By Alexandra Walsh

ENSURING THE CONTINUITY AND SAFETY OF ESSENTIAL COLD STORAGE

Best practices in natural disaster preparedness and recovery.

The cold storage and logistics sector is officially recognized by the U.S. federal government as an essential industry. Fundamental to civic continuity, cold storage warehouses have a crucial role in the survival of communities after a natural disaster. Ensuring their continuity and safety is paramount. This article taps into the institutional experience of GCCA members who provide their own context for applying best practices for natural disaster preparedness and recovery in cold storage and logistic operations.

Understanding Potential Threats

Cold storage warehouses may be affected by a range of natural disasters including earthquakes, floods, hurricanes, tornadoes/cyclones, and wildfires. Understanding the specific risks associated with the location of the warehouse is essential for effective planning.

For cold storage warehouses in low-lying areas or near bodies of water susceptible to flooding, evaluating the flood risk and implementing protective measures such as flood barriers and proper drainage systems is crucial. Facilities in seismically active regions will be designed and retrofitted to withstand seismic events. And in regions prone to hurricanes/cyclones and tornadoes, warehouses should have reinforced structures and secure roofing systems to resist high winds and flying debris.

Following are tips from cold storage operators who are no strangers to the worst forces of nature.

Deluge in Brazil

"The importance of conducting a risk analysis exercise is that once you identify your critical or high risks, you can set the risk treatments to mitigate the severity, and define or revisit your business continuity strategies," says Andres Francke, Leader of the Risk Management Committee at Emergent Cold LatAm. "Especially in regions with a history and higher probability of flooding, risk assessments should begin even before the decision to build or purchase a warehouse. In areas where we are already established, risk assessments are crucial for efficiently managing any incidents."

When discussing new construction, Francke says the projects already take into account a series of risks mapped for the region where the facility will be built with the aim of reducing potential impacts. He adds, "In Latin America, floods, droughts and wildfires are certainly among the most likely events."

Francke adds, "Likewise, the infrastructure of existing warehouses is also analyzed for risk. As part of the mitigation plans, the plant infrastructure and operating procedures are modified to address any gaps."

Francke acknowledges his business has been impacted by flooding. In some cases, both customers and team members have been affected. He offers the Rio Grande do Sul floods in 2024 as one example.

Between April and May, rainfall levels in southern Brazil were extremely high, with the state of Rio Grande do Sul being particularly affected by flooding. Approximately 2.4 million people were displaced, 181 fatalities were reported and there were widespread landslides and a dam collapse. It is considered the country's worst flooding in more than 80 years.

"We operate facilities in this state that were not directly affected by the flooding," reports Francke. "However, many employees were impacted, either because their homes were flooded or because they were unable to commute to work."

Francke says the company's first action was to maintain constant communication with all employees to ensure their well-being and safety. Then, steps were taken to provide full support to those affected, and at the same time, contingency plans were activated to ensure operations could continue with minimal disruption.

Devastated Infrastructure in Florida

"Our Southwest Florida warehouse and railroad have been heavily impacted by major hurricanes striking the west coast of Florida with greater frequency," notes Robert Fay, President, Seminole Gulf Railway/Florida Freezer, Fort Myers, Florida, and Vice Chair, GCCA Transportation. "Most notably in the last 10 years, four major hurricanes brought widespread destruction and utility outages along the west coast of our state."

Fay says Hurricane Ian has been the worst so far, destroying four railroad bridges, heavily damaging two others, and causing widespread and long-lasting outages of both power and water in addition to roadway washouts. He reports it took 18 months to fully rebuild all six railroad bridges and restore all rail service.

"For our cold storage warehouse, the concern became water as much as power loss, on top of fuel availability – without water we could not run our condensing tower," explains Fay. "Even once power and water were restored, the roads were still out in numerous areas, and many of our employees had severe home damage or outright destruction of their homes."

Smoke and Ash in LA

For three weeks in January 2025, a series of 14 destructive wildfires swept through the Los Angeles metropolitan area and San Diego County, California, United States. The fires were exacerbated by hurricane-force Santa Ana winds, which in some places reached 100 miles per hour. The wildfires destroyed more than 18,000 homes and structures and burned more than 57,000 acres of land in total. The deaths and damage to property from two of the 14 fires made them likely the second and third most destructive fires in California's history.

Larry Rauch, President of Los Angeles Cold Storage recalls, "It was a terrible combination of too much dry undercover and incredibly strong winds that not only spread the fire but prevented air support – they couldn't get the water tankers off the ground."

