

ESTIMATION AND RAPPORT BETWEEN RAINFALL-RUNOFF AND SEDIMENT LOAD AS SOIL LOSS FROM RAWAL SUB- WATERSHED (SATRAMEEL)

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ABSTRACT

A research was conducted to evaluate a three year field data of rainfall-runoff and sediment load at Rawal sub-watershed (Strameel), Islamabad. The water samples were taken during the monsoon seasons of years 2006, 2007 and 2008. The total runoff was measured as 115, 191 and 241 mm during monsoon as per recorded events out of 282, 557 and 512 mm rainfall in 2006, 2007, and 2008 years respectively. The total sediment load as 0.944, 2.417 and 2.517 tons/ha during the recorded events of monsoon for the years 2006, 2007 and 2008 respectively. The maximum sediment load 0.331 (35% of total), 0.734 (30% of total) and 0.960 (37% of total) was observed on 28.7.2006, 24.8.2007 and 8.7.2008 respectively in single rainfall storm, and further 65, 70 and 63% sediment load was observed in remaining runoff events during monsoon season of the years 2006, 2007 and 2008 respectively. The maximum sediment load as total (2.517 tons/ha) against the runoff of 241 mm out of 512 mm rainfall with 190 lit/sec/ha maximum peak unit discharge was observed during the monsoon season of 2008. It was observed that maximum peak unit discharge was 136.69, 177.38 and 189.63 lit/sec/ha in month of July, August and July with an average peak unit discharge were 66.59, 56.41 and 76.90 lit/sec/ha for the years 2006, 2007 2008 respectively. However, the peak unit discharge data were needed to design the hydraulic structure for the control of erosion/sediment for sub-watershed management.

Keywords: Erosion watershed, rainfall, runoff, sediment load