

Flood risk assessment on selected critical infrastructure in Kota Marudu Town, Sabah, Malaysia

Abstract

This study investigates the risk of flood on selected critical infrastructure in a flood-prone catchment in Sabah, Malaysia. Kota Marudu, located in the Bandau floodplain, one of the Sabah's northern water catchments, was selected as the study site due to its frequent flood occurrence and large floodplain coverage. Two of its largest rivers, namely Sungai Bongon and Sungai Bandau, tends to flood during rainy season and cause temporary displacements of thousands of people living in the floodplain. A total of 362 respondents participated in the questionnaire survey in order to gather information on historical flood occurrence. Three flood depth groups were determined, which are 1) less than 0.3 meter, 2) 0.3 – 0.6 meter and 3) more than 0.6 meter, while three categories of critical infrastructure were defined, namely transportation system, communication system and buildings. It is found that the transportation system encounters the most severe impact as flood inundation increases, where 92% of the respondents believe that the transportation access should be abandoned when flood depth is more than 0.6m. The findings of this study will be used for detailed risk assessment, specifically on the vulnerability of the critical infrastructures to flood in this floodplain.