

A Case for ‘Old School-New Tools’ in NW Borneo Exploration Portfolio Rejuvenation

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Abstract

Exploration in mature basins is fraught with identifying additional economically viable opportunities under the realization that successful plays have all been creamed. Yet permanence in a mature basin exploration offers some a priori advantages: legacy data, operational and subsurface knowledge, logistics, production facilities and to some extent, access to acreage. Northwest Borneo (NWB) continues to be the backbone of Malaysia’s E & P business and is currently under an aggressive campaign to drill-out its legacy portfolio. In this paper, we present some of the technical actions sought for (NWB) as a representative example of a Southeast Asia Mature basin portfolio rejuvenation. The latter is a potential template for Sundaland mature basins. NWB developed since Eocene time as a complex system of segmented subbasins under a complex regional stress system, thus its internal complexities make this area fertile ground for potential revitalization. To date, proven plays continue to be structurally driven i.e. rapidly turned into a drilling target – both clastic and carbonates. These structural targets make up the large-early discoveries -the proven plays- but the remaining targets are generally volumetrically marginal. Engrained mapping practices with a fixed geological framework result in a somewhat repetitive prospect-generating exercise. To develop new plays/prospects we must revisit NWB using a ‘classical’ geology-grounded top-down approach. Thus, we examine the current geological framework used to mature the legacy portfolio against the -top/down- approach used here to replenish the exploration funnel down the road. We present here a few of the key building blocks required to revamp the play inventory for NWB: 1) basement architecture as it extends from the deep water areas into and below the deltaic derived from the Borneo highlands, to better understand basin segmentation and recalibrate subsidence 2) conceptual/uncalibrated GDS consistent with basement segmentation and fabrics 3) High resolution and consistent stratigraphic framework to map subtle traps and recalibrate legacy maps – and to abandon mature play stratigraphic framework and associated to current mapping practices 4) Borneo surface geology projected to offshore to evaluate the potential of deeper plays along present-day shallow waters 5) Risk profiles for the different and newly defined sub-basins to plan technical actions for play de-risking.