

## Estimation of Soil Erosion and Sediment Yield for ONG River Using GIS

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**Abstract :** A GIS-based method has been applied for the determination of soil erosion and sediment yield in a small watershed in Ong River basin, Odisha, India. The method involves spatial disintegration of the catchment into homogenous grid cells to capture the catchment heterogeneity. The gross soil erosion in each cell was calculated using Universal Soil Loss Equation (USLE) by carefully determining its various parameters. The concept of sediment delivery ratio is used to route surface erosion from each of the discretized cells to the catchment outlet. The process of sediment delivery from grid cells to the catchment outlet is represented by the topographical characteristics of the cells. The effect of DEM resolution on sediment yield is analyzed using two different resolutions of DEM. The spatial discretization of the catchment and derivation of the physical parameters related to erosion in the cell are performed through GIS techniques.

**Keywords :** DEM, GIS, sediment delivery ratio, sediment yield, soil erosion

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