



Land use and Vegetation type mapping in Tropical Forest Ecosystem using Satellite Remote Sensing, GIS and ground based inventory

KEYWORDS

Bhawna Sahu

Department of Rural Technology, Guru Ghasidas University, Bilaspur (C.G.)

Alka Mishra

Department of Rural Technology, Guru Ghasidas University, Bilaspur (C.G.)

INTRODUCTION

Chhattisgarh is a 26th state of the country is well known for its forest wealth and rich biodiversity of NTFPs. Almost 44% of the geographical area of the state is covered by forests with diverse floral and faunal resources. In Chhattisgarh, where 11,185 villages out of a total of 19,720 villages are forest fringed, the importance of NTFPs in the livelihood security of the rural population has led the state government to declare seven NTFPs such as tendu leaves, sal seed, harra, gum (khair, dhawara, kullu&babool) as nationalized and establish the CGMFP Federation with an objective to promote trade and development of these minor forest products (MFPs) in the interest of MFP collectors, mostly tribals.

However in recent years, the exploitation of non-timber forest products has enormously increased in the region as the consequence of increase in human and bovine population and also the entry of traders in to the system has witnessed widespread exploitation jeopardizing their regeneration and development. The commercial exploitation of NTFP is steadily increasing in last few years. Lack of institutional mechanisms for collection of many economically important NTFPs and appropriate policies are driving forces responsible for depletion of valuable NTFPs. Further, the lack of proper harvesting protocols, poor processing techniques and ignorance on regeneration are compounding the problem. Today, many rural communities are facing a serious resource threat because of the rapid loss of natural habitats, and the over exploitation of non wood forest products from the wild. The biodiversity loss is not only a threat to ecosystem but a more immediate threat to the livelihood security of rural communities living in and around forests of Chhattisgarh. Therefore, conservation of non wood forest products in its biocultural perspective not only implies conservation of these valuable resources but also places an equal emphasis on conservation of cultural diversity. The excessive deforestation rates and unscientific collection are rapidly depleting non timber forest resources. Besides, great fluctuations in annual production of NTFPs are causing imbalance in demand and supply of these products in many forest areas.. For scientific resource exploitation and conservation, both quantitative and qualitative data base on different NTFPs and their spatial distribution in different forest types/communities are missing, which is required for the sustainable management of NTFPs.

Satellite remote sensing and GIS techniques are quite useful and indispensable for monitoring NTFPs in different forest types. The enhanced spatial resolution capabilities and repetitive synoptic data enabled for reliable mapping of forest resources. The geographic Information (GIS) will

further help in analyzing spatial and attribute data for devising action and management plan for sustainable development of NTFPs in many ecologically fragile tropical ecosystems with diverse flora and fauna of endangered and threatened species.

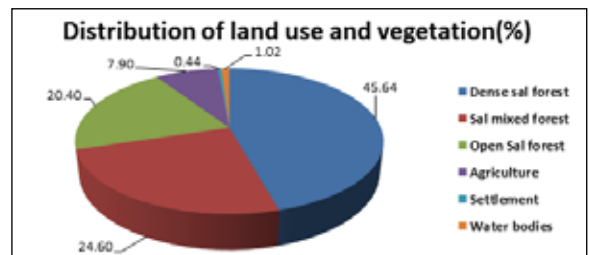
MATERIALS AND METHODS

The present study was carried in Surhi Range of Bilaspur Forest Division, Bilaspur, Chhattisgarh. The study area located between 22°20'6.067" North to 22°32'14.954" North latitude and 81°36'24.081E to 81°47'32'30" East longitude . Land use and vegetation analysis of study area was done using satellite remote sensing and GIS techniques coupled with few field measurements. Remote sensing satellite data is digitally analyzed for mapping the land cover /vegetation types.

RESULTS & DISCUSSION

Spatial extent of land use and vegetation type

The land cover classification of study area was done by supervised classification method. The False Colour Composite (FCC) and Normalized Difference Vegetation Index (NDVI) maps were generated. The land cover and vegetation types were precisely identified with the help of NDVI map and FCC during classification along with other reference data. The land use and vegetation map was generated using Maximum Likelihood algorithm. The spatial extent of different categories of land cover is shown in Figure 1. A view of Dense Sal forest and Sal mixed forest are depicted through Plates 3 and 4. The study area was classified into land cover and vegetation classes viz. Dense Sal forest, Sal Mixed forest, Open Sal forest, Agriculture, settlement, water bodies. Agriculture (7.90%), Settlement (0.43%), Water bodies (1.01%), Dense Sal Forest occupied maximum area (45.64%), followed by Sal mixed (20.40%), and Open Sal (24.59%), forest types. The minimum area (0.43%) is covered by Settlements.



REFERENCE

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