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Spatial Modeling in Forest Resources Management

Rural Livelihood and Sustainable Development

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Chapter 8
Comparative Assessments of Forest Cover Change in Some Districts of West Bengal, India using Geospatial Techniques

Mitrajit Chatterjee and Atma Deep Dutta

Abstract Forests are one of the most important components on our planet as they regulate a number of natural systems viz. the food chain, the water cycle, the carbon cycle etc. In this study, we have focused on the forest cover of districts that has a very small percentage of area covered by forests. The study has been performed for a time period of 30 years i.e. from 1990 to 2020 and a time series analysis of the changes in forest cover has been done. The forested areas are divided into three type namely very dense forest, moderately dense forest and open forest. Five districts in the state of West Bengal have been selected namely Hooghly, Nadia, Purba and Paschim Bardhhaman (considered together as Burdwan) and Purulia. These districts particularly belong to the South Bengal region and out of them namely Hooghly, Nadia and Bardhhaman are also a part of deltaic region of the Lower Ganga which is known as the Bhagirathi-Hooghly River in West Bengal. These districts are chosen because they are one of the most populous districts both in the state and also in the country but they lack adequate amount of natural vegetation cover, the reasons for which can be cited are the availability of fertile land for agriculture which consequently makes these places one of the most suitable areas for human beings to survive and thrive. In this study a standardised and simple index namely the Normalized Difference Vegetation Index (NDVI) has been used to delineate various kinds of forest and a Land Use Land Cover (LULC) classification has been done to study the present land use condition of these districts. It has been found that the district of Purulia has the maximum forest cover while the district of Hooghly lacks areas with very dense forest. Studies have shown that forest cover conditions has improved for all of these districts since the last decade but most of these improvements has been observed in the open forest category which signifies that social forestry might have been taking place which proves an increasing concern among people and the government in saving the environment.

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