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## METRO CEBU RIVER SCAN CHALLENGE 2025

# RESEARCH REPORT AND INNOVATIVE SOLUTION PROPOSAL

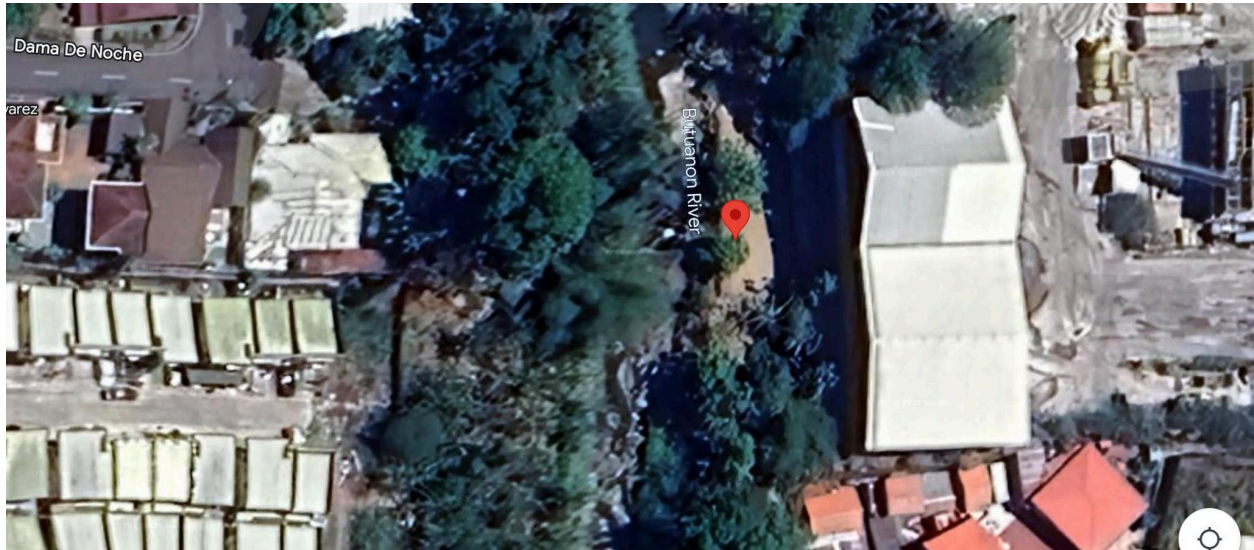


**Submitted by:**

Fornis, Rica  
Aranas, Adonis Raphael  
Bacus, Akissa Vashti  
Bermejo, Erica Hannah  
Maglasang, Gwyneth Gayle  
Olimpo, Irish Sopiha  
Dela Cruz, June Lorenzo  
Rafols, Franz Chervin Hallie  
Lucim, Mel Vincent  
Estrera, Niño  
Lim, Paul

Dacut, Yuan Dave  
Suello, Angelo Carlo  
Icay, Brent Limpangog  
Salarda, Charles Florenz  
Tariman, Dhan  
Avilla, Don Matthew  
Mapula, Jeremy  
Carreon, Josh Enerson  
Cuarteros, King  
Guantero, Vea Marielle  
Bacsal, Lovely  
Mendoza, Karl

## I. Location of Flood Height



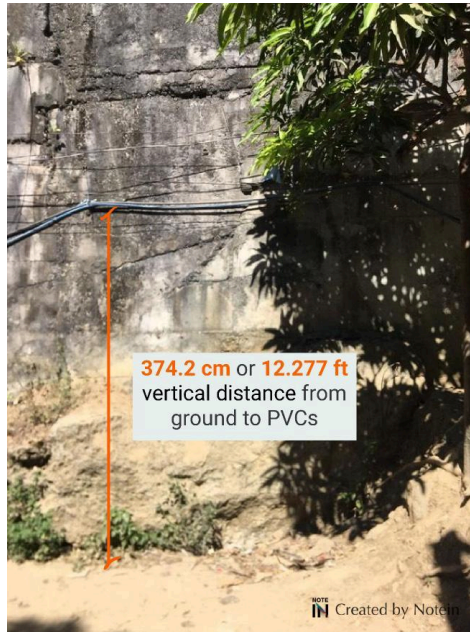
*Image 1: Satellite view of team 7's assigned area in Barangay Tingub, Mandaue City*

The fieldwork team of group 7 conducted their socio-economic survey, and as well the measurement of the maximum flood height at Purok 1, Barangay Tingub, Mandaue City, Cebu. The exact coordinates on where the team recorded the maximum height is as given: 10.352154,123.931856.

This specific area of the barangay lies along the Butuanon River—once a center of livelihood for many of the residents in the area has now become contaminated due to improper waste discharge of the factories and the trash from the people living along the river.

## II. Maximum Flood Height Measurements





*Images 2, 3, and 4: Members of the fieldwork team measures the maximum flood height of the area*

Driven from the residents in the area, we were able to determine and document the potential flood height by identifying two key vertical reference points. First we measured the height from the riverbed to the flat surface on top of the river embankment which was 257 cm (8.43 feet) long. Second we measured the height from ground level to the PVC drainage pipes fixed to a nearby wall, which was 374.2cm (12.28 feet) long.

By adding the two values, we identified a possible maximum flood height of 631.2cm or 6.31 meters (approximately 20.7 feet) from the riverbed. This was considered the worst-case scenario during extreme flooding events, during which water levels rise above the embankment and travel toward raised drainage points.

This measurement helps illustrate the high flood risk in Purok 1 as densely populated and low-lying areas are directly subjected to the overflow of extension of the Butuanon River during peak flood years. This points to the essential need for immediate and effective flood mitigation and waste-management solutions being proposed in this area.