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LAND SUITABILITY ANALYSIS FOR WHEAT CROP BY USING MULTI-CRITERIA AND GIS TECHNOLOGY IN CASE OF SOUTH GONDAR, ETHIOPIA

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ABSTRACT

Agriculture being the most primitive occupation of the most civilized mans and it should be supported by scholars. Agriculture in Ethiopia is characterized by low productivity due to low external inputs, lack of good farming practice deforestation which results soil erosion and decreasing productivity. Land suitability analysis is an assessment of an area to determine how proper or appropriate it is for a particular use of the land (such as growing a crop variety) in a particular location. Land suitability tools have been extensively applied to identify better management practices in agricultural areas. Wheat is one of the most common food crops cultivated in Ethiopia. However, the current production supply couldn't satisfy demands for this crop. As a result, effective method of assessing environmental suitability analysis to increase the production of this crop is needed. A multi factor spatial analysis can effectively assess the environmental suitability of an area for wheat cultivation. However, there are no any comprehensive agricultural land suitability spatial analysis for the study yet. In an attempt to underscore its significance, this study conducted GIS based land suitability analysis. It involves identifying suitability factors, hierarchical organization, standardization, rating and ranking, and weighing the factors selected and finally implementing the suitability map. The evaluation criteria used are elevation, slope, soil, rainfall, temperature variations. They were collected from different government agencies. The weights of factors were estimated by computing map algebra values. Different suitability maps were prepared for each variable by combining different ArcGIS 10.3 extension tools were used, in this regard as it has the capacity to integrate these modules. The results of the analyses show that most of Farta, Debre Tabor, Dera, Ebinet area have apotential forcultivating wheat crop. On the other hand, Simada, Tach gaynt, Lay gaynt, Limokemkem, Merab Este and MisrakEste).

KEYWORDS: *GIS, Remote Sensing, Cultivation, Crop, Suitability*

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