

Monitoring the Change of Padma River Bank at Faridpur, Bangladesh Using Remote Sensing Approach

Authors : Ilme Faridatul, Bo Wu

Abstract : Bangladesh is often called as a motherland of rivers. It contains about 700 rivers among all these the Padma River is one of the largest rivers of Bangladesh. The change of river bank and erosion has become a common environmental natural hazard in Bangladesh. The river banks are under intense pressure from natural processes such as erosion and accretion as well as anthropogenic processes such as urban growth and pollution. The Padma River is flowing along ten districts of Bangladesh among all these Faridpur district is most vulnerable to river bank erosion. The severity of the river erosion is so high that each year a thousand of populations become homeless and lose their agricultural lands. Though the Faridpur district is most vulnerable to river bank erosion no specific research has been conducted to identify the changing pattern of river bank along this district. The outcome of the research may serve as guidance to prepare river bank monitoring program and management. This research has utilized integrated techniques of remote sensing and geographic information system to monitor the changes from 1995 to 2015 at Faridpur district. To discriminate the land water interface Modified Normalized Difference Water Index (MNDWI) algorithm is applied and on screen digitization approach is used over MNDWI images of 1995, 2002 and 2015 for river bank line extraction. The extent of changes in the river bank along Faridpur district is estimated through overlaying the digitized maps of all three years. The river bank lines are highlighted to infer the erosion and accretion and the changes are calculated. The result shows that the middle of the river is gaining land through sedimentation and the both side river bank is shifting causing severe erosion that consequently resulting the loss of farmland and homestead. Over the study period from 1995 to 2015 it witnessed huge erosion and accretion that played an active role in the changes of the river bank.

Keywords : river bank, erosion and accretion, change monitoring, remote sensing

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