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Sangseom Jeong

Yonsei University, Korea

Adaptation technology of infrastructure under climate change

Climate change causes increase in global temperature, different patterns of precipitation, and sea-level rise, which negatively affect performance of infrastructure. Infrastructure needs to be adapted to the climate change through new design, construction, or rehabilitation methods. For effective planning of infrastructure adaptation, before-and-after-adaptation analysis is important to understand the impact of climate change on infrastructure. In the past ten years, the frequency of natural disaster impacting urban area due to adverse effect of climate change has increased drastically due to flood and slope failure causing live and damaged infrastructure. Adaptation to climate change is a complex process which can be characterized as decision making under uncertainties. Climate hazard for the infrastructure can constitute socio-economic problems. They can result in damage and destruction to residential and commercial properties and public infrastructures, endangering public safety. The cost associated with the resilience of infrastructure can be quite expensive. The Green Infrastructure Technology for Climate Change (GIT4CC) center aims to develop civil infrastructure adaptation technologies for climate changes based on mid- and long-term predictions of climate changes. To develop the adaptation technologies in planning, design, and maintenance of civil infrastructure, the GIT4CC center is composed of three major subjects; 1) Climate and hydrological scenario creation for understanding the climate change impact on civil infrastructure, 2) Development of civil infrastructure adaptation technologies based on climate scenarios and impact analyses, 3) Optimization of proactive adaptation strategies using probabilistic evaluation. It is expected to guide decision making in prioritizing the most cost-effective adaptation strategies for infrastructure.

Biography

Sangseom Jeong is a Professor of Yonsei University, a vice-president of Korean Society of Civil Engineers (KSCE), a corresponding member of TC212 (Deep foundations) in ISSMGE (International Society of Soil Mechanics and Geotechnical Engineering), a chair of Asian TC-18 (Mega Foundations) and a President of GIT4CC center. He has authored and served as a reviewer for many geotechnical journals. He has co-edited 15 national geotechnical engineering text books and authored about 66 SCI articles in major reputable international journals, 128 national journals, 73 international conference papers, 80 technical consulting reports and 30 patents in deep and shallow foundations, excavation and slope stability.

homh12@naver.com