SUITABILITY ASSESSMENT FOR CULTIVATION OF SUGARCANE IN THE MONARAGALA DISTRICT, SRI LANKA USING GIS

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ABSTRACT

Sri Lanka's total annual requirement of sugar is 550,000 tons and only 10% of it is produced locally. The necessity for self sufficiency in sugar is identified and the current extent of cultivation of sugarcane has to be expanded for the production of sugar while making use of other byproducts. This requires identification of suitable areas for sugarcane cultivation in the dry zone and intermediate zone of Sri Lanka without causing environmental consequences or influencing the production of other crops. This study attempts to identify areas suitable for sugarcane cultivation in the Moneragala district based on a set of criteria; Soil aspects, environmental aspects, legal aspects and climatic aspects. Boolean approach was applied for the suitability assessment assisted by GIS.

Monaragala district extends up to 5659 km^2 of area and belongs to both Intermediate and dry zones. Study revealed that 36% of the total extent is suitable for sugarcane cultivation with necessary management practices. Dry zone area within the Monaragala district encountered with water scarcity problem for both Yala and Maha planting conditions where the issue is severe in Yala planting. Feasibility for the usage of surface water resources has to be carried out for discovering solutions for this issue. The intermediate zone areas do not have issues of water scarcity for cultivation of sugarcane and therefore water availability criteria was excluded for this zone. The study can be executed for other districts for the expansion of sugarcane cultivation and the development of sugar industry in Sri Lanka.

Key words: Boolean approach, feasibility, GIS, management practices, suitability assessment, water scarcity