A Spatial Decision Support System for Agricultural Land Management in Maros Region, Indonesia

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Abstract
Land management which is increasingly complex from time to time, land conversion due to increasing population have caused conflicting various interests. Land management models developed to date are less able to answer the problems quickly and dynamically. Maros regency is one of the biggest producers of rice in South Sulawesi Indonesia. Its variability is fairly complex, consisting of coast, low land, and high land. Having a border with Makassar, its population pressure causes a bigger change of land function. It thus needs a model that can provide an optimal solution of land use and land management. The purpose of this research is to develop a model of Spatial Decision Support System (SDSS), which can help spatial decisions for the best land management of food crops, and to test the validity and sensitivity of the models. In this study, SDSS development methods integrate fuzzy set, Analytic Hierarchy Process (AHP), and Compromise Programming modules, to produce spatial information on land management. SDSS design utilizes some knowledge input in the operation, including experts who understand the mechanism of the SDSS and its applications. The results of study are in form of spatial distribution of Land Suitability Index (LSI) resulting from land quality assessment. The results can be used to simulate food land management models in various scenarios. Compromised situation between biophysical and non-biophysical parameters provide distribution pattern of values of land management for food crops.

Keywords: Spatial Decision Support System, fuzzy set, Analytical Hierarchy Process and Compromise Programming