

## GIS and Remote Sensing Based Physical Land Suitability Analysis for Major Cereal Crops in Dabo Hana District, South-West Ethiopia

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### Abstract:

Land suitability analysis is a prerequisite for sustainable agricultural production. This study aimed at evaluating the current physical land suitability for major cereal crops of teff, wheat, barley and maize in the Dabo-Hana district, Bunno Bedelle Zone, Southwest of Ethiopia. To analyze the land suitability and land allocation for major cereal crops, GIS and RS application techniques were applied using a multi-criteria evaluation approach. Various physical parameters have been used as inputs for optimum agricultural land suitability analysis, namely; temperature, rainfall, altitude, slope, soil (soil depth, PH, texture, and drainage), land use land cover, accessibility to market and proximity to the road. In this analysis, an optimum physical land suitability map was developed for major selected cereal crops for the study area. The optimum vector overlay analysis results revealed that 8.4% and 11.3% of the land is highly suitable, and moderately suitable, for teff, wheat, and barley crop production respectively. Similarly, 2.4% of the land is moderately suitable for teff, wheat, barley, and maize. 12.4 % of the land is marginally suitable for teff, wheat, and maize. Therefore, we conclude that the suitability of land classification analysis reasonably assured that, more area of land is available which is suitable for agricultural productivity. This study report urges the concerned stakeholders to properly use and adopt precisely the optimum physical land suitability planning to expend the present land resources for more cereal crop productivity in a sustainable manner for better socio-economic development of the region in particular to Dabo Hana district. In the future, other comparative studies should analyze agricultural land suitability for other cereal crops and also including additional socio and biophysical factors for other cereal crops.

**Key Words:** Cereal Crops, Dabo Hana District, GIS, and Remote Sensing



### Biography:

Currently, he is Department of Natural Resources Management Jimma University P.O. box 307, Ethiopia .His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals. He is the Editorial Board Member of many Journals and serves as a member of various associations, apart from being an author for many books.

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