



A novel overall approach for sediment-related disaster prevention in urban areas, South Korea

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In South Korea, we had 140 landslides around Mt. Umyeon of Seoul city on July 27, 2011, which caused 16 deaths and more than 150 house damages. These landslides were triggered by a severe rainfall event with the total amount of 365 mm, equivalent to a 100-year-recurrence interval event. The landslide disaster in Mt. Umyeon is the first sediment-related disaster posing the significant serious damages to urban areas in South Korea which requires overall reconsideration about prevention, warning, countermeasure and rehabilitation to sediment-related disasters in urban areas. To meet such demands of society, the Korea Forest Research Institute (KFRI), competent to the sediment-related disasters research, is committed to conducting on a research project of development of a prevention system for sediment-related disasters in urban areas including non-structural countermeasures such as construction of landslide early warning system and structural ones such as development of urban-typed debris flow barriers. Of these countermeasures, a proto-type of landslide early warning system consisting of a variety of sensors such as soil moisture content sensor and tensiometer has been tested in-situ in a point view of system performance maintenance. We have also tried to find the threshold of the sensors by slope failure experiments. Meanwhile, two types of debris flow barriers for urban areas were developed and their functioning abilities have been tested by both of flume test and computational structure analysis. We hope these research results would mitigate potential damages efficiently by sediment-related disasters in urban areas.