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Designation :

Title : *Flow and Erosion Process and its Local Impact Along a Developing Bend Between Two River Training Structures in a Braided River*

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River bank erosion in the braided Jamuna River is one of the major natural phenomena in Bangladesh. Bank erosion and channel developments are closely related to river flow processes and river morphology. The erosion processes resulting from the changes of flow and morphology, in a bend channel between Sirajganj hard point and right guide bund of Bangabandhu Bridge, within the braided Jamuna River has been explored in this research. The effect of such erosion processes on day to day activities of the local people is also investigated.

The bend has been developing very quickly during the last three years making the bank profile very steep. The research has been conducted through analysis of dry season satellite images and field survey. Float tracking has been conducted several times to get surface stream lines and its convergence characteristics towards bank line. The spatial and temporal variation of erosion along the developing bend are represented with convergence point of surface stream lines. It has been revealed that surface flow velocities are concentrated and converged at the point of active erosion.

Bankline shifting has also been calculated from bankline survey using hand held GPS. The river bend has shifted approximately 1.3 kilometers during the last three years and engulfed 400 ha of agricultural and homestead land in the floodplain. PRA tools have been used to determine the local difficulties related to land and water use practices of the people vulnerable to erosion. These vulnerabilities vary with different processes of erosion. During the active erosion processes, the eroding bank became almost vertical having an average dry season exposed bank height equal to 6 meter. The near bank inhabitants, especially women, do not have access to river water and river bank to accomplish their daily requirements. Local people who previously engaged with agriculture related activities in the River mild slope bank and used the river bank as ghat are now forced to change their usual practices. River bank side inhabitants are also facing problems in different day to day activities such as vegetables production and water collection.

The extent to length ratio of the embayment has exceeded the previously observed maximum ratio ($=0.21$) along the right bank of the Jamuna River, which indicates that the bend may not continue to develop.