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PAPER

Land Suitability Evaluation for Sustainable Land Use Planning in Valikamam- East Divisional Secretariat Division: An FAO based Spatial Multi Criteria Analysis

There are a lot of challenges due to overexploitation of natural resources. Land resource plays an important role in it. Increasing population and its needs are constantly utilizing the land resources. In the face of insufficiency, land resources are being misused or over used. Land use planning is a systematic way of addressing these problems. Land suitability evaluation using a scientific procedure is a prerequisite for efficient land use planning. A set of land-use suitability maps would be very useful in this respect. In fact, these maps should incorporate different criteria representing social, economic and sustainable aspects of the land.

This study aims to find suitable land for selected crops using FAO based spatial multi criteria analysis for the Valikamam East Divisional Secretariat of Jaffna District. In this analysis, physical and economic parameters such as climate, soils, water, land use, accessibility of market and profit of the crops have been used in order to perform land suitability evaluation. All these parameters were separately standardized and weighted. Weighting gives priority value of each criterion based on experts' knowledge. The final suitability map for each crop was created by combining all weighted criteria using decision rule called weighed summation method. The suitability ratings were expressed into four classes: highly suitable (S1), moderately suitable (S2), marginally suitable (S3) and not suitable (N).

This study reveals the land suitability evaluation for fifteen crops such as banana, cassava, chili, coconut, cowpea, grapes, maize, mango, onion, paddy, papaw, potato, pumpkin, sugarcane, and tobacco. The suitability maps showed that the areas allocated as highly suitable can be recommended for sustainable crop cultivation. The resulting maps and tables lend efficient support to farmers and decision makers in sustainable land use planning processes.