

## LAND SUITABILITY FOR MAJOR CROPS IN CAUVERY BASIN, TAMIL NADU, INDIA USING REMOTE SENSING AND GIS TECHNIQUES

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### ABSTRACT

Agriculture is a dominant sector in Tamil Nadu Cauvery basin. It contributes 45 percent to the Gross domestic production, employs nearly 60 percent of the total labor force and generates the bulk of market exchange. Giving the poor performance of the agricultural sector in relation to the fast growing population, intensification of agriculture is critical aim of the study is to find land suitability for major crops of Cauvery basin using remote sensing and GIS techniques objective to study the physical and socio economic characteristics of Cauvery river basin, Tamil Nadu. To assess the land suitability for major crops based on soil characteristics of river Cauvery basin. The Study area the entire Cauvery Basin covers three states and a union tertiary namely Karnataka, Tamil Nadu and Kerala and Pondicherry which lie between 10° 05'N and 13°30'N latitudes and 75°30'E and 79°45'E longitude. Whereas the present study is concerned with the Cauvery Basin of Tamil Nadu which lies between 10° 07' 55"N and 12° 41' 39" N latitudes and 76° 15' 43" E and 79° 50'43"E longitudes. Interpretation of Land use/Land cover maps using Topographical sheets on 1:250,000 scales. The Geology, Geomorphology, and land use of Tamil Nadu in Cauvery basin have been mapped using land sat band 4 FCC and ETM data. The Soils drainage, soil erosion, soil depth, soil texture, soil gravelliness, soil calcareousness Soil irrigability and, water holding capacity of Tamil Nadu Cauvery basin has been prepared based on. Based soil erosion, soil drainage, soil texture, soil depth, soil gravelliness, soil calcareousness, water holding capacity, and land irrigability the land suitability for major crops of Tamil Nadu Cauvery basin has been evaluated. Lands at ETM 30 meter Resolution Technology used and analysis are Erdas imagine 9.1 and Arc GIS 9.2. The analysis is done taking different aspects. Therefore it is logical to analyze the ranking of crops, which is done in second part. In the third part of analysis, an attempt is made to identify the crop combinations. The last analysis is to identify the index of crop diversification to explain the relative agricultural potential of the districts.

**KEYWORDS:** Land Use Land Cover, Soil Calcareousness, Suitability for the Major Crops, Land Suitability for Sugarcane, Land Suitability for Groundnut, Land Suitability for Cotton, Remote Sensing and GIS