

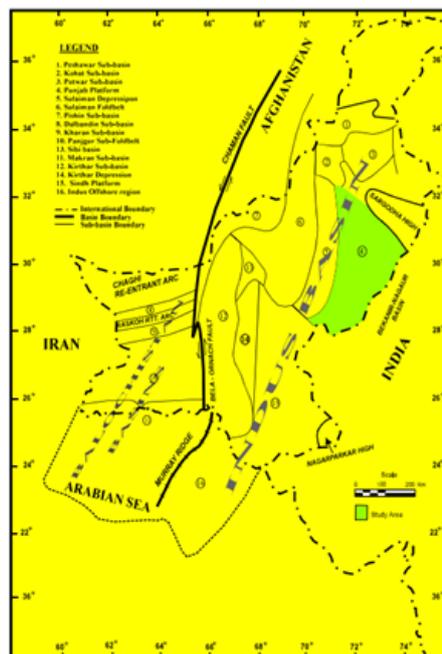
PUNJAB BLOCK (3073-3)

Introduction

Punjab Block covers an area of 2,410.81 sq km and is located in Pakpattan, Sahiwal, Okara and Bahawalnagar districts of Punjab Pakistan. Geologically, it lies in the Central Indus Basin of Pakistan. The block falls in Prospectivity Zone II.

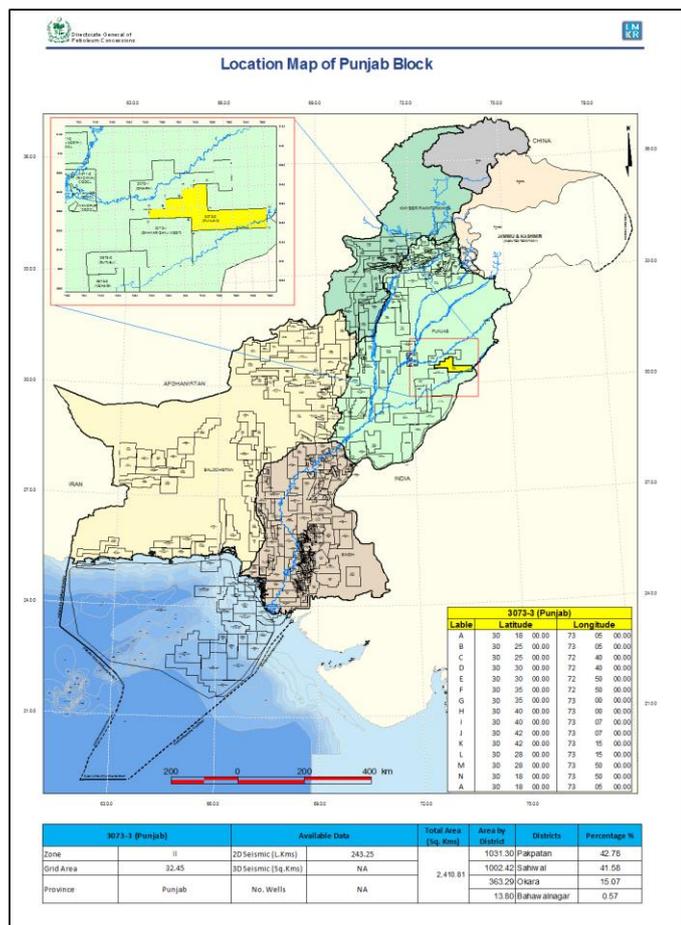
paleogeographic highs because of salt pushed anticline folds as observed on seismic lines. On the platform a large number of wells have been drilled so far. The stratigraphic sequence established on the basis of these wells revealed some of the most significant stratigraphic pinchouts in Pakistan (Kadri).

Geological Map (Modified after Ahmed et al, 1994)



