

Are Private-Sector Organizations Responsible for Failing to Plan for Natural Disasters? (Part 3 of 3)



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[Return to the article](#)

Leo A. Wrobel and Sharon M. Wrobel conclude this series with a discussion of an alarming fact (disasters are on the rise) and what might be an even more alarming conclusion for disaster recovery planners (yep, you're responsible).

There's nowhere to hide. Natural disasters happen everywhere. One day's sweet scented breeze can be the next day's tropical cyclone, hurricane, or earthquake. Are disasters really on the rise or does it just seem that way? What can and should the serious corporate planner be doing in response? Can the steward of private corporations be held accountable for loss due to natural disasters? What is the role of science and technology, including predictive analysis and disaster preplanning, with regard to planning for natural disasters? What is the current state of the art with regard to visualizing and describing the effects of natural disasters, especially to skeptical corporate management?

We attempt to answer the questions above in this final article of this series, as well as answer the question posed by the title: Can you be held accountable for failing to plan for natural disasters

Natural Disasters Are on the Rise

It's no longer shocking to discover that meteorological natural disasters are happening more frequently and increasing in severity as populations grow and move. The chart in [Figure 1](#) paints a compelling picture. Disasters are increasing. Nobody knows precisely why.



[Figure 1](#) Diagram courtesy of [Telecom Recovery](#).

Hazards such as severe storms, flooding and drought, high winds, landslides, wildfires, and other weather-related events are causing untold suffering. Canada, for example, suffered its longest and most severe drought ever between 1984 and 2002. Similarly, one of the six strongest hurricanes ever recorded [Hurricane Katrina](#), hit the United States Gulf Coast on August 29, 2005, taking more than 1,800 lives and doing an estimated \$81.2 billion in damage. Scientists around the globe are attempting to understand why hazardous weather is becoming ever more severe. Those efforts must begin first with demonstrating that the increases in frequency and severity are genuine. That part at least seems relatively easy, at least from what we're reading.

Writing in *Nature*, MIT professor of meteorology Kerry Emanuel [briefed](#) readers on "an index of the potential destructiveness of hurricanes based on the total dissipation of power, integrated over the lifetime of the cyclone." His briefing claimed, "This index has increased markedly since the mid-1970s. This trend is due to both longer storm lifetimes and greater storm intensities."

Over recent decades, there has also been a marked increase in the damage caused by geographical hazards such as volcanic eruptions, earthquakes, and resulting tsunamis. This is not because such events are becoming more frequent. Any apparent increase in the number of geographical events (as well as the sharp rise and related damage estimates) can probably be accounted for, at least in part, by the fact that there are more people and business enterprises in places that are known to be at risk.

Wildfires cause more problems in densely populated southern California. Hurricanes do much more damage when they hit seacoasts that had previously been uninhabited but now contain vast new developments. As a result, a higher number of events are reported in detail, more lives are lost, and more businesses are affected or destroyed. Add to this the fact that disasters garner a lot of attention when featured on the evening news programs. That means more disasters happen, they affect more people, and public awareness as a result of the media coverage has never been higher.

Numbers alone cannot tell the story, but they help us to picture the sheer scale of the problem that disaster managers face. According to [EM-DAT's March 2007 "Cred Crunch" newsletter](#), in 2006 disasters killed 23,000 people and cost more than \$34.5 billion. Now there's a sound bite for you.

Even "Undamaged" Companies Can Go Broke from Disasters

Damage to buildings and infrastructure has an adverse impact on a business, to be sure; however, research over the past decade demonstrates that a business need not suffer physical damage from a disaster in order to suffer business losses and subsequent failure. *Many businesses that experience no physical damage, but whose customers or suppliers suffer loss, are unable to continue in business.*

In such cases, such "undamaged" firms often find themselves without suppliers and/or customers for their products and services. These firms are victims of what has been referred to as "ruptured relationships"—relationships that were essential to the performance of business functions, and now gone by virtue of the disaster.

We have seen this experience firsthand. In the aftermath of Hurricane Ike, which struck on September 14, 2008, two [competitive local exchange carriers](#) in the Houston, Texas area struggled financially because their customers for local phone lines were also affected. Many customers simply stopped paying their bills, which created enormous financial hardships for both companies. One weathered the storm, both literally and figuratively. The other filed for Chapter 11 bankruptcy only two months later.

Relationships among individual components of a system are critical. Following a major disaster, it's not uncommon for local businesses to lose customers, who move out and may or may not be replaced. If they are replaced, it's often by people with different preferences or buying habits. Even those who stay in the affected area often spend their available money to repair or replace their homes, and not necessarily to buy new sporting equipment or meals in expensive restaurants. Consider the examples of Northridge, California and Homestead, Florida. Both sustained disasters, the former to an earthquake, the latter to a hurricane. In both cases, many residents moved away permanently following the disaster and were replaced by people with lower incomes, different consumer preferences, and different skills. This situation changed both communities permanently, resulting in long-term economic, political and social effects stemming from altered relationships within the community system.

