

F3. WATER

As defined in elementary science, water is a universal solvent. Water encompasses 2/3 of the Earth's structure. Water has many purposes and uses. It is very important. Water changes everything. "Water is life." is such a common expression that people used it almost as a cliché.

Water is one of the most important substances on earth. All plants and animals must have water to survive. If there was no water, there would be no life on earth. Apart from drinking it to survive, people have many other uses of water.

Table IF-20. Level I Water Supply System by Type and Number of Population Served, Year 2017

Barangay	Year Constructed/ Developed	No. of Household	Shallow Well			Deep Well			Improved Spring			Hazard Susceptibility (H/M/L)						
			No.	HH Served		No.	HH Served		No.	HH Served		Fl	Tc	Eq	Vo	Ln	Ts	Su
				No.	%		No.	%		No.	%							
Agos	no data available	302	no data available			291	291	96%	no data available			M	M	H	L	L	L	L
Agsalin		182				132	132	73%				M	M	H	L	L	H	M
Alma Villa		325				191	200	62%				M	M	H	L	L	L	L
A. Bonifacio		309				273	273	88%				M	M	H	L	L	L	L
Balete		680				490	680	100%				M	M	H	L	L	H	M
Banus		541				537	541	100%				M	M	H	L	L	L	L
Banutan		245				200	245	100%				M	M	H	L	L	L	L
Bulaklakan		265				231	265	100%				M	M	H	L	L	L	L
Buong Lupa		250				136	152	61%				M	M	H	L	H	L	L
G. Antonino		409				400	409	100%				M	M	H	L	L	L	L
Guimbonan		303				127	302	100%				M	M	H	L	L	H	M
Kawit		530				498	530	100%				M	M	H	L	L	H	M
Lucio Laurel		645				356	645	100%				M	M	H	L	L	L	L
M. Adriatico		292				152	175	60%				M	M	H	L	L	L	L
Malamig		642				308	308	48%				M	M	H	L	M	L	L
Malayong		297				154	290	98%				M	M	H	L	M	L	L
Maligaya		726				700	726	100%				M	M	H	L	L	L	L
Malubay		301				255	248	82%				M	M	H	L	M	L	L
Manguyang		364				330	330	91%				M	M	H	L	M	L	L
Maragooc		342				300	311	97%				M	M	H	L	L	H	M
Mirayan		330				124	256	77%				H	M	H	L	H	L	L
Narra		580				580	580	100%				M	M	H	L	L	L	L
Papandungin		275				232	232	100%				M	M	H	L	L	L	L
San Antonio		327				321	327	100%				M	M	H	L	L	H	M
Sta. Maria		500				284	500	100%				M	M	H	L	L	L	L
Sta. Theresa		367				143	367	100%				M	M	H	L	L	H	M
Tambong		748				650	673	90%				M	M	H	L	L	H	M
Total		11,077				8,395	9,988											

Source: Municipal Health Office 2017

11,077 households in Gloria depend on Level I Water Supply. It has different types namely shallow well, deep well and improved spring. All of the households in Gloria depending on Level I water system use deep well. 8,395 households are noted having deep well and 9,988 households are served. In hazard susceptibility, flood and tropical cyclone are indicated with medium level. The level I water system in the Municipality of Gloria has high level of earthquake hazards. Meanwhile, volcano has low level of hazards. Landslides, tsunami and storm surge have the combination of high, medium and low level of hazards depending on the locations of the barangays.

Table IF-21. Water Sources of Level II Water Supply System

Water Source	Barangay	Physical Condition	Hazard Susceptibility (H/M/L)						
			Fl	Tc	Eq	Vo	Ln	Ts	Su
Deepwell	Agos	Poor	M	M	H	L	L	L	L
Deepwell	Agsalin	Poor	M	M	H	L	L	H	M
Deepwell	Guimbonan	Fair	M	M	H	L	L	H	M
Deepwell	Malamig	Fair	M	M	H	L	L	L	L
Deepwell	Maragooc	Fair	M	M	H	L	L	H	M
Spring	Mirayan	Fair	H	M	H	L	H	L	L
Deepwell	San Antonio	Poor	M	M	H	L	L	H	M

Source: Municipal Health Office 2018

Among the barangays with level II water supply, six barangays namely Agos, Agsalin, San Antonio, Tambong, Sta. Maria and Banus have poor physical condition of deep well as water source. Five barangays namely Guimbonan, M. Adriatico, Malamig, Maragooc and Narra have fair physical condition of deep well. The spring as water source in Mirayan has fair physical condition. The level II water system is medium level in hazard susceptibilities in tropical cyclone, high in earthquake and low in volcanic eruption.

