

## Exploration Potential Analysis on Stratigraphic Trap of Abu Gabra Formations, Fula Sub-Basin, Muglad Basin

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### ABSTRACT

Fula Sub-basin is located in the north area of Muglad Basin, near to the margin area of Central African Shear Zone. The sub-basin has suffered a series of stages of rifting and depression activities, and formed as a terrestrial rift lacustrine basin with features of overlap in the east area and faulted in the west side. From 1970's, many oil&gas discoveries have been made on structure traps of Bentiu and AG formation, almost all of them are laterally sealed by the other side of a small fault. Along with the reduced numbers of drilling candidates of structure traps in Fula sub-basin, many relative researches on stratigraphic traps have been conducted inside AG formation with feature of thin mudstone layers imbedded by sandstones in delta and shallow lake deposit environment. Guided by many years of mature exploration experiences on stratigraphic traps from China eastern oilfields, based on detailed analysis on regional structure evolution and sedimentary evolution inside the Fula sub-basin, researches reveal that the deposit feature of Fula area is controlled by a series of complex structure activities, and the distribution of sandstone is very complex and is hard to be characteristics by normal seismic attribute prediction methods, and as a result, stratigraphic traps are in small scale and hard to be identified. It is the first time to set up a relative system hydrocarbon accumulation mode for AG formation in Fula sub-basin. Based on the accumulation model, three favorite prospects were identified as west favorite prospect, Moga favorite prospect and central favorite prospect. After carrying out well correlation, facies analysis, seismic inversion and reflection pattern analysis, three types of lithology traps were identified, i.e. channel sandstone in fan delta, sandstone of channel bar or far sandbar, and collapses body in low positions, which has shown that the AG formation in the deep area of Fula sub-basin has great exploration potential on stratigraphic traps.