Another reason for losses to these "undamaged" companies stems from a phenomenon referred to as *tight coupling* or a systemic relationship between two or more components in which there is little or no slack in the relationship. A simple example is a just-in-time (JIT) relationship between a supplier and a manufacturer. Organizations that rely on JIT for delivery of goods and services from a single supplier are efficient when everything works according to design. However, when a disaster slows or interrupts delivery, both parties suffer, along with potential customers who must find a replacement or do without the required services.

NOTE

For more on this topic, see ["Tight Coupling, Open Systems, and Losses from Extreme Events"](#) by Daniel J. Alesch and James N. Holly.

So what does this mean to the corporate planner? As an example, it might mean some new expenses for warehousing in lieu of JIT. In disaster-prone areas, warehousing might make more sense than just-in-time delivery because it provides requisite slack in the production (or distribution) system. Production costs go up by the cost of warehousing, but are offset in a disaster by having goods available and being able to continue to do business. Many regional, national, and international economic activities have become increasingly tightly coupled. And the only way to really be able to justify expenses completely is to have accurate information regarding the probability of a natural disaster occurring.

Many companies and private organizations these days proceed on the underlying assumption that reconstructing a building flattened by a disaster constitutes recovery. In truth, this is only part of the task. Serious recovery planning

means also looking at how to re-create the relationships that make business system viable.

Success boils down to finding, screening, interpreting, and presenting data in order to garner management support and funding of the initiative. There are places where such data is available for those inclined to look for it. Insurance companies are one good source for information about probabilities of disaster. The downside to depending solely on such providers is that they tend to think strictly in actuarial terms (such as the cost of rebuilding) and don't usually concentrate on fractured business or customer relationships. One possible exception to this rule might be some providers of business-interruption insurance.

Another option is to look for places where people on the federal, state, or local payrolls have done part of the job (and have therefore borne part of the expense). In previous articles, we've mentioned the Pacific Disaster Center (PDC) as "content central" for information combined with the tools to make that information understandable and meaningful. The PDC literally receives terabytes of data as raw material from myriad state, federal and worldwide organizations. In its years of existence, the PDC has devised tools to draw useful conclusions from that data.

What the PDC hasn't really done yet is apply this data to private-sector organizations that seek to "go the extra mile" in contingency planning. Energy companies come to mind. We've all heard the scary stories. A hurricane hits a major refinery or offshore drilling platform, and suddenly we're all paying \$6.00 U.S. for gas. Many energy companies today feel the public pressure to look into some hard probabilities of this possibility occurring, and what can be done about it. As a first step, the ability to visualize data streams from sensors, satellite buoys, and other sources is time-consuming for the recovery planner but absolutely compelling when completed and presented to policymakers.

Consider the diagrams in Figure 2. Pictures are compelling and immediately understandable. Cartoons and animations don't stand alone, however. To be really compelling, they must be based on actual data from recognized experts.

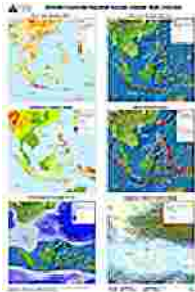


Figure 2 Diagram courtesy of the Pacific Disaster Center.

Applying New Science and Technology to Disaster Recovery

If natural disasters are defined as the intersection of phenomena and presence, science and technology can be employed to predict and possibly limit the overlap of these two principal components, thereby reducing their risks and impacts.

How can science and technology reduce risks? One obvious way is by improving the timeliness and accuracy of disaster warnings and what the military calls "4C's" (command, control, communications, computers, and intelligence). Second, we could be doing a lot more to model actual events (not just assumptions) given the thousands of data sources available today and with devices such as sophisticated satellite imagery. Finally, communicating those conclusions effectively to policymaking executives is the same challenge as always.

NOTE

Even the drop in price per CPU cycle of supercomputing and the ubiquity of high-end workstations add immeasurably to capabilities in this regard. Data is not the issue; the real issue is drawing sound conclusions that make sense of the data.

Statistical and historical disaster data, used in conjunction with indicators that truly and correctly estimate an organization's ability to respond and/or recover from disasters, is improving disaster management capabilities. These studies not only indicate what kinds of companies are most at risk but also precisely how they're at risk. The result can better support planning mitigation and policy decisions.

This includes not only the obvious issues, such as urban planners proactively limiting development in an area of risk but benefits to private firms like yours. Before locating costly manufacturing plants and operations centers, science and technology allow these firms to take a look at the demographics, topography, and other infrastructure first. Firms looking to relocate call centers, for example, might want to check routing of undersea cables and whether the physical cable or terminating facilities are susceptible to seismic events or sabotage.

Today's science and technology can help to better *visualize* risk, so it stands to reason that they can help the contingency planner to better *communicate* risk. Executive management with responsibility for the enterprise as a whole is not opposed to disaster recovery. Executive management will fund a contingency planning effort. Management needs to know, however, that money spent on recovery planning is not simply thrown. Science and technology supports the need for this planning by visualizing what would otherwise be complex and voluminous data and presenting it in an understandable format from which sound conclusions can be drawn.

Summary

We hope that this final article has sold you on the benefits to commercial organizations of proactive planning for dealing with natural disasters. We understand that this is a new paradigm for the recovery planner, which makes your comments and observations very important to us. Until next time, best of luck in your endeavors, and happy planning