Table IF-22. Level II Water Supply System by Type and Number of Population Served, Year 2018

Pump ID/ Name	Brgy.	Year Constructed	Pump Capacity	Water Source	No. of Communal Faucets	Barangays Served	No. of HH served	Physical Condition	Hazard Susceptibility (H/M/L)						
									Fl	Tc	Eq	Vo	Ln	Ts	Su
	Agos			Deepwell		1	11	Poor	M	M	H	L	L	L	L
	Agsalin			Deepwell		1	50	Poor	M	M	H	L	L	H	M
	Guimbonan			Deepwell		1	88	Fair	M	M	H	L	L	H	M
	Malamig			Deepwell		1	7	Fair	M	M	H	L	L	L	L
	Maragooc			Deepwell		1	31	Fair	M	M	H	L	L	H	M
	Mirayan			Spring		2	74	Fair	H	M	H	L	H	L	L
	San Antonio			Deepwell		1	35	Poor	M	M	H	L	L	H	M

Source: Municipal Health Office 2018

PSA defined the level II water system as water supply facility composed of a source, a reservoir, a piped distribution network with adequate treatment facility and communal faucets. The Municipality of Gloria has nine barangays with level II water system. They have deep well and spring as water sources. Barangay Mirayan has spring as water source; two barangays are served and provided with water supply. The remaining barangays serve only one with numerous households.

Table IF-23. Communal Faucets

Communal Faucet ID	Barangays Served	No. of HH Served	Hazard Susceptibility (H/M/L)						
			Fl	Tc	Eq	Vo	Ln	Ts	Su
	Agos	302	M	M	H	L	L	L	L
	Agsalin	182	M	M	H	L	L	H	M
	Alma Villa	325	M	M	H	L	L	L	L
	Andres Bonifacio	309	M	M	H	L	L	L	L
	Balete	680	M	M	H	L	L	H	M
	Banus	541	M	M	H	L	L	L	L
	Banutan	245	M	M	H	L	L	L	L
	Bulaklakan	265	M	M	H	L	L	L	L
	Buong Lupa	250	M	M	H	L	H	L	L
	Gaudencio Antonino	409	M	M	H	L	L	L	L
	Guimbonan	303	M	M	H	L	L	H	M
	Kawit	530	M	M	H	L	L	H	M
	Lucio Laurel	645	M	M	H	L	L	L	L
	Macario Adriatico	292	M	M	H	L	L	L	L
	Malamig	642	M	M	H	L	M	L	L
	Malayong	297	M	M	H	L	M	L	L
	Maligaya (Pob.)	726	M	M	H	L	L	L	L
	Malubay	301	M	M	H	L	M	L	L
	Manguyang	364	M	M	H	L	M	L	L
	Maragooc	342	M	M	H	L	L	H	M
	Mirayan	330	H	M	H	L	H	L	L
	Narra	580	M	M	H	L	L	L	L
	Papandungin	275	M	M	H	L	L	L	L
	San Antonio	327	M	M	H	L	L	H	M
	Santa Maria	500	M	M	H	L	L	L	L
	Santa Theresa	367	M	M	H	L	L	H	M
	Tambong	748	M	M	H	L	L	H	M

Source: Municipal Health Office 2017

All 27 barangays in Gloria have communal faucets. All communal faucets serve hundreds of households dependent on water supply. Barangay Tambong has the most numerous of households served while barangay Agsalin serves the least number of households.

Table IF-24. Level III Local Waterworks System by Type and Number of Consumers and Average Water Consumption, Year 2018

Name of Barangays Served	Type of Consumer							
	Domestic		Commercial		Industrial		Others	
	No. of Connections	Ave. Water Consumption	No. of Connections	Ave. Water Consumption	No. of Connections	Ave. Water Consumption	No. of Connections	Ave. Water Consumption
Malamig	N/A	N/A	5	N/A	N/A	N/A	N/A	N/A
Agsalin								
M. Adriatico								
Malubay								
Mirayan								
Tambong								

Source: Municipal Health Office 2018

Barangay Malamig with five commercial connections is the only barangay in Municipality of Gloria with level III local waterwork system that requires minimum treatment of disinfection with a source, reservoir, piped distributor network and household taps.

