Potential Giant Fields Still Exist in the Onshore Sirt Basin, Recent Nubian Discoveries as an Example

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Abstract

Exploration drilling and regional geological work has been integrated with seismic investigations on Sirte Basin. The primary aim has been to prove the future existence of exploration potential and giant fields. Results showed the presence of Exploration Potential in Sirte Basin.Lower Cretaceous Nubian/ Sarir Formation is recognised as one of the main hydrocarbons producing reservoir in Sirte Basin. Lithologies are represented by fine grained Sandstone with porosity reaching 18% and permeabilities exceeding 500 mD. It is expected that reservoir quality may be variable, geographically and depth dependent.Several Giant Fields were discovered in the Eastern Part of Sirte Basin with an average field size of 400 MMbbls. Three Recent Giant discoveries were made in the area with more than 1Bnbbls/discovery including 6J1-59, AA11-12, and A1-NC98 discoveries. Exploration Potential do exist in several areas that has not been fully explored in open and operated Acreages. Hydrocarbon plays varies across the basin including Pinch-out and Low side traps against basement high. Exploration drilling is cheap comparing to offshore (15 MM$ /Well).The oil productivity of Sirte Basin is to be expected, since the Cretaceous source rocks are organic-rich, oil-prone and thick. More than five highly productive source intervals were identified, each associated with billions of barrels. Calculations derived from Source rocks evaluation data demonstrate the potential to expel more than 60 MMbbls/km^3. Cretaceous Source rocks had generated and expelled more oil than what had been discovered across the whole basin. YTF's are difficult to determine, it is likely that most future discoveries are expected to be in the 50-400 MMbbls range.The decision to enter or abandon an exploration play or a basin is an important task for Exploration Companies. Creaming Curve is an important tool in hydrocarbon exploration to understand the maturity of a play or a basin. It is commonly used to present the relationship between cumulative resource growth from discoveries and wells drilled. Early Cretaceous Plays still have a potential for more Structural traps, stratigraphic traps and Intraformational sealed sands play in the five major troughs.