

**EVALUATION OF REMOTE SENSING CLASSIFICATION APPROACHES
FOR PADDY CULTIVATION AREA MAPPING IN UHANA DS DIVISION;
AMPARA DISTRICT**

G.R.D. Nirukshi¹, H.K. Kadupitiya², M.G.T.S. Amarasekara¹

*¹Department of Soil and Water Resources Management, Faculty of Agriculture,
Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka.*

²Natural Resource Management Center, Peradeniya, Sri Lanka.

Rice is a vital crop and grown extensively in many parts of Sri Lanka. Reliable forecasts on extent and production of rice in each season, will facilitate effective policy decisions for controlling imports and for providing storage facilities. At present, such statistics are available only after the harvests are made. Remote sensing provides effective tools for quick assessment and retrieval of spatial estimates. At present, remote sensing is not well utilized in estimating crop cultivated lands in Sri Lanka. This study was planned to evaluate abilities of high resolution multispectral (blue, green, red and infrared) satellite imageries (IKONOS, GEOEYE) for spatial evaluation and mapping paddy cultivated land extent through four different types of supervised remote sensing multispectral classification approaches namely; 1. Maximum-Likelihood 2. Minimum distance 3. Box classifier and 4. Normalized Difference Vegetation Index (NDVI) slicing. Accuracy assessment was done by comparing with paddy map developed using on-screen digitizing with high resolution imageries and Google-earth supported Quantum-GIS software and field verification.

Uhana DS division (81.437-7.528°N and 81.75-7.272°N) was selected as study area. Map showing paddy-land distribution within the study area was prepared. According to the results, the paddy land area in Uhana DS division is 7130 ha (15.7% of total area). The study showed promising results for paddy area mapping through NDVI slicing and maximum likelihood classification approaches with high resolution imageries. The paddy area estimated using four different methods were 17%, 11%, 14% and 16% respectively. When considering the spatial pattern, most of the classified areas fell within the actual paddy lands.

Key words: Image classification, Paddy extent, Remote sensing