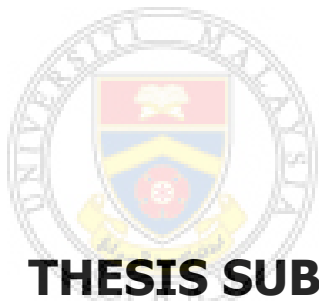


**STRATIGRAPHY AND SEDIMENTOLOGY OF
KLIAS PENINSULA, SABAH**

**DAYANG NOR ASYILLA BINTI ABANG
ABDULLAH**



UMS

**THESIS SUBMITTED IN FULLFILMENT OF
THE DEGREE OF MASTER OF SCIENCE**

**FACULTY OF SCIENCE AND NATURAL
RESOURCES
UNIVERSITY MALAYSIA SABAH
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DECLARATION

I hereby declare that the material in this thesis is my own except for quotations, excerpts, equations, summaries and references, which have been duly acknowledged.

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ABSTRACT

The sedimentary rocks of Klias Peninsula consist of five formations. The oldest formation is the Crocker Formation (Upper Eocene to Lower Miocene) which has two lithologic units; the thick sandstone beds interstratified with thin sandstone and shale unit and the sandstone interbedded with shale unit. Second formation is the Temburong Formation (Lower Oligocene to Lower Miocene). It has one lithologic unit which is the thick shale interstratified with thin sandstone beds unit. Next is the Setap Shale Formation (early Middle Miocene). It has one lithologic unit which is the thick shale interstratified with thin siltstone and limestone unit. The fourth formation is the Belait Formation (Upper Miocene). It also has one lithologic unit which is the crossbedded sandstone, shale and conglomerates unit. The youngest formation is the Liang Formation. The lithologic unit for this formation is the thick conglomerates unit. The Crocker Formation is proven to have interfingering contacts with the Temburong Formation while the Belait Formation overlain the Setap Shale Formation unconformably and the Liang Formation overlain the Belait Formation unconformably. In terms of sedimentology, there are twelve lithofacies on Klias Peninsula. There are four lithofacies for the Crocker Formation which are the $T_a - T_e$ beds, $T_b - T_e$ beds, $T_c - T_e$ beds and $T_d - T_e$ beds. The Temburong Formation has one lithofacies which is the T_e beds. The lithofacies for the Setap Shale Formation is the interbedded shale with thin siltstones. There are five lithofacies for the Belait Formation which are the basal conglomerate, the hummocky crossbedded sandstone, the swaley-hummocky crossbedded sandstone, the swaley crossbedded sandstone interbedded with thick mudstone and the swaley crossbedded sandstone. Liang Formation has one lithofacies which is the graded conglomerate. There are six facies associations in Klias Peninsula which are the channel – levee association, the lobe – migrating lobe association, the basin plain association, the inner shelf association, the shallow marine association and the fluvial unit association. The Crocker and Temburong formations have been deposited at the deep marine environment, the Setap Shale and Belait formations have been deposited at the shallow marine environment and the Liang Formation has been deposited at the fluvial environment.

ABSTRAK

STRATIGRAFI DAN SEDIMENTOLOGI SEMENANJUNG KLIAS, SABAH.

Batuan sedimen di Semenanjung Klias terdiri daripada lima formasi. Formasi tertua adalah Formasi Crocker (Eosen Atas hingga Miosen Bawah) yang terdiri daripada dua unit litologi; unit lapisan batu pasir tebal berselanglapis dengan batu pasir nipis dan syal dan unit batu pasir berselanglapis dengan syal. Formasi kedua adalah Formasi Temburong (Oligosen Bawah hingga Miosen Bawah). Formasi ini mempunyai satu unit litologi iaitu unit syal tebal berselanglapis dengan lapisan batu pasir nipis. Seterusnya adalah Formasi Syal Setap (awal Miosen Tengah). Formasi ini mempunyai satu unit litologi iaitu unit syal tebal berselanglapis dengan batu lodak nipis dan batu kapur. Formasi keempat adalah Formasi Belait (Miosen Atas). Formasi ini juga mempunyai satu unit litologi iaitu unit batu pasir berlapisan silang, syal dan konglomerat. Formasi termuda ialah Formasi Liang. Unit litologi bagi formasi ini adalah unit konglomerat tebal. Formasi Crocker terbukti mempunyai hubungan berjejari dengan Formasi Temburong manakala Formasi Belait menindih Formasi Setap Syal secara tidak selaras dan Formasi Liang menindih Formasi Belait secara tidak selaras. Dari segi sedimentologi, terdapat dua belas litofasies di Semenanjung Klias. Terdapat empat litofasies bagi Formasi Crocker iaitu lapisan $T_a - T_e$, lapisan $T_b - T_e$, lapisan $T_c - T_e$ dan lapisan $T_d - T_e$. Formasi Temburong mempunyai satu litofasies iaitu lapisan T_e . Litofasies bagi Formasi Syal Setap adalah selang lapis syal dengan batu lodak nipis. Terdapat lima litofasies bagi Formasi Belait iaitu konglomerat dasar, batu pasir berlapisan silang jenis hummocky, batu pasir berlapisan silang jenis swaley - hummocky, selang lapis batu lumpur tebal dengan batu pasir berlapisan silang jenis swaley dan batu pasir berlapisan silang jenis swaley. Formasi Liang mempunyai satu litofasies iaitu konglomerat bergred. Terdapat enam asosiasi fasies di Semenanjung Klias iaitu asosiasi alur - tetambak, asosiasi cuping - cuping migrasi, asosiasi dataran lembangan, asosiasi laut cetek dan asosiasi unit sungai. Formasi Crocker dan Formasi Temburong telah diendapkan di sekitaran laut dalam, Formasi Syal Setap dan Formasi Belait telah diendapkan di sekitaran laut cetek dan Formasi Liang telah diendapkan di sekitaran sungai.

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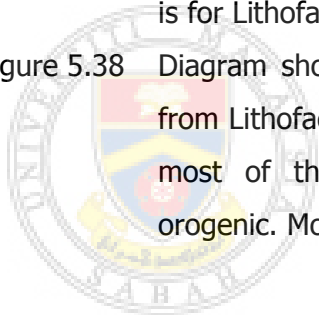
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