

Alluvial Fan Flooding in the Lower Damodar Basin, West Bengal

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Abstract : *The Lower Damodar Region comprises some blocks of Bardhaman, Hugli and Haora district of West Bengal. This region suffers from recurrent floods. This study attempts to characterize this flood as an alluvial fan flooding. The guidance of the committee of Alluvial Fan Flooding (National Research Council, USA) has been applied to characterize Damodar flood as an alluvial fan flood. Based on the criteria given by the committee, it has been identified that the depositional lobe of Damodar river has characteristics of an alluvial fan. Only a few portions of this fan is active now. Moderation of peak flow due to the construction of dams in upper catchment and embankment along the left bank shrunk the active fan area. Now Amta Channel and Mundeswari river are nurturing the active fan. Bed slope of these channels have reduced from 0.25 m/km at Jamalpur to 0.08m/km at Amta and 0.04m/km at Bakshi. Water dispensable cross-sectional area of the active channels is gradually reduced from 6256 m² to 2020.2 m² at the down fan area which indicates the reduction of carrying capacity to the edge of the fan. In this situation when Damodar Valley Corporation releases a large amount of water beyond the capacity of these channels from its dams and barrages it causes embankment breaching, overspilling and sheet flow in the lower fan area. This incident occurs annually in different magnitude and destroys economic and social infrastructure.*

Key Words: *Damodar fan delta, carrying capacity, overspilling, embankment breaching, sheet flow, flood.*

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**Assessment of Changes in Land Use and Land Cover using
Remote Sensing and Geographic Information System: A Case
Study on Sandeshkhali-I Block, North 24 Parganas,
West Bengal, India**

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Abstract : *Land use and land cover is an important component in understanding the interactions of the human activities with the environment and thus it is necessary to monitor and detect the changes to maintain a sustainable environment. In this paper an attempt has been made to study the changes in land use and land cover of Community Development Block of Sandeshkhali I of North 24 Parganas districts. The study was carried out through geo spatial approach using LANDSAT imagery of 1989, 2009 and 2017. The land use and land cover classification were performed based on the Satellite imageries as well as Google Earth web portal(CNES/Airbus, Camera:1721m,) GIS software is used to prepare the thematic maps and ground truth observations were also performed to check the accuracy of the classification. The twenty-eight (28) years' time period of 1989 -2017 shows the major type of land use change. After 1989, inland wetlands have increased in this area because of fish farming which is a more profitable alternative than agricultural practice. Then in 2009, after the cyclone Aila, some changes have been observed in the land use pattern. This study shows the changes before and after Aila over a total assessment period of 28 years (1989 to 2017). Inland Wetlands had maximum conflict with agricultural crop land and fallow land. The probable reasons behind these changes have been discussed. However, Community Development Block of Sandeshkhali I is identified as one of the forth coming aquaculture potential areas in West Bengal. It is necessary to closely monitor the land use and land cover changes for maintaining a sustainable environment for a proper development.*

Key Words: *land use and land cover, human activities, sustainable development, aquaculture, agriculture land.*

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Exploring Centrality and Marginality of Geography in Indian Schools*

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Abstract : *As the status of a subject in a school curriculum depends to a large extent on its value to the society and state, an increase in the utility of that subject for the society and the state can have a positive effect on its status in the school curriculum. It is particularly notable that the relative status of a subject in the school curricula can have a significant effect on only its future in school as well as in higher education. In this respect, unlike other school subjects, geography is variously placed in school curricula in countries of the world. It is variously taught as a part of natural science, social science as well as environmental science in schools of the world. In India, it is taught as a social science subject in secondary schools. Further, even though geography has always been a compulsory subject in India, its status in school curricula has been constantly changing. The paper discusses the issues of centrality and marginality of geography in secondary schools of India by analysing its standing in school curricula as well as classroom practices. Based on literature reviews and surveys of 175 schools affiliated to 21 school boards of India through a questionnaire, the study indicates that even though geography occupies a relatively peripheral position in the overall school curricula, it is comparatively better positioned among the social science subjects.*

Key Words: *geography education, secondary school, social science, geography curriculum.*

