Tectono-geomorphological Implication of Siji River Section in Likhabali Area with Respect to the Seismological Setting of the Frontal Arunachal Himalaya, India

R.K. Mrinalinee Devi*, and Pabon Kumar Bora

Geoscience Division, North-East Institute of Science & Technology, Jorhat-785006, India

**Corresponding author: Tel/Fax: +913762370114*

Email: mrinalineerk@rediffmail.com

In Likhabali area, the Siji River section, presents valuable information on the tectonic regime of the frontal Arunachal Himalaya. Uplifted Quaternary deposits of unconsolidated conglomerates of boulders, cobbles, pebbles and granules with sandy matrix at a height of 40m elevations are observed in this area. The Siji River follows a highly faulted zone and follows a straight-line course trending ENE-WSW direction, due to the presence of fault, for a distance of about 500m in the Middle Siwalik terrain and takes a right-angled and acute angled turning towards the south following N-S direction. Radial drainage pattern representing domal structure as observed in the southern part of the study area envisages that Himalayan Frontal Thrust (HFT) acts as a blind thrust in this section. The Himalayan Frontal Thrust (HFT) seems to be concealed in this section as a fault propagated fold structure. The Siji River follows faults and a thrust fault dipping 32° towards NW direction is observed on the right bank of the river. A thrust zone with a displacement of coaly layer in Siwalik sandstone is also observed. Along the left bank of the Siji River, unconsolidated Quaternary gravel terrace has been uplifted 8m above the riverbed. Unpaired and tilted terraces bound the river on both sides. Unconsolidated and tilted terraces indicate the prevalence of active tectonics in the study area. Lithified Seismite deposit observed on the Siwalik sandstone bedrock beside the Siji River section indicates the seismically active nature of the study area in the recent past. The Siji River shifted its channel in the recent past also. Epicentral plot prepared for the frontal Arunachal Himalaya indicates the seismically very active nature of the region.

Key word: Uplifted Quaternary deposits; Radial drainage; Himalayan Frontal Thrust; Seismite; Active tectonics; Epicentral plot.