Prediction Soil Erosion Model by Means of GIS

Yuthasart Anuluxtipun, Bundit Anurugsa and Sansarith Thianpopirug

Abstract

Soil erosion in Thailand has been assessed by employing Universal soil Loss Equation (USLE). Land development department (LDD) has carried out using USLE (A = RKLSCP) since 1962 and has reproduced soil erosion map. Until now, LDD has revised soil erosion map at three editions namely Manual, Erosview and CONSPlan. The first soil erosion map of Thailand, which represents the erosion in the northeast, with a scale 1:100,000 were published in 1998. The second system namely Erosview reproduce in 2000. The third one namely CONSPlan reproduce in 2001. Erosview and CONSPlan is digital soil erosion map which are belong to LDD at 1:50,000 scale. Both of them can evaluate soil loss equation. Especially, CONS Plan will include soil water conservation measurement and budgeting inside the program. This project studies to compare three types of soil erosion map in different systems. The target area is Tungmungphea, Ban Phai district, KhonKaen province. The objective of this study is comparing the suitable and accurate method for USLE. The result showed that each system of soil erosion map has a limitation for example the first system is a difficult to edit and reproduce the map. Erosview is a slope length limitation that is 150 meters long. CONS Plan is Rainfall erosivity (R) limitation that is only used one number for representing a quantity of rainfall around the whole area. Consequently, Soil Water Conservation Division has modified both Erosview and CONS Plan map. Especially, the new model has used hybrid technique by generate DEM to Rainfall erosivity and used a slope length from slope and aspect. Ultimately, Thai USLE format has revised R from CONSPlan in raster format and has evaluated soil loss in multi-dimension such as provincial, watershed, regional and country.

Keywords: Soil Erosion, North-East of Thailand, CONSPlan