

Public Access Flood Hazard Mapping: The Case of Brgy. Pansol, Calamba City, Philippines

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Abstract: Brgy. Pansol, Calamba City, Laguna, known as the resort capital of the Philippines, is usually affected by flooding. As demonstrated in the recent years, Pansol was heavily flooded due to the rains brought by Typhoon Ketsana and the Habagat. Besides occurrence of severe rains during typhoons, flooding in Pansol was believed to be intensified by its topography, presence of numerous water channels, and its proximity to Laguna Lake. As a result, major disturbances in livelihood, education, health, and commerce normally occur during flooding. One hundred two Points of Interests (POIs) were collected onsite using a calibrated Global Positioning System (GPS) unit and were made publicly available in the OpenStreetMap (OSM) website. Flood hazard mapping in Pansol, cross-validated by the acquired POIs, was done with the use of ArcGIS Version 9.3. To explain flooding in Pansol, spatial data such as elevation, land use, proximity to the lake, and proximity to streams were gathered from primary and secondary sources. These data were processed using spatial analysis tools with the aid of Analytic Hierarchy Process (AHP) to generate a flood hazard map (vector-based) delineated as follows: (1) not-prone; (2) low; (3) moderate; and (4) high flood risk areas.

Based on the result, 59.07 % (228.2 has) of Brgy. Pansol area was determined to have high risk to flooding, while 10.30% (37.39 has) and 23% (88.5 has) have moderate and low risk to flooding, respectively. The remaining 7.63 % (24.49 has) was not prone to flooding.

Interviews with residents, resort owners, business establishment owners and barangay officials were done to identify the social perspective as to why flooding occurs in their locality, which typhoon and rainfall event caused flood and which specific areas are most affected by flood. Findings suggest poor drainage system as one of the contributing factors to flooding aside from low elevation.

Keywords: Analytic Hierarchy Process, flood mapping, flood hazard, land use, Tigbi subwatershed