

Coastal Geomorphology and Environment - Sundarban Coastal Plain, Kanthi Coastal Plain, Subarnarekha Delta Plain

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The book "Coastal Geomorphology and Environment" is born out of a long standing pursuit of devoted research in the many aspects of the complicated coastal environment of the Bay of Bengal. Ashis Kr. Paul focused his studies on the Bengal and northern Orissa coast, over the years, however, he branched off from his earlier morpho-ecological studies of coastal dynamics, dune and mangrove environment to the impact of cyclones and storm surges, coastal hazards and their management and very importantly the understanding of the socio-economic factors operating in the deltas. One of the merits of this single authored book lies in this multifaceted approach to the coast, the wide range of topics, and the emphasis given on the interrelationship between the physical, biological and human environment.

The book is divided into seven self contained chapters. The first chapter introduces the Bengal Coastal Plain and parts of the northern Orissa coastal belt, discusses the objectives of the coastal studies and elaborates on a number of coastal issues the region faces. Among the coastal problems discussed one finds hazard mitigation, environmental refugees, pollution, industrial aquaculture, coastal recreational exploitation etc.

The second chapter "Background of the Coast" deals with the morphological manifestations of both, the historical and geological coastal changes. Using old records, toposheets, maps and remote sensing, Paul traces old navigable channels, sites of channel bank civilisations and ports, and shows historical changes in the coastal configuration from the prehistoric period to recent human activities. The second part of this chapter looks at the Quaternary depositional history, sea level changes, stratigraphy and that of tectonics of the coastal land forms and gives a detailed account of the Bengal basin.

The third chapter "Physical Environmental Setting" elaborates on the relative sea level history, analyses the marine agencies including tidal properties of the region, wave characteristics, longshore and estuarine currents, fluvial discharge and sediment load. The chapter also gives detailed sediment analysis of beach and dune sands and looks at the depositional and sedimentary environment of particular land forms in six topographic units.

The fourth chapter "Physiography of the Coastal Plain" with 216 pages is the longest chapter. The five major coastal land forms namely 1. beach, spits and barriers, 2. dunes,

3. wetlands, 4. coastal lowlands and 5. estuaries, tidal inlet and lagoons are dealt with in great detail and as such could also alone be used as a textbook in coastal geomorphology with many regional examples.

The fifth chapter on "Extreme Events" shows the vulnerability of the lowland coast and especially delta environment to cyclonic storms and storm surges. It examines the effect of severe coastal storms on the coastal features and on the economic life of the region, the amount of land loss and the displacement of people, and it discusses protective measures to reduce the scale of damage.

The sixth chapter "Coastal Environment" focuses on the special features of the coastal wetland and dune environment including their flora and their function within the coastal system. It highlights how both these ecosystems, which act as natural buffers to the impact of wave erosion and storms, are threatened and subjected to alteration, different forms of over exploitation, pollution and continuous loss of area with severe consequences.

The last chapter is dedicated to different aspects of "Coastal Zone Management", the problems and issues in the disaster prevention and management of the densely populated, overexploited, highly stressed

coastal region. Special emphasis is given to the problem of sea level rise. This chapter also defines the administrative legislation operating through coastal regulatory zones (CRZ) and appropriate regulatory bodies for different areas including sea protection, land use planning, fishing, tourism etc.

The book "Coastal Geomorphology and Environment" reads well, facts are clearly presented, mistakes are few and the text is richly documented with numerous tables and figures in the form of flow charts, diagrams, block diagrams, profiles, cross sections and a large number of photographs. The tables provide easily found information on many facts and issues, and the many figures promote the understanding of the text. While the small sized photographs are clear, a few maps have suffered due to over reduction. The author intended his book to be a "text-cum-reference" book. The layout of the book with a well arranged and detailed list of contents, index and the many references makes it easy to find the desired information.

The book should appeal to a large section of readers, all those involved in coastal studies, environmentalists, regional geographers, planners. "Coastal Geomorphology and Environment" would be a welcome and highly valued addition to any library.

Jutta Dikshit