

HYDROCARBON PROSPECTIVITY OF THE BHITTANI AND NORTHERN SULAIMAN RANGES, NORTH-WEST HIMALAYAS, PAKISTAN

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The Bhattani and northern Sulaiman ranges are integral part of the Himalayan foreland fold-thrust belt that surrounds the northwestern apex of Tank Re-entrant of the North Western Frontier Province (NWFP), in Pakistan. Despite several significant oil and gas discoveries in the southern and northwestern segments of the Himalayan foreland and fold-thrust belt, Bhattani and northern Sulaiman ranges are still challenging frontiers for petroleum explorationists. This article is an attempt to address the geological risk of the area through the concepts of hydrocarbon system and play. Critical review of the available literature and geological fieldwork in the region depicts that all the potential parameters of a working “hydrocarbon play” that are source, reservoir, trap/seal and timing and migration exist underneath Bhattani and northern Sulaiman ranges. The petroleum system is that of high impedance, characterized by multiple reservoirs and sealing horizons that are likely to be charged by multiple source rocks. Surface structural style shows that an echelon anticlinal closures developed within the hanging wall of Jandola, Bhattani and Domanda faults are potential drillable prospects. The presence of a regional hydrocarbon kitchen is well supported by the stratigraphic record of the area. The discovery of Savi Ragma within the Sulaiman Range clearly indicates that the play is working and hydrocarbons have been generated and migrated to the structure after its trap formation.