Table IF-25. Water Distribution Line

Pipeline ID	Ownership	Water Pipeline Diameter	Type of Pipe Material	Year Established	Physical Condition	Hazard Susceptibility (H/M/L)							
						Fl	Tc	Eq	Vo	Ln	Ts	Su	Others
None	None	None	None	None	None								

Gloria has no water distribution line either public or private ownership.

Table IF-26. Other Water Sources, Year 2014

Barangay	Number of Household Population Served			
	Undeveloped Spring	Open Dug Wells	Rainwater	Water Peddlers
Agos	2	0	0	0
Agsalin	0	0	0	0
Alma Villa	0	1	0	0
Andres Bonifacio	0	8	0	0
Balete	0	0	0	0
Banus	0	0	0	0
Banutan	0	0	0	0
Bulaklakan	1	0	0	39
Buong Lupa	116	0	0	1
Gaudencio Antonino	0	0	0	3
Guimbonan	0	0	0	0
Kawit	0	0	0	0
Lucio Laurel	0	0	0	0
Macario Adriatico	0	0	0	0
Malamig	3	2	0	0
Malayong	37	34	0	0
Maligaya (Pob.)	0	1	0	3
Malubay	0	13	0	0
Manguyang	0	1	18	0
Maragooc	0	1	0	0
Mirayan	1	0	0	0
Narra	0	0	0	0
Papandungin	0	0	0	0
San Antonio	0	0	0	0
Santa Maria	0	61	0	0
Santa Theresa	0	0	0	0
Tambong	1	0	0	0
TOTAL	161	122	18	46

Source: Community-Based Monitoring System, 2014

Aside from various level of water supply system mentioned in Data Tables-IF 21 to 23, households can get water supply from other sources like undeveloped spring, open dug wells, rainwater and water peddlers. 15 barangays in Gloria are being served with those other water sources. The undeveloped spring serves 161 households, open dug well with 122 households, rainwater serves 18 and water peddlers with 46 households.

Table IF-27. Existing Surface Water Resources by Type and Classification, Year 2017

Surface Water (e.g. lakes, rivers, water impounding structures, etc.)	Location	Classification (e.g. Class AA, A, B, C, D. Refer to Annex IF-2)
no data available	no data available	no data available

There is no data provided on the existing surface water in the municipality.

Table IF-28. Water Requirement by Barangay Population, Year 2015

Barangay	Current Year				Projected (Year 10)	
	Population	Water Supply	Water Requirement	Deficit/ Surplus	Population/Number of Establishments in Year 10*	Projected Water Requirement*
Agos	1,036	no data available	no data available	no data available	2,093	no data available
Agsalin	678				1,370	
Alma Villa	1,411				2,851	
Andres Bonifacio	1,320				2,667	
Balete	2,864				5,786	
Banus	2,298				4,643	
Banutan	906				1,830	
Bulaklakan	969				1,958	
Buong Lupa	1,126				2,275	
Gaudencio Antonino	1,651				3,336	
Guimbonan	1,104				2,230	
Kawit	2,022				4,085	
Lucio Laurel	2,649				5,352	
Macario Adriatico	1,139				2,301	
Malamig	2,929				5,918	
Malayong	1,228				2,481	
Maligaya (Pob.)	3,246				6,558	
Malubay	1,319				2,665	
Manguyang	1,633				3,299	
Maragooc	1,258				2,542	
Mirayan	938				1,895	
Narra	2,169				4,382	
Papandungin	1,110				2,243	
San Antonio	1,330				2,687	
Santa Maria	2,034				4,109	
Santa Theresa	1,523				3,077	
Tambong	3,183				6,431	
TOTAL	45,073				91,064	

Source: Municipal Health Office 2015

Based to 2015 Philippine Statistics Authority (PSA), the total population of Gloria is 45, 073. The projected population for 2025 is 91, 064. There is no data available for the water supply and water requirement by barangay population. Therefore, there's no projected water requirement for 2025.

Development Needs

At present, there is no local water system/ water distribution system serving the municipality. A large portion of the populace depends on other sources like undeveloped springs and open dug wells. Numerous wells and communal faucets have been made presently as source of water supply in the municipality that caters the barangays of Gloria. Notable barangays like Malamig, Agsalin, M. Adriatico, Malubay, Mirayan and Tambong have large percentage of Level III Water System.