



Grid-based natural disaster risk and insurance rate mapping for houses in Korea

Sangman Jeong, Hayong Kim, and Insang Yu

Kongju National University, Department of Civil & Environmental Engineering

Recently, damages caused by natural disasters such as flood, wind, snow and earthquake have occurred frequently all over the world. Based from the Ministry of the Interior and Safety, among natural disasters in Korea, flood disaster took the largest toll at 52% followed by wind disaster at 26% and snow disaster at 20% for the last decade and this requires urgent countermeasures. Korean government has executed a natural disaster insurance policy for houses as countermeasures to mitigate natural disaster damage. However, the problem is it applies a uniform insurance rate on all places within an administrative district without considering the regional natural disaster risk. Hence, development of a natural disaster insurance map that incorporates various levels of insurance rates considering grid-based natural disaster risk is required. This study developed a natural disaster risk and insurance rate map for houses particularly for flood, wind and snow disaster since they have the highest damages in Korea. Natural disaster insurance rate was estimated by calculating three factors namely severity of natural disaster risk, damage ratio according to magnitude of natural disasters and accident frequency for houses by natural disaster. The natural disaster insurance rate map developed in this study displays different insurance rate considering regional natural disaster characteristics such as topography, climate condition, land cover and so on. The results of this study are expected to provide reasonable natural disaster insurance rate to improve the existing system and establish a countermeasure in steps of scientific mitigation, preparation, response and restoration.

[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.