



ENLIGHTENMENT TO PERFECTION

UNIVERSITY OF NORTH BENGAL

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Raja Rammohunpur, Dist- Darjeeling, West Bengal, Pin-734013, India.



Department of Geography and Applied Geography

Print

Dr. Subir Sarkar



Ph.D.

Professor

Members of Learned Societies: Geographical Society of India, Kolkata; Institute of Landscape System and Ecological Studies, Kolkata; Indian Institute of Geomorphologists, Allahabad; Association of North Bengal Geographers, Siliguri; Geological Society of India, Kolkata; Indian Institute of Geographers; The Deccan Geographers, Pune; NRDDC/GPS, Jalpaiguri; BOM, Jan Shikshan Sansthan.

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Subject Specialization: Geomorphology, Environment studies, Disaster Management & Pedology.

Areas of Research Interest: Geomorphology, environmental hazards, geo-informatics, hydrology and watershed dynamics, decentralized development planning.

No. of Ph.D. students: (a) Supervised: 10 (b) Ongoing: 06.

No. of M.Phil. students: (a) Supervised: Nil (b) Ongoing: Nil .

No. of Publications: (a) Journal(s) : 36 (b) Book Authored/Edited: 09 (c) Book Chapters: 30

Achievement & Awards:

- Awarded membership of the following Committee:
 - Expert Group on Spatial Data Technologies, Department of Science and Technology (DST), Govt. of India.
 - District Planning Committee (DPC), Jalpaiguri, Govt. of West Bengal.
 - Board of Technical Consultants (BTC), North Bengal Flood Control Commission, Govt. of West Bengal.
 - Joint Technical Team for Indo-Bhutan Joint Group for Flood Management; NBFCC, I & W Dept., Govt. of West Bengal.
 - Steering Committee for National Programme for Capacity Building for Earthquake Risk Management (NPCBERM), Govt. of West Bengal.
 - Boulder lifting Committee, North Bengal, Dept. of Forest, Govt. of West Bengal.
 - CAT Working-cum-monitoring Committee for implementation of TLDP III & IV, NHPC, Govt. of India.

Administrative Experiences:

- Head, Department of Geography and Applied Geography, North Bengal University from 1999-2001, 2004-2005 & 2008-2010.
- Convener, North Bengal University Weather Service Station (NBUWSS) since its inception in March 2000.

Research Projects /Consultancy :

- International Level (6):
 - Completed (5):
 - Zur eiszeitlichen bis historischen Gletscherbekkung und zum Risikopotential des Hochgebirages im Grenzsäum der Okumene im Ost Karakoram/West Himalaya (jointly with Prof. M. Kuhle, Gottengen University & Prof. S.R. Basu, Calcutta University), Sponsored by Volkswagen-Stiftung, 1992.
 - Landslides and Flood Problems in the Darjeeling Himalaya: along with Prof. (Dr). L. Starkel, Prof. Dr. W. Froehlich and Dr. R. Soja, Polish Academy of Sciences and Prof. (Dr) S.R. Basu, Calcutta University, Sponsored by the Indian National Science Academy & Polish Academy of Sciences, 1996-1999.
 - Evolution of the fluvial system in the monsoon climate, a collaborative project with Prof. L. Starkel, Prof. W. Froehlich & Dr. R. Soja of Polish Academy of Sciences, Krakow, Poland, Sponsored jointly by the INSA and PAS, 2000-2003.
 - Evolution of the fluvial system in the monsoon climate, Indian National Science Academy & Polish Academy of Sciences, 2004-2007, 2nd Phase.
 - Anthropogenic factors and extreme floods, forming the landscape and margin of Eastern Himalaya sponsored jointly by Indian National Science Academy & Polish Academy of Sciences, Phase I, 2008-2011.
 - Ongoing (1):

