GIS BASED FLOOD RISK ASSESSMENT AND INFRASTRUCTURAL LOSS ESTIMATION FOR PEARL RIVER BASIN, MISSISSIPPI

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Abstract: Floods have been part of the earliest recorded history of the Mississippi. About 12 significant flood events and flood damages occurred on the Mississippi between 1849 and 2001, with catastrophic flooding in 1927, 1936, 1973 and 1993. Simulation of hypothetical dam breach events and the resulting floods are crucial for characterizing and reducing threats due to potential dam failures. Using GIS techniques and hydrologic modeling software, possible effects and damage of a dam-break flood have been investigated and results are simulated for Pearl River basin to show significant dam break effects on the region. Data produced by GIS are used as initial values for FLDWAV. ArcView GIS has been used to produce a Digital Elevation Model and visualization of dam-break effects and propagation of a possible flood wave. Loss estimation methodologies for different infrastructural facilities such as housing, roads, utility services are critically investigated.

Keywords: Pearl River, Mississippi, dam break, FLDWAV, GIS