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Empowerment of Working Women of Urban Bihar: A Case Study of Patna Municipal Corporation Area

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Abstract : *Empowerment of women and closing the gender gap is a necessity for the development of a society. In recent years, there has been a growing realization 'that development goals cannot be realized unless gender inequalities are removed and women are empowered to choose and decide about their own welfare and welfare of the families and communities in which they live.'* (Gupta et al, 2006). *In traditionally male dominated society of Bihar, female literacy and educational level is increasing and more women are employed in the different sectors of the economy. In the above-mentioned context, the current study has measured the level of empowerment of working women of urban Bihar. Unskilled working women engaged in blue collared jobs are mainly at the receiving end in the society.*

Key Words: *empowerment, working women, blue collared job, skilled training, adult education*

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Performing Regression Analysis in context to Elevation and Soil Physical Parameters: A Case Study of Ajodhya Hill, Puruliya, West Bengal

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Abstract : *Geomorphological and pedological parameters can be explained by different statistical techniques. Multivariate regression is a very useful tool to identify the relationship between various physical parameters of soil sample which are governed by the single parameter like elevation. Elevation, is an independent factor in the present study which dominates the amount of gravel, percentage of different type of sand and silt clay. Result of multivariate regression can clearly specify the type, intensity and pattern of the relationship between elevation and concentration of gravel, sand, silt and clay. Positive and negative relation between the variables are found in the present study.*

Key Words: *elevation, multivariate, variable, sandy loam, principal*

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Labour Absorption in Indian Agriculture: A Macro Level Analysis

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Abstract : *Besides land and technology, labour force is undoubtedly an important agricultural input. Therefore, a detailed insight into the trend of work-force participation is also essential in understanding and determining the level of economic activity performed by the nation, as a whole. This paper thus aims to analyse the recent dynamics of labour absorption in Indian agriculture. This study is basically a macro level analysis covering the entire country as a whole. The paper focuses on the changes in the employment structure in India over the past four decades and identifies the spatio-temporal patterns regarding the employment conditions in the agricultural sector over the period of 2001-2011. It makes a modest attempt in mapping out the state level relationship between the agricultural workforce and state domestic product along with a statistical analysis that measures a state's occupational specializations, in terms of the sharp decline in the size of cultivators and the bulging agricultural labour category in a decade, relative to the national average.*

Key Words: *Indian agriculture, labour absorption, state domestic product, cultivators and agricultural labourers.*

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Bio-Medical Waste Management in Kolkata Municipal Corporation: A Case Study of Ward No.130 and 131

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Abstract : *The hospital waste management is an imperative environmental and public safety issue as the waste generated from the hospitals is hazardous and infectious (Acharya and Meeta, 2000). The disposal of these wastes in and around the hospital area is an important reason for the cause of several infectious diseases among the hospital workers who handle the untreated biomedical waste and also among the patients in the hospitals. The exposure of the untreated biomedical waste also harms society, environment, and public health if these are not properly managed. The present research paper examines the existing biomedical waste strategy of a government and private hospitals with a bed capacity of fewer than 200 beds in Behala area in the ward of 130 and 131 under Kolkata Municipal Corporation and also makes a comparative study between the two hospitals regarding waste management and the impact of these wastes on environment.*

The two hospitals, i.e. The Balananda Brahmachari Hospital and Research Centre' produce 1170 kg/per day and Vidyasagar State General Hospital' produce an average of 1240 kg/per day of medical waste per week. Of the total hospital waste generated, approximately hazardous waste accounts for 11 per cent in private hospitals and 8 per cent in government hospitals. Health care staffs, patients, the community and the environment are negatively affected by the exposure to the hazards of biomedical waste. This is due to the lack of education, awareness and trained personnel to manage the waste in the hospital, as well as the paucity of the funds available to proper waste management systems. The results of the study show the need for strict enforcement of legal provisions and a better environmental management system for the disposal of biomedical waste in hospitals as well as other healthcare establishments. Besides, this research suggests that the employees have to be trained and qualified to operate, maintain, and do the separation (segregation), storage and transport the medical waste for the safety of the people and the environment.

Key Words: *bio medical waste, hospital waste management, infectious wastes, hazardous wastes, health care system.*

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