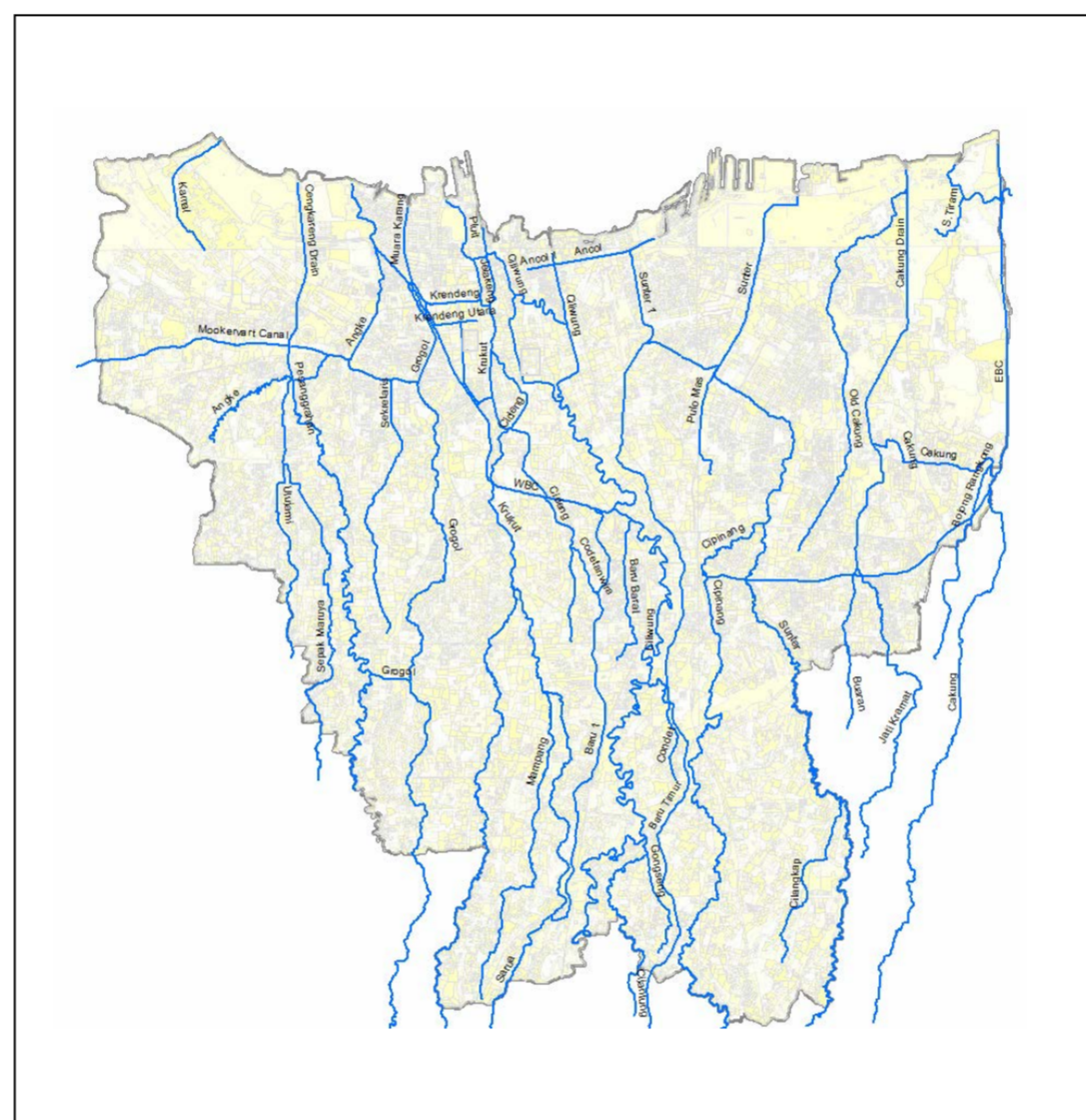




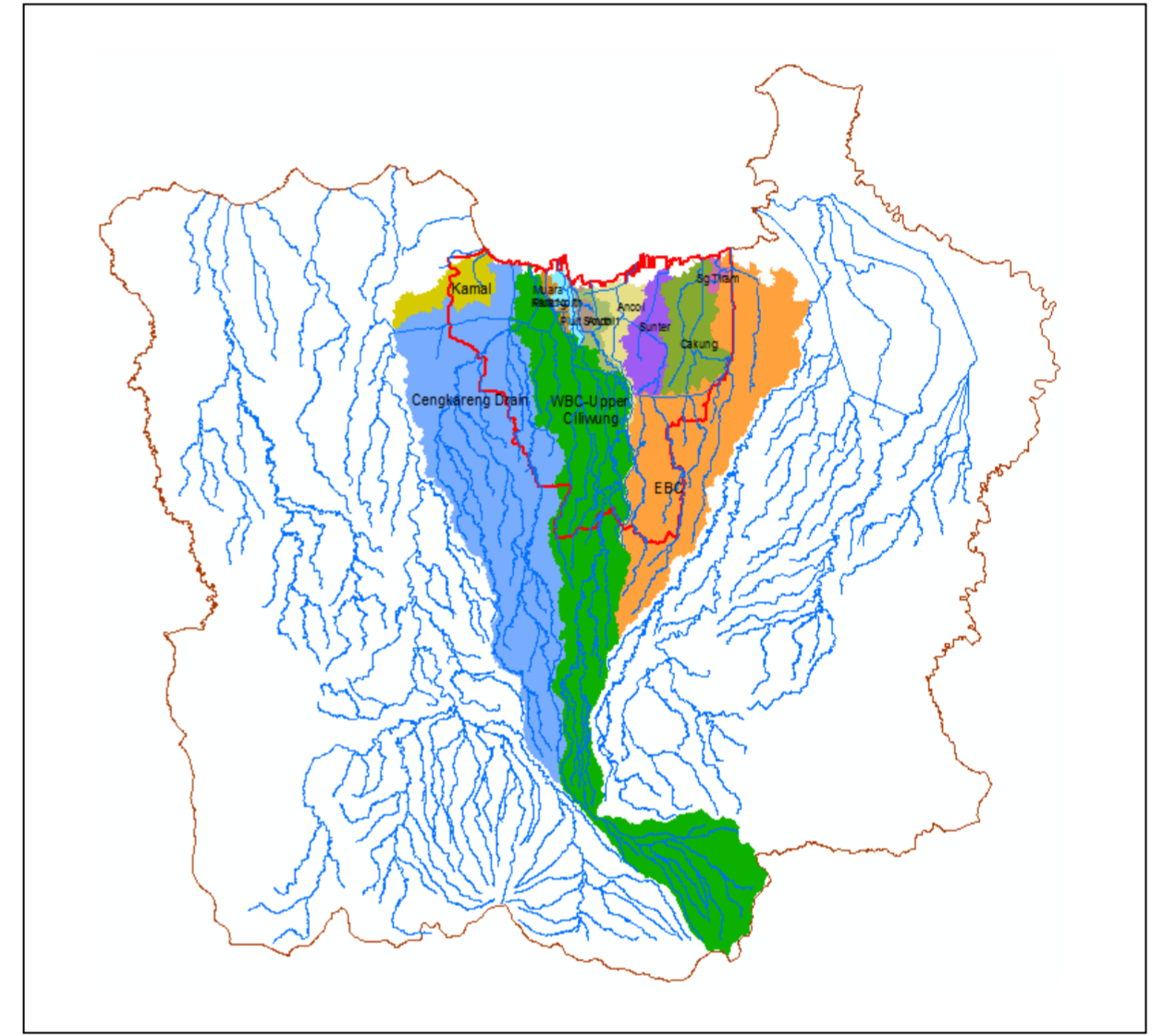
# Integrated Flood Simulation and Damage Assessment Model

Development of an integrated Flood Simulation and Damage/Loss Assessment Model, for evaluation and assessment of potential flood stage and damage/loss at different risk levels up to the probable maximum flood. Initial application is for Jakarta city, and in future for other major cities/regions of interest in Asia

- **Probabilistic Rainfall**
  - Hydrology/Rainfall
  - Watershed Characteristics, Land Use, Drainage System
  - HEC-HMS Rainfall-Runoff
- **Hazard – Inundation**
  - HEC-RAS Hydraulics
  - Arc-GIS Flood Inundation Mapping
- **Exposure/Vulnerability**
  - Exposure: Building & Infrastructures
  - Damage Functions
- **Damage/Loss Assessment**
  - Building Portfolio/Loss Estimate
  - Flood Damage-Probability Function



