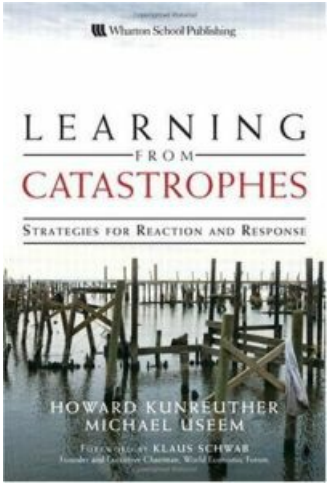

Book Learning from Catastrophes

Strategies for Reaction and Response

Howard Kunreuther and Michael Useem
Wharton School Publishing, 2009
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Recommendation

In terms of insurance payouts, two-thirds of the 25 most expensive disasters in the last 40 years have taken place since 2001. As the global climate changes and more people move to overbuilt and hence more vulnerable cities, the pace of cataclysmic "extreme events" is liable to increase. From the costs related to Iceland's volcano to the impact of the catastrophic oil spill in the Gulf of Mexico, far too many organizations already face extreme problems. Authors and editors Howard Kunreuther and Michael Useem, both Wharton School professors, join 20 other experts to examine risk assessment and management. Although their book is made up of scholarly essays, *BooksInShort* finds it pertinent and useful. Leaders can apply the directives in this intelligent, informative, thought-provoking volume to develop strategic planning for major catastrophes.

Take-Aways

- Cataclysmic disasters include "extreme" natural and man-made catastrophes.
- Organizations must conduct risk planning to be ready to manage and survive calamities.
- Businesses should estimate risk, affirm their interconnectedness, recognize a major tragedy's long-term impact and build leaders who can respond productively.
- The risk management process encompasses "forecasts," "communications," "economic incentives," "partnerships," "financial instruments," and "resiliency and sustainability."
- People dislike considering the possibility of "low-probability, high-consequence events."
- Most reflexively assume that such adversity will strike others, and not themselves.
- Indeed, people often make biased, irrational judgments when they consider the risks associated with physical disasters, in part because they've never experienced one.
- The process of perceiving, assessing and managing risk includes handling its impact on your business, staff, leaders, locality, expenses, and general culture and society.
- When you think about risk, consider five often neglected areas: "probability," "consequence," "statistical" evidence, "solutions" and "external risks."
- Preparedness requires better laws, good insurance and strong leaders.

Summary

Ready for the Next Big Disaster?

Unfortunately, catastrophic events abound: Recent disasters include the 2004 tsunami that killed more than a quarter of a million people in Southeast Asia, Hurricane

Katrina that caused $150 billion-plus in damages in 2005, the 2008 subprime mortgage crisis and market collapse, and the 2009 global recession. In the past, disasters largely were exceptional events. This is no longer the case. Today, major natural and man-made disasters occur at an alarming rate. Worldwide economic losses from natural catastrophes reached $620.6 billion from 2000 to 2008, primarily due to hurricanes in 2004, 2005 and 2008. In comparison, economic losses from 1950 to 1959 were $53.6 billion, less than a tenth of that sum. Expect the increasing rate of megacrises to become even more of a factor in the future. Preparations for major calamities fall into three areas of study: "risk assessment, risk perception and choice, and risk management strategies."

Risk Assessment

The science of predicting disasters has inherent limitations, but available data do allow experts to create educated estimates. These risk assessments, which serve as the basis for property insurance rates, involve four factors: "hazard, inventory, vulnerability and loss." Because of the world's increasing complexity and interconnectedness, risk assessment models now cover weeks or months, and involve such considerations as the disruption of business. With weather-related disasters, termed "extreme hydrometeorological events," assessing a community's degree of vulnerability is vitally important. Community leaders must take "warning signals" seriously and act swiftly to minimize catastrophic weather's impact.

