

Soil Erosion Modeling using the Revised Universal Soil Loss Equation (RUSLE) to the Mabacan River Watershed in Laguna

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ABSTRACT

Soil erosion is a natural process but also an environmental problem that needs to be addressed. Critical watersheds in the Philippines support irrigation systems as well as hydroelectric plants and thus, need immediate protection to minimize erosion. Empirical models such as the Revised Universal Soil Loss Equation (RUSLE) model can be used together with Geographic Information System (GIS) to estimate soil erosion of these critical watersheds. Important parameters to be used in RUSLE will be extracted from satellite data using GIS, which are primarily the length and slope steepness factor as well as the land cover factor. Soil erosion predictions estimates will then be compared in the field from measurements using an established method, the use of erosion pins. The Mabacan river watershed in Laguna, Philippines, which is classified as a critical watershed will be analyzed in the study. Sensitivity analysis will be done by varying the different parameters. Soil erosion estimates will then be compared and used to develop a plan in which soil erosion can be minimized.