His warehouse structure has been modified to withstand the identified risks in the area and in Los Angeles, that risk is earthquakes, Rauch points out. "Over the years, we've upgraded support in walls to floors, ceilings to wall, things you do in older buildings. With new construction, the building codes themselves reflect the risks in our area, and up to now, that local risk has been earthquakes."

Rauch notes that realistically, most warehouses are not located in areas prone to wildfires. LA Cold Storage is situated in an industrial zone. "Either because of stronger regulations or an overall uneasiness and concern, the more time passes since the last

American Logistics Aid Network (ALAN)

ALAN serves as a primary point of industry contact for disaster relief support and works to engage the supply chain community to support humanitarian relief efforts. ALAN promotes donation needs to the logistics industry and establishes an efficient process for providing the necessary goods and services through its Web portal, www.alanaid.org.

big earthquake, the more you think there will be another one," he says. "Companies are building warehouses more able to sustain their local natural risks – for the most part, companies are paying attention, and facilities are as hardened as possible".

Teams Always Come First

Francke says when the floods hit, the company's first action was to maintain constant communication with all employees to ensure their well-being and safety. Then, steps were taken to provide full support to those affected, and at the same time, contingency plans were activated to ensure operations could continue with minimal disruption.

Rauch says fires in parts of Los Angeles caused a number of their team members to evacuate their homes, and fortunately none lost a home. "What we did have to deal with at the warehouses, and almost the whole Los Angeles area, was smoke and ash everywhere."

"Check on your internal and external people, because if your employees, clients and vendors are not okay, your business will not be either, even if your 'things' are fine," says Fay. "That task is then immediately followed by on-site inspections when it is safe to do so."

Often after catastrophic storms, it is not safe to be on the roads for some time, Faye points out. "We consider ourselves emergency responders and train as such (both for the warehouse and the railroad teams) and we have the equipment and communications to be self-sufficient and look after our teams."

Powering Up

"Yes, we have lost power because of flooding," Francke admits. "A best practice is to have all your electrical connection above potential flooding level in order to operate with your back-up system."

Francke says the installation of power generators in the Latin American cold storage industry primarily considers the risk of supply cuts because of increased demand and low energy generation.

"In Ecuador, for example, the government recently mandated cutting power at least eight hours a day due to the impact of droughts on the capacity of hydroelectric plants," explains Francke. He notes droughts are a recurring issue in other countries in the region making

Disaster Preparedness

Risk Assessment and Planning

Conducting thorough risk assessments is the foundation of disaster preparedness. Identifying potential hazards and their impact helps in developing comprehensive emergency plans.

- Hazard Identification: List potential natural and man-made hazards specific to the warehouse location.
- Impact Analysis: Assess the potential impact of each hazard on operations, infrastructure and stored goods.
- Emergency Response Plan: Develop and document procedures for evacuation, communication and operational continuity during disasters.

Infrastructure and Equipment

Building Design and Maintenance

Ensure that the warehouse structure is designed and maintained to withstand identified risks. Regular inspections and maintenance are critical.

- Structural Integrity: Regularly inspect and reinforce building structures to withstand natural disasters.
- Climate Control Systems: Maintain and regularly test refrigeration and HVAC systems to ensure consistent temperature control.

Power Backup

Install and maintain backup power systems to ensure continuous operation during outages.

- Generators: Ensure that generators are functional and have sufficient fuel supply.
- UPS: Install UPS systems to provide immediate backup power to critical systems.

Data Backup

Regularly backup critical data and ensure off-site storage for data redundancy.

- Data Storage: Maintain secure off-site data storage and regular data backup schedules.
- Cybersecurity: Implement robust cybersecurity measures to protect digital infrastructure.

Training and Drills

Conduct regular training and drills for warehouse staff to ensure preparedness for emergencies.

- Emergency Drills: Schedule and conduct regular evacuation and emergency response drills.
- Staff Training: Provide ongoing training on emergency procedures, equipment usage, and safety protocols.

Post-Disaster Recovery

Damage Assessment and Reporting

After a disaster, promptly assess damage and report findings to relevant stakeholders.

- Inspection: Conduct detailed inspections of the facility to identify structural and equipment damage.
- Documentation: Document all findings, including photographs and written reports, for insurance and recovery planning.

Recovery and Continuity

Implement recovery plans to restore operations and minimize downtime.

- Prioritize Repairs: Address critical repairs first to restore essential functions and prevent further damage.
- Coordinate with Authorities: Work with local authorities and emergency responders to facilitate recovery efforts.

Review and Improvement

Analyze the disaster response and recovery process to identify areas for improvement.