Risk Perception and Choice

These elements concern risk's emotional and behavioral sides. Expertise matters and ignorance is scary. Those who lack extensive technical understanding of nuclear power worry more than experts do about the possibility of a nuclear-plant disaster. Further, people generally do not want to think about the risks associated with unlikely disasters. Because of this judgmental bias, they resist data about the likelihood and effects of limited possibility events. For example, after the September 11, 2001, terrorist attacks many Americans chose not to fly because they feared hijackings, even though the real possibility of more hijackings was extremely low. When dealing with "low-probability, high-consequence events," most people focus on one extreme or the other; they either assume the unlikely event will occur or, conversely, that it almost surely will not.

Risk Management Strategies

Areas where risk management could improve fall into six categories:

1. **"Risk forecasting"** – The field requires more precise prediction techniques.
2. **"Communicating risk information"** – Most people assume that low-probability disasters will not affect them. Enlarging the time horizon for disasters helps people better assess how they could be harmed. To help the owners of a production facility with a 25-year life span understand their flood risk, show them data indicating that the chance of a "one-in-100-year flood" happening during that 25 years is greater than "one-in-five." Presenting the possibility as a "one-in-100 chance" in a single year is not as compelling.
3. **"Economic incentives"** – Cash can motivate people to protect themselves from disaster, for example, cutting the insurance premiums of Mississippians who buy flood protection.
4. **"Private-public partnerships"** – Disasters affect public and private organizations, so they should unite in advance to create mutual emergency strategies and defense plans.
5. **"Reinsurance and other financial instruments"** – In the future, governments may need to provide this "insurance for insurance companies."
6. **"Resiliency and sustainability"** – Organizations must determine if they will be able to continue to function after a sudden disaster. This question also pertains to nations, notably developing countries burdened with "low-quality structures, poor land use, inadequate emergency response," and so on.

"The world is confronted by almost limitless natural hazards, some regular and fairly predictable and others extremely rare and unpredictable."

Policy makers working on enlightened natural disaster planning face several challenges:

- Scientists do not fully understand or cannot make models of the "stochastic systems" inherent in extreme natural events. Precise mathematical models do not exist. James Hansen of NASA's Goddard Institute of Space Studies proclaims that climate models are "our weakest tool."
- Legislators and voters hesitate to make short-term "sacrifices" to prepare for possible natural disasters in the future. People discount the consequences of such events.
- Few people have direct experience with catastrophes, so the public is inclined to distrust predictions and threats related to such future possibilities.

Seven Risk Management Rules

Risk-related decision making involves weighing probabilities and benefits versus losses, creating an accurate statistical analysis and considering alternative actions. Follow these seven principles for "perceiving, assessing and managing" the risk of extreme events:

1. **"Appreciate the importance of estimating risks"** – While such calculations are filled with uncertainties, organizations need good information to deal with risk.
2. **"Recognize the interdependencies associated with risks"** – Every risk is connected to outside circumstances. Such linked dependencies create "dynamic" and "evolving uncertainties" that can mutate depending on events. Keep your risk forecasts up-to-date.
3. **"Understand people's behavioral biases when developing risk management strategies"** – People must acknowledge their prejudices to make mitigating them possible. For instance, leaders may put off dealing with possible catastrophes due to a stubborn form of denial called "not in my term of office" (or "NIMTOF").
4. **"Recognize the long-term impact of disasters" –** A catastrophe can create "enduring change."
5. **"Recognize transboundary risks by developing [global] strategies"** – In disasters, national boundaries are moot. The 2004 tsunami killed people in 11 countries.
6. **"Overcome inequalities [in] the distribution and effects of catastrophes"** – Rich nations must be ready to assist poor nations.

7. **"Build leadership for averting and responding to disasters before it is needed"** –

"If you don't plan for extreme risks, you open yourself and your organization to the possibility of a severe crisis that could have global consequences."

Planning and preparing for disasters is far better than waiting until emergencies strike.

Comprehensive risk management goes through five stages that require advance planning and proactive investments. First, "prevent and mitigate" a disaster's damage before any risk occurs. Then "prepare a robust response." Third, "build recovery infrastructure." Fourth, offer an adequate response by addressing the damages sustained during the event. The fifth and final stage, proper recovery, requires rebuilding infrastructures to provide for the general welfare.

