EFFECT OF LAND USE-LAND COVER AND PROJECTED RAINFALL ON SOIL EROSION INTENSITY OF *NALANDA OYA* CATCHMENT

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Soil erosion has become a severe global environmental issue since it causes various detrimental effects on land productivity, agricultural production, water quality and hydropower generation. Land use-land cover and rainfall are two significant factors affecting soil erosion intensity. This study estimated the spatial variation of soil erosion in *Nalanda oya* catchment in Sri Lanka using Revised Universal Soil Loss Equation (RUSLE) model supported with GIS and assessed its change with time in relation to the changes of land use-land cover and rainfall. Thereby, future erosion was predicted so that soil conservation practices and land management practices can be adjusted accordingly. According to the results, the current mean annual soil loss of the catchment is 2.99 t ha^{-1} yr^{-1}. Due to the future changes in land use-land cover and projected rainfall considered in this study, mean annual soil loss in 2030s would be 3.43 t ha^{-1} yr^{-1} and 3.66 t ha^{-1} yr^{-1} under Representative Concentration Pathways (RCP) 4.5 (moderate emission) and RCP 8.5 (high emission) scenarios, respectively. Results further showed that currently about 18.78% of the catchment is under moderate to high (>5 t ha^{-1} yr^{-1}) erosion risk and it may rise to a range of 20.83% – 21.58% by 2030s. The study estimated that around 32% of the land area would show an increase in erosion, mostly due to the effect of projected rainfall. The separate effect of land use-land cover revealed the importance of reforestation and conservation practices on reducing soil erosion. This study would be a reference in future conservation planning and agricultural land management of the country in order to improve the sustainable development while optimum utilization of the resources.

Keywords: Land use-land cover, *Nalanda oya*, Projected rainfall, Revised Universal Soil Loss Equation, Soil erosion