

## High resolution Erosion/Accretion mapping for the coast of India

India has 7,500 km coastline (~5,400 km on the mainland) and about 250 million people live within 50 km distance from the shore. India's mainland coastal stretch of 5,422 km have undergone tremendous changes due to varying natural and human induced coastal activities. Apart from these factors, the shorelines are constantly oscillating in response to winds, waves, tides, currents, sediment supply and changes in relative sea level. These cyclic and non-cyclic processes change the position of the shoreline over a variety of time scales, from the daily and seasonal interaction of winds and waves, to changes in sea level over thousands of years. Furthermore, shoreline changes are not constant through time and frequently reverse in sign, i.e. accretion to erosion, and vice versa. Due to the shifting of shoreline position and human influences on coastal processes and sediment sources, however, it is critical to determine whether the long- or short-term rates of shoreline change reflect present-day shoreline dynamics. This analysis is complicated in areas that exhibit trend reversals (erosion to accretion, and vice versa), or where human activities, such as revetment construction, have affected sediment sources and altered shoreline processes.

An understanding and proper application of short-term shoreline changes and long-term data are critical components for effective shoreline management. The primary aim of this research study is to determine the state of the nation's coast (Fig 1) and to map the extent of erosion/ accretion along the entire mainland coast of India from 1975– 2010 (35 years) and to extrapolate the erosion/ accretion data for the next 100 years.

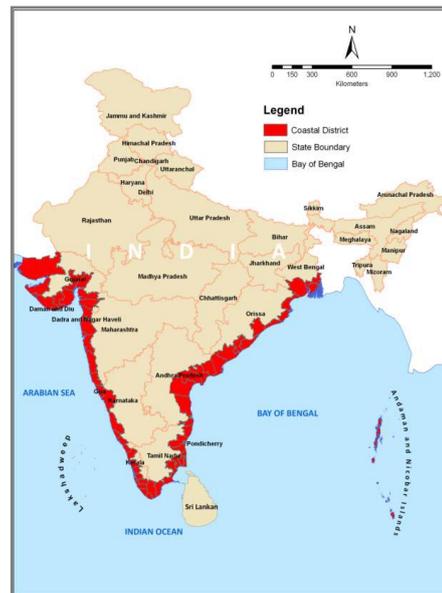


Fig 1. India's coastal districts

This research study will help in identifying the critically eroding areas that need coastal protection measures and proper planning on utilization of the coast. As horizontal displacement of the coast (erosion) is an essential part of the Hazard line the study also contribute to the demarcation of the Hazard line all along the mainland coast of India which facilitates effective and coordinated inter-sectoral planning of the coastal environment and development.