

Deltaic-Estuarine Process in the Indo-Pacific Region. In: Z. Chen, Y. Saito and S.L.G. Jr. (Editors), *Mega-deltas of Asia- Geological Evolution and Human Impact*. China Ocean Press: 202–209

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### **Anthropogenic activities and their impacts on natural resources and livelihoods of the coastal region of Bangladesh**

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The coastal region of Bangladesh encompasses about one fifth of the country's landmass and supports livelihood of about 35 million people. This region is ecologically vulnerable because of its geographical settings, while the climate change is aggravating the incidence of natural disasters especially periodical cyclonic storms and tidal surges. Besides, the region is increasingly becoming vulnerable to various extreme climatic events due to different anthropogenic activities. The major anthropogenic activities identified are coastal embankment, brackish water shrimp farming, salt production, urbanization, transport and navigation, industries, ship breaking activities and indiscriminate use of agrochemicals in farming activities. Growing anthropogenic activities have been found to put multifarious adverse impacts on natural resources, environment and livelihood of the inhabitants. Embankments constructed to prevent salinity intrusion are now used a pool of saline water for brackish water shrimp farming. This is in turn causing long time water stagnation and thus converting crop lands to non-crop ones. Shrimp farming with more than 200 thousand hectare areas is already causing major adverse effects on agricultural production, forest, biodiversity, fodder, energy, environmental, as well as human and animal health. Gradual expansion of salt production has been causing increased salinization of soils as well as decreasing land area for agricultural crops and vegetation. High levels of organic, inorganic and radioactive pollutants in waste discharges from growing

number of fish processing plants, industries and ship breaking yards have been found to pollute the estuarine and marine ecosystems. Human settlements; road networks; road transport and marine transport; bilge water and crude oil leakage from mechanized boats, ships and fishing trawlers have also been found to cause damage to the mangrove ecosystems, destruction of aquatic lives and contamination of food chain through toxic buildup. The resultant effects all these events are causing severe degradation of ecosystems and livelihood opportunities of the poor coastal communities. The government of Bangladesh recognized all these events and efforts are underway towards formulating mitigation strategies at both national and international levels.

### **Changes in sream depth and width in Moribund Delta and effects on primary economy: a case study on greater Kushtia and Jessore of Bangladesh**

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Ganges moribund delta includes small river, tributary and distributaries of greater Kushtia and Jessore district of Bangladesh and Murshidabad and Nadia of West Bengal of India. The area of moribund delta is about of 18,000 km<sup>2</sup>. Geographically the moribund delta is a potential part of the Ganges delta. It is playing a vital role in protecting the regional ecology and primary economy. After 1947 the small flows have been being disturbed due to huge number of road, culvert and bridge construction. The flows of Bangladesh have been being disturbed due to embankment of upstream reportedly. The ultimate result is that many tiny flows (distributaries) have been turned into swamps and marshes (locally termed as baor). Not only that most of mighty streams (small rivers) in Kushtia and Jessore (Mathabhanga, Isamati, Kumar, Kapatakhmo, Vairab, Vadra, Horihor, Chitra and Nabaganga) have been turned into very tiny water bodies. They become almost dry in winter and summer. To detect the changes in river depth and width of