

Delineation of Sediment cell for the east and west coasts of India

There is an increasing pressure on the coastal zone from numerous user groups, all of whom require some kind of utilization of the coastal resources. Consequently, a comprehensive planning effort is required in order to secure a balanced sustainable development taking all demands and restrictions into account. In India, a number of developmental research studies are being carried out all along the coast (such as construction or expansion of ports and harbours/ power plants/ tourism development/ desalination plants etc.). The sediment budget and the transport rate play vital roles in determining the stability of the coast and they are chiefly governed by the coastal processes prevalent in the area. Hence there is a need to understand coastal sediment budgets and their inter-relationship with coastal management schemes. As the sediment budget and processes vary from one coastal area to the other, there is a need to demarcate coastal areas based on these properties. For this purpose, the concept of sediment cell is to be adopted and the entire coast of India needs to be divided into a series of coastal sediment cells.

A coastal sediment cell can be defined as length of the coastline and associated near-shore areas where movement of sediments is largely self-contained. Each cell contains a complete cycle of sedimentation including sources, transport paths, and sinks. The sediment cells are identified and categorized as primary cell, sub cell and management units based on certain unique key criteria for each type. In this way the entire Indian coast is delineated into 27 primary cells with 10 primary cells in the west and 17 primary cells on the east coasts of India as shown in Fig 1.

