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Susceptibility assessment of climate change-induced geo-disasters in South Korea

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Climate change adaptation in infrastructure sector has been great attention in recent years, though there is a difficulty in identifing the most suitable and efficient adaptation options. This paper proposes a framework for assessing the costs and benefits of infrastructure adaptation for the geo-disasters such as landslide and debris flow. In the Asia-Pacific region, there is an evidence of prominent increases in the intensity and/or frequency of extreme events under intense rainfall and severe storms, which trigger more geo-disasters on infrastructure. In this paper, a case study was carried out in Umyeonsan (Mt.), South Korea. Three Representative Concentration Pathways climate scenarios are utilized to estimate the cost of future damage and the conditions of the assessed infrastructure. Susceptibility assessment of geo-disaters were conducted by using physically-based models, YS-slope and ABAQUS/CEL. The climate change scenario was scaled down for Korean circumstances, and then, applied to anayze geo-disaters. It is shown that landslide hazard and debris flow damage are highly influuenced by climate change scenario. Based on this result, possible cost benefit is estimated, and a conceptual methodology for susceptibilty assessment of rainfall-induced geo-disasters is suggested. It is expected to guide decision making in prioritizing the most cost-effective adaptation strategies for infrastructure.

Biography

Moonhyun Hong is a doctoral course student in Department of Civil and Environmental Engineering, Yonsei University. He has published 2 paper in academic journal in South Korea and delivered several oral presentations in academic symposium.

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