



Socio-economic Vulnerability Assessment of Natural Disaster Considering Urban Characteristics in South Korea

Yoonkyung Park (1), Hwandon Jun (2), and Sangdan Kim (3)

(1) Department of environmental engineering, Pukyong national university, Busan, Korea, Republic Of (ykpark90@gmail.com), (2) Department of civil engineering, Seoul national university of science and technology, Seoul, Korea, Republic Of (hwjun@seoultech.ac.kr), (3) Department of environmental engineering, Pukyong national university, Busan, Korea, Republic Of (skim@pknu.ac.kr)

In this presentation, an indicator-based model is proposed to quantify socio-economic damage under natural disaster in Seoul, Korea. Seoul is the highest population density in Korea. Scales of the model are divided into two classes. First scale is “borough”, which is town, or a district with a large town, and has its own council. In the case of Seoul, average size of boroughs is 24.28 square kilometers. Second one is “census output area”, which is the finest level of statistical information. Average size of census output area in Seoul is 0.0374 kilometers. The Census output area has high resolution than boroughs. For the purpose of considering various aspects on socio-economic vulnerability under natural disaster, the proposed socio-economic vulnerability assessment model is composed of demographic/social indicator, economic indicator, and prepare/response/recovery indicator. Each of them is consist of 5, 3, and 6 proxy variables, respectively. Using the suggested model, the socio-economic vulnerability for 25 boroughs and 16,230 census output areas of Seoul is assessed. As a result, it is shown that southeastern boroughs in Seoul (Gangnam and Seocho) have lower vulnerability scores than other boroughs. According to this results, these places are much safer than other regions under natural disaster. Additionally, the socio-economic vulnerability was assessed in scale of census output data. Socio-economic vulnerability scores are shown similar results comparing with results of borough scale. However, socio-economic vulnerability scores are calculated in higher resolution. These results are caused by different demographic and social factors in each census output area even census output areas are located same borough. The additional importance of vulnerability assessment in the scale of census output areas will be presented.

Acknowledgement

This research was supported by a grant(13SCIPS04) from Smart Civil Infrastructure Research Program funded by Ministry of Land, Infrastructure and Transport(MOLIT) of Korea government and Korea Agency for Infrastructure Technology Advancement(KAIA).