

## Role of Hydro GIS Tools in Hydrological Modelling and Urban Flood Management: A Literature Review

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Hydrological modelling and urban floods have a strong relationship as flood management is based on accurate hydrological calculation. GIS assists this relation by providing an easy environment to carry out complex steps of hydrological calculations. However, when automating those processes, there are no guidelines available to manage the software project easily. Then developing a comprehensive guideline requires a clear understanding of the role of GIS in the urban flood and hydrological modelling relation. The present work carried out an in-depth study on; flood management, land management, hydrological modelling, and GIS assistance in modelling to understand the role of hydro and GIS tools in urban flood management. It used the semi-systematic literature review method to review the gathered knowledge. Through the analysis, a close relation between flood and land management is found, especially in urban areas. Further, it is found that now GIS effectively carries out core steps of hydrological models and visualizes the outputs than the inception. Also, the HydroGIS term is evolved to name the software tools that assist flood management through GIS and hydrology modelling. Further, this work could illustrate how such HydroGIS tools can assist local-level flood management decision-making; and the relationships between non-technical decision-makers, hydro model, flood model, and flood management decision-making. Then, the present work can conclude by stating that HydroGIS tools are a key role player in the local level flood management decision-making process as it provides an interface to non-technical decision makers for performing complex hydrological processes.

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