Flood Preparedness Relies on Regular Risk Assessments

In 2025, the number of flash flood warnings across the world was the highest ever recorded. Several of these floods have been deadly or caused severe damage to homes, businesses, and infrastructure.

While flooding has always been around, the current rates of heavy rainfall events heighten the need for proactive flood preparedness.

What is the Risk?

A site's flood risk can be broken down in geography, flood history, local infrastructure, site and building layout and existing flood mitigating measures.

The potential loss estimate considers the presence of storm drains, the height above or below the water table, any ground slopes around the facility and any areas with a history of pooling water during intense rain. Just because a city has storm drains, doesn't mean they are properly designed, maintained and working, so additional analysis of historical storm impacts is helpful as well as physical verification of the adequacy of these storm drains.

From a loss limiting perspective, business continuity teams and emergency management teams should review any potential access challenges for emergency response crews to reach the site, including whether local roads to the site could be affected by heavy flooding.

Additional considerations should include how the facility connects with wildland and any debris that might be caused or carried by floods, including trees, portions of structures, or mechanical equipment. Emergency response plans will need to include guidelines and resources to remove that debris or maintain local land to mitigate the risk of debris clogging up waterways.

Each facility has to be evaluated individually. There are unique characteristics to every building and every property, and all those have to be considered and assessed.

Any individual facility will have a different profile, even within the same region or campus, so those micro-scale risk assessments are essential. For instance, one building at an industrial estate might have sensitive IT or electric infrastructure in a sub-basement and therefore has more serious business continuity ramifications than if a lesser-used underground parking lot floods.

Another site might have aging piping or drainage infrastructure that could be susceptible to leaks or bursting during intense rain events, which could cause water to seep down multiple floors. Water will find the lowest point that it is able to.

Inspired Solutions strongly recommends regular risk reassessments; at least every three to five years, and more often if hazards, exposures, defenses or facilities change.

No facility is static, even if there's been no major change in infrastructure or in function, there will be new people, there will be new subsystems, and there might be new procedures or protocols. All of that needs to be accounted for in the risk assessment.

In preparation, leverage historical data and flood zone maps provided by local authorities. Also, evaluate any recent flooding history nearby, as well as weather projections from authorities. Topographic maps are also useful to determine geographic elements and slopes that could direct surface water runoff toward or away from facilities. Once the risk is evaluated based on probability, vulnerability, speed of onset, impact, criticality of disrupted operations or facility, and response and recovery potential, a plan to eliminate, mitigate, or accept the risk can be adopted.

Preparedness Measures

Flood preparedness can range from simple to extremely complex and a lot of these efforts involve partnerships with facility management teams. Based on risk assessments, crews can pre-event condition the risk area by digging moats, creating berms, or placing barriers to reroute water. They can also leverage an environmental lens to facility design by considering strategic landscaping such as levees, the topography of the surrounding area or land, and the drainage characteristics of soil. For instance, hard-packed clay will not drain as quickly as porous rock.

Teams should also stage tools and materials to protect entrances in a hurry, including water dams, shovels, sandbags, or trenching equipment. Staff should be trained in how to respond appropriately to flood risks, whether taking action to protect the facility or evacuation. Flood evacuation areas on higher floors or higher ground should be designated, keeping in mind that evacuees might need to be rescued by boat or helicopter. The evacuation site will likely be different than the mustering location after a fire evacuation.

Preventative maintenance and testing of drainage sump pump equipment or sensors is also critical so that teams have early warning of water risks and reliable tools to combat the problem.

Look into redundancy measures. If data center A goes offline because of rising water or other crises, can the organization hand over smoothly to data center B? Has that plan been tested? How confident can the organization be that essential data and systems remain accessible?

Doing all of that work ahead of time is critically important, as a severe event is a brutal audit of your preparedness.

Part of that pre-work includes setting up staging areas for emergency response that keep topography in mind. Check flood risks before parking heavy equipment, generators, and other emergency supplies in any area, too.

Complex Responses and Recovery

One notable challenge with flooding is that it rarely happens in isolation. Not only does flooding often trigger additional natural issues like landslides or downed trees, but it can wash out roads and shut down key resources needed for emergency response.

The problems can cascade quickly, even just with logistics. If a community shuts down one road, traffic gets rerouted to a different highway, which is then gridlocked in traffic.

Your emergency response personnel should also be prepared for a rough few days when responding to a major disaster. They might be housed in hotels that lack power, and nearby restaurants might be closed or unable to provide the right level of service to responders. Be prepared to expect primitive conditions and assure access to fresh drinking water, a few days' worth of provisions, and any prescription medication they may need for the next week or more.

Beyond food, critical sites should be stocked with cots, blankets, and personal hygiene items like toothbrushes or shower wipes. Organizations should also make plans for fuel, both for vehicles and generators. Portable Li-Ion battery systems and generators to charge them provide a low cost, critical source of mobile power onsite when the grid may be damaged. Your emergency management personnel should estimate daily fuel usage for facility level standby generators and make arrangements for fuel to be regularly delivered or for a tanker to be parked on-site ready to refuel necessary equipment. If the roads to and from fuel depots are at risk from flooding or erosion, having on-site fuel is recommended.

Responders may also face additional issues, such as working in knee-high water, avoiding high-risk debris and watching for wildlife that might have been displaced by flooding.

Recovery is another complicated challenge, especially since sites and operations will come back online asymmetrically, based on how the flooding impacted them, their staff, and access needs.

The pivot from response to recovery is never clean. The site will still be in a response phase when the recovery phase begins. Emergency management leaders will need to educate stakeholders about the inevitable overlap between responding to the crisis and getting operations back up and running.

A big element of starting the recovery efforts is calling in outside vendors and support teams, including water damage mitigation and emergency disaster cleanup professionals.

There is a set of expertise that comes with water damage and recovery from water damage that is unlike anything else, so, find out who those professionals are in your area of operations, make those introductions ahead of time, and, if possible, have contracts in place.

In a large-scale flood, your enterprise will not be the only facility affected. Vendors and service providers will answer calls from their existing contracts first, and emergency requests for service without an existing agreement can be incredibly expensive, so it's worthwhile to build those relationships well in advance.

Recovery is a really long process. It is extraordinarily expensive and extraordinarily time consuming when you have one of these major incidents. Clearing the water, clearing the mud, clearing the debris, and clearing the contaminants that may have been in the water and debris, and then you have to deal with specialist drying equipment, dehumidifiers and mold remediation.

Some facilities will have to be torn down or significantly renovated, and any sterile environments such as data centers, clean rooms, or medical sites, will complicate things even further.

If a major internal or external flooding event has happened, the recovery process is going to be extended, and it is going to be very resource heavy. And that includes personnel, time and money. It's going to take longer, and cost more than you think.

The crisis management team is seen as the problem solvers, so, it's critical to put those pieces in place ahead of time and then to understand that event response is going to be a marathon. Leaders need to step up, keep morale up, keep the function moving forward, stay on top of any contractors and keep them on time and on task and on budget. This is going to be a lengthy process.

'Failure to Prepare, is Preparation for Failure.'