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THE MURAU FORMATION: LITHOSTRATIGRAPHY, LITHOFACIES AND SEDIMENTARY ENVIRONMENT

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The rocks exposed along the coastal stretch of Murau, east-central Johor, which Koopmans (1968) considered to be the basal member of the Tembeling Formation equivalent to the conglomerate exposed west of Maran town, Pahang, and named as the Murau Conglomerate Member [which Burton (1972) suggested to be taken out of the Tembeling Formation, and which Khoo (1977 and 1983) when he upgraded the Tembeling Formation to Tembeling Group] is best considered as a separate unit and be designated its own formal lithostratigraphic unit or formation, i.e. the 'Murau Formation', based on their geographic position, their probable paleobasin location, their relationship with the underlying rocks, and their lithology.

These Murau rocks consist of variously interbedded lithofacies, predominantly conglomerate with subordinate mudstones and minor sandstone. Bedding is crude. Lateral variability in is very marked. They may grade, be in sharp contact, or in erosive contact. Beds may be tabular, wedging or lenticular/ channel forms.

The conglomerates are very poorly to poorly sorted and consist of granules, pebbles and cobbles with maximum clast size of up to 50 cm. Clasts range from very angular (rock chips), angular to subangular. They may be ungraded, normally graded, reversely graded or variably graded. Sandstone lenses are not uncommon within the conglomerates.

The sandstones are also poorly sorted. They are muddy as well as granular. Bedding is crude. There is marked lack of traction-transport sedimentary structures except for granule streaks. Pebble pockets and shallow channels are not uncommon in the sandstone.

The mudstones are red and grey structureless, except for exotic sand and granule clasts and stringers of sands and granules. Small granule to pebble conglomerate shallow channel occasionally cut the mudstones.

No fossil was found, except for burrows at one locality in the mudstones eg. Tg. Sekakap.

Lithofacies, lithofacies relationship, clast textures, sedimentary structures and absence of fossils together suggest alluvial fan setting where active processes were debris/mass flows dominating the proximal areas, and sediment-laden ephemeral, braided stream dominating the middle and distal areas, and not a fluvial-deltaic-lacustrine setting as interpreted by Koopmans (1968).

The Murau rocks are interpreted to have been deposited at the foot and near-slope areas of a 'newly formed' down-faulted, normal-fault half-graben basin, most probably during Jurassic- Cretaceous times.