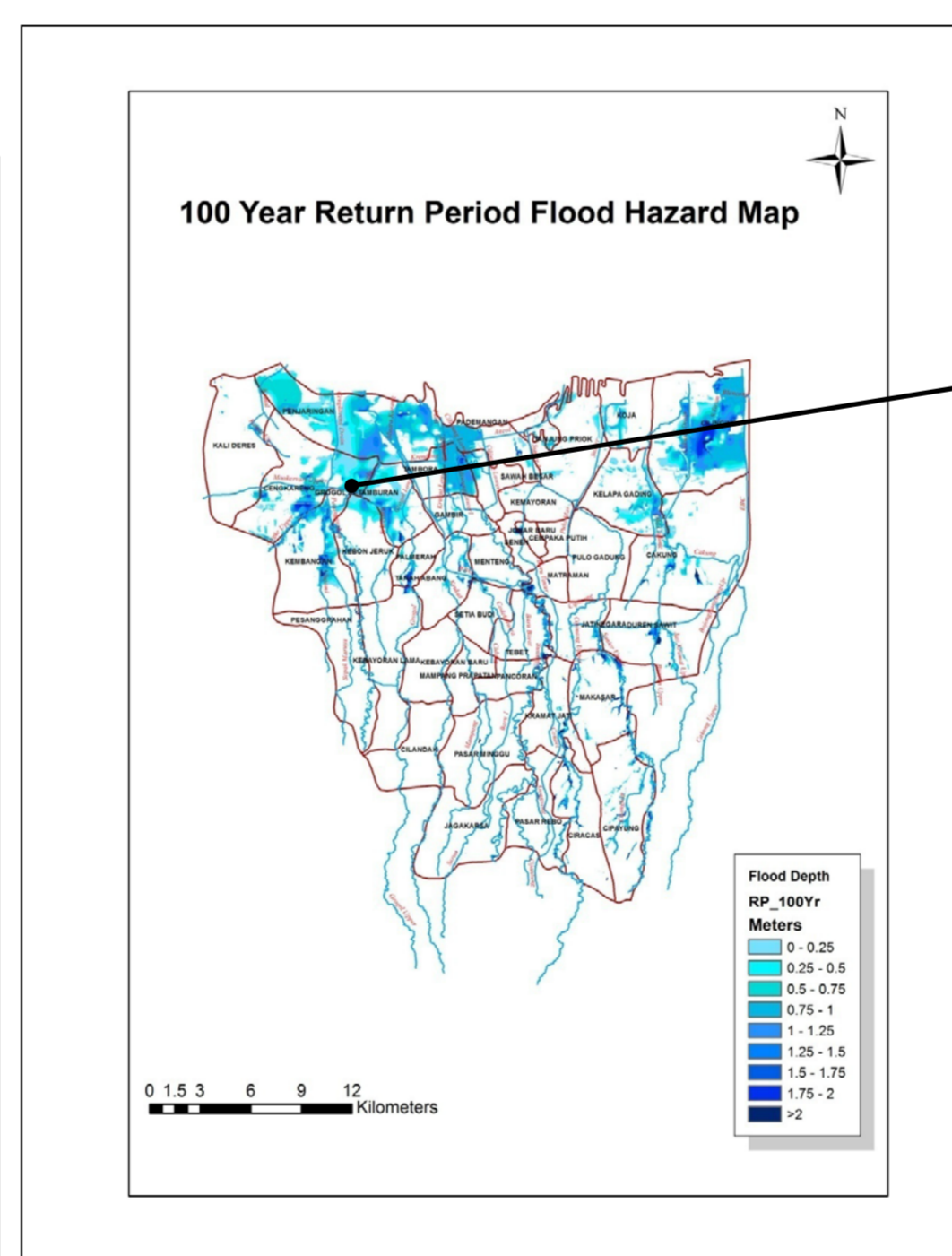
River Networks through Jakarta City



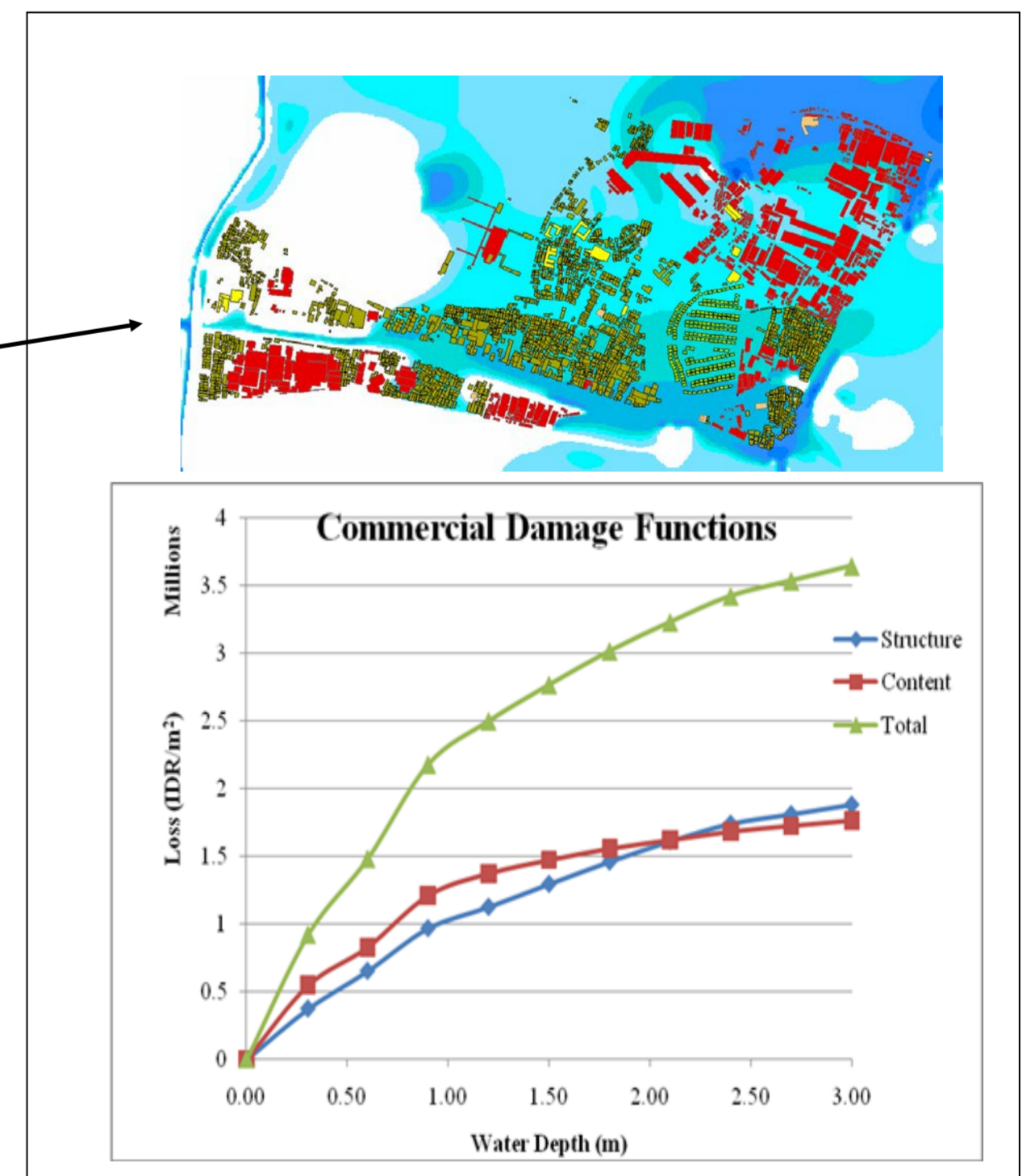
Sub-basin Delineation using GIS Tools  
Hydrologic Modeling of River Flood Discharges



2007 Jakarta Flood Scenes



Hazard: Inundation Maps  
with Return Period



Overlay flood exposure with loss function

## Results and Observations for Jakarta:

- Model overlaps selected exposure with inundation maps to provide loss estimates
- Losses benchmarked with 2002 and 2007 flood events
- Urbanization and land subsidence caused increases in flood risk and damages, in terms of magnitude & frequency
- Poor maintenance of drainage facilities also contributed to the flooding

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