

LITHOFACIES & PROVENANCE STUDIES OF THE MURREE FORMATION OF RAWALPINDI GROUP IN KOHAT POTWAR PLATEAU, NORTH PAKISTAN

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The detailed depositional environments, lithofacies, internal architecture of sedimentary bodies and provenance of Miocene age Murree Formation have been investigated in detail at three localities in Kohat and Potwar basins. The localities are Dhok Maiki stratotype in the Potwar area, Ghorzai and at Pathan Algad in the Kohat Basin.

The formation generally consists of clay, siltstone, sandstone and conglomerates. It was deposited as sandrich fluvial system consisting mostly meandering channels and associated architectural elements such as channel lags, point bars, crevasse splays, levees and flood plains deposits, deposited in bed-load to suspended conditions. The stacked channelized sand bodies are 5- 60m thick at these localities.

Six major lithofacies have been identified in the field. Trough cross-bedding/massive conglomerates, Trough/ Planner cross-bedded sandstone facies, Low angle to plane-bedded sandstone, Rippled sandstone, Interbedded sandstone and clay facies and massive red clays.

Comparison of the lithofacies of the formation at these localities suggest that the Dhok Maiki area marks the initiation of the Murree river system in the northern part of the Potwar Plateau, while the Pathan Algad was located in the distal part where the main river flowed occasionally. The Ghorzai area was located within the two extreme margins of the main Murree river system.

The provenance studies of the sandstone of the Murree Formation suggest the supply of material from the orogenic belts to the north. Majority of the samples suggest recycled orogen or foreland uplift sources or combination of both.