- Anthropogenic factors and extreme floods, forming the landscape and margin of Eastern Himalaya sponsored jointly by Indian National Science Academy & Polish Academy of Sciences, 2nd Phase, 2012-2016.
- **National Level (31):**
 - **Completed (31)**
 - A comprehensive study of Landslides and Related Phenomena in the Mirik-Sukna Region of Eastern Himalaya and their control; Sponsored by the Department of Environment, Govt. of India, Ref. Pc (P)-19/CA/ECO/81-MLP, dt.1.5.1982, (jointly with S. R. Basu).
 - Problem and Prospects of Optimum Utilization of Land in the Himalayan Foothills (Terai & Duars) of West Bengal, Sponsored by U.G.C. Ref. 18-4(1)/92-93/D-93, Dt. 2. 3. 1993.
 - Effects of Accelerated Land Degradation in Fluvial Dynamics-A Study of the river Mahananda Sponsored by U.G.C. Ref. 18-4(1)/94-95/D-94, Dt.30.11.1994.
 - Preparation of an Educational Package on Flood Prone and Water Logged Zone Maps of Jalpaiguri Town, Center for Environment Education, Ahmedabad, vide NEEPS (East) dt. 17.02.1998.
 - Comprehensive study on local storms and thunderstorms in the lower Tista valley of sub-Himalayan West Bengal, Sponsored by the National Hydroelectric Power Corporation (NH/TLDP/SLG/SM(C)/F-CW/2000 dt.07.04.2001).
 - Preparation of Master Plan for flood management and erosion control in North Bengal, Phase I (Jointly with WAPCOS); Sponsored by UUP (WAP/SSD/2001/97 dt. 06.06.2001, Govt. of West Bengal.
 - Monitoring of physico-chemical, microbiological and hydrological parameters of Torsa and Sil-Tora Rivers of North Bengal (jointly); Department of Environment, Government of West Bengal.
 - Preparation of contour map of Jalpaiguri town and its adjacent areas for the acute water logging an drainage Problems sponsored by the Irrigation and Waterways Department, Govt. of West Bengal (724 (9) 2P-160 dt. 23.03.2001).
 - Preparation of Geo-referred Map of Siliguri Mahukma Parisad, Sponsored by Siliguri Mahukma Parisad, Govt. of West Bengal.
 - Survey Work at Proposed Site of Petroleum Product Terminal at Siliguri, sponsored by Numaligarh Refinery Limited, Govt. of India (CRPO/005069 dt. 13.05.2004).
 - Natural resource digital database centre at Jalpaiguri, West Bengal (jointly with CSME, Calcutta), Sponsored by the D.S.T., New Delhi and Govt. of West Bengal (ES/11/323/97 dt.01.03.2001).
 - Delineation and analog mapping of all roads including village roads and drainage including Nallah and Jampo of 13 blocks of Jalpaiguri district (124/F-17/NRDDC dt. 29.08.2002).
 - Study on the population, status, distribution, habitat preference of Kaleej pheasant and Satyr Tragopan in the Neora Valley National Park, West Bengal, Deptt. of Forest, Wildlife II, Govt. of West Bengal.
 - Monitoring of the execution/ implementation of schemes/ programmes under Rastriya Sam Vikas Yojona in Dakshin Dinajpur district, Planning Commission, Govt. of India & Govt. of West Bengal, 2008-2010.
 - Preparation of Master Plan for Flood and Drainage Management of Balurghat Municipality, Uttar Banga Unnayan Parisad, Govt. of West Bengal.