Stratigraphic Sequence

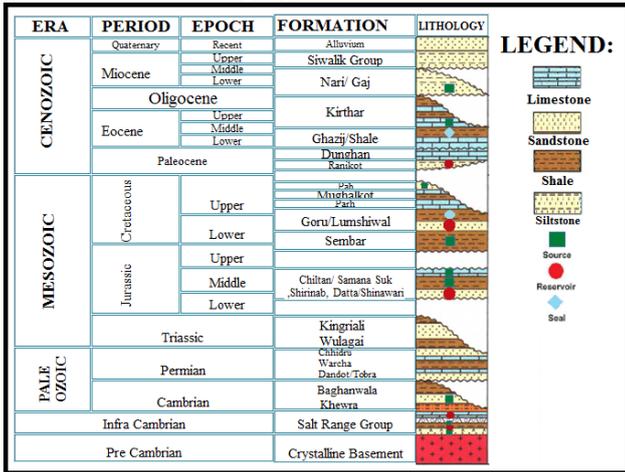
The Precambrian basement rocks are composed of granites, unfossiliferous metasediments, and metavolcanics indicated by subsurface geological data. Salt Range Formation (Infra-Cambrian) is the oldest rock encountered in Punjab Platform through drilling. Pre-Himalayan orogenic movements have resulted in prolonged uplifts/sea regression causing unconformities. As a result, several salt cored anticline structures are expected in the southern portion of this monocline (Kadri, 1995 and Humayun et al., 1991). The presence of only the scattered outcrops of Precambrian shield rocks are found in Sargodha, Kirana, Shahkot, and Sangla Hill area (Shabih et al., 2005).



Geology and Tectonics

The block is located in the eastern segment of Central Indus Platform Basin (CIPB). The sedimentary rocks are not exposed on the surface. Tectonically it is a broad monocline dipping gently towards the Sulaiman Depression. The area is tilted eastward as a result of Pre-Cretaceous non-organic movements during the Paleozoic era whereas it is tilted westward as a consequence of the collision of Indian and Eurasian plates during Mesozoic era. The area is located far away from collision zone so it is least affected area by the compression. The major structures in Punjab platform are

Generalized Stratigraphic Chart



Petroleum Play

The complete petroleum system occurs in Jurassic and Infra-Cambrian rocks. The producing fields in the north-west of this block indicate the presence of a valid petroleum system in the area.

Source

The established source rock in the Central Indus Basin is the Sembar Formation (Early Cretaceous). The Sembar Formation holds prosperous source rocks for gas generation as these source rocks have attained the desired maturity (Quadri and Shuaib, 1986). In the Platform area, Datta and Shinawari Formations (Jurassic) show good to very good potential as source rocks. The potential source rock in the Central Indus Basin is Bilara Formation (Infra-Cambrian) as this formation contains rich source properties in the Punjab Platform.

Reservoir

Proven reservoirs in this region are sandstones of the lower part of the Lower Goru Formation (Cretaceous), the sandstones of Ranikot Formation (Paleocene), and Sui Main Limestone (Eocene) (Iqbal et al., 2011). The potential reservoir rocks in the Central Indus Basin can also be Bilara and Jodhpur Formation (Infra-Cambrian) as these formations contain good potential in the Punjab Platform area and are producing in the adjacent fields in India.

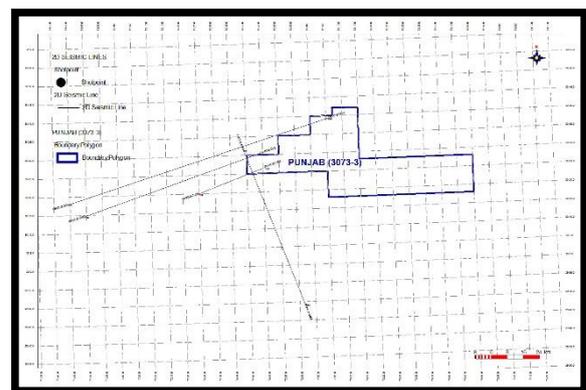
Seal

Shales are the known seals present in this area. The beds of sand are present within these shales covering the reservoirs. The effective seals in the area are the thin shale beds. Truncation traps and faults may be effective and considered as additional seals in the system (Iqbal et al., 2011).

Trap

Both type of traps i.e., structural and stratigraphical are present in this area. The stratigraphical traps provide significant trapping system along normal faults blocks and negative flower structures. Because of extensional regime, Horst and Graben's structures are developed. The possibility of stratigraphic traps in the form of sand lenses cannot be ruled out. Transgressive shales of the Ghazij Formation, the Upper and Lower Goru Formation provide effective trapping mechanism for the entrapment of hydrocarbons in the Lower Goru sand reservoirs (Quadri and Shuaib, 1986).

Punjab Block Base Map



Well Data

Well is not drilled in this block.

Seismic Data

| 2D SEISMIC DATA | 3D SEISMIC DATA |
|------------------|--------------------------|
| Line km = 243.25 | 3D data is not available |