

Assessment of Coastal Geomorphic Processes in Erasama Block, Jagatsinghpur District, Orissa

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Abstract: Digitally processed LANDSAT-ETM (Enhanced Thematic Mapper) data, fieldwork and ancillary data were used to delineate the coastal geomorphic features around selected villages of Erasama block, Jagatsinghpur district, Orissa. Remote sensing techniques involved in this study included Principal Component Analysis (PCA), False Color Composite (FCC) and visual interpretation. Digital enhancement techniques were used for enhancing satellite images with respect to the topographic and geomorphologic characteristics of the study area. Final digitally enhanced LANDSAT-ETM images were used for interpretation and mapping the geomorphic features of the study area. Ground truth using DGPS and verification of secondary data helped in the identification of two major units of Coastal Plain, i.e., old coastal plain and young coastal plain. Old coastal plain primarily comprises of coastal plains, beach ridges and beach ridge complex. Younger coastal plain comprises of young mud flats, beach, coastal plain, swale and beach ridges. Creeks, rivers and ponds have been mapped as water bodies. The mapped landforms suggest waves and storm surges as dominating coastal processes responsible for their evolution. The shoreline changes observed for the period 1989-2007 show that the coast is prograding in the north-east ward direction.

Keywords: coastal geomorphology; landforms; coastal process; evolution; Remote Sensing and Geographic Information System, processing techniques and Landsat ETM.