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Morphological evolution of the rivers in a subsiding basin

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Knowledge on the evolution processes of rivers in the subsiding basins is limited, whereas the characteristics of the rivers in a depressed basin are found to be distinctively different from that of rivers in an alluvial floodplain. Understanding of the interaction between the processes of rivers and basins is required for long term water resources management. The metamorphosis of the rivers in a subsiding basin covering about 9,000 km2in the northeast region of Bangladesh has been studied using historical map sand time-series satellite images along with bathymetry and sediment data in order to enhance knowledge. The Brahmaputra River in Bangladesh used to flow at the southwest edge of the basin and supplied sediment to compensate subsidence. After avulsion of the Brahmaputra nearly 200 years ago to the present course of the Jamuna River, regular supply of sediment into the basin was cut down, causing net subsidence at a higher rate in the north close to a structural fault. During monsoon, the major part of the flow is transported over the basin, which makes the river morphologically inert. Sedimentation occurs in the riverbed, particularly at the river reach in the immediate downstream of the transition between the floodplain and basin floor, causing problem for navigation. This transition area is also found to be vulnerable to frequent avulsion of the river. The river becomes morphologically active again when its water is at bank or below bank level. At the initial stage of the river evolution after avulsion, the downstream reach of the river gradually diminishes as it proceeds towards and/or over the basin floor. Gradually, the river starts to build up its natural levee and becomes visible in the basin. The reach averaged width of the river on the basin floor is markedly less than that of the upstream reaches. Based on the understanding of the river, a process-response model has been developed that could be helpful to decision makers for management of land and rivers within a subsiding basin.

Biography

Maminul Haque Sarker obtained his BSc in Civil Engineering in 1980 from the Bangladesh University of Engineering and Technology (BUET) and he did his Masters in Hydraulic Engineering from IHE, Delft, The Netherlands. Later, he completed PhD from the University of Nottingham, UK. He is now working in CEGIS as the Deputy Executive Director. His main field of work is on river, estuary and delta morphology. He has many publications in journals, peer-reviewed books.

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Water and its management policy in Delhi

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Space of water is one of the serious problems in Delhi. Water problems are experienced in Delhi. It differs from space to space. Delhi is the third largest metropolitan city of the country. There are three source of water in Delhi, Yamuna River, ground water and rain water. It is a policy that needs to extract ground water is to inform district commissioner ten days in advance but deputy commissioner has no powers to scrutinize applications. Every built-up structure should have rainwater harvesting facilities is another policy. These management policies do not move together. 200 tube wells have already been installed after new rules were notified. Rainwater harvesting is not implemented in proper direction. The main aim and objectives of this work is to come across the spatial issue of water in Delhi and specifically to examine the affordability of water to get connected, the customers' ability to pay for the government or private water supplies, availability of water even after connection, the seasonal effect on water availability. These consumptions have included bathing, cleaning and household use. People suffers serious health problem due to water problem in slum and urban village. Delhi has relation with water, poverty, management and management policy. There is affordability issue; because 40 percent people live in slum, urban village and unauthorized colony, which are not officially allowed for water supply connection. Water problem is in Delhi with small space in compare to big space.

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