

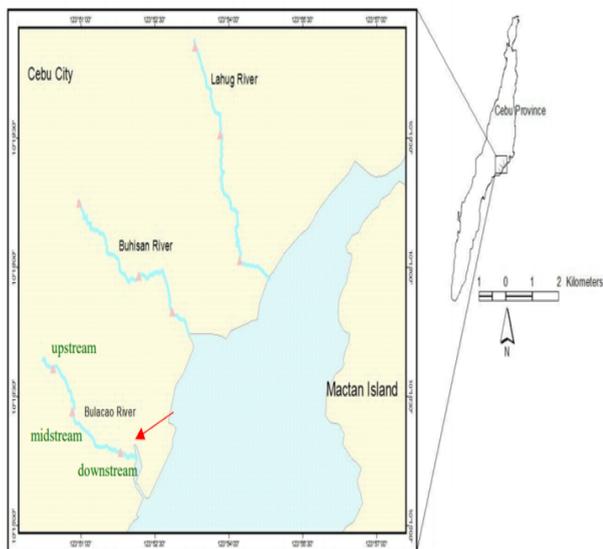


Sustainable
Water
Solution

BULACAO RIVER MIDSTREAM
TEAM 7 | FACTSHEET



RIVER INFORMATION



OVERVIEW OF THE RIVER

The Bulacao river, located in Cebu City (The Philippines), has an approximate length of 12.7 kilometers. The upstream area of the river finds its roots in the mountainous areas of barangays Candulawan, Jaclupan and Lagtang, Talisay City. Located near the upstream area is a population of 2,884 people and 703 households. The midstream area of the river covers the barangays of Bulacao and Pardo. The downstream area is located near barangays of Alumnos and Inayawan before it empties into the sea off the South Road Properties. The total population of Barangay Inayawan is 24,990 with 4,242 households. Seventy percent of the households have backyard piggery (Bensig, Galapate, & Maglangit, 2014).

Quarterly Monitoring of Bulacao River was done last 2019 by the DENR-EMB Region 7 at five stations namely: (1) 50m before Mouth Bulacao River, (2) Upper Torre Bridge, (3) Bulacao Bridge, (4) Candulawan Footbridge, and (5) Source Bulcao River. The parameters monitored are pH, Temperature, DO, BOs, TSS, Nitrate, Phosphate, Chloride, Color, and Fecal Coliform. Results of the water quality monitoring are shown in the table 4-9.

Table 4-9. Summary of average water quality monitoring results of Bulacao River for 2019

Water Quality Monitoring Stations	Parameters Measured								
	pH	BOD (mg/L)	DO (mg/L)	TSS (mg/L)	Chlorides (mg/L)	Nitrates (mg/L)	Phosphates (mg/L)	Color (TCU)	
	6.0-9.0	15	2	110	400	15	5	150	
1	50m Before Mouth Bulacao River	7.8	46	0.77	29	39	0.11	0.74	12
2	Upper Torre Bridge	7.8	38	1.58	40	36	0.13	0.65	14
3	Bulacao Bridge	7.9	25	0.27	61	25	0.10	0.41	12
4	Candulawan Footbridge	7.9	14	3.92	81	18	1.50	0.14	8
		Class C Criteria							
		6.5-9.0	7	5	80	350	7	0.5	75
5	Source Bulacao River	8.3	6	7.48	12	25	1.22	0.08	8

*Values in red did not pass the criteria for Class D and Class C water bodies

As shown in the table 4-9, Bulacao River's TSS is still within the water quality guideline of 110mg/L for Class D and 80 mg/L for Class C water bodies. This indicates initial degradation of the water quality. For some other parameters like pH, nitrate, phosphate, color and chloride, they are also within the passing criterion. This means that the river is not really affected by human and natural activities causing these parameters to increase (DENR-EMB Region 7, 2019).

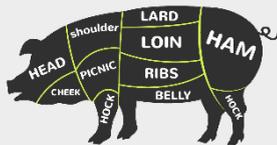
SOURCE OF POLLUTION/ RIVER PROBLEMS



Garbage collection is limited to areas along the road.



Water pollution comes from different sources: wastewater from drainage (non-point sources) and mostly, discharges from households and small businesses that cause very high BOD. The Fecal Coliform count is still very high due to run-off from roads, parking lots, yards, and the likes which carry animal wastes to drainages. Also, since the river traverses two different populated cities, there was a possible generation of any sources of bacteria. Run-off in urbanized areas has been found to be high in FC. Another factor is those water areas nearer to houses being dumped with mixed garbage. It was also observed that there were lots of animals like dogs, chicken, and the like found in the area and possibly contributed to the presence of FC when their feces got washed into nearby waterways.



'Around 56 establishments and more than 100 houses were identified by the city environment office to have contaminated the Bulacao River in Cebu City' (SunStar Cebu, 2019). Aside from the houses and establishments Cebu City Environment and Natural Resources Office (CCENRO) head Nida Cabrera said dressing plants, slaughterhouses and stores found situated near the river may have contributed to its pollution.



Aside from establishments from Barangays Bulacao, Inayawan and Cogon Pardo, the environment office found 180 houses in Barangay Inayawan to have thrown their wastes into the river. This number still does not include the houses within the 11-kilometer stretch of the river which they suspect are also throwing their wastes.

POLICIES AND ACTIONS DONE BY THE GOVERNMENT

The Cebu City Ordinance (CCO) No. 1361 which establishes a system of garbage collection in the city and imposes corresponding fees.

CCO No. 2017 which mandates the creation of the Cebu City Solid Waste Management Board.

CCO No. 2013 which mandates garbage segregation at source. This ordinance identified four wastes classifications: the biodegradable, non-biodegradable, reusable, and bulky wastes.

The section 6 of ordinance CCO No. 2013 requires the adoption of the “No Segregation, No Collection” policy in the city’s 80 barangays.

CCO No. 2343 which regulates the use and sale of plastic shopping bags on Saturdays, also known as “No Plastic Saturday Ordinance.”

CCO No. 2031, otherwise known as “An Ordinance for the Implementation of Solid Waste Segregation at Source, Providing Penalties for Violations Thereof, and the Creation of Special Fund for Incentives.”

CCO No. 2243, otherwise known as the “Sustainable Development Ordinance of the City of Cebu,” is the city’s policy preserve and protect the sources of life – the trees, soil, and water.

CCO No. 2234, otherwise known as the “Creation of the Cebu City Environmental and Natural Resources Office (CCENRO).”

Establishment of the Cebu Environment Sanitation Enforcement Team (CESET) to make sure that environmental laws and policies are being implemented.

Section 16 of the Philippine Constitution stipulates that “the State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.”

In 1975, Presidential Decree 825, more commonly known as the Garbage Disposal Law, was issued. It outlines penalties for improper disposal of garbage.

RA No. 7160 – The Local Government Code mandates the responsibility of LGUs in providing basic services to its constituents.

Republic Act (RA) 9003 or Ecological Solid Waste Management Act (ESWMA) of 2000. It declares the adoption of a systematic, comprehensive, and ecological solid waste management program as a policy of the state.

The Philippine Clean Water Act of 2004 (RA 9275) aims to protect the country’s water bodies from pollution from land-based sources.

Under the DENR Administrative Order No. 90 Series of 1993, a National Solid Waste Management was established. It is tasked to oversee the implementation of solid waste management plans and prescribe policies to achieve the objectives of the act.

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