

Flood emergency planning for special environments

Speed read

- A flood emergency plan needs to consider a range of floods up to the Probable Maximum Flood (PMF).
- A flood emergency plan considers special environments such as flash flooding, dams, coastal flooding, levee protected communities and vulnerable developments and events.
- A flood emergency plan may be supported by dam safety emergency plans (also known as emergency action plans), levee operating manuals or standard operating procedures.

Key points

Considerations for flash flooding

- Is there community awareness of flash flood risks and what to do?
- Is there an early warning system? Will the warning system give enough time to evacuate the community?
- Is there an evacuation plan? Consider partial evacuation of high-risk areas if it is not possible to evacuate before the event.
- Use severe weather warnings, flood watches and weather forecasts to communicate to communities.
- Identify high risk areas to inform the pre-deployment of rescue resources.
- Consider the behaviour of people and building occupants.
- Be aware of secondary risks, such as fire and medical emergencies that can impact on the safety of people surrounded by floodwater.
- Manage risks faced by tourists and motorists visiting the area.

Considerations for dams

- If any dam can significantly affect flood behaviour, and has an impact on downstream communities, it needs to be considered in flood emergency planning.
- Prepare dam safety emergency plans (DSEPs), also known as emergency action plans (EAPs) in consultation with emergency services.
- Is the dam a controlled or uncontrolled structure? Is there a way to control releases from the dam, or is there an uncontrolled fixed spillway?
- Do all dam operators, emergency response and support agencies, understand the unique behaviour of the catchment and operating requirements for each dam within their region?

Considerations for coastal flooding

- Warning and evacuation from low-lying coastal areas to higher ground as the primary strategy for response.
- Identification and mapping of areas at risk of coastal flooding.
- Warning systems for storm surge.
- Evacuation arrangements including key triggers and transport arrangements for at-risk communities on the mainland and on islands
- Identification of buildings of last resort where individuals can shelter if they fail to evacuate.
- Arrangements for the protection of coastal assets such as ports and moorings.
- Identification of tide gauges and wave buoy locations to monitor coastal conditions.

Considerations for levee protected communities

- engage levee experts to estimate the potential failure levels.
- detail levee location, purpose, construction type/material, size (length, height), date of construction and any dates of modification.
- detail size of the population, the number of residential and commercial properties, critical infrastructure and environment that will be affected by the flooding
- detail critical issues such as the structural integrity of the levee or maintenance history.
- determine triggers for evacuation and evacuation routes
- identify land higher than the flood warning gauge that could be used as a refuge.
- review information about past floods and levee performance
- identify requirements for monitoring levee performance
- identify the name, identification number and gauge zero for the flood warning gauge relevant to each levee
- identify the design flood levels and freeboard
- outline how the levee needs to be operated in the lead up to and during an event and the associated responsibilities (e.g. if gates for roads and railways need to be closed)
- identify likely locations of levee overtopping and the potential consequences
- determine the level at which a controlled spillway in a levee starts to release water, based on its height compared to the flood warning gauge
- identify areas protected by the levee that could also be flooded from other sources (e.g. stormwater runoff)
- detail possible scenarios in terms of the length of time it might take to flood the area behind each levee and the pattern of inundation
- describe any drainage issues behind the levee
- detail ground features (topography) inside (landside) of the levee or levee system.

Considerations for vulnerable developments and events

- Caravan parks and camping areas are often located in low-lying areas close to streams or beach fronts, making them susceptible to inundation. Loss of services including power, sewer and water creates significant issues the instability of caravans can place occupants at high risk. For flood emergency plan consider location of caravan parks and camping areas, evacuation triggers and routes, relocation sites, and arrangements for returning to sites.
- Tourist events can be held in flood-prone areas. Flood emergency planners should work in partnership with event organisers to consider risks and appropriate strategies including possible inclusion in emergency management plans where these are held at frequent intervals in an area.
- Schools located in flood-prone areas should be recorded in flood emergency plans and factored into wider strategies. Representatives of flood-prone schools should be engaged in the planning process.

Take action

Review [AFAC guideline, Emergency Planning and Response to Protect Life in Flash Flood Events](#) (AFAC 2018)

More information

- [Flood Emergency Planning for Disaster Resilience](#) (AIDR 2021), [Managing the Floodplain](#) (AIDR 2017)
- [Evacuation Planning](#) (AIDR 2022)
- [Public Information and Warnings](#) (AIDR 2021)
- Include school facilities in flood emergency planning [The Comprehensive School Safety Framework](#) (UNDRR 2022)