STRESSES ON THE STABILITY OF INDUS DELTA

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ABSTRACT

This paper integrates and analyzes existing information and results for better understanding of processes involved in the stability of the Indus delta. The Indus delta consists of more than seventeen major and minor creeks, extensive mudflats that are under stress due to lack of a coordinated management plan and consequently harsh natural environment. Extensive use of the fresh water for irrigation in recent years has caused a decline in the River Indus discharge. The construction of the barrages and the link and irrigation canals has, over the years, led to a systematic abstraction of water from the Indus. The Tarbella Dam and Chashma Reservoirs have resulted in the siphoning off more than 70 percent of Indus waters before it reaches Kotri Barrage, the last barrage point on the Indus in the southern Sindh province. Natural and man made changes in the coastal hydrodynamics are resulting in major geomorphic and ecological changes due to sea water intrusion. Ground investigation and the interpretation of satellite imageries indicate erosion of coastal islands in the vicinity of the Indus delta. Inconducive man made changes coupled with natural physical forcing in the Indus delta and adjoining area will conspicuously change the geomorphic and hydrodynamic setting of the delta that may result in the associated changes in the prevailing physical processes, which in turn will have a negative influence on the coastal resources, infrastructure, ecosystems and socio-economy of the area.

Key words Indus delta, stability, stress, hydro-dynamics