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STABILIZATION OF THE BRAHMAPUTRA-JAMUNA-PADMA-MEGHNA RIVER CORRIDOR, BANGLADESH

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The main rivers of Bangladesh are boon and bane for the country. They supply water and fertile sediments allowing multiple crops per year, hundreds of waterways for navigation, rich fish stock and habitat diversity. But especially the dynamic, unpredictable Brahmaputra influenced rivers erode fertile floodplain land with long established settlements, flood embankments, roads, and all other communal infrastructure. The high sediment load and resulting continuous shifting of river courses impedes navigation and the inflows into the important distributary offtakes.

Stabilization of these largest and most unpredictable rivers on the planet presents a huge challenge. Bangladesh has systematically developed the technology and experience to stabilize longer reaches of riverbanks and has commenced towards a holistic approach to stabilizing the Brahmaputra System from the Assam border to the Bay of Bengal. Current developments are concentrated in the Flood and Riverbank Erosion Risk Management Investment Program, from which we present three recent key developments. First, we demonstrate phased gradual stabilization of the 60 km reach just upstream of the confluence with the Ganges following an adaptive approach, responding to massive riverbank erosion but also seizing the opportunities offered by the rivers during particular years towards systematic stabilization and land reclamation. Second, we show how an array of morphological prediction methods and mathematical models, developed over the past 25 years, is used for the planning and the design of interventions for stabilization. Third, we demonstrate our experiences with an innovative construction method for long guiding revetments, consisting of sand-filled geo-textile bags under water. Additionally, we discuss the feasibility, costs, benefits, environmental impacts and social impacts of river stabilization also with special attention to the pivoting role of stable distributary offtakes in the context of a wider river management plan.