



Hazard Resilience Strategies

Dam Failure and Structural Collapse

Dam Failure
Structural Collapse - Buildings
Structural Collapse - Transportation

Dam Failure ^{1 2}

- Ensure community-based dam failure exercises have taken place in schools and the community-at-large (e.g., table-top or full-scale exercises)
- Ensure dam operators have an emergency response plan outlining what to do in the event of potential or actual dam failure
- Ensure dam operators have spillways (parts of a dam designed to pass water from the upstream side of a dam to the downstream side) in place to catch overflow
- Ensure dam reservoir operation restrictions are in place to minimize risks from overexertion of system
- Ensure dam safety officials have recently assessed any dams which could affect the community and have retrofitted/started retrofitting any dams that don't meet safety standards (including earthquake resistant upgrades).
- Ensure dam safety officials regularly monitor dams for compliance with safety protocols and ensure that the dams are well maintained.
- Ensure there is a warning system in place to notify community residents of a potential dam failure
- Ensure there is a warning system in place to notify police, fire and ambulance personnel of a potential dam failure
- Ensure there is a warning system in place to notify transient, migrant and homeless people of a potential dam failure

Structural Collapse – Buildings³

- Ensure community officials regularly inspect new buildings being constructed and enforce building code requirements.
- Ensure community officials regularly perform safety checks on existing public buildings.
- Ensure community officials require unsafe structures to be rebuilt to current standards.
- Ensure community-based structural collapse exercises have taken place in the community-at-large (e.g., table-top or full-scale exercises)
- Ensure fire department personnel have received light urban search and rescue (LUSAR) training
- Ensure the community has a building retrofit (to equip with safety upgrades) policy in place (e.g., if more than 50% of the building is being retrofitted it has to be brought to code).
- Ensure the community has a retrofit policy in place for all unreinforced masonry buildings located in an earthquake hazard area.
- Ensure the community has an inventory of buildings not meeting modern building codes and posing a public risk.

Structural Collapse – Transportation⁴

- Ensure community officials regularly inspect new structures being constructed and enforce engineering code requirements.
- Ensure community officials regularly perform safety checks on existing transportation structures (e.g., bridge, overpasses).
- Ensure community officials require unsafe structures to be rebuilt to current engineering standards.
- Ensure community-based structural collapse exercises have taken place in the community-at-large (e.g., table-top or full-scale exercises)
- Ensure fire department personnel have received heavy urban search and rescue (HUSAR) training
- Ensure the community has a long-term mitigation strategy in place to replace aging structures.
- Ensure the community has an inventory of structures not meeting modern building codes and posing a public risk.

References

¹ Lave, Lester B. & Balvanyos, Tunde. (1998). Risk Analysis and Management of Dam Safety. Risk Analysis, 18:4, 455-462.

² Johnstone, W.M. & Lence, B.J. (2009). Assessing the value of mitigation strategies in reducing rapid-onset, catastrophic floods. Journal of Flood Risk Management, 2, 209-221.

³ Melchers, Robert E. (2002). Safety and risk in structural engineering. Prog. Structural Engineering Mater, 4, 193-202.

⁴ Melchers, Robert E. (2002). Safety and risk in structural engineering. Prog. Structural Engineering Mater, 4, 193-202.