

The calculation of the mass of soil losses in the Han river buffer zone, Paldangdam, Korea

DAL-HEUI LEE¹, SUNG LAE CHUNG²
AND WOO YOUNG CHOI³

¹Department of Earth System Sciences, College of Sciences,
Yonsei University, 134 Shinchon-dong, Seodaemun-gu,
Seoul, 120-749, Korea, dalheui@yonsei.ac.kr

^{2,3}215 Anyang Megavalley, Gwanyang-dong 799, Dongan-gu,
Anyang-si, Gyunggi-do, Korea, sj9171@chol.com

The objective of this study is to calculate the mass of soil losses (ton/ha/yr.) in the area of the Han River buffer zone, Paldangdam, Korea. The Universal Soil Loss Equation (USLE) was used to calculate the mass of soil losses under different buffer zone scenarios. Also, the rainfall simulation experiments were carried out under different rainfall kinetic energies and geotechnical conditions. Rainfall simulations were carried out within three months after soil sampling. Lechler full cone nozzles (type 460.648.30.cc) based on measurements using a Distromet Joss-Waldvogel Disdrometer. The main causes of soil losses in the research area are sealing and erosion. The estimated mass of soil losses are 20 (ton/ha/yr.) during from 2015 to 2025 years. The results will aid the development of models aimed at predicting cropping system due to soil erosion. The test results showed that geotechnical conditions and rainfall conditions, such as the ground slope, the compaction ratio, rainfall intensity and duration of rainfall are main factors for soil losses. Apparently, the severity of soil erosion did not exclusively determine the amount of nutrients lost in runoff from agricultural land.