Flood Risk Mapping to Nakdong River Watershed Considering Vulnerability Analysis

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Flood risk can be defined as total probable losses because of a flood event occurring in a specific site. Mathematically, risk is the product of a hazard and vulnerability of area. The vulnerability means physical, economic, infrastructure, and social susceptibility or sensitivity to damage from a flood event. The main objectives of the present study are to make the flood risk map for managing flood disaster, to develop a tool for vulnerability mitigation assessment and facilitate vulnerability mitigation by providing various flood information, and to develop a flood risk analysis model for effectively managing flood disaster. In this study, the impact on infrastructure vulnerability due to flooding is estimated by using Geographic Information System. To compute the flood risk at application area, flood hazard map, vulnerability and exposure are used. To assess the flood risk, the proposed methodology is implemented to Nakdong river watershed, located in South Korea. The research is performed to provide support for different users such as general public, decisionmakers, and water management professionals. An interactive analysis method is developed to assist in evaluation of the flood risk in response to a change in land

Keywords: flood risk analysis; GIS; vulnerability; flood risk map.

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