

# Loss Control Perspectives Flood Hazards & Response Programs

Are you ready for the next big flood? Don't let poor preparation wash you away.



## THE RISKS:

22%

North America (including Central America & the Caribbean) accounted for 22% of all environmentally-related loss events worldwide in 2015.



42%

42% of environmentally-related loss events worldwide were attributed to flooding.

Munich Re Topics Geo, 2015 Issue, p. 57

## THE ODDS:

### Flood Exposure Identification Chance of flooding over a period of years

Period	10-yr flood	25-yr flood	50-yr flood	100-yr flood
1 year	10%	4%	2%	1%
10 years	65%	34%	18%	10%
30 years	96%	71%	45%	26%
50 years	99%	87%	64%	39%
100 years	100%	98%	87%	63%

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## THE PLAN:

### IDENTIFYING FLOOD EXPOSURES

1: What is the likelihood of flooding in your area? Are you in a flood zone?

2: What flood sources are significant?

3: What would be the impact on your site in case of a flood?

4: Do you have flood protection in place? How much protection does it provide?

**Essential Tip:** Use online flood mapping tools (such as FEMA Flood Map Service Center) to determine your flood exposure & understand flood zone risks.

### FLOOD RISK ASSESSMENT

Review flood hazard information

Perform a site survey

Interview on-site staff

Review construction documents for flood vulnerability

Assess flood/risk exposure

Develop recommendations

## ADDITIONAL CONSIDERATIONS:

If your site isn't in a flood zone, but is close to one, don't rest too easy. Flood maps are estimates/models. Recent experience has shown that a significant number of properties outside a mapped flood zone report damage in major flood events.

Even if your facility isn't in a flood zone, if it is dependent on another facility that is, it is still at risk. Example: if it is dependent on the municipal water treatment plant that is exposed to river flooding

Prepare early. Availability of emergency supplies drops rapidly as you get closer to a predicted flood event.

## MITIGATION OPTIONS:

### HARD FIXES: PERMANENT MEASURES

- Site selection for new sites
- Regional vs. site flood protection systems
- Barriers such as levees and flood walls
- Re-grade site and grounds to drain away from buildings
- Concrete skirt walls
- Improve drainage systems to divert & remove water from buildings
- Pumps, valves and flood gates
- Flood resistant designs (structural & nonstructural)
- Elevate key buildings and equipment

### SOFT FIXES: EMERGENCY RESPONSE AND PLANNING MEASURES

- Emergency plan for location and risk
- Temporary barriers such as sand bags, movable and inflatable barriers
- Portable emergency generators and pumps
- Flood barriers/gates to block openings and drains
- Move/relocate critical equipment and contents
- Double-check insurance coverage
- Ensure site drainage provisions (ditches, storm drains, etc.) are clear of debris that would diminish carrying capacity.

## FLOOD MAPPING RESOURCES

FEMA Flood Map Service Center (US)

Resources for other countries may be found on a city, state or provincial basis.



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