

A Study of Erosion and Sedimentation Rates Based on Two Different Seasons Using CS-137 As A Tracer in the Sembrong Catchment, Malaysia

Authors : Jalal Sharib@Sarip,Dainee nor Fardzila Ahmad Tugi,Mohd Tarmizi Ishak,Mohd Izwan Abdul Adziz

Abstract : This research paper aims to determine the rate of soil erosion and sedimentation by using Cesium-137, ^{137}Cs as a medium-term tracer in the Sembrong catchment, Malaysia, over two different study seasons. The results of the analysis show that rates of soil erosion and sedimentation for both seasons were variable. This can be clearly seen where the dry season only gives the value of the rate of soil erosion. Meanwhile, the wet season has given both soil erosion and sedimentation rate values. The dry season had rates of soil erosion between 5.09 t/ha/y to 51.03 t/ha/y. The wet season had soil erosion and sedimentation rates between 8.02 t/ha/y to 39.78 t/ha/y and -4.81 t/ha/y to -50.81 t/ha/y, each, respectively. rubber and oil palm plantations referring to Station 17 and station 4/6, located near Sembrong Lake and Sembrong River, had the highest rates of soil erosion and sedimentation at 51.03 t/ha/y and -50.81 t/ha/y, respectively. Various factors must also be taken into account, such as soil types, the total volume of rainfall received for both seasons, as well as differences in land use at the study stations. In conclusion, ^{137}Cs as a medium-term tracer was successfully used to determine rates of soil erosion and sedimentation in two different seasons for the Sembrong catchment area. The data on soil erosion and sedimentation rates for this study will be very useful for present, and future land and water management in the Sembrong catchment area and may be compared with other similar catchments in Malaysia.

Keywords : soil erosion, sedimentation, cesium-137, catchment management

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