Flash flood characterisation of the Haor area of Bangladesh

B. Bhattacharya (1) and A. Suman (2)

(1) UNESCO-IHE, Hydroinformatics and Knowledge Management, Delft, Netherlands (b.bhattacharya@unesco-ihe.org), (2) Patuakhali Science and Technology University, Patuakhali , Bangladesh

Haors are large bowl-shaped flood plain depressions located mostly in north-eastern part of Bangladesh covering about 25% of the entire region. During dry season haors are used for agriculture and during rainy season it is used as fisheries. Haors have profound ecological importance. About 8000 migratory wild birds visit the area annually. Some of the haors are declared at Ramsar sites.

Haors are frequently affected by the flash floods due to hilly topography and steep slope of the rivers draining the area. These flash floods spill onto low-lying flood plain lands in the region, inundating crops, damaging infrastructure by erosion and often causing loss of lives and properties. Climate change is exacerbating the situation. For appropriate risk mitigation mechanism it is necessary to explore flood characteristics of that region. The area is not at all studied well. Under a current project a numerical 1D2D model based on MIKE Flood is developed to study the flooding characteristics and estimate the climate change impacts on the haor region.

Under this study the progression of flood levels at some key haors in relation to the water level data at specified gauges in the region is analysed. As the region is at the border with India so comparing with the gauges at the border with India is carried out. The flooding in the Haor area is associated with the rainfall in the upstream catchment in India (Meghalaya, Barak and Tripura basins in India). The flood propagation in some of the identified haors in relation to meteorological forcing in the three basins in India is analysed as well. Subsequently, a ranking of haors is done based on individual risks. Based on the IPCC recommendation the precipitation scenario in the upstream catchments under climate change is considered. The study provides the fundamental inputs for preparing a flood risk management plan of the region.