



## Flood Mapping – Overview

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## Potential Uses of Flood Mapping

- Emergency Action Plans (EAPs)
- Mitigation planning
- Emergency response, and
- Consequence assessment
- Visualisation of flood information for decision-makers and the public
- Developing different flood risk scenarios based on land use, environmental conditions and social and economic conditions
- Maps that depict exposure to floods of various recurrence periods, flood risks, vulnerability and response information such as evacuation routes, safe high grounds, and shelter areas.

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## Potential Uses of Flood Mapping – Contd..

- Also useful for the coastal areas having a risk of storm surges and tsunamis
- Maps depicting flood hazards, flood-prone areas, and related information are important components for an effective Integrated Flood Management (IFM)
- Asset management
- Public awareness
- Flood insurance

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## Dam Breach Inundation Mapping - Tiered Approach

Tier Level	Applications	Breach Parameter Prediction	Peak Breach Discharge Prediction	Downstream Routing of Breach Out-flow Hydrograph	Downstream Risk Evaluation
<b>Tier 1</b> - Basic level screening and simple analysis using low resolution terrain data (e.g., SRTM, ASTER, or ALOS)	<ul style="list-style-type: none"> <li>• First level screening for significant or high hazard dams</li> <li>• Low hazard potential dams</li> </ul>	Empirical formulae	Empirical formulae if inflow design flood hydrograph is not available, otherwise unsteady flow routing through modelled reach	Geo-Dam-BREACH, SMPDBK, HEC-HMS, or other simplified approaches	Peak discharge, water surface elevation, and flood wave travel time
<b>Tier 2</b> - Intermediate level of analysis using medium resolution terrain data (e.g., 10 m INTERMAP or Lidar)	<ul style="list-style-type: none"> <li>• Large significant hazard dams</li> <li>• All high hazard dams</li> </ul>	Empirical formulae	Unsteady flow routing through modelled breach	HEC-HMS, HEC-RAS, MIKE-11 or similar one-dimensional (1D) unsteady flow numerical models	Peak discharge, water surface elevation, flood wave travel time, and approximating PAR assessment
<b>Tier 3</b> - Advanced level of analysis using high resolution Lidar terrain data	<ul style="list-style-type: none"> <li>• Significant hazard dams with complex downstream flooding</li> <li>• High hazard dams with large population at risk (PAR)</li> </ul>	Empirical equations, WADAMB, or causal embankment erosion numerical models (one or two dimensional)	Unsteady flow routing through modelled breach	One or two dimensional (2D) unsteady flow numerical models	Peak discharge, water surface elevation, flood wave travel time, and detailed PAR assessment

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# Thank You

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