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## SALINITY INTRUSION AND ITS MANAGEMENT ASPECTS IN BANGLADESH

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### ABSTRACT

Fresh water flows counterbalance salinity intrusion in the coastal zone of Bangladesh. To quantify the required fresh water, requires a detailed understanding of physical phenomena including tidal motion, wind mixing, groundwater discharge, and river flow. The coastal zone comprises part of the flat Ganges Delta, which is crisscrossed by large tidal rivers discharging into the Bay of Bengal. The estuaries and tidal river systems of the coastal zone have been formed by long period deltaic accretion which was dominated by the historical morphological changes of the Ganges and Brahmaputra rivers. The major estuarial rivers of the south-central region are interlinked and fed by numerous smaller channels. The approximate population in the coastal area is 40 million. They are very vulnerable to natural disasters along a 720 km coastline. Saline water intrusion is the main problem in the southwestern zone. About 60 and 15 percent of arable land (total 1.0 mha of croplands) of southwestern and southeastern Bangladesh respectively are affected by salinity during dry periods. The salinity is caused by cyclone and storm surges, high spring tide inundation and capillary actions. Its effect on the soil surface and root zones is to decrease crop production about 0.13 metric tons every year. The increase of salinity intrusion and decrease of arability will prevail due to climate change effects and the reduction of flood plain areas, and it may propagate throughout the country. Management of salinity intrusion is a vital issue for Bangladesh. Saline water proofing by structural management like coastal embankment projects, dams, sluices, and coastal area zoning, as well as non-structural management strategies that change the land use and other activities, can be a vision of a sustainable livelihood and environment for Bangladesh.

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**Reference:** Rahman, M.M., and A.K. Bhattacharya. 2006. Salinity intrusion and its management aspects in Bangladesh. *Journal of Environmental Hydrology*, Vol. 14, Paper 14.

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