

ABSTRACT

The sedimentation process in the Nasiri River carries sediment grains from upstream to downstream, causing flooding and extreme river bed changes. Various factors exacerbate it. The steep slope, with 0,05 is the average slope along from upstream to downstream with approximately 6 km, high intensity of rainfall, and unstable river cliff conditions causing riverbank avalanche. This study aims to identify the qualitative and quantitative characteristics of sediment transport. The qualitative characteristic is the diversity of the sediment grains distribution. Furthermore, quantitative estimates sediment transport and riverbed changes in 2012 flash floods and 2-years return flood period with the hourly distribution. This study's data were taken directly from the Nasiri River to obtain sediment samples and river morphological data. Results of the analysis show that the size of the sediment grains varies widely from the sand to the boulder while the results of the average calculation of the sediment transport for the 2012 flash floods are, the Rottner Method is 4.5×10^4 tons, the Van Rijn method is 4.01×10^4 tons, while the flood discharge for a 2 year return period produces a value the Rottner Method is 1.3×10^3 tons, the Van Rijn method is 2.33×10^3 tons.

Keyword: *Sediment transport, Flood, Van Rijn, Rottner*