

# ASK THE EXPERT

By Mark M. Sweeney, Sr. Principal, McCallum Sweeney Consulting

## Handling Natural Disaster Risk in Site Selection

**In the wake of the earthquake and tsunami in Japan, everyone is taking a closer look at risk assessment. The Expert tells you how to assess your project's exposure.**

**Q** We are considering building a new facility in a new location, and we have growing concerns about natural disaster risk. How do I assess this risk?

**The Expert Says:** In the wake of the devastating earthquake and tsunami in Japan, everyone is having heightened concerns about natural disaster risk. The events around the world over the past couple of years have brought the issue to the forefront for most selection decisions.

So, what is an expanding company to do? The global impact of far-away disasters is best addressed with various business-continuation strategies such as redundant capacity, strategic replacement capacity, higher levels of inventory, critical raw material reserves, alternative logistics scenarios, etc.

But for your facility location decision, there are clear steps you can take to assess the risk of a natural disaster impacting your facility. Some of these are more precise than others, and all have limited predictive ability for a specific event at a particular time at a particular location. However, they can infuse your decision with an understanding of what risks there are, and help you understand the cost penalties you may face when you decide to locate.

The cost penalties can include higher insurance costs, lower insurance caps and limited maximum cov-

erage; site preparation costs; construction cost penalties; even potential disaster training and drill expenses. In the US, many business facilities survive the initial disaster, but the immediate area suffers such devastation that daily life is brought to a halt. All types of infrastructure can be out for extended periods of time, although US electric providers often do a



Mark Sweeney, Sr. Principal,  
McCallum Sweeney Consulting

remarkable job in restoring electricity. Your employees won't be showing up for work if their house, or their family's houses, have been destroyed, let alone the dealing with the trauma of missing or lost loved ones.

With all these potential impacts, how do you account for disasters in site selection? If you take an extreme risk-avoidance approach, you need to incorporate disaster risk data into the definition of your search region, and immediately screen out regions prone to disaster. More typically, the

search region is defined by business factors (e.g., inbound supply and outbound product markets for manufacturers). Once those factors establish a defined region, natural disaster risk can be one of the screening tools to identify the Areas of Interest in your region. For example, you may apply different scores to different risk levels, so coastal areas would get low scores for hurricane risk, while inland areas would get higher scores.

Natural disaster risk data is available for earthquakes (ground movement hazard), and tornadoes (measures of size, frequency, damage). Hurricane data includes historic tracks and some measurements of historic wind peaks, but it can be difficult to apply to the site selection process. Flood risk assessment is improving as the Federal Emergency Management Agency reviews much of their flood zone assessments. Fire risk is based on historic patterns and current conditions (development, weather, brush management, etc.)

Once these items are included in your screening, your model should steer you away from areas more prone to natural disasters. Further investigation during your field work stage may uncover more local details regarding disaster issues, such as recent history, community response, etc. As with all other site selection factors, this approach will help you make an informed decision, even accounting for natural disaster risk. **BI**