

# **Risk Management in an Uncertain World: A Perspective**

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“September 11<sup>th</sup> Changed Everything.”

This statement has dominated many recent discussions of disasters and what our Nation should do about them. In some sense, the words are undeniable. The shocking events of 9/11 altered, perhaps forever, our awareness of how vulnerable we are, and they forced us to think anew about many of our beliefs. But does 9/11 define an essential discontinuity in history? Or, alternatively, does it represent an extreme, but “normal”, event? Finally, what do these alternative perspectives imply?

It may be worth reviewing what had been said and written about disasters prior to 9/11. Efforts to reduce vulnerability to hazards, natural or otherwise, are not new; researchers, policy-makers, and citizens have considered countless ideas over past decades, many of which offer guidance for dealing with today’s issues. While terrorism is not a natural hazard – and we certainly do not experience terrorism as a natural hazard -- as a practical matter, terrorism and natural hazards have much in common.

## **Before 9/11: Disaster’s Many Facets**

Shortly before 9/11, a report [Living with Earth’s Extremes, Cohn, Gohn and Hooke, 2002<sup>1</sup>] assessed the Nation’s approach to natural hazards and its experiences with natural disasters. The report, produced by a public-private partnership, considered 14 distinct perspectives on hazards, including those of the insurance industry, the military, public health, and the international community. The report was motivated by a recognition that our society’s approach to *natural* disasters was not working. Our society was paying a high price -- measured in both lives and property – for the manner in which we were building and living on our active planet. The following discussion summarizes many of the report’s findings and recommendations.

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<sup>1</sup> The report was released by PPP2000, a partnership including the Subcommittee on Natural Disaster Reduction, the Institute for Business and Home Safety, and more than 20 private-sector organizations.

At that time, as now, the U.S. government and the U.S. insurance industry realized that they faced a common challenge: The conquest of natural disasters, which had once seemed nearly within reach, was proving more difficult than expected. Losses from natural disasters had been doubling or tripling each decade since 1960, and the century's steady progress in reducing deaths and injuries due to natural disasters had begun to level off. Furthermore, there was concern that a single disaster -- for example, a catastrophic East Coast hurricane or a repeat of the 1906 San Francisco earthquake -- could kill thousands, cost hundreds of billions of dollars, disrupt the national economy, and exhaust the reserves of the insurance industry.

The statistics were alarming. Seven of the ten costliest U.S. disasters had occurred since 1989, and the President's Office of Science and Technology Policy estimated that natural disasters were at times costing the United States a billion dollars each week and were consuming nearly one percent of GDP.

## **Obvious Solutions, Unexpected Consequences**

One of the clear lessons of the 20th century's well-intentioned efforts to reduce the human and economic costs of natural disasters is that doing so is not as simple as it first appears. Many efforts to eliminate hazards create undesirable long-term consequences for our society. With respect to natural hazards, it was found that structural solutions are often unsatisfactory; the human, environmental, and economic cost of attempting to engineer a society completely resistant to natural disaster is too high. The United States, for example, has spent billions of dollars on structural attempts to control flooding with dams, levees, and channelization. Although these techniques have often protected communities from flooding, they have also resulted in other costs including impairment of natural ecosystem functions and increased downstream flood peaks. In addition, they created new vulnerabilities connected with catastrophic failures of flood-control structures.

Responding to terrorism raises similar concerns. We need to recognize and consider carefully the long-term consequences of well-intentioned actions. They will undoubtedly alter the world in which we live.

## **Increasing Vulnerability**

Although the recurrence rate of earthquakes, volcanoes, and floods has not changed during the past century, the nature of associated disasters has mutated because of population growth and rapid changes in our society:

- More people live on marginal lands subject to floods, landslides, hurricanes, earthquakes, wildfire, wildlife disease, volcanoes and other hazards;
- We now stockpile large quantities of hazardous materials -- petroleum products, animal wastes, etc. -- in structures whose integrity can be breached by extreme events;

- Technological advances have paradoxically brought new vulnerabilities. For example, welded joints in steel-frame buildings, which were initially believed to lower building costs, cracked during the Northridge earthquake and will cost billions of dollars to repair or replace;
- Modern economies depend on large-scale infrastructure -- networks of roads, pipelines, telecommunications, and computer systems -- which have turned out to be both fragile and costly to repair when damaged by natural hazards.
- Natural disasters cause more than physical damage. They shut down businesses, many of which never re-open. Indirect societal costs associated with loss of jobs and business disruption often exceed the costs of repairing structures.
- Globalization of the world economy now makes all of us more vulnerable to disasters wherever they occur.

Many of these factors have similarly altered our vulnerability to terrorism.

## **Conclusions**

Our experience with natural disasters and hazards provides lessons that can be applied to dealing with terrorism. To avoid disaster, or at least to minimize our losses, we must first identify those things that we wish to protect. We must understand their vulnerabilities and the threats they face. We must think sufficiently broadly to understand the consequences of our actions. And we must act, while recognizing that effective strategies require long-term commitments and that it may be difficult or impossible to measure success.

Finally, it is important to keep in mind that Mother Nature presents a continuing threat. Though lacking a terrorist's malice, she compensates with enormous energy, dogged persistence, and lethal recklessness. For both terrorism and natural hazards, the time to begin preparing for the next event is now.

From this perspective, September 11<sup>th</sup> changed nothing.