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CHAPTER V

DISCUSSION AND RECOMMENDATIONS

Khon Kaen is the appropriate location for this investigation because logistic, transportation and accessibility to the sites can be readily achived. The area covers various kind of landform ie. mountainous to lowland of alluvial deposits. Therefore, most of the rock formations of the Mesozoic Khorat Group can be well studied upto the other unconsolidated surface deposits of Tertiary to Quarternary. Due to the large area of investigation, aerial photographs of various scale, multidates and multibands of Landsat imageries were the means of investigation. The followings are the detailed discussions and recommendations in certain aspects that can be drawn from this study.

5.1 Aerial Photographs and Landsat Imageries Aspect.

In this study, the keys of interpretation are developed (Tables 2.1 and 2.2) based on distinctive photo characteristics of the area. However, limitations in utilization of the established keys for the region depend upon certain properties of the aerial photographs, eg. scales, image qualities, time and season that the aerial photographs were taken and the degree of distortion. The other factor considered to be quite important in

developing keys of interpretation is the availibility of the facilities.

According to the study, the World Wide Surveys Series of black and white aerial photographs are recommended due to their suitability and availibility for the mapping. The approximate scale of 1:40,000 aerial photograph is quite proper for the area cover and the time limit of study. This World Wide Surveys aerial photographs are the best to study particular in the area of the Northeastern part of Thailand. Their sharp contrast gives clear geological figures which have been a little affected by the present cultivations.

The Q units of Quarternary are the only formations best studied by the extra aids of N.S.3 1975. The landuse patterns could give rise to some figures concerning the surface deposits of sediments such as terraces and alluvial deposits.

The Landsat imageries that yeild the best information are those recorded during the end of the rainy season. The images of MSS. and RBV. obtained during 6-9 October 1979 seem to be the best since they give clear images with little to nil cloud cover. The band 7 is most frequently used which is in accordance with the moisture condition of the mentioned period of the year.

5.2 The Mapping of Mesozoic (Khorat Group) Aspect.

The study area can be considered as a good location to study the Khorat Group, particularly in the western part. The aerial photographs are clear and they can well distinguish the units by means of graytone, morphological expressions and rock properties. The followings are some discussions and suggestions brought about by this study.

5.2.1 With respect to the Formation of the Khorat Group, the findings of this investigation are mostly similar to those of previous studies. The only differences are that D2 and E Units proposed in this study. Chonglakmani et al.(1979) named the equivalent D2 and E Units as the Khok Kruat and Maha Sarakham Formation respectively. On the other hand, with reference to those formations described by Ward and Bunnag(1964) and Sattayarak(1983, 1985), D2 and E Units obtained in this study are proposed to be the Phu Phan (upper part) and Khok Kruat Formations respectively. This matter can be a very interesting topic to be further studied particularly their stratigraphy, lithology and chronology.

5.2.2 The aerial photographs and Landsat imageries clearly reveal the good lineament of Unit E which lies under the gravel bed of Khok Kruat. They are well exposed throughout the area. The study of this unit should continuously be carried out throughout the Khorat Plateau

in order to obtain the detail relationships between the Unit M3 and E of this study.

5.2.3 The Upper Clastics or Borabu Formation which is equivalent to M1 Unit of this study is widely exposed and it can be well traced in photogeological mapping. This unit appears to mark the clear boundaries. The key of interpretation of this unit can be applied to trace its boundary throughout the Khorat Plateau. With this, the understanding of the structural geology particularly in neotectonics and salt tectonics may then be better.

5.3 Surficial Deposit Aspect.

5.3.1 The surficial deposits of M3 Unit (Gravel Petrified Wood Bed)) wide spread in the study area. The pattern of distribution can be well recognized both in aerial photographs and Landsat imageries of which they appear along with the rim of the Khorat Basin. The further studies especially in lithology, stratigraphy and associated rock units may give the clues in their genesis which is now still in controversy. The petrified wood fragments observed in the field show their variation in sizes and shapes suggest the possibility of both terriginous and in situ deposits.

5.3.2 The aerial photographs and Landsat imageries give clear figures in other geomorphological units such as those occur along the Nam Chi and Nam Phong courses eg. terraces, meander belt deposits, levee and backswamps. The

keys of interpretation of this study can easily be applicable to tracing those geomorphological features and their genesis as well.

5.3.3 Other Features Clearly Recorded in both Aerial photographs and Landsat imageries show some particular patterns. They are larger depressions that occur along the main river course and the smaller depressions along the Q2 Unit. These suggest the strange phenomena that may be related to their salt formation or neotectonics in the area. However, the further detailed studies may be able to give some explainations.

5.5 Economic Aspect.

In economic points of view, the materials found in the study area are significant for engineering applications such as for construction materials. High resistant rocks of Unit B, probably provides a good source for sandstone quarries. Furthermore, the Quaternary deposits of Units M2, M3, and Q1, Q2, Q3 and Q4 would be potential sources for fine and coarse aggregates. The most promising source is that of Unit M3 for gravels and laterites. The Quaternary deposits, especially channel filled gravels, are the good shallow fresh groundwater aquifers. River sand and gravels would also be useful for concrete industry.

Essential engineering properties of each unit would be the encouraging reserch topics. Rock quarries are

limited due to the geological conditions of the region, therefore, construction material deficiency in the area is likely to be the problem. The photogeological map of the study area will provide at least the distribution of this potentially economic M3 Unit. Nevertheless, the further detailed studies of the reserve and other concerned engineering properties should be carried out.