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General Geology of Northeastern Central Gunung Semanggol, Bukit Merah: Emphasis on Tectono-Stratigraphic Development of Permian-Triassic to Recent

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Tectono-stratigraphy involves the study of rock sequences with the effects of tectonics on lithostratigrahy. The application of tectono-stratigraphy is to understand the relationships between sediment supply and generation of depositional accommodation space. In addition, sea level changes and uplifts, prograding system and late tectonic event deformation also important. While some works have been carried out in Gunung Semanggol, but there is no much about tectono-stratigraphic development of the area, thus this study would provide a new insight on the tectonic evolution and lithostratigraphy of Gunung Semanggol from Permian-Triassic to Recent by studying a new area in northeastern central Gunung Semanggol, Bukit Merah, Perak. The project combines with unpublished previous recent nearby studies observations from Farahin (2014), Rashid (2015), Aqram (2015) and Dezeree (2015).

Gunung Semanggol is part of Semanggol Formation which situated at northwestern region Western Belt in Peninsular Malaysia. The formation was termed after Gunung Semanggol (Alexandra, 1959). Burton (1973) classified this formation in Gunung Semanggol into two lithological members, namely Rhythmite Member and Conglomerate Member, whereas Foo (1990) divided into rudaceous-arenaceous facies and argillo-arenaceous facies. Semanggol Formation had undergone a deformation phase, forming the N-S trending open to asymmetrical folds and prominent ridges (Mustaffa, 1994). Besides, the formation also shows repeated and tight folding (Burton, 1973).

The Semanggol Formation is less described in Gunung Semanggol, Perak because of limited outcrops and geological data compared to those in Kedah. Therefore, this data gap would allow new findings in the field and proved the occurrence of previously hypothesized granitic intrusion (Mansor & Sokiman, NGC 2015). The depositional environment of the sedimentary units of Semanggol Formation, Bukit Merah is interpreted as marine continental shelf based on the stratigraphic log, and further no real chert is observed. Furthermore, new lithologies such as contact breccia and quartzite were identified in the area. Thus, demonstrated the inferred igneous tectonic proposed by previous studies. Also, structural elements analysis of bedding and fractures of the study area proved the presence of igneous tectonic in Gunung Semanggol. A tectono-stratigraphic development model is proposed to illustrate Bukit Merah Permo-Triassic sedimentary structuration which was influenced by end-Triassic igneous tectonic. It has significant impact on the geological events took place in Gunung Semanggol and would serve as reference for future works.

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