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Land Suitability Classification & Mapping of Tea Lands: A Case Study in the Ratnapura District

S Pathiranage[1], C R Panabokke[2], L Amarasinghe[3], M A Wijeratne[1] and S L D Amaratunga[1]

[1]*Tea Research Institute Low Country Station, Ratnapura.*
[2] *Senior Adviser, Land Suitability Classification & Mapping Project*
[3] *Consultant, Land Suitability Classification & Mapping Project*

The suitability of a land is a decisive factor for the productivity of tea plantations. At present, tea is being cultivated also on unsuitable lands, resulting in poor productivity and low profitability. Hence, classification and mapping of tea lands is important in terms of investment on the land.

The objectives of this case study were to produce maps showing present tea lands in the Ratnapura District and to classify tea lands into Land Suitability Classes.

For mapping, present tea lands were demarcated on aerial photographs and classified into three categories *i.e.* corporate estates, small holding/propriety estates and home garden with tea. Demarcated lands were then compiled and copied into 1:50,000 ABMP (Agricultural Base Mapping Project) maps using Optical Pantograph.

For land suitability classification, yield and rainfall data were collected form the estates for analysis. The lands were classified at macro & micro level. For macro level classification, the tea lands were grouped into four productivity regions: tea lands yielding more than 2000, 2000 to 1500, 1500 to 1000 and less than 1000 kg/ha/yr. These regions belong to WM1(b), WM1(a), WL1(a) and WL2(a) respectively. For the micro level classification, three main criteria were used *i.e.* Land form or slope (A = 0%-16%, B =16%-30%, C = 30%- 60% and D = more than 60%), Soil Depth (d = 90 cm, md = 60 to 90 cm and s = less than 60 cm) and Rockiness (X = 5% to 15%, XX =15% to 30%, XXX=30% to 50% and XXXX=more than 50%). Using these criteria, lands were classified into four categories as Class A = Very Suitable, which does not have any limitations for tea cultivation, Class B = Suitable, which can have minor one or two limitations, Class C = marginal, lands that are having two or more moderate limitations, Class D = unsuitable, having only one severe limitation or interacting two or more moderate limitations. This project also helped in determining the actual extent of tea lands in Ratnapura district, i.e. 28,157 ha in the year 2002 as against the previously reported figure of 26,120 ha.

This classification and mapping will help tea growers to identify new lands for tea cultivation, select good tea lands to be given high priority, identify most suitable crop, limitations in the land and identify proper cultural practices to make the land more productive. The study will also be useful in demonstrating the usefulness of this methodology elsewhere.