 - Study on the population, status, distribution and habitat preference of Kaleej Pheasant and Satyr Tragopan in the Neora valley National Park, West Bengal, sponsored by the Forest Deptt., Govt. of West Bengal, 2005.
 - Demonstration of block level GIS and capacity building for development planning in Jalpaiguri district, sponsored by the DST, Govt. of India, No. ES/11/875/2004 dt. 23.12.2005.
 - Field study on the implementation of AAY schemes in Jalpaiguri district, sponsored by the Zilla Parisad, Jalpaiguri, Govt. of West Bengal, 205(34)/G dt. 27.01.2006.
 - Field Survey in 71 Identified Backward Villages in Chopra Block in Uttar Dinajpur District, sponsored by the Zilla Parisad, Uttar Dinajpur, Govt. of West Bengal, 2010-2011.
 - Field Survey on the Implementation of Antyodaya Anna Yojana (AAY) in Uttar Dinajpur district, sponsored by the Zilla Parisad, Uttar Dinajpur, Govt. of West Bengal, 2010.
 - Preparation of Habitation Map of Schools on a GIS Platform, Sarbasiksha Mission, Govt. of West Bengal, 2009-2010.
 - Social impact assessment and evaluation of projects implemented under RSVY in Jalpaiguri district, Planning Commission, Govt. of India & Govt. of West Bengal, 2007-2010.
 - Social impact assessment and evaluation of projects implemented under RSVY in Uttar Dinajpur district. Planning Commission, Govt. of India & Govt. of West Bengal, 2007-2011.
 - Impact assessment and evaluation of National project for repair, renovation & restoration of water bodies directly linked to agriculture in the district of Uttar Dinajpur, 682/w 41 dt. 28.02.2006, sponsored by the Raiganj Agri. Irrigation Division, Govt. of West Bengal.
 - Preparation of Master Plan for NBU Campus and Drainage Plan under Comprehensive NBU GIS, 2008-09, sponsored by the University of North Bengal.
 - GIS Map of River Basra starting from River Torsa to River Pana, sponsored by the I & W Dept. Govt. of West Bengal, 2008-2009.
 - Preparation of Digital Maps etc. for Draft Development Plan of Siliguri Municipal Corporation, sponsored by Siliguri Municipal Corporation, Govt. of West Bengal, memo no. 7468/G dt. 23.02.2008.
 - ULB level baseline survey & digital base map (GIS) preparation and socio economic survey data tabulation data analysis of Dhupguri municipality, Dhupguri Municipality, Jalpaiguri, Govt. of West Bengal.
 - Sustainable Rural Livelihood Empowerment Project for Northern Disadvantaged districts of West Bengal under NAIP, World Bank funded ICAR sponsored programme, 2008-2013.
 - Coordinator, UGC SAP DRS-I programme on Geo-hazards in Sub-Himalayan West Bengal, 2009-2014.
 - Preparation of contour map for drainage management in English bazar municipality, Malda, Sponsored by Malda municipality, Malda, Govt. of West Bengal, Memo No. 2375/IV-2/11-12 dt. 07.02.2012.
- **International Colloboration: 2**
 - Continuing collaborative research with scientists from Polish Academy of Sciences since 1990 under INSA – PAS Exchange programme and so far two monographs and six research papers published.
 - Organised Indo-Polish joint Seminar on *Geomorphology of High Mountains*, in 2006.
 - Collaborative research jointly with Dr. Imre Nagy, under INSA-Hugarian Academy of sciences, Centre for regional studies, Bekescsaba, Szabo Dezco, 2011-12

