

LITHOFACIES ASSOCIATION AND DEPOSITIONAL ENVIRONMENT OF MURREE FORMATION AT JENA KOR, FR PESHAWAR AND PANOBA SECTION, KOHAT BASIN

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Abstract

The Murree Formation was studied at two field sections; 1-Jena Kor and 2- Panoba, these sections are located in southern most Peshawar basin and northeastern part of Kohat basin respectively. The Murree Formation in the study areas mainly consists of interbedded maroon/reddish color sandstone and shale with subordinate conglomerate and siltstone. The Murree Formation is 850m thick at Jena Kor Section and 370m thick at Panoba Section. Channel conglomerate facies consists of relatively fine clasts at the lower part of the formation and depicts shallow channel whereas at the upper part the clasts become coarser and are embedded in sandy matrix showing a mixed load representing debris flow and deeper channel. Cross laminated sandstone facies suggests deposition on the inner bend of meander leading to the formation of gently sloping point bar profile. Trough cross lamination indicates shallow channels that cut into one another and displays relatively distal part of the point bar. Ripple cross-lamination and Planar horizontal lamination sandstone facies represent deposition in lower velocities regime at shallower depth. The ripple cross and horizontal laminations indicate deposition in the abandoned channel/oxbow lake or at the point bar or crevasse splays. Interbedded sandstone and shale (repeated deposition of sand and shale close to the channel edge) leads to the formation of a levee. Fine grained clastic sediments are deposited primarily from the suspension load of rivers. Deposits of mud, silt, and very fine sand therefore indicate deposition in floodplain areas. The repeatedly rhythmic sequence (cyclic deposition) of Murree Formation indicates a meandering river deposition. Moreover, the comparatively high proportion of overbank deposits relative to inchannel deposits designates a broad floodplain across which the channel meandered, or a rapid floodplain aggradation rate relative to the frequency of channel avulsion. One single cycle is the product of meandering tidal channels in a continuously subsiding foreland basin. The uplifting of Himalayas rapidly increased during Miocene time which resulted in the deposition of huge sediments. This deposition within the foreland basin is termed as Murree Formation.