"The past decade has demonstrated that once-in-a-lifetime natural, financial and other disasters are more common and consequential than ever realized."

Local, state and national laws influence how people deal with risks. Private agencies, like nongovernmental organizations, often prompt governments to issue risk-related regulations. Risk-mitigation laws, such as flood-zone or earthquake-zone building codes, can be extremely effective in mitigating risk and damage. However, legislators can create intelligent regulations only if they have solid information on the probabilities of a disaster and possible prevention measures. Of course, such data are fallible. The past does not necessarily predict the future.

The "Five Neglects"

Leaders often undermine their risk-management efforts by failing to consider five areas:

1. **"Probability neglect"** – Individuals tend to focus on consequences, not probabilities. Thus, they are inclined to overreact to potentially catastrophic events that are not very likely to happen. This can result in the inefficient assignment of resources.
2. **"Consequence neglect"** – Decision makers discount the consequences of "difficult-to-imagine risks," so-called "virgin risks," like a big asteroid striking the Earth.
3. **"Statistical neglect"** – Many people do not understand the basics of probability, so they arrive at incorrect conclusions when they work with statistics. Others ignore statistics altogether and rely on heuristics to evaluate risk probability.
4. **"Solution neglect"** – Some people ignore possible but risky solutions. Homeowners on flood plains focus almost exclusively on "technological options," ignoring such alternatives as land-use changes, "warning systems," and so on.
5. **"External risk neglect"** – Because of self-interest, groups often consider only the "benefits and costs" of actions, proactive and otherwise, that will affect them, while ignoring the benefits and costs others may experience.

Climate Change

Many disasters, such as global warming, metastasize over time. Currently, world temperatures are up 0.75°C (1.35°F) from "preindustrial levels" and ocean acidification has increased 0.1 pH. Many scientists believe a 350 parts-per-million (ppm) ratio of CO_2 in the atmosphere is dangerous. Unfortunately, the current count is already close to 390 ppm. Even more alarming, unless nations quickly agree to reduce CO_2 emissions substantially, the ratio will rise to 700 ppm. What can rectify this potential catastrophe? Twenty percent of global emissions result from "tropical deforestation and burning," an even heavier emission impact than that of the transportation sector. Nations must restore forests and grasslands and find other ways – beyond photosynthesis – to "remove CO_2 from the atmosphere."

Financial Catastrophes

Governments quickly instituted sweeping fiscal actions to cope with the 2008-2009 financial crisis and recession. The drop in U.S. housing prices triggered the debacle, but "global [financial] imbalances" were the primary cause. Established national economies are running huge deficits, while developing economies are saving. To avoid disastrous crashes, nations must coordinate their "macroeconomic policies and financial institution regulations." They must act with greater finesse to create more rational internal regulatory structures. However, new regulations to increase financial stability should not stall trade and business innovation.

Preparedness Policies

Insurance companies should offer long-term, property protection policies, not only the annual policies now available. For their part, property owners should seek "long-term mitigation loans" from the government or other financial entities to improve their level of disaster preparedness.

"In the oceans, change way beyond ecosystem failure, namely system change, is already taking place."

Governments can help by developing and enforcing better regulations, such as strong building codes that require retrofitting "existing structures." In fact, when property owners consider disaster-mitigation loan programs in tandem with properly enforced regulations, they become more likely to upgrade their properties to protect against low-probability events. For example, property owners in hurricane areas may decide to put shutters on their windows. Such steps are cost-effective and they could spur insurers to reduce rates since prepared properties generally suffer less damage. Yet many people continue to operate wishfully on the tacit assumption that low-probability disasters will pass them by. Thus, property owners tend not to invest in protections against low-probability events. They share a behavioral bias against spending money on a danger that may or may not occur later.

"Leadership...becomes more important when the world becomes more unpredictable."

Making future emergencies less costly requires strong leaders who can deal with extreme risk. Organizations should include information about possible disasters in all the training potential leaders receive. Leadership-training managers should teach future executives about actual calamitous events where strong leadership mitigated damages or even helped avert disaster.

About the Authors

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