

Soil Erosion Rates of Different Land Uses of Southern Lowlands of Sri Lanka; with special focus to Walasmulla

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Abstract

Soil erosion has been a greater concern in Sri Lankan agricultural lands recently due to understanding of value of the soil. Hence the study was to estimate the soil erosion rates of the different land use patterns in Walasmulla divisional secretariat division of Southern lowlands. 20 sampling locations from Egodabedda, Saputanthrikande, Warapitiya and Pathegama GS Divisions representing tea, cinnamon, forest cover, home gardens and abandoned lands were selected to measure the erosion rate using a very basic erosion meter. Monthly data were gathered for a six-month period from December, 2021 to May, 2022. In addition, some water samples were also collected from the adjacent streams to estimate the total suspended solids added to the water due to the erosion. Textural analysis of some surface soil samples from each location were also performed. As per the textural analysis, soils of the study areas were found to be coarse textured soils hence very cohesive and erodible. As per the field measurements, erosion rate of the tea which shows the highest was 3.5 mm per month and that of Cinnamon lands which was the second highest was 3.2 mm. Those estimated values for forest lands and home gardens were recorded as 3 mm per six months. In some cases, erosion rate of the lands under preparation was shown as high as 8.33 mm per month. In addition to textural quality of soil, the slope angle of the lands was found to be impacted on the rate of soil erosion positively. Comparing the suspended solid in the collected water samples, the amount was noted to be higher during the rainy seasons. Hence it can be concluded that the land use pattern mostly with the cultivated perineal crops has an impact on the soil erosion rates of the study area.

Keywords; Soil erosion rates, land use patterns, tea lands, Cinnamon lands, coarse textured soil

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