

Land used and Land suitability for Bio-energy crops and food security in Thailand

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Abstract

Land used and Land suitability of Bio-energy crops and its potential in Thailand is very important for Thai government policy. FAO and LDD concentrate for Bio-energy crops expansion. The objectives are monitoring land used, land cover and land suitability for Bio-energy crops expansion especially oil palm, sugarcane and tapioca. The deforestation of cropland expansion has been concern. An econometric model to identify factors driving land-use change and the affects of net returns to alternative land uses on private land owners' decisions to allocate land use.

The result shows that the present land used in Thailand has covered the Oil palm plantation 621,221.12 hectares (52.42% as S2: 47.29% as S3: 0.14% as S1 and N). The Sugarcane plantation covers 1,611,970.76 hectares (44.22% as N: 35.96% as S2: 13.26% as S3 and 6.5% as S1). The Cassava plantation covers 1,633,763.28 hectares (54.66% as N: 25.85% as S3: 10.07% as S2 and 9.42% as S1). Land Development Department identifies land suitability of Oil palm S1 (highly suitable) 224,191.54 hectares, S2 (moderately suitable) 8,367,501.58 hectares and S3 (marginally suitable) 18,026,180.88 hectares. Land suitability of Sugarcane S1 is 2,688,059.66 hectares, S2 8,725,198.37 hectares and S3 6,670,545.96 hectares. Land suitability of Cassava S1 is 1,663,406.96 hectares, S2 2,966,574.71 hectares and S3 4,285,997.72 hectares.

To analyze the Thai policies that encourage the rapid growth of bio-fuel crop production have developed our understanding of the potential impact of bio-fuel crop on the environment, sustainable utilization of natural resources and food security. The net return from the Oil palm has been calculate higher than other cash crops 91.54 % margin, Tapioca has gotten 66.82 % margin and Sugar cane has gotten 10.41% margin is more suitable in the ecological niche of Thailand due to its low requirement for non-renewable resources, higher in the zoning and benefit–cost ratio. However, Ministry of Agriculture, Ministry of Energy and Ministry of Industry of Thailand have focused in the same direction for bio-fuel crop production and zoning.

Keywords: Bio-fuel, Land used and Land suitability, Deforestation