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Flood Risk Zonation, Vulnerability and Impact Assessment – A Case Study of Lower Bagmati River

Summary of the abstract of the Ph.D. Thesis submitted by-
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The Lower Bagmati river basin lies in the northern part of Bihar which originates in Nepal and confluences into the Kosi river at Hayaghat. Some of the major flood incidents took place in the 21st Century, including 2019, 2017, 2016, 2013, 2008, 2007, 2004, 2003, 2002, 2001, and 2000 floods.

By implementing AHP, Shannon's entropy model, and IPCC modules for disaster risk reduction some serious findings that need to be incorporated within the study area. Sitamarhi witnessed a significant increasing trend ($y = 0.0856x + 268.26$), making it highly susceptible to inundation in the lower reaches, the basin is highly elongated indicating gentle slope, and rivers are highly sinuous. The very high-risk zone was found along the river Bagmati and the high-risk zone was located away from the river channel (eastern and southern Sitamarhi, south-eastern Sheohar, north-western Muzaffarpur, southern Darbhanga, southern Samastipur, and northern Khagaria districts).The overall damage (socio-economic, health, and infrastructural) in buffer-I was the highest, and needed special attention, especially on the height of the foundation of buildings.The highly vulnerable areas (between Dheng Bridge to Katra block) in terms of poor socioeconomic and infrastructure, requires special attention for risk management.