- Post-Incident Review: Conduct a thorough review of the disaster response to evaluate what worked well and what needs improvement.
- Update Plans: Revise and update emergency response and recovery plans based on the review findings.

it important to design energy generation systems that can sustain warehouse demand for many continuous hours.

Drill Baby Drill

"Luckily, hurricanes have long alert times (days if not weeks), so we focus our attention on what our people should do to take care of their own homes and loved ones, and how to best communicate with each other and our clients before and after the storm," says Fay. "We also touch on tornadoes, lightning storms and flooding."

Fay says they take the approach to always be prepared, and the training follows that philosophy. "If you do not train, then you will not be prepared, and extra training beats little or no training," he suggests.

With fire systems, Fay said they learned it is critical to properly test your systems to ensure that water has not entered the pipes into the freezers. "Older pre-action systems are not reliable, and we have spent significant resources to replace our aging systems with modern, multi-sequence systems," says Fay. "We had not had an extended water loss issue until Hurricane Ian in 2022, but that loss has made us rethink risks and solutions."

Francke points out Emergent Cold LatAm has invested in the continuous training of its teams to ensure they are prepared to respond to any identified incident.

"As part of our risk management program, we conduct emergency response training and drill exercises (evacuation) on a regular basis," Francke explains. "Based on these exercises, we reinforce training, analyze response time, update communication protocols and share lessons learned."

After the Incident

"Our post-incident review is part of our 'continuous improvement' mindset," Francke says. "It allows us to update our contingency plans, improve our response time, and mitigate our risk severity in order to protect our business assets and customers."

Francke believes response plans should be reviewed whenever new risks are identified or if during an incident, it is determined that certain measures could be more effective in a future incident of the same nature.

"A good practice is to review our emergency and recovery procedures after each incident," says Francke. "The overall risk management program is reviewed at least once a year."

Is Preparedness Keeping Up With Nature?

"Regardless of the cause, the climate is changing, and we are generally in a warming pattern, particularly water temperatures, which for our part of the world means more frequent and more powerful cyclonic storms," says Fay. "We have come to be in prep mode 24-7-365, while 'hurricane season' is June to November, in between we have tornadoes and wildfires."

"In Latin America, the possible natural disasters tend to be the same, though perhaps more frequent and intense due to climate change," says Francke. "Floods, droughts and wildfires are certainly among the most likely events, with episodes that are increasingly surprising because of their speed and high impact."

Francke says it is important to update emergency plans, have a strong business continuity plan, crisis management plan and continuously train your associates.

Don't Expect Rescue

Disaster preparedness and recovery for cold storage warehouses involve comprehensive planning, infrastructure investment, regular training and continuous improvement. By following these best practices, facilities can ensure the safety of their stored goods and the continuity of their operations, even in the face of unforeseen disasters.

Faye suggests, "What people should really know about handling catastrophes is to be prepared, including 'saving for a rainy day,' and have the means to save yourself – don't expect to be rescued."

"Most critical is to have a plan that you review and test and communicate to workers, and practice and drill so in an emergency, your action plan is tested and effective," says Rauch. "Prepare and practice is more effective than prayer."

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GCCA Crisis Management Go Team

The GCCA Crisis Management Go Team is prepared to serve GCCA members under a variety of crisis situations including an ammonia leak, warehouse fire, or food recall.

When the Go Team is activated, GCCA staff will initiate a conference call with specialists who will ask questions, review circumstances and advise you, the operator, on best "next steps" in the process.

In the event of an emergency, please contact GCCA as soon as possible by calling: +1 703 373 4300 ext. 7

For non-emergency inquiries, submit an inquiry online or via email at inquiry@gcca.org.

The GCCA Crisis Management Go Team includes the following industry experts:

- Michael Jahncke, Ph.D., Virginia Tech, *Food Scientist and GCCF Council of Scientific Advisors (CSA) Chairman*
- Faris Karim, Ph.D., Kansas State University, *Ammonia Expert and Member of GCCF CSA*
- Paul Singh, Ph.D., Michigan State University, *Food Packaging Expert and Member of GCCF CSA*
- Kevin Philips, Scopelitis, *Warehouse Law Expert*
- David Binder, Tanner Industries, *Ammonia Expert*
- Joe Howard, Lockton Companies, *Warehouse Legal Liability Insurance Expert*
- Tracey Wild, Lockton Companies, *Warehouse Insurance Expert*

For additional information on crisis management best practices, please utilize the GCCA resource Guide to Effective Warehouse Crisis Management.