KANOI FAULT AND ITS POSSIBLE RELATION TO JAISALMER EARTHQUAKES

Kanoi Fault in western Rajasthan is a NW-SE trending regional fault which passes through Kanoi and east of Khuri, affecting the Mesozoic-Tertiary rocks of Jaisalmer basin. This fault was initially designated by ONGC and delineated and inferred regionally based on geological and geophysical data and observations (Dasgupta, 1975). This NW-SE trending fault has been recognised on the basis of the following features: (1) sudden termination of marine Jurassic rocks (Jaisalmer, Baisakhi and Bedesar Formations) and Cretaceous Pariwar Formation along this plane, exposed on the east and northeast of this fault on the upthrown side; (2) crumpled nature of beds; (3) variable but moderately high dips near fault plane; (4) 'dragging' of various formations. This appears to be deep-seated fault which became active due to upheaval phases of the Himalayan orogeny and outpouring of basaltic lava. Tectonic lineaments of western India require greater attention for monitoring and earthquake forecasting.

Jaisalmer experienced earthquake (6.3 on Richter scale) on the 8 November, 1991 followed by another earthquake on 20 November, 1991 of magnitude 5.3. During the earthquake, Kanoi fault was reactivated and maximum damage to the houses was reported from Kanoi village, which is located in the vicinity of Kanoi fault. Other villages where houses developed cracks are Khuri and Kasau-ka-Tala. Geological Survey of India (GSI) carried out post-earthquake studies including damages to houses/structures and indicated that epicentre was located about 35 km to the west of Jaisalmer, and that the shocks covered an area with radius of more than 120 km around Jaisalmer (Dharuman et al. 1993). These damages suggest reactivation of Kanoi fault. Keeping in view the magnitude of earthquake (6.3 and 5.3 on Richter scale), the comparatively less damage with no. loss to life may be attributed to horizontal disposition of the Mesozoic-Tertiary rocks and the thick pile of sand on the west of Kanoi fault which absorbed the shocks and minimised damages. However, Kanoi fault and all other major faults of Mesozoic-Tertiary basins of Rajasthan require periodic monitoring for forecasting of earthquakes in Rajasthan.

References

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Department of Geology,
M.L. Sukhadia University,
Udaipur 313 002

VIVEK LAUL