Case Study

CartoSolution Pvt. Ltd.

Flood Modelling

Detection of Flood Hazard in Urban Areas Using GIS

Flood risk assessments are carried out to identify the source of potential flooding, the extent of flooding and the proposed mitigation and protection measures.

Overview:

When rivers overflow their banks they cause damage to property and crops. Floods are common and expensive natural disasters. Floods usually are zonal, short events that can happen suddenly, sometimes with little or no warning. They usually are caused by intense storms that produce more runoff than an area can store or a stream can carry within its normal channel. Rivers can also flood when dams fail, when landslides temporarily block a channel, or when snow melts rapidly.

START

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Objectives Of Flood Risk Management

The strategic objectives established at national level have been detailed in specific objectives. The specific selected objectives covers four basic criteria: economic, social, environmental and cultural heritage, as it follows:

Economic:

- Minimise flood risk to transport infrastructure
- Minimise flood risk over economic activities
- Minimise flood risk to agriculture lands.

Social:

- Minimise flood risk to life and human health
  Minimise flood risk to community.

Environment:

- Support the achievement and conservation of good environmental status/ good ecological potential in accordance with WFD requirements
- Minimise flood risk to protected areas designated for the abstraction of water intended for human consumption
- Minimise flood risk to objectives with potential pollution

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Services:

CartoSolution is experienced in developing flood and drainage models, and has the capability to work with a range of modelling packages including; Hec-Ras, Micro Drainage, Isis, Info Works, TUFLOW and 12D. Modelling studies for the following applications:

- Floodplain mapping
- Flood Level Assessment
- Flood routing
- Breach of coastal/fluvial defences
- Overtopping of coastal / Fluvial defences
- Dam Breach assessment
- Culvert capacity Assessments
- Sewer Network Assessments
- Flood Prevention and Protection

3

Map Content:

Flood extent

The extent of potential flooding has to be presented as surface covering the topography for a specified flood level /frequency. For reference roads, railways, houses, property boundaries and the permanent waterbodies from which the floods may originate may be included.

- Flood extent
- Flood probability, depth, progress
- Potential damage and casualties
- Flood risk
- Flood Hazard
- Evacuation maps

Methodology of Combined 1D & 2D PCSWMM Model

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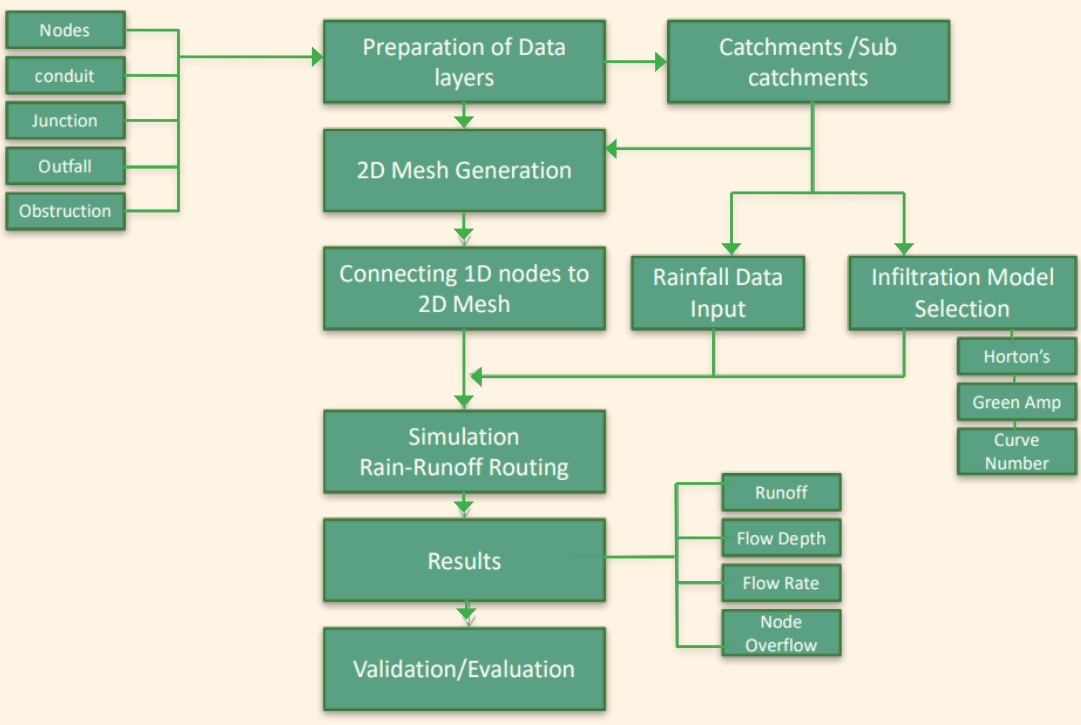

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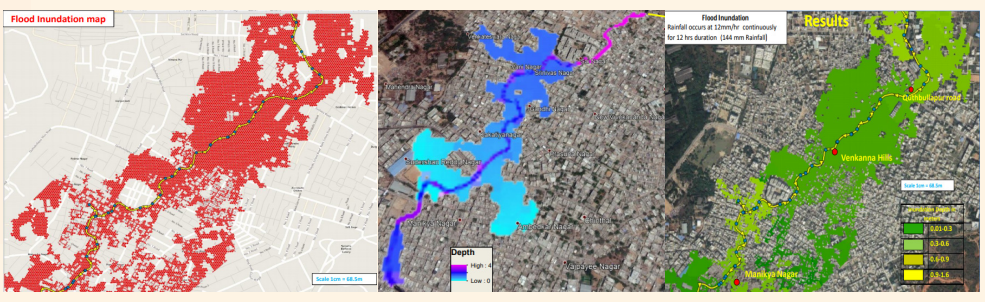
Conclusions:

Establishing guidelines to the cartographic aspects of flood risk maps should be given priority, not only to avoid problems of the public not understanding flood risk maps, but also to assure for instance that specialists dealing with floods actually use the same basis for information, in particular where river systems are concerned that cross national boundaries.



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