

## **Identification of Climatic Types in the Bari Rangit Basin after W.Köppen**

**Suchitra Ray<sup>1</sup> and Samir Kumar Samanta<sup>2</sup>**

**Abstract :** *All physical aspects including the entire biosphere of the planet earth are greatly influenced by its climatic characteristics. Average figure for prolonged period (30 to 35 years) of three principal atmospheric elements namely temperature, amount of precipitation and relative humidity makes the attribute of climate of a particular region. Condition of these three as well as other wider or confined weather phenomena such as formation of vortex and depression in troposphere, direction and velocity of wind, formation of fogs and clouds, etc. are closely interrelated to each other. Further more variation in these elements is directly controlled by the amount of insolation over the earth's surface, the shape and situation of the planet on its orbit, and above all its surface configuration including the surface area of hydrosphere. Thus, climate of a region is very much delicate and varies widely from place to place depending on the location over the earth's surface. The Bari Rangit Basin, lying in the Sikkim-Darjiling Himalaya, exhibits such types of intricate climate which have distinct criteria regarding the climatic elements. It is mainly due to the altitudinal variation in short distances and the varied amount of insolation received by wavy topography. The present paper is an attempt to apprehend with utmost precision the nature and types of local climate prevailing over this tract.*

**Key Words:** *Insolation, coniferous, deciduous, tundra.*

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## **Constraints in Traditional Betel Leaf Smallholdings: Farmers' Perspective from West Bengal**

**Manas Hudait<sup>1</sup> and Priyank Pravin Patel<sup>2\*</sup>**

**Abstract :** *This study examines the smallholding-based betel leaf industry in Tamluk Subdivision, West Bengal using the Likert scale and Garrett's ranking technique to identify significant constraints to the crop's cultivation and sale. Results reveal that high input costs, disease/pest afflictions, lack of labour, meagre government support and non-availability of insurance/credit negatively affect betel leaf cultivation. Conversely, unauthorized payment deductions by middlemen and high market commission charges, fluctuating leaf price, periodic high crop wastage and non-availability of storage facilities cause problems in selling the crop. The hardships faced by betel leaf farmers calls for urgent attention to implement suitable ameliorative measures.*

**Key Words:** *agricultural constraints, betel vine plantation, horticultural crop, marketing problems, smallholding farms*

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## **Minor Forest Products as a Livelihood Option for Tribals : A Case Study of West Bengal**

**Subodh Seal<sup>1</sup>, GourabBera<sup>2</sup> and Anindita Ghosh<sup>3</sup>**

**Abstract :** *Tribal economy and livelihood are intimately connected with the forests. This relationship has been recognized but has not been articulated in terms of clear policies and programmes. The tribal economy and the forest economy therefore have tended to drift apart with adverse implications to both. The present study is based on the dependency of tribal livelihood and economy on forest products with understanding the role of Large sized Adivasi Multi-Purpose Societies (LAMPS) on the collection and marketing of MFP's in tribal Society. To study on the relationship between tribal economy and forest products, the tribal zone of western part of West Bengal have been taken as a case study. Different types of NTFP and their trading channels have been studied. The part played by NGOs dealing with the development of the tribal is also taken into consideration.*

**Key Words:** *Non Timber Forest Products (NTFPs), Forest Right Act, Large sized Adivasi Multi-Purpose Societies (Lamps), Minor Forest Products (MFPs), Joint Forest Management, Community .*

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## **The Travel Agencies of Kolkata – During the Pandemic and Beyond**

**Sreejita Mukherjee\***

**Abstract :** *Tourism was projected to be one of the fastest growing sectors of the economy, helping to increase both income and employment across various sectors of the economy. It is also one of the hardest hit sectors during the pandemic and one which probably will take a long time to recover. Travel agencies play the role of an intermediary, helping the tourists to avail the various travel services. They liaison between the tourists and the service providers like airlines, railways, hotels, cars etc. Since travel restrictions have been strict during the coronavirus pandemic, travel agencies have suffered huge economic losses. This paper uses primary data collected on small and medium travel agencies, operating in Kolkata and analyses the ground situation to find out how these agencies have fared during the pandemic. It identifies the major problems that are being faced in this unique time and also tries to create a ground map for recovery of the business in the coming days.*

**Key Words:** *Travel agency, pandemic, economic crisis, plan of recovery*

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## **Availability and Accessibility of Health Care Facilities– A Case Study of Maldah District, India**

**Md Hasan Askari<sup>1</sup> and Krishnendu Gupta<sup>2</sup>**

**Abstract :** *The discussion about health care resources in addition to that of accessibility and availability of health care facilities is one of the main concerns of medical geographers. The investigation of health care resource distribution is being done at various scales from the national to the neighbourhood. Present work has emphasised on the availability and accessibility of various health care facilities in different blocks of Maldahh, a district of West Bengal, India. This study has been divided into two parts mainly; in the first part an attempt has been made to portrait the periphery area of various health care facilities to find out the accessibility of health care services and the second part analyses the population pressure on different health care facilities and distributional gap between existing and expected number of facilities as per the national norms. The discussion supports that the Maldahh district is experiencing unequal and insufficient distribution of various health care facilities.*

**Key Words:** *health care facilities, periphery zone, public health centre, Inequalities, distributional gap*

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## **Land Use / Land Cover Dynamics Using Remote Sensing and GIS Techniques Kalimpong Municipality, West Bengal**

**Sarmistha Roy Chowdhury\* and Susanta Pramanik\*\***

**Abstract :** *Land use/land cover has been rapidly changing in the Himalayan terrain due to anthropogenic and natural interferences and remotely sensed satellite images have been used to detect the changes. The municipality of Kalimpong has likewise experienced substantial changes in land use and land cover. The present study is aimed to identify those changes and model the future trend of Kalimpong municipality. SVM algorithm was applied to measure the changes in LULC for the years 1997, 2014, and 2020. For simulating the future LULC for the year 2030 Cellular Automata Machine Learning Algorithm was applied to GIS platforms. Error matrices were used to validate classification accuracies. The study revealed a rapid growth in the built-up area by 16.22percent and a slight increase in agricultural land by 1.46percent whereas forest land was decreased by 12.57percent from 1997 to 2020. The barren land areas also showed a net decrease of 5.11percent. The LULC prediction result for the year 2030 showed that built-up land will be increased to 41.36percent with respect to 19.52percent in 1997. The dynamics of land use and land cover of the area are controlled by human and natural driving forces like urbanization, climate change, etc. This research will provide broad information on LULC scenarios for the period in question, as well as aid in the development of a conservation plan for natural resource management and land use planning.*

**Key Words:** *LULC, RS and GIS, change detection, SVM, Cellular Automata, simulation.*

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