

APPRAISAL OF SEDIMENT AND CARBON FLUXES TO THE INDUS DELTA

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ABSTRACT

Most countries in the South Asia region such as Bangladesh, India, Pakistan and Sri Lanka are engaged in the collection of data on water quality, from both off-shore and inland water bodies such as rivers, large reservoirs and lagoons. Studies on sediment dynamics and nutrient analysis as well as ecology of the coastal regions have also been carried out in most countries. These studies have been carried out by the respective national oceanographic or marine research institutions as well as by university researchers. The fluxes of nutrients and organic matter from the river system are very significant in the global context. An assessment of these fluxes is necessary for the understanding coastal processes related to the stability of the deltaic system. The focus of this paper is to integrate and analyse information and results for the better understanding of coastal processes. The objectives of the paper are to identify, assess and share existing studies (methodologies and results) related to material fluxes, their origins and impacts on the critical functions of coastal systems.

The Indus delta, as a result of upstream water abstraction, has inadequate sediment and water flow to maintain the natural ecosystems. The status of the delta's natural ecosystems has already become critical, and the sediment starvation will deteriorate the situation even further. Whatever sediment the River Indus has carried to the delta limits itself within the Khobar creek till the event of flood that flushes out the unconsolidated sediment to the Arabian Sea. Though there was substantial variation in the salinity with the diurnal variation in tide no apparent change was observed in the suspended sediment concentration as turbidity is influenced by the strong tidal flux which reverses its direction during ebbing and flooding. The River Indus bed sediments have relatively low values of calcium carbonate (< 10%). Low Values of the C_{org} (< 1%) were obtained for the bed samples of the River Indus.

Key words River Indus, Khobar Creek, Sediment flux, Carbon flux