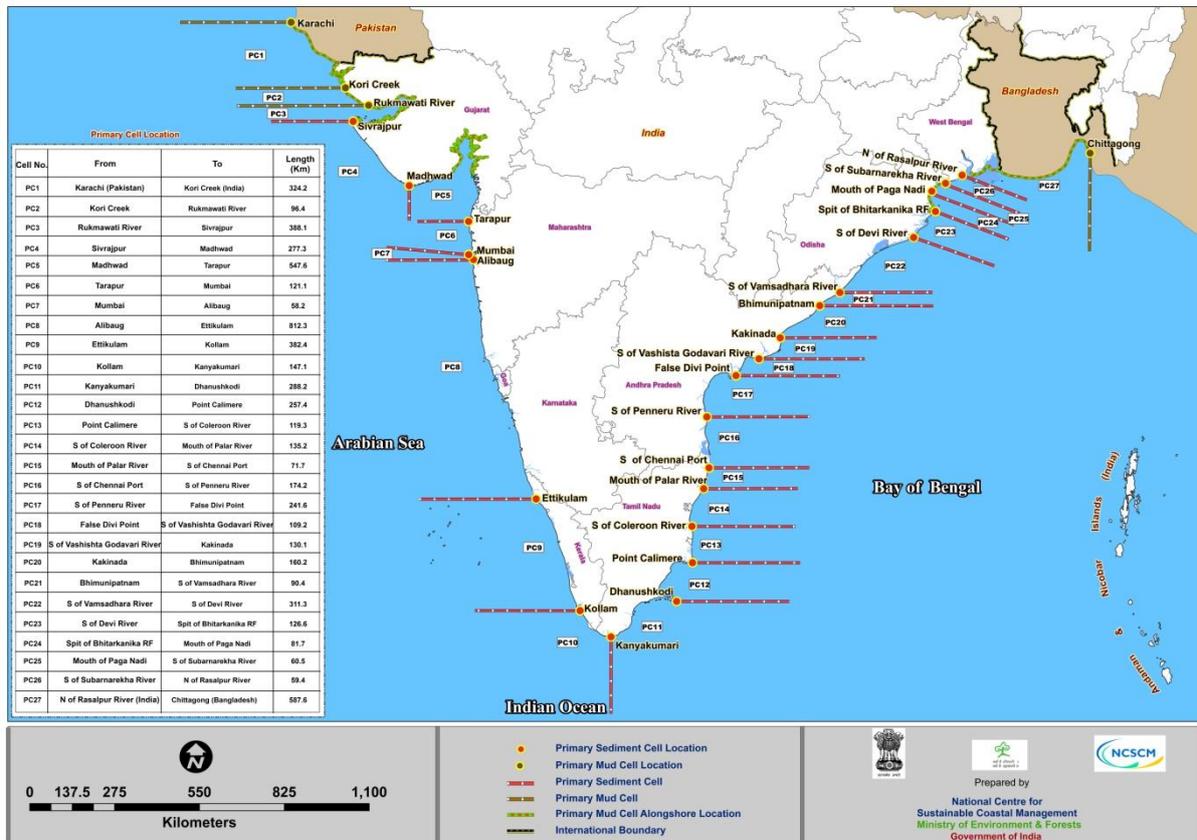


Fig 1 . Primary cell locations along the Indian coast

The 27 primary cells are further delineated into 59 sub cells with 21 sub cells out of 10 PC's in the West coast and 38 sub cells out of 17 pc's on the East coast as shown in Fig 2 . Further the behaviour of sediment within each cell is studied with the existing and proposed activity at selected locations along the coast.

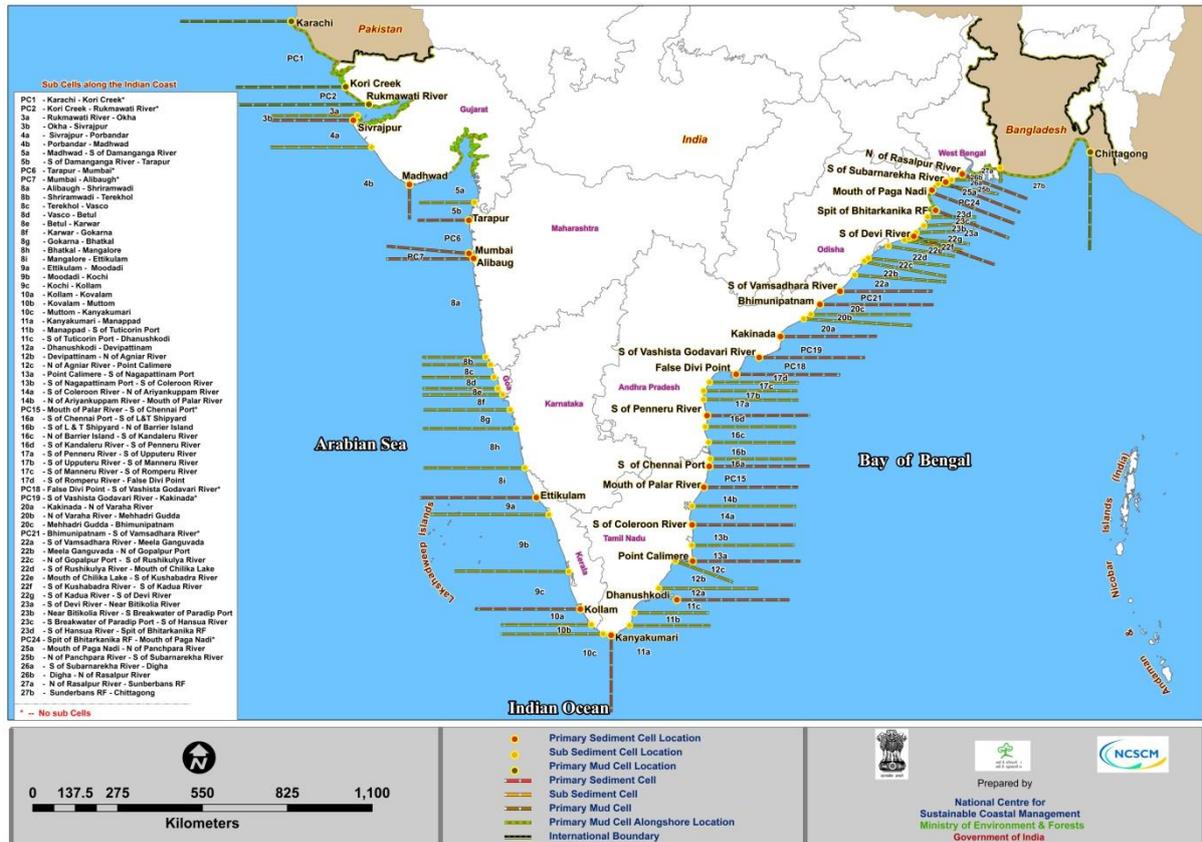


Fig 2. Sub cell locations along the Indian coast

The outcome of the study can be used as a key factor in Integrated Coastal Zone management plan especially to deal with shoreline changes by preparing the Shoreline Management Plans.