



Assessment of Damage-based Physical Flood Risk for Houses

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This study developed a damage-based physical flood risk assessment method for houses and it was applied to Daegu City, Ulsan City, Gyeongsangbuk-do and Gangwon-do. Damage-based physical flood risk consists of hazard, exposure and vulnerability. Hazard is calculated using flood inundation map, while exposure was established from location information and posted prices of houses. Vulnerability is estimated from the water depth – damage curve of houses. Physical flood risk which is computed by standardizing damage cost of houses estimated using hazard, exposure and vulnerability is classified into 8 levels namely: None, Very Low, Low, Moderately Low, Moderate, Moderately High, High, and Very High. Risky houses is defined as the houses with levels higher than Moderately High risk. The percentage of risky houses in Ulsan City, Daegu City, Gyeongsangbuk-do and Gangwon-do were 3.2% (2,083 of 65,163), 1.82% (2,515 of 385,694), 1.63% (6,298 of 385,694) and (710 of 169,379), respectively. Damage-based physical flood risk assessment method developed in this study is expected to be used for the economic analysis of disaster mitigation policy through estimation of flood damage. Moreover, scientific countermeasure especially for the identified risky houses can be established to reduce flood risk.

[Acknowledgement] This research was supported by a grant [MOIS-DP-2013-01] through the Disaster and Safety Management Institute funded by Ministry of the Interior and Safety of Korean government.