# Medium Resolution Studies of Rice Suitability Areas in Papua New Guinea Using Existing GIS Data Base and Satellite Images

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**Abstract:**

Remote sensing (RS) and Geographic Information System (GIS) technology already has proven its applicability in agricultural research. This research proposes an empirical methodology for modeling and mapping of rice suitability areas using the RS and GIS techniques. Entire Papua New Guinea (PNG) has been chosen for medium resolution (1:250000) study of rice land suitability analysis based on topography (altitude, slope and aspect of the land), physical (texture, water holding capacity and depth) and chemical (pH, nitrogen, potassium, phosphorus) soil properties, climate (temperature and rainfall) and land accessibility that are mandatory inputs to rice land suitability model. These parameters are obtained from DSM (Digital Surface model) data, soil data base of PNG, monthly and annual temperature and rainfall data, respectively. ArcGIS 10 and Erdas 11 model builder/maker are used to build the key model for rice land suitability mapping. Papua New Guinea has been classified into five qualitative categories of rice suitability. The result indicates that about three to 5 percent (3 to 5%) lands are highly suitable for rice cultivation in the study area. The spatial expanse of all the five categories of suitability mapping within the Papua New Guinea are mapped and displayed in 1:250000 scale.

Keywords: Remote Sensing, Geographic Information System, Digital Surface model, soil, rice.