# Flood Vulnerability Mapping of Mubi, Nigeria, using Satellite Data

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**Key words:** Remote sensing; Risk management; Flood; Satellite data; Elevation model; Built-up area

**SUMMARY**

One of the many natural calamities that affects people and property is flooding. It causes the loss of lives and property. Due to its topography and the presence of sizable streams, Mubi in Adamawa State, Nigeria, is prone to floods. Various methodologies and materials have been used by many scholars to investigate flood mitigation mapping. This includes ground survey method, Photogrammetry and Remote sensing techniques and social survey method. However, the Mubi region in Nigeria's Adamawa state was not mentioned. This study identifies flood-vulnerable villages in the Mubi North and Mubi South Local Government Areas (LGA) using a Topographical map and the Shuttle Radar Topography Mission (SRTM). Geographic Information System (GIS) approaches were employed to identify locations susceptible to flooding. The SRTM was used to develop an elevation model, while the Topographic map helped locate roads, waterways, and settlements. Using ArcGIS 10.8, the elevation model was applied to analyse streams, roads, and settlements. Based on the level of flood vulnerability, five categories were established. Flood-vulnerable areas were classified as very high, high, moderate, low, and very low. The results indicate that 78% of all settlements in Mubi North are vulnerable to flooding, compared to only 22% in Mubi South. Furthermore, 48% of all settlements are at very high risk, while only 5% are at very low risk. The study will serve as a tool for Town Planners and Engineers to develop appropriate flood mitigation strategies, contributing to the realisation of Sustainable Development Goal (SDG) Target 13.1.3, which involves implementing local disaster risk reduction strategies.