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Integrated Flood Management Strategies for Urban Area

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Abstract: *Integrated Flood Management (IFM) offers a holistic and sustainable approach to addressing the increasing challenges of urban flooding, which are exacerbated by climate change, rapid urbanization, and unregulated land use. Unlike conventional flood control methods that focus primarily on structural solutions, IFM emphasizes a balanced combination of structural and non-structural measures across the entire flood management cycle—from prevention and preparedness to response and recovery. This study explores the application of IFM strategies in urban areas with a specific focus on the integration of Land Use and Land Cover (LULC) data for flood risk assessment and mitigation planning. Using tools such as QGIS and Google Earth Pro, the research analyzes spatial data to map flood-prone areas, simulate flood scenarios, and assess the impact of land use changes on flood vulnerability. The methodology includes data collection, GIS-based flood modeling, vulnerability mapping, and stakeholder engagement to ensure contextual understanding and validation. The case study of Nashik city demonstrates how LULC insights can support informed decision-making, enhance urban resilience, and guide sustainable development practices. The outcome underscores the importance of adopting data-driven, integrated strategies for flood management that not only reduce disaster risks but also promote environmental and social sustainability in urban planning*

Keywords: Integrated Flood Management, Urban Flooding, Land Use Land Cover, GIS, Flood Risk Assessment

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