Selective List of Publications:

Books Authored:

1. Present-Day Evolution of the Sikkimese-Bhutanese Himalayan Piedmont; jointly with Starkel L, Soja, R. & Prokop P., 2008, Polska Academia Nauk, Warszawa, No. 219, 122p.
2. Master Plan for the Drainage System of Balurghat Municipality, CDS, North Bengal University, 2007, 184p.

3. Flood and Waterlogging of Jalpaiguri Town: Problems and Prospects, JSNC, (Co- author), 2001, 90p.
4. Rains, Landslides and Floods in the Darjeeling Himalaya, Indian National Academy of Sciences, New Delhi, (Co-author), 2000, 168p.

Books Edited:

5. Living with Hazards; UGC SAP DRS-I, 2014; Monograph IV; University of North Bengal; 195p.
6. Mapping Hazards and Disasters; UGC SAP DRS-I, 2012; Monograph III; University of North Bengal; 204p.
7. Disaster Perception and Mitigation; UGC SAP DRS-I, 2011; Monograph II; University of North Bengal; 179p.
8. Geo-hazards in Sub-Himalayan North Bengal; UGC SAP DRS-I, 2010; Monograph I; University of North Bengal; 188p.
9. Applied Geography, Proceedings UGC, RC; University of North Bengal, 2004; 198p.

