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APPLICATION OF REMOTE SENSING AND GIS IN DETERMINING ERODIBILITY OF RUBBER SOILS

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Climate change studies involve interaction of many factors and for meaningful interpretations, integrated analysis is essential. GIS is an ideal platform for this. In the uncertain scenario of climate change, our decisions need to be prioritized and for this multi-criteria decision analysis provides a very good tool. An attempt has been made to assess the vulnerability of rubber plantations to soil erosion as a result of heavy rainfall and runoff in Kozhenchery taluk of Pathanamthitta district of Kerala, India. Analysis has indicated that the major portion of rubber plantation (81%) is distributed on locations that have medium adaptability to rainfall variability and least (0.9%) on areas showing low adaptability. Spatial analysis of rubber distribution map with soil erodibility map has indicated that 60.5 per cent of rubber area is distributed on land with highly erodible soil with moderate slope followed by 37 per cent on less erodible soil with moderate slope. Maps highlighting the areas vulnerable to rainfall variability and soil erosion will serve as an ideal tool for planners, researchers and extension people to develop suitable strategies for enhancing NR production in India.

Key words: Erodibility, GIS, MCDA, Remote sensing, Runoff.

INTRODUCTION

Impact of global climate change is larger, faster and more widespread than expected. The Inter-governmental Panel on Climate Change (IPCC) technical paper VI on climate change and water (Bates *et al.*, 2008) has projected increased precipitation intensity and variability, which increases the risks of flooding and drought in many areas. There has been increase in the frequency of heavy precipitation events in the late 20th century. Efficient management of water and basin is the need of the hour. Soil moisture is a part of the hydrological cycle and acts as an interface between runoff, evaporation and infiltration. IPCC has projected increased runs of dry days between precipitations. Soil and topographic conditions to some extent help the vegetation to adapt to sudden variability in rainfall induced by climate change.

The first step in climate change mitigation in relation to rainfall variability is the inventory of soil and land resources so as to understand the adaptability of managed ecosystems like rubber plantations to climate change. The key is to have an integrated analysis and for this, remote sensing (RS) and GIS are ideal tools**.** GIS techniques and procedures play an important role in analyzing decision problems. GIS is recognized as a decision support system

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