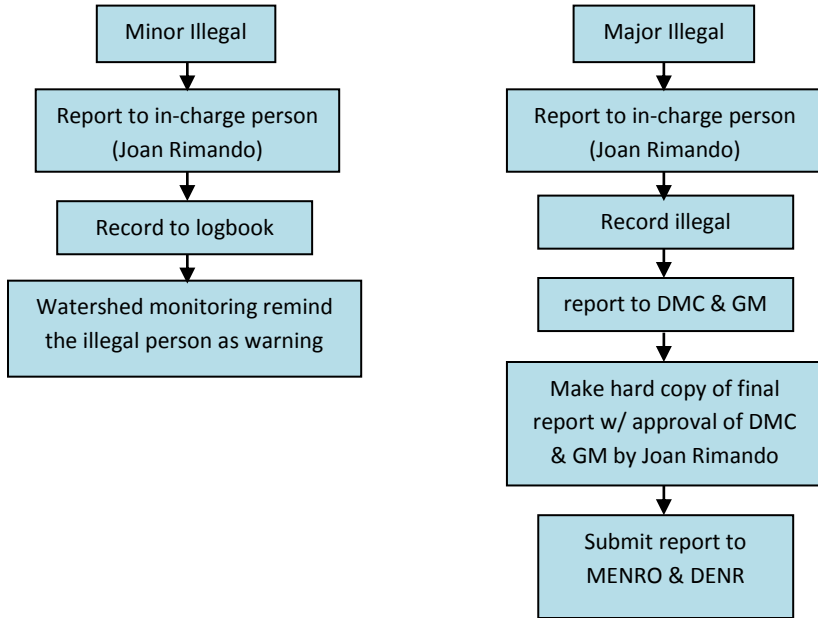
b. National Greening Program



2. Process flow of Waiver of rights



3. Process flow on the apprehension of Illegal activities within watershed



COMPLAINT ON WATER TESTING

