

IDENTIFICATION AND MAPPING OF NATURAL RUBBER PLANTATIONS AND POTENTIAL AREAS FOR ITS CULTIVATION IN ASSAM USING REMOTE SENSING TECHNOLOGY

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Present study utilized multi-resolution satellite images of Indian remote sensing (IRS) satellites for identification and estimation of spatial extent of NR and wastelands suitable for NR cultivation in the state of Assam in India. Temporal and multi-resolution satellite images of IRS RI and II L-3, L-4, Cartosat PAN were used for the study. We used Cartosat PAN merged L-4 data for mapping of areas under NR and wastelands suitable for its cultivation. Spectral signature, phenological characteristics and ground truth information were used to identify rubber holdings. Wastelands suitable for rubber cultivation were estimated from the high resolution satellite data using terrain conditions, land cover types *etc.* Mapping of the wastelands suitable for NR cultivation was carried out excluding the areas under food crops, forests, steep valleys and lands which are more suitable for food crop cultivation. Spatial extent of rubber plantation in Assam was 16,872 ha and about 24,783 ha of wastelands suitable for NR cultivation were estimated during 2011-2012. Karimkhanj district of Assam has the highest extent of wastelands (6,969 ha) followed by Karbi Anglong (6,052 ha), Kamrup (4,525 ha) and Goalpara (2,988 ha) districts. These four districts accounted for about 69.8 per cent of total rubber cultivation and 82.8 per cent of total wastelands estimated in the state. Other fairly suitable districts for NR cultivation are Dima Hasao, Hailakandi, Dhubri, Kokrajhar and Jorhat. These districts have 13 per cent of total wastelands suitable for NR. In general, spread and occurrences of NR and wastelands suitable for its cultivation are more in south-western and north-southern districts than in the north-eastern districts of the state. Estimated wastelands can be prioritized hierarchically for further analyses of suitability in terms of soil and climate variables. This study also serves as a GIS based decision support system for planners in NR sector.

Key words: Natural rubber, North-east India, Remote sensing, Satellite images, Spectral signature

INTRODUCTION

Natural rubber (NR) is one of the most important commercial plantation crops in India and it is a raw material for the fast

growing rubber based manufacturing industry. Natural rubber consumption increases with industrial and economic growth of the country (RRII and RRSC, 2012).

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