

Hydrocarbon potential of the Tinjar Province, onshore Sarawak

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The exploration history in onshore Sarawak spanned as far back as early 1900's. In the Tinjar Province, detailed geological mapping and some geophysical survey were conducted during the early exploration days but was without significant success. Nine wells were drilled between 1939 to 1956 on the near coastal areas, coinciding with the northern edge of the Tinjar Province. Finally in 1974, citing adverse diagenetic processes on the reservoir qualities and poor prospectivity of leads, onshore exploration of Sarawak was abandoned.

Recent investigation by PMU/PRSS including reconnaissance fieldwork, interpretation and review of SAR data, existing geological and seismic sections and examining pre-existing petrophysical data aided us to study the geological data within the context of structural geology, tectonics and hydrocarbon prospectivity of the Tinjar Province.

Located south/southeast and west of the petroliferous Balingian and Baram Delta Provinces, Tinjar Province is the onshore part of the Tertiary Sarawak Basin where stratigraphically older successions like the Oligocene to Middle Miocene formations such as Nyalau, Setap Shale and Lambir Formation are exposed and uplifted with respect to the offshore provinces in particular those showing Late Miocene subsidence.

The Tinjar Province underwent Early Miocene deformation showing WNW-SSE strike-slip offset with right lateral sense and a late Miocene wrench deformation along NE-SW trend with left lateral sense. The latter is more pronounced in north and eastern parts of the Tinjar Province, becoming less noticeable towards the south. Based on the tectonostratigraphic division, five subprovinces have been identified that facilitate the evaluation of the hydrocarbon potential through the understanding of the geological development in the Tinjar Province. Due to structural complexities as a result of strong Early Miocene regional deformation or superposition with the Late Miocene deformation in the Tinjar Province, it is wise to exclude identified structurally complicated areas (Subprovinces 1 and 2) from consideration of hydrocarbon prospectivity. Identified from the SAR data, there are a total of nearly 40 leads in 3 sub-provinces including folds, domal structures and fault-dependent closures associated with strike-slip faults and normal faults. Using pre-existing oil company database (age, poroperm, bulk density and organic maturity) when onshore exploration was active up to the early 1970's enabled us to examine the trend of these parameters over the leads and within the sub-provinces in the Tinjar Province.
