LAND SUITABILITY EVALUATION: A TOOL FOR SUSTAINABLE LAND MANAGEMENT – A CASE STUDY

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ABSTRACT

Land-use suitability analysis is one of the most useful applications of GIS (Geographic Information Systems) for spatial planning and management. Biophysical suitability of the agricultural land-uses was evaluated by carrying out a land suitability classification at a sub-watershed in Thailand. The study area, Khlong Yai sub-watershed covering 170, 175 ha is located between 12° 65' to 13^0 14' N latitudes and 101^0 03' to 101^0 44' E longitudes in Thailand. A total of fourteen diagnostic factors including annual rainfall, mean annual temperature, and twelve important soil properties were considered in this study. An Index overlay modeling technique was performed in GIS to obtain the land suitability classes of each of the eleven land-uses available in the study area. By overlaying the suitability map of each crop with present land-use map suitability analysis of present land-use was done.

The results of land suitability analysis indicated that pineapple, cassava, coconut and orchard were the more suitable crops in terms of area of suitability. In this regard 52.81 and 27.69% of total area were highly and moderately suitable for pineapple cultivation. The similar figures for cassava, para rubber, coconut and orchard were 45.12 and 35.38, 43.61and 37.02, 43.49 and 45.89 and 23.02 and 53.19 respectively. However the suitability analysis of present land-uses showed that 47% of the present land-uses are under highly suitable areas, 46% under moderately suitable, 5% under marginally suitable and 2% are under non-suitable areas. Results therefore indicate that there is a need of land-use change for the sustainability of the land-uses considering other factors such as land degradation and farmer preferences as well. Similar studies would yield valuable information in the sustainable management of local agricultural lands.