Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Regional Office No. VIII
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MEMORANDUM

FOR	:	**ENGR. WILLIAM P. CUÑADO** Director Environmental Management Bureau DENR Compound, Visayas Avenue Diliman, Quezon City
Attention	:	**Chief, Environmental Quality Division,** **Chief, Water Quality Management Section** **Chief, Policy, Planning and Program Development Division**
FROM	:	The OIC - Regional Director EMB Region VIII DENR Compound, Jones St., Brgy. II, Tacloban City, Leyte
SUBJECT	:	**FOURTH QUARTER ACCOMPLISHMENT REPORT CY 2021 FOR THE POLLUTION LOAD ASSESSMENT OF ORMOC BAY WQMA**
DATE	:	December 23, 2021

Attached herewith is a copy of the 4th quarter report of the CY 2021 pollution load assessment of Ormoc Bay WQMA.

For his information and consideration.

ENGR. REYNALDO B. BARRA

Digitally signed by DENR - Environmental Management Bureau Region VIII
DN: cn=DENR - Environmental Management Bureau Region VIII c=PH
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Source Inventory

BOD Load from the domestic, poultry and livestock, solid waste, and industrial sources were initially computed for this quarter. The results are shown below.

I. Domestic

Domestic data from the LGUs are almost complete except for LGU Merida. No LGUs are connected to a wastewater treatment plant through sewer systems. Instead, they utilize septic tanks as treatment for their domestic wastes. As shown in Table 1, few households in each municipalities have no septic tanks and directly discharge their wastewater to the drainage. Total BOD Effluent Loading (kg/day) from domestic wastes that discharge into Ormoc Bay WQMA is computed at **6,048.70 kg/day.**

Table 1. Total BOD Effluent Load (kg/day) from Domestic Source

MUNICIPALITY	Effluent Load (kg/day)	HH Domesteic Waste Load (HDWL)	% w/ ST	ST Efficiency	% w/o ST (Direct Discharge)	DD Efficiency
Ormoc City	4,641.99	8,790.66	0.9438821	0.5	0.06	0
Baybay City	36.36	67.41	0.9212254	0.5	0.08	0
Isabel	168.63	301.29	0.8806054	0.5	0.12	0
Albuera	1,053.73	1,753.29	0.798	0.5	0.202	0
Palompon	57.37	72.03	0.4070796	0.5	0.592920354	0
Kananga	26.94	48.33	0.8851	0.5	0.1149	0
Matag-ob	63.69	107.04	0.81	0.5	0.19	0
TOTAL BOD EFFLUENT LOADING (KG/DAY)	**6,048.70**					

II. Industrial / Commercial

For the industrial sources, emission factor and other data are based on actual monitoring report submitted to EMB VIII combined with the SMRs. Data shown in the table below were based from first to fourth quarter SMR evaluation. For the BOD concentration of industrial wastewater discharge, the model used actual industry discharge per category of the industry registered within the WQMA in 2020. As what can be observed from the table below, no data

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is recorded from Palompon, Burauen, Matag-ob, Kananga, and Merida as the firms' SMRs in said LGUs do not have pollutant concentration.

Table 2. Industrial Waste Load and Industrial Pollution Load per municipality inside Ormoc Bay WQMA

MUNICIPALITY	Industrial Waste Load (kg,day)	Industrial Pollution Load (kg,day)
Ormoc City	84.6	35.5
Baybay City	0.010	0.005
Isabel	14.9	5.9
Albuera	61.2	24.5

Based on the data from SMRs, total industrial pollution oad that discharges to Ormoc Bay is **65.9 kg/day**. This is computed from the industrial waste load multiplied by the wastewater treatment facility efficiency.

III. Livestock and poultry

Backyard livestock and poultry are considered non-point sources of pollution. The estimated load is 2,092.04 kg/day considering that wastewater discharges directly flow to the ground without undergoing treatment.

Table 3. Backyard livestock and poultry pollution load inside Ormoc Bay WQMA

	No. of Livestock	LPC	CA	BLPWL
Carabao	10,483	0.00049895	177.84	930.21
Cattle	1,812	0.00049895	177.84	160.79
Horse	3,106	0.00049895	177.84	275.61
Sheep	793	0.00016783	177.84	23.67
Goat	8,278	0.00016783	177.84	247.08
Swine	15,732	0.00013154	177.84	368.03
Chicken	97,463	0.000005	177.84	86.67
Backyard Livestock and Poultry Pollution Load(kg/day)				**2,092.04**

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Wherein:

BLPWL	Livestock Waste Load, kg/day
LPC	Livestock Pollutant Concentration, g/day
CA	Catchment Area, Ha or Km sq

IV. Solid Waste

Pollution load coming from the solid waste sector is estimated at **3,495** kg/day assuming that no treatment facilites are present at the disposal sites.

LGU	No. of persons	BODsw	GSW	Solid Waste BOD Loading (kg/day)
ORMOC	232,250	0.01576	0.82	3001.4132
KANANGA	1,277	0.01576	0.38	7.6476976
BAYBAY	1,781	0.01576	0.75	21.05142
ALBUERA	46,322	0.01576	0.38	277.4131936
MATAG-OB	2,828	0.01576	0.21	9.3595488
PALOMPON	1,903	0.01576	0.37	11.0967736
ISABEL	7,960	0.01576	0.40	50.17984
MERIDA	29,806	0.01576	0.25	117.43564
				3,495.60

Findings

It can be deduced from the results that pollutant contribution from the domestic source has the highest estimate among the different sectors. Thus, it is recommended that more strategies and interventions be applied in reducing such waste load.

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