

Estimating Spatial Soil Erosion and its Economic Effect in Backan Province, Vietnam

DANG KHOI Duong[1]

[1] University of Tsukuba

Soil erosion is a serious issue that poses a threat to agro-ecosystem in the northern mountainous areas of Vietnam. Estimating spatial soil loss is very important for soil conservation planning in the area. Spatial soil loss estimation has been conducted in Backan province, Vietnam. The study aims to estimate the spatial distribution of the soil loss and to evaluate the economic effect of soil loss in term of extra cost on agricultural production systems. The Universal Soil Loss Equation (USLE) was integrated within IDRISI32 to implement these objectives. Our estimation found that spatial soil loss varied from 1.0 to 247 tons ha⁻¹ year⁻¹ in the area. About 39 % of the area has soil loss over 10 tons ha⁻¹ year⁻¹ which will affect to the long-term soil productivity need to apply soil conservation practices. Soil loss resulted considerably in the loss of soil nutrients. It is estimated that nitrogen has the highest loss followed by phosphorus and potassium. The economic effect of soil loss in term of extra production cost was equivalent to \$153,808 year⁻¹.