

PAPER B03

**SEDIMENTARY FACIES AND DEPOSITIONAL ENVIRONMENTS OF THE
NYALAU FORMATION (OLIGOCENE - MIDDLE MIOCENE) NORTH
BINTULU AREA, SARAWAK**

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This study presents a sedimentological analysis of the well exposed outcrops of Nyalau Formation (Mid Miocene) from North Bintulu area. Nyalau Formation has been well documented to contain many characteristics of marginal marine depositional systems. The aim of this study was to characterize the lithofacies and interpret the depositional environment; and improving the understanding of palaeoenvironmental evolution of sedimentary succession in the Nyalau Formation. A detailed sedimentary facies and biofacies studies of three principal outcrops (namely: Sibiu Road-1, Sibiu Road-2 and Taman Jasa Putra) revealed thirteen sedimentary facies (Table 1) and seven major facies associations that suggest a deposition in similar marginal marine settings but their palaeoenvironmental interpretation and correlation is more complex than previously thought. Sibiu Road-1 outcrop is dominated by sand-dominated mudstone interbedding with a moderate diverse euryhaline-to-shelfal foraminifera suggesting marginal marine to shelfal setting. Most of the Sibiu Road-2 succession is characterized by mud-dominated sandstone interbedding and laminated mudstone, with a few brackish foraminifera. While Taman Jasa Putra outcrop is dominated by well bedded HCS sandstone, distinct feature of this outcrop is the present of thick black / carbonaceous mudstone indicating shallow / low energy setting. Sedimentary rocks of the Nyalau Formation in the North Bintulu area show a variety of facies types and inferred to represent elements of tidally-to-wavy marginal marine depositional systems. In combination these study provide the next step of further knowledge of Nyalau Formation deposits, to realize in the future the correlations between outcrops and offshore data may contribute to a better regional understanding.

Keywords: Sedimentary facies, foraminifera, Nyalau Formation