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Evaluation and assessment of Kosi River flood disaster using remote sensing and GIS techniques

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In August 2008, the Kosi River submerged several districts in Nepal and India which was the worst flood in the region for 150 years. The Kosi River basin represents one of the largest alluvial fan systems in the world that represents a high energy sedimentary environment. Avulsions were frequent on the Kosi River until 1953, when the Indian government initiated a program for construction of a dam and a levee with an objective to restrict the avulsion thereby forcing the river to a pre-defined course. The present study utilizes Remote Sensing and GIS techniques analyze the 2008 disaster that impacted a major change to the river course. Pre and post-monsoon remote sensing data from IRS-P6 AWiFS, were used for identifying fluvial morphometric features e.g., palaeochannel and for detecting changes before and after the flooding episode in a GIS. Topographic and anthropogenic controls for the flooding were identified and discussed in relation to the scale of devastation with implications for effective measures that are needed to minimize the disaster as well as its impacts.

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