Publication in Book/Chapter:

10. Present-day evolution of the Himalayan piedmont (jointly with L. Starkel, R. Soja, P Prokop) in *Annual Report*, Polish Academy of Sciences, Poland 2010; 99-102.
11. Role of extreme events in the transformation of drainage systems in sub-Himalayan West Bengal in Proc. symposium on *Anthropogenic impact of River Deposition*, 2003, Kielce, Poland, 201-208.
12. Development of alluvial fans in the foothills of the Darjeeling Himalayas and their geomorphological and pedological characteristics, in *Alluvial Fans: A Field Approach* (ed. A. H. Rachocki & M. Church); 1990; John Willy and Sons, 321-333 (jointly S.R. Basu).
13. Flush flood and related problems in Sub-Himalayan Eastern Duars of Alipurduar district, West Bengal; in *Application of Geospatial Technology for Sustainable development*, (ed. D. K. Mandal), 2015; 108-117.
14. Land Degradation in Bhutanese Himalaya and its Impact on Fluvial Dynamics in Birpara-Madarihat block in Jalpaiguri district (jointly with D. Das) 2014, in SAP-DRS Monograph-IV: *Living with Hazards* (ed. S. Sarkar), 104-120.
15. The Sikkim-Darjeeling Himalaya: Landforms, Evolutionary History and Present-Day Processes (Jointly with L. Starkel) in V. S. Kale (ed.), *Landscapes and Landforms of India, World Geomorphological Landscapes*, Springer Science +Business Media Dordrecht 2014, 157-164.
16. Some aspects of pedogeomorphic relations in the Mahananda basin, Darjeeling Himalaya, in India: *Geomorphological Diversity* in Dikshit & Kale (ed.); 1994, Rawat Pub. 202-219.
17. Study of Landslides and Associated phenomena in Upper Sivkholra basin (Paglajhora), Darjeeling Himalaya (jointly with D. Chattaraj); 2012, in SAP-DRS Monograph-3: Mapping Hazards and Disasters, 1-23.
18. Geo-informatics in decentralised planning: A case study in Dhupguri block of Jalpaiguri district, West Bengal; in D. K. Mandal (ed.) *Applications of Remote Sensing and GIS in Resource Management*, NBU, 2012, 45-68 (jointly with S. Rana).
19. Landslide hazards in Darjeeling Himalaya: Past, Present and the Future, in M. Desai & S. Halder (ed.) *Coping with Disasters; Mitigation Strategy, Preventive Action and Recovery*, 2012, 160-185.
20. Flood Disaster: Perception and Mitigation – A Study in the Sub-Himalayan North Bengal in S. Sarkar (ed.) SAP-DRS Monograph-2: *Disaster: Perception and Mitigation*, 2011, 1-31.
21. Watershed degradation and its management: A case study in the Sikkimese-Bhutanese Himalaya, Proceedings Regional Workshop on Rejuvenation of Springs by Artificial Recharge and Catchment area treatment with special reference to Rainwater Harvesting, Gangtok, 2011; CGWB, MWR, Govt. of India, 71-98.
22. Effects of the 1993 extreme flood on the channel morphology of Jainti river, India; in *Landform Processes and Environment Management*, ed. Bandopadhyaya, et. al, 2011; ISBN-81-87500-58-1, acb pub.; 113-120.
23. Landslide Hazard in Darjeeling Himalaya, India, 2010 in S. Sarkar (ed.) SAP-DRS Monograph-1, *Geo-Hazards in Sub-Himalayan North Bengal*, NBU; 1-24.
24. Flood Hazard in the Sub-Himalayan North Bengal, India in Singh S, Starkel, L. & Syiemlieh, H.J. (ed.) *Environmental Changes & Geomorphic Hazards*, 2008; Bookwell, 247-262.
25. Geo-environmental appraisal of Sikkim Himalaya, proceedings *Management strategies for the Indian Himalaya: development and conservation*, Srinagar, Garhwal, 2007, 38-57.
26. Development Challenges: Geo-ICT Infrastructure and Implementation Scenario of Geospatial Planning in Jalpaiguri District, West Bengal, 2005, IRMA.
27. Hydro-meteorological study of high intensity rainstorms in the upper Tista basin, in *Geomorphology and Environment* (ed.) acb Pub. Kolkata 2004, 34-53.
28. Water logging in Jalpaiguri town: Problems and Prospects, in Proceedings *International Seminar on changing environmental scenario of India and adjacent countries*, ACB Publishers, 2001, Kolkata, 143-59.
29. Pedogeomorphic Relations in the upper Mahananda basin, Darjeeling Himalaya, in *Development programme: An Economic and Environmental Approach*, 2000, 45-56.
30. Landslips in the Mahananda basin, Darjeeling Himalaya and their control, in *Resource Management in Development Countries* (ed.), Vol. 10, Concept.
31. Some considerations on recent landslips at Rangpoo, Sikkim; in *Sikkim: Perspective for Planning and Development* (ed.), Sikkim Science Society, 1998, 605-612.
32. Himalay sanglana uttarbonger sampratik banya: karan-o-tar pratikar (Bengali); in *Paribesh-O-Unnayan*, (ed.), 1997, 109-114.
33. Impact of catastrophic erosion in the fluvial dynamics of the river Mahananda, Darjeeling Himalaya, in *Research in Geography: Disaster and Environment*, vol.2, (ed.); 1996, A.P.H. Pub. Co.; 337-348.
34. Jalpaiguri jelar paribesh abakhya: sambhabhya pratikar (Bengali); *Kirat Bhumi*, 1996, 102-108.
35. India's soil resources: problems and prospects, in *Planning in Perspectives of Development* (ed.), 1995, M.D. Pub.; 179-197.
36. Environmental degradation in the upper Mahananda basin: A case study of soil erosion and strategies for soil conservation, in *Environmental Degradation and Developmental Strategies in India* (ed.), Ashis Pub. House, 1991, 78-99.
37. Ecosystem vis-a-vis landslides: A case study in Darjeeling Himalaya; in P.K. Saha(ed.) *Impact of Development on Environment*, Geographical Society of India, 1987, Vol. 2, 45-53 (with S. R. Basu).
38. Pedogeomorphic parameters in environmental management: A case study in the upper Panchanai basin of Darjeeling Himalaya; Proce. Seminar on Planning and Environment, University of North Bengal, 1987, 128-139.
39. Origin and characteristics of the soil of southwestern Purulia, West Bengal: A study in pedogenesis, in S.C. Mukhopadhyaya (ed.) *Geographical Mosaic* (ed.) 1984, 293-303.

