



Thesis Abstract

Land Suitability and Fertility Capability Evaluation of Land Reform Area in Maha Sarakham Province, Thailand

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Land suitability evaluation is one of the most effective methods for agricultural land use planning as it evaluates the suitability of land for a specific crop. The study area was 2,915.81 ha located in Khok Phuk Kut and Pong Deang Forest, Maha Sarakham Province, Northeast Thailand. The study involved the creation of Fertility Capability Classification (FCC) unit and land suitability maps using Global Positioning System (GPS) and Geographic Information System (GIS) as well as grouping soil series into soil clusters based on their physical and chemical properties (by cluster analysis). Conformity of land suitability and present land use was also considered. The base maps of administrative boundary, topography, climate, soil series, and present land use were collected.

Results of the study showed that both topsoils and subsoils in the study area were loamy sand (S) or sandy loam (L). Their fertility constraints were high rate of infiltration, low water-holding capacity, low nutrient capital reserves (k), and Al-toxicity (a).

Furthermore, the study showed that more than 90 percent of study area was used for agriculture: 1,485.43 ha (50.94%) for cassava cultivation and 1,235.99 ha (42.39%) for paddy, while forest comprised 6.65 percent of the area. However, 2,905.97 ha—or almost the whole area studied—was found to be unsuitable for transplanted, direct-seeded, and upland rice and only marginally suited to cassava. Meanwhile, 2,882.24 ha were found to be suited to sugarcane and only 23.43 ha were not suitable for sugarcane. The fertility constraints found were soil texture or structure.