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## **The Application of Assessment Indicators of Active Tectonic in Estimating Tectonic Status in Upper Zayandehroud**

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### **Introduction**

Given that Iran is located on the Seismicity belt of Alps-Himalaya and since we occasionally have seen huge and destructive earthquakes such as Bam and Tarom, the investigation and study of active tectonic and assessment of threat and risk of such damages in big cities are very important. Zayandehroud River, is known as the greatest and most famous permanent river of the Center of Iran on which the Zayandehroud dam has been established. Upper part of the river is placed at north east of Chaharmahal o Bakhtiyari province and east of Isfahan province att coordinates of geograhocal longitude of 50° ,45' and up to east 50° , 53' and 50 '' and geographical latitude 32° , 30 ' and 45'' up to north 32°,45' and 50 '' . This area is part of Sanandaj- Sirjan geological zone.

### **Research and Methodology**

In this research, the erosion and tectonic activities in longitudinal and transversal valleys of Zayandehroud have been investigated in an area of about 400 km<sup>2</sup> using quantitative morphometric indicators, such as Hypsometric curve, Integral of Watershed hypsometric curve, Ratio of width of valley bed to valley elevation, V ratio, river length- gradian in den and topography balance in den.

### **Discussion and Results**

An investigation of these indicators showed that the main valley (longitudinal) of the river was classified as semi-active based on  $V_f$  and V ratio indicators. Also according to  $V_f$  and V ratio, secondary valleys in the right and left shores of the river had active and semi-active status. Also, results indicated that the studied area was settled in non-active status based on SL indicators, and also according to dis-balance index, left side of the river was more active than the right side. Results showed that for purposes of topography balance (T), north of basin is more active than the south of the basin with low severity. Study area has an adult and old trend according to hypsometric and integral indicators.

## Conclusion

General assessment from the integration of indicators indicated that the studied area was settled in semi-active to non-active position from neotectonic aspect.

**Keywords:** Morphometric indicators, Active tectonic, Geomorphology, Zayandehroud.

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