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## A Study of Sediment Yield in the Deji Reservoir Watershed Using Risk Analysis

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Deji Reservoir Watershed was used as a sample site to understand the sediment yield using risk analysis. The historic typhoon and/or torrential storm events were collected to estimate the excessive runoff for each event. The distribution of SCS-CN is obtained by combining the maps of land use and soil texture, and the excess rainfall (Pe) and the maximum water storage (S) for each event were then calculated according to SCS-CN. Regression analysis shows that there is a good relationship between estimated runoff (x) and measured runoff (y);  $y=0.9561x+3*10^6$ ,  $R^2= 0.9414$ . Topographic wetness index (TWI) and sediment delivery ratio (SDR) were derived from DEM. The risk model developed to assess the sediment yield is calculated from the multiplication of hazard (Pe), vulnerability (TWI), and exposure (SDR). The total siltation amount of Deji Reservoir from 2009 to 2017 was taken as the measured value, and the estimated amount of sediment yield was calculated from the aforementioned formula to obtain the potential index of sediment yield. The results show that there is also a good relationship between estimated sediment yield (x') and measured sediment yield (y') annually;  $y'=10^{-11}x'^2-0.0223x'+9*10^6$ ,  $R^2= 0.74$ .

Keywords: Risk Analysis, Curve Number, Sediment Delivery Ratio