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Assam [India]

- 03 Interim Assessment and the Relevance of the Ganga Waters Treaty 1996
Ravindra G. Jaybhaye and Rahul M. Lad
- 19 Spatio-Temporal Analysis of Air Quality Index (2013-2020): A Case of Delhi
Mijing Gwra Basumatary, Subhash Anand and Aruna Paarcha
- 34 Built-Up Area Mapping in a Part of Brahmaputra Valley of Assam Using Open-Source Geospatial Tools
Krishna Das, Swapnali Saikia and Ashok Kumar Bora
- 48 Spatial Accessibility to Rural Infrastructure Facilities in Singrauli District, Madhya Pradesh
P.K. Sharma and Kaluram Chouhan
- 63 Social Impacts and Adaptation to Flood and Overbank Sedimentation of Jadhhal River in Dhemaji District, Assam
Akangsha Borgohain and Dhrubajyoti Sahariah
- 78 Crop Productivity Zones in Assam: A Geospatial Analysis
Mala Dutta and Sahil Choudhury
- 91 Pre-monsoon and Post-monsoon Groundwater Quality Analysis of Tripura Using Multivariate Statistics
Jimmi Debbarma and Nibedita Das (Pan)
- 104 Living with Elephants: A Comparative Case Study of two Human-Elephant Conflict affected Villages in Nagaon District of Assam
Chandan Bhuyan, Chiranjib Bora and Madhushree Das
- 116 Population Dynamics of the Ecologically Challenged Riverine Islands in the Brahmaputra River of Assam: A Case Study of Chaprapara Char
Abul Fazal Murtaza Ahmed and Parijat Borgohain
- 132 Land Use/Land Cover Change Dynamics in Sibsagar District, Assam with Reference to Soil Texture
Madine Hazarika and Narayan Chetry
- 142 Obituary of Professor Narendra Nath Bhattacharyya
Bimal K. Kar

CROP PRODUCTIVITY ZONES IN ASSAM: A GEOSPATIAL ANALYSIS

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Abstract: Agriculture is the mainstay of underdeveloped and developing economies. Two of the most daunting challenges for these countries are rapid population growth and associated food crisis. Within these economies again, there are physical as well as non-physical factors that lead to regional imbalances in agricultural performance. To overcome the problem of regional imbalance and maximize agricultural development, the first step is to make a quantitative assessment of crop productivity across a spatial unit. Against this backdrop, an attempt has been made in the current study to identify and delineate the crop productivity zones of Assam taking districts as spatial units. Jasbir Singh's (1976) 'Crop Yield and Concentration Indices Ranking Coefficient' method has been employed in this study to map the productivity zones of the state. This technique assesses the regional differences in the levels of food production and delimits the weaker areas considering the twin elements: the Crop Yield Index (Y_i) and the Crop Concentration Index (C_i), which significantly affect the crop productivity of a region. Besides, non-parametric statistical tests have been used to assess the impact of a few selected non-physical determinants on productivity zones. The productivity zones have also been studied from the context of the agroecological setting of the state. Based on the findings, the ranking coefficient values ranged from 9.50 to 18.57 which has been categorized into three productive zones i.e., high (9 districts), moderate (10 districts) and low (8 districts). The variable 'Net Irrigated Area' has been found to be the most impacting factor on the productivity scenario of Assam. This has been validated with the agroecological setting of Assam where the Hill Zone has shown the best performance and the Barak Valley Zone has shown the poorest performance. Overall, the productivity level of Assam has been identified to be of 'moderate' level. The paper gives a new insight by incorporating geospatial techniques with concepts drawn from the larger domain of agricultural geography.

Keywords: Agriculture, Crop productivity, Assam, Agroecological, Geospatial.
