

SUSTAINABLE URBAN DRAINAGE SYSTEM FOR BARANGAY BONBON, CAGAYAN DE ORO, PHILIPPINES

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Bonbon is one of the riverine barangays facing the Macajalar Bay in Cagayan de Oro City, Northern Mindanao, Philippines.



Rainwater often accumulates in this area because it is not properly discharged to the creeks and to the rivers due to the absence of appropriate drainage systems. Few areas have existing creeks which, however, are often clogged due to improper solid waste disposal, including human excreta.



Although many residents have sanitation facilities (water closets, urinals, subterranean septic tanks), groundwater contamination when flooding persists has not been ruled out. Furthermore, the threats of water-borne diseases have been speculated.



As a concrete response to this problem, the Xavier University Engineering Resource Center formed a team to develop a corresponding engineering approach.

Objectives of the project include:

- (1) identifying the specific areas within Barangay Bonbon where flooding is severe.
- (2) Investigating the specific cause of flooding in these heavily affected areas.
- (3) Aims to offer the best engineering design suitable in eliminating flood in the affected areas.
- (4) integrate community-based capacity building initiatives for short-term and longterm operation and maintenance of the facilities and programs.

A preliminary consultation with representatives from Barangay Bonbon has been conducted to identify the persisting problems and the proposed courses of actions, solutions and alternatives.



The purpose of this project is to generate a sustainable urban drainage system by incorporating ecological sanitation approaches.

This includes urine-diversion dehydration toilets (UDDT), elevated sanitation facilities equipped with water-impermeable septic chambers to eliminate groundwater contamination; household rainwater harvesting facilities as well as community-based allotment garden systems where the rainwater and the treated human excreta from the UDDT can be reused to water and fertilize the crops as already successfully demonstrated in other areas of Cagayan de Oro.



This will further create and maintain green open spaces in the fast growing city not only to produce food but also to provide necessary space for water infiltration.

FOR FURTHER INFORMATION

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