

Mapping of Casuarina plantation in Ariyalur District, Tamilnadu, India using Remote Sensing and Geographical Information System

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Abstract

The wood based paper industries in Tamilnadu, India require nearly a million tonnes of pulpwood but the current production is far below the demand. To meet the demand for pulpwood the wood-based paper industries encourage the farmers to raise casuarina plantations. Since the economic returns from casuarina plantations is high compared to the traditional agricultural crops, the extent of casuarina plantations in farmlands has been expanding rapidly in different districts of Tamil Nadu. In this context, spatially accurate and reliable information on the casuarina plantations is needed for formulating strategic land use planning and understanding its consequences on ecosystem. Hence a study was initiated to develop a comprehensive methodology for mapping different casuarina plantations in Ariyalur District of Tamilnadu. For mapping purposes, we used the Resourcesat-2/ L-4FMX (5m resolution) procured from National Remote Sensing Centre, Hyderabad. The procured satellite image was geocorrected using Survey of India Topo Sheets. The identification of Training pixels and plots were done by using the plantation data collected with the help of GPS. Data on other crops and plantations were also collected during the field visit to increase the classification accuracy. Supervised classification was used to classify the image supplemented with visual analysis of the image and recode technique was used to reclassify the misclassified pixel with the help of Google Earth and field check. The results indicate that the data and processing techniques used offer a reliable approach for mapping Casuarina and other plantation crops.