Journals:

40. Natural and human impact on land use change of the Sikkimese-Bhutanese Himalayan piedmont, India (jointly with Prokop, P); *Quaestiones Geographicae* 31(3); 2012, 63-75.
41. Evolution of the Paglajhora Slump valley in the Upper Shiv Khola basin, The Darjeeling Himalaya, India, in *Geographia Polonica*, 2011, Vol. 84, Special Issue, Part 2, 117-126.
42. Wspolczesna ewolucja piedmontu Sikkimesko-Bhutanskich Himalajow (jointly with L. Starkel, R. Soja, P. Prokop) in *Prace Komisji Paleogeographii Czwororzedu Polskiej Akademii Umiejetnosci*, 2010; Tom VII, 107-115.

43. Different frequency of threshold rainfalls transforming the margin of Sikkimese and Bhutanese Himalayas, (Jointly with L. Starkel), *Studia Geomorphologica Carpatho – Balcanica*, 2002, Vol. XXXVI, 51-67.
44. Landslides in Darjeeling Himalaya, India; *Transactions, Japanese Geomorphological Union*, Vol. 20-3, 1999; 299-315.
45. Impact of watershed degradation in Sub-Himalayan West Bengal, *Bhugolika*, Vol. 21 (2), 2014; 31-41.
46. Human role in shaping the hydromorphology of Himalayan rivers: study of the Tista River in Darjeeling Himalaya; (Jointly with Ł. Wicjaczka & A. Bucala) *Current Science*, Vol. 106, No. 5; March, 2014; 717-724.
47. Evolution of Relief and Drainage in the Himalayan Foreland of West Bengal, India in *Geographical Thought*, Vol. 10, 2012; 1-14.
48. GIS based Decision support system: A study in Dhupguri block, Jalpaiguri district, West Bengal, 2011, in *Geographical Thought*, Vol. 9, 1-14, (jointly).
49. Methodology for identifying backwardness and poverty pockets: A study in Dhupguri block, West Bengal, *Geographical Thought*, Vol. 8, 1-9, 2010, (jointly).
50. Studies on bed material, scour depth and computation of minimum depth of foundation for the river Tista and Jaldhaka, West Bengal, India; jointly with M. K. Mukherjee, *Geographical Thoughts*, Vol. VII, 2009, 62-68.
51. Some considerations on status of urban infrastructure in Dhupguri municipality; jointly with S. Rana, *Geographical Thoughts*, Vol. VII, 2009, 43-61.
52. Some considerations on the processes of development planning using GIS: A case study of Dhupguri Municipality; *Geographical Thought*, Vol. VI, 2008, 61-74.
53. Deterministic Modeling of Stage-Discharge Relationship of the River Sankosh, North Bengal, Indian Journal of *Landscape Systems and Ecological Studies*, vol. 19(2), 2007, 41-52 (jointly with M. Mukharjee).
54. Jalpaiguri Zillar paribesh abakhya o sampratik bannya, *Paschimbanga*, Vol.34 No.48, 2001; 359-363.
55. Genesis and characteristics of soils in West Bengal, *Geographical Thoughts*, 2000; Vol. 4(1), 55-70.
56. Urban hydrology of Darjeeling town, India, *Indian Journal of Geomorphology*, Vol. (2), 211-220.
57. The water resource of the upper Mahananda basin: problems and prospects, *National Geographical Journal of India*, Vol. 44(1-4), 1998, 105-112.
58. Assessment of soil loss by water erosion: a review; *Geographical Thought*, vol.3, 1997, 53-66.
59. Causes and Consequences of landslides in Darjeeling Town, (jointly with S.R. Basu), 1997, *Indian Journal of Geography and Environment*, Vol. 2, 20-35.
60. Morphometric analysis of the upper Mahananda basin: a quantitative approach *Journal North Bengal University Review (Science & Technology)*, Vol. 8(2), 1997, 45-65.
61. Some considerations on slope instability in and around Toong Soong area of Darjeeling town; *Journal Himalayan Paryavaran*, Vol. 5(1), 1997, 58-69.
62. Some considerations on the fluvial dynamics of the river Mahananda, Siliguri, *Journal Geographical Review of India*, Vol. 59(1), 11-24.
63. An assessment of land capability in the upper Mahananda basin, W. B.; *Indian Journal of Landscape Systems and Ecological Studies*, Vol. 19(2), 1997, 41-52.
64. Geomorphic characteristics of alluvial fans of the Ladakh Himalaya (jointly with S.R. Basu); *Journal Geographical Review of India*, Vol. 58 (4), 1996, 287-303.
65. Land its use and potential in the sub-Himalayan North Bengal; *Journal Geographical Memoirs (Special Issue) No.1*, 1996, 1-5.
66. Geomorphology and urban activities: a case study in Darjeeling town; *Journal Himalayan Paryavaran*, Vol. 4(1), 1996, 4-12.
67. Genesis and classification of soils of the upper Mahananda basin, Darjeeling Himalaya; *Journal The geographical Memoir*, 1990, Vol. 2 (1-2), 117-129.
68. Rain erosivity in the Darjeeling Himalayan region, West Bengal; *Indian Journal of Landscape Systems and Ecological Studies*, 1989, Vol. 12(1), 129-133.
69. Some considerations on soil erosion hazard in the Darjeeling district (west of the river Tista), W.B.; 1989, *Geographical Thoughts (occasional pub.)* Vol. 1, pp. 45-54.
70. Land capability classification of the Panchanai basin, W.B.; *Indian Journal of Landscape System and Ecological Studies*, 1988, Vol. 11 (1), 34-39.
71. Soil classification in the Panchanai basin of Darjeeling district, W.B.; *Journal Geographical Review of India*, 1988, Vol. 50 (1), 29-38.
72. Soil loss in upper Mahananda basin in the Darjeeling Himalaya; *Journal Geographical Review of India*, Vol. 49 (2), 1987, 47-56.
73. Impact of individual forest tree on soil: A case of Dhupi tree; *Indian Journal of Landscape Systems and Ecological Studies*, Vol. 8(2), 1985, 70-75.
74. Studies in genesis of catenary soils in the Ajodhya highlands of Purulia district, W.B.; *Journal Geographical Review of India*, Vol. 47(1), 1985, 25-35.
75. Some considerations on recent landslides at Tindharia and their control; *Indian Journal of Power River valley Development*, Vol. 34 (10&11), 1984, p.188-194 (jointly with S.R. Basu).