

6. CONCLUSION AND RECOMMENDATION

A spatial database has been designed to facilitate agriculture and land resource planning with emphasis on land evaluation and the transportability between vector and raster GIS in this case, PC ARC/INFO and IDRISI. The spatial database includes soil, landuse, road, river, administrative boundary and elevation. Spatial information available in Thailand are adequate to assess land quality (LQ) for each land mapping unit (LMU) at the scale of 1:50,000. Once they were digitized they should be stored as mapsheets in the separate files for efficient retrieval.

Matching between land use requirements (LUR) and land quality (LQ) for each land utilization type (LUT) and each LMU could be easily done within the system but the results of suitability rating depend very much on LUR and methods of assigning suitability classes. There were discrepancies among results of ratings using the existing LUR description defined by Department of Land Development, those developed elsewhere and the land use practiced by the farmers in the study area. The LUR seems to be the key information that deserves careful study in the future. The Modified Multiplication method based on FAO and the Fuzzy land evaluation method based on the Similarity Relation model seem to serve reasonably well for the absolute and relative suitability rating of agricultural land respectively.

The system shell developed in this study is very useful for linking non-spatial data and spatial data in IDRISI, a raster GIS for land evaluation processes and displaying the outputs. It is designed to interact with a user both in

English and Thai in form of pull-down menu. This system is considered to be useful in the office where resources are limited for using GIS as a tool for land evaluation.

The following issues deserve further studies in the future;

A detailed and systematic studies on LUR for major LUT in Thailand are urgently needed. The studies should be based on the past research results, farmer's experience and spatial information e.g. distance from the road, etc.

There is a need to explore new techniques for assigning suitability rating, for instant, assigning different weight for land characteristics or LQ, using the Semantic Model for Fuzzy land evaluation which would rate the land suitability according to known response functions.

It is expected that the expanding of the system shell to include economic suitability rating which can incorporate risk analysis will be attempted in the future.