GEOLOGY OF INKHAINGBUM-MYITSON AREA MYITKYINA TOWNSHIP, KACHIN STATE

Ph.D. DISSERTATION

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ABSTRACT

The study area is situated about (9)miles north of Myitkyina. the capital of Kachin State. Inkhaingbum is the prominent high mountainous terrain. Myitson. the famous recreation centre. 27 miles away from Myitkyina. is the junction point of Maykha and Maylikha for the birth place of Ayeyarwady river. The study area is bounded by latitude 25° 30' to 25° 48' N and longitude 97° 20'E to 97° 30' E in one inch topographic map of 92G-5,6,7 and 10 covering about 160 square miles. Inkhaingbum is build up of ultramafic and related rocks namely harzburgite. lherzolite. dunite. serpentinized harzburgite. serpentinized Lherzolite. serpentinized dunite and serpentinites.

In Myitson area. ophiolite members of flysch. melange . limestone. red chert. basalts and talc-chlorite schist occur. They are Ingyanyin Metamorphics. Myitson Greywacke. Maykha Limestone unit. Ningdawkha Clastic. Tonbun Conglomerate. Donbu Melange Zone and alluvium. Ingyanyin Metamorphics is composed of talc-chlorite schist. greenschist. phyllite and minor slate.Their age is possibly Triassic. The age of Myitson formation is Jurassic which is composed of greywacke. red chert. green chert. brown phyllitic shale. massive to pillow basalt and mudstone. It can be correlated with Ngawpyawdaw chaung Formation. Ningdawkha Clastics is composed of red colour tuffaceous giltstone. volcanogenic sandstone and conglomerate. It can be correlated with Baingbin Conglomerate of Tagaung Taung. Tonbun Conglomerate is composed of conglomerete and gritty sandstone. Donbu Melange zone is also encountered. Morcover. the dykes of diabase and gabbro are also observed in some places of ultramafic body. The Inkhaingbum-Myitsone area is included in the Eastern Ophiolite Belt of Myanmar. The Inkhaingbum may be the lower part of ophiolitic suite and Myitson area is the

upper part of the same ophiolite suite. From these units, a complete ophiolite suite can be recognized, although , the member units have not been found in a standard sequence yet. Therefore, this ophiolite suite may be classified as incomplete ophiolite of Myanmar.

The rocks of Inkhaingbum area were partially to completely serpentinized. There are three types of serpentinites in the study area according to their physical appearance and microscopic features. They are blocky to massive serpentinites (Type-I),sheared serpentinites (Type-II) and cross-fibre serpentinites (Types-III). Type I serpentinite was caused by circulation of groundwater, type-II serpentinite was formed by tectonic deformation and type-III serpentinite resulted from cracking and jointing of peridotite which facilitated access for mineralizing solution. The degree of serpentinization is early to advanced stage according to magnetite content. Possibly the required temperature for serpentinization would range between 400°C and 500°C.

Melange zone can be observed at 18 miles in Myitson area. It includes a great variety of clasts mostly ophiolitic rocks. They are serpentinites, ultramafic and related rocks, gabbro, diabase, vesicular basalt, and greywacke sandstone. They are angular to sub angular in shape and their sizes vary from 5mm to 5metre. The matrix material is composed of serpentinite giving light gray to darkish colour. Bedding may be observed, but distinct beds are shown as slightly with chaotic structures. Matrix/clast ratio is 1:1. It can be classified as tectonic melange zone (Coleman, 1977) and (Raymond, 1984).

The tectonic setting of ophiolite suite is also discussed as subducted root zone ophiolite suite along the western margin of Sinoburmalaya block associated with flysch sedimentation with local radiolarite chert and some limestone units of Cretaceous to Eocene age. Due to the collision of NNE moving India Plate and the

southern part of Asia Plate. in the Late Eocene. these ophiolite suites were also obducted and thurst toward west as nappes. In the east. thery are root zone ophiolites having positive gravity values. In the west the Naga. Chin and Rakhine ophiolites are rootless having negative gravity values according to the gravity survey data. Therefore. the western ophiolites are rootless and they were sandwiched slices or topmost covering slices on the thick sedimentary strata. (Acharyya et al.. 1990)

From economic point of view. the study area has significant gold and lead mineralization. Placer gold mining is done along the banks of Ayeyarwaddy river and its tributaries. Limestone is also promising. Its potential resource has been estimated at about 42 million tons. Finally. asbestos(chrysotile) is also locally economic important with 27 occurrences in Inkhaingbum area. Among these. there are 3 areas of current production. The total estimated probable and possible resource of these three zones are 13000 tons of Grade 4 level.

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