

# NDMA Guidelines for River Flooding

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Floods affect an average area of around 7.5 million hectares per year. **Riverine flooding is perhaps the most critical climate-related hazard in India.** Flood control is a key element of national policies for water resource management. **The occurrence of floods and droughts is closely linked to the summer monsoon activity.** Floods occur in almost all river basins of the country. Heavy rainfall, inadequate capacity of rivers to carry the high flood discharge, inadequate drainage to carry away the rainwater quickly to streams/rivers are the main causes of floods.

## NDMA Guidelines for Riverine Flooding

### Understanding Disaster Risk

- Observation networks, Information systems, Monitoring and Forecasting
- Zoning, mapping, and classification flood prone areas
- Studies and monitoring of rivers flowing from neighbouring countries
- Hazard Risk Vulnerability Assessment
- Dissemination of warnings, data, and information

### Disaster Risk Reduction

#### Structural Measures

- Flood control measures such as construction of embankments and levees
- Social housing schemes and multi-purpose flood shelters
- Waterways and drainage systems for roads, highways, and expressways
- Enhancing the safety of dams and reservoirs

- Desilting/ dredging of rivers to improve flow; drainage

### Non-structural Measures

- Regulation and enforcement of laws, norms, regulations, guidelines
- Regulation of Reservoirs
- Integrated Water Resources Management (IWRM)
- Regulations to promote flood resilient buildings and infrastructure
- Wetland conservation and restoration
- Catchment Area Treatment/Afforestation

### Capacity Development

- Training and orientation programs for government staff
- Incorporating disaster response, search and rescue in the training programs of youth such as NCC, NYKS, Scouts and Guides and NSS
- Strengthen coverage of flood damage mitigation, flood tolerant designs/ crops, and construction techniques
- Promote attitude and behaviour change in the awareness campaigns
- Promoting the planning and execution of emergency drills by all ministries and in all States/UTs
- Incorporating gender sensitive and equitable approaches in capacity development covering all aspects of disaster management