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Hydrocarbons prospects in the Kohat-Potwar Sub-Basins: An overview of Petroleum Play

The Kohat-Potwar Sub-Basins, located on the northwestern margin of the Indian Plate, are structurally defined petroliferous regions. Sedimentation on the passive margin of the Eastern Tethys was taken up in Paleocene after the break with the deposition of the clastics which end up enduringly with the shallow marine/lagoonal deposition of the Lower to Middle Eocene, which provided an excellent platform for the accumulation of hydrocarbons. Kohat-Potwar fold-and-thrust belt is a constantly explored prolific hydrocarbon province having many proven petroleum systems with considerable values of organic content. Mainly the potential reservoirs range from Mesozoic to Tertiary with anomalous oil and gas potential in Paleocene mixed clastics and carbonates of the Kohat-Potwar Sub-Basins. Source rock data designates that good oil-prone source potential exists in the Infra-Cambrian sediments of the Kohat-Potwar Sub-Basins. Permian sediments have TOC value up to 4% with primarily gas potential; while this value increases up to 8% in some expanses. Similarly, thermal maturity of the region also shows exceptional values that range from 0.3 to 1.8% i.e. Cretaceous and Permian rocks have 0.6 to 1.1% and 0.65 to 0.95% respectively. Both structural and stratigraphic traps managed to survive in these basins. However, only structural traps have been continuously evaluated which are represented by antiformal stack, flower structures, thrust anticlines and fault propagating folds. The Cretaceous and Jurassic truncations, thrust anticlines and gentle folds could also be the potential targets. In short, the Kohat-Potwar Sub-Basins can be ranked excellent in the context of potential of hydrocarbons.

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