

## 1. INTRODUCTION

Spatial information which are commonly used in agriculture exist in various forms notably soil maps, land use maps and land suitability maps in a paper format. These maps are still too general and not flexible for a certain application such as guiding crop diversification program which requires physical suitability maps for specific crops and cropping systems. Spatial information in form of a paper map was difficult to retrieve, update and analyse by the manual procedure. This was time-consuming to redraw by hand and to extract data of a single theme. The update and analysis process are not conveniently complete on time for a project which covers large area.

In recent years land evaluation has received high attention from various government agencies in Thailand. The demand for land evaluation stems from the need to search for better alternatives for land uses to cope with emerging problems and rapid changes in world economics.

At present, the manual land evaluation has been conducted and crop suitability maps have been produced mainly by the Department of Land Development (DLD). Since they are in paper forms, the updating, managing databases, evaluation of new crops and land units according to different criteria are not easy to implement.

A computerized land evaluation system can remove the above constraints, it not only requires data and procedures which are multidisciplinary in

nature but also utilizes system approach in the process. The design stage and data preparation are important steps in developing effective information system in terms of storage updating and retrieving for multiple uses in agriculture and resource management.

This study attempts to develop spatial information to support need of the government agencies for planning land use according their suitability. It aims to achieve such a system with special emphasis on land evaluation application and the use of Fuzzy information to improve the method of land suitability classification.

The objectives of this study are three-folded :

1. To develop a spatial and non-spatial database to facilitate land evaluation and pattern analysis in agricultural and resource management in Chiang Mai province using Prao district as a case study.

2. To apply GIS and Fuzzy information representation and processing to improve automated land evaluation.

3. To compare various land evaluation methods.