



Focal Theme Geomorphology, Environment and Management

2nd Circular v2.0

35th National Conference of the Indian Institute of Geomorphologists (IGI)

25th - 27th
November 2023
New Delhi



Organized by
Centre for the Study of Regional Development
School of Social Sciences
Jawaharlal Nehru University
New Delhi, India



Focal Theme Geomorphology, Environment and Management

Sub-Themes

Session
Code

Session Name

In the face of a changing environment, not only does the landscape transform, but the survival of life is also impacted. As predicted, the impending influence of changing climate necessitates a profound comprehension of specific processes, a realm intricately intertwined geomorphology. The emerging environmental circumstances are anticipated to exacerbate challenges to human existence, with discernible signs of frequent extreme weather patterns. Given the impracticality of relocating sizable populations from environmentally vulnerable zones, geomorphologists can suggest viable alternatives for managing such perilous scenarios using environmental evaluation and assessment, thereby proposing safer solutions. In light of rapid population growth and changing environmental conditions, sustainable development has become paramount in the equitable distribution debate and responsible utilization of natural resources. Within this context, the IGI introduces the central theme: "Geomorphology, Environment, and Management" for the 2023 conference.

1. Arid & Semi-arid Geomorphology
2. Alpine Geomorphology
3. Coastal Geomorphology
4. Fluvial Geomorphology
5. Climate Change & Geomorphology
6. Geoarchaeology & Geoheritage
7. Applied Geomorphology
8. Geomatics in Geomorphology
9. Geohazards and Management
10. Young Geomorphologists
Competition

COASTAL RETREAT- A COMPARATIVE ANALYSIS OF BAKKHALI AND MOUSUNI, INDIAN SUNDERBANS

Shreya Das^{1*}, Srirupa Saha^{1*}, Tanushree Bose¹, Kamalika Mondal¹, Kanailal Das¹ and
Karabi Das²

¹Estuarine and Coastal Studies Foundation, West Bengal, India.

²Department of Geography Dr Kanailal Bhattacharyya College, Howrah, West Bengal, India.

*Equal contribution authors

*Presenting authors: dasshreyaa123@gmail.com ; srirupasaha15102000@gmail.com

ABSTRACT

Coastal erosion refers to displacement of lands along the coasts by the continuous process of erosion and accretion changing the physiography. Coastal islands of Indian Sundarbans have faced severe cyclonic effects of Bulbul (2019), Amphan (2020) and Yaas (2021) triggering embankment breaching and salt water intrusion hampering livelihoods. A comparative study was done between Mousuni and Bakkhali, part of Indian Sundarbans facing Bay of Bengal in the Southern part of Ganges delta. Mousuni island faced a land reduction of about 3.82km² along western bank (1979 -2011; Das,2022) whereas coastal stretch of about 2km from Bakkhali in the east to Fraserganj in the west was eroded (Das,2022). The objective of the study was to assess the suitability of embankments to combat the vulnerability regarding coastal erosion in Mousuni and Bakkhali. To observe the beach morphology both quantitative and qualitative approaches were undertaken. Quantitative methods such as

60th Annual Convention of IGU

measuring various parts of embankments with observations of embankment design (mainly permanent concrete embankment and temporary geojute) were undertaken. A beach profile was done to observe the effects of coastal erosion on beach with the help of dumpy level. A comparison from two field surveys (7th May, 7th October) at Mousuni shows striking effects of coastal erosion at Baliara demolishing the geojute embankments and resorts. The coastal configuration of Bakkhali shows an interesting erosion and accretionary behavior at two adjacent sections unlike Mousuni. High concrete embankments are demanded by the local residents in case of the islands. Qualitative methods such as questionnaire survey was done to understand the people's perception regarding the sustenance of embankment. Armored concrete embankment protected by vegetative wall is required to cope up with the coastal retreat of these two islands.