2007–2008 Congressional Science Fellow Report

A Risky Proposition

Maria Honeycutt

"Risk" is a word I've heard with increasing frequency on Capitol Hill, most often in the context of the subprime-mortgage crisis. As a geoscientist, I'm far more accustomed to considering risk in terms of natural hazards. Like many of my peers, I have researched past hazard events and current-day processes and used the results to identify the risk of similar events occurring in the future. Having a scientist's perspective on risk has proven to be extremely helpful while working on the Hill, where the day's top issue can shift quickly from discussion of risky mortgage-lending practices to the earthquake potential in southern Illinois.

As a Congressional Science Fellow, I have had to leave the familiar, comfortable realm of hazards science and dive head-first into other dimensions of hazards policy. I arrived last fall with academic training and work experience focused on the geology and geomorphology of our coasts and how both can influence erosion and flooding during storms. My work on the Gulf Coast following the 2004 and 2005 hurricanes opened my eyes to some of the ways in which hazard information is factored alongside local economic and political concerns when recovery decisions are made.

On the national stage, the hazards-policy landscape is naturally a bit more complex, but much of what I observed at the local and regional levels seems to hold true. Management of natural-hazards risk has traditionally been approached in three ways: (1) eliminating some fraction of the risk through mitigation, including land use; (2) using insurance as financial protection against some portion of potential damages; and (3) accepting the residual risk, including the financial and societal consequences. In working with nonscientist colleagues on the Hill, I've seen the challenges that lawmakers face in developing policies that respect not only the science but economic and social concerns and political realities as well.

Financial markets and natural hazards intersect directly in many ways, with insurance currently at the forefront. As in the aftermath of Hurricane Andrew in 1992, private insurers reexamined their risk models after the 2004 and 2005 hurricanes and many were uncomfortable with their financial exposure. Some have elected to pull out of certain coastal markets, causing those states to become insurers of last resort. Repercussions have spread up the eastern seaboard and, to a limited extent, nationwide.

Some states have tried to use their regulatory authority to increase the availability and affordability of private property insurance coverage, which the insurance industry has opposed. Other experts, including hazard-mitigation specialists, have similarly opposed state actions that would artificially reduce rates. Unless the underlying vulnerabilities are also addressed, such actions may ultimately result in the public assuming greater financial burden, whether as direct reinsurers of the private market or through disaster relief to the inadequately insured.

As with the mortgage crisis, recent debate over hazards policy on the Hill has centered on the appropriate role for the federal government. Congress is examining numerous proposals to increase stability in the private reinsurance market. There is discussion during each legislative session on fostering development of a private, multi-peril market to cover all natural hazards (i.e., fire, wind, hail, earthquakes, and possibly floods).

Some in Congress have proposed expanding federal hazard insurance. Because many coastal areas lack affordable wind coverage, several representatives and senators have proposed expanding the National Flood Insurance Program (NFIP) to include a combined wind-and-flood policy. Proponents have offered this as a solution for coastal residents who have faced rapidly rising wind insurance premiums. These proponents assume that the federal rates, which the legislation requires be "actuarial," would be less expensive than private insurance or state-backed coverage. Opponents are concerned about the government taking on significant additional exposure when the NFIP is operating at more than $17 billion in debt. Despite a Government Accountability Office report released in May that found the federal program would likely be *more* expensive to policyholders, the concept remains popular with the public, and the legislative debate continues.

Compared to insurance, legislative proposals concerning mitigation and public risk awareness have received far less attention from Congress. From its inception in 1968, the NFIP has included hazard mapping and mitigation components to reduce flood losses through time; however, current reauthorization bills would do more to expand insurance coverage than strengthen loss-reduction goals. Although the federal government supports interagency programs that conduct research and translate results into forecasts, emergency operations, and other products (e.g., National Earthquake Hazards Reduction Program; National Tsunami Hazard Mitigation Program; National Windstorm Impact Reduction Program), Congress struggles every year to appropriate adequate funding.

Given the current state of U.S. hazard management, how can geoscientists best contribute to sound policy? An obvious role is to continue researching the factors that control hazard intensity, frequency, and geographic distribution, as well as the potential impacts of climate change. Scientists and engineers also analyze materials and test hazard-resistant design and construction techniques. All of these efforts contribute to better land-use planning, building codes, and other mitigation techniques that go beyond building codes to further reduce loss of life and property damage.

Scientists also have the potential to be key risk communicators, bringing an objective, fact-based perspective to policy

discussions. The challenge, of course, is in fulfilling that potential. Some within the scientific community have questioned whether we failed to communicate risk effectively when decisions were made to reoccupy hazard-prone areas along the Gulf Coast. Such criticism is not unique to the Katrina recovery—similar criticism is raised after significant earthquakes, landslides, wildfires, and riverine floods.

Where I believe we, as scientists, can do better is in explaining what residual risks remain if a proposed policy is implemented, and in quantifying the likely consequences. It's not enough to testify at public meetings about the hazards identified and what could happen in the future. Decision makers, particularly at the local level where land-use decisions are made, must weigh economic development and the tax base (their life blood) against events that scientists say "may" happen. To maximize the use of science in decision making, we should be prepared to describe the residual risk associated with each policy option and its financial and societal costs. Apples-to-apples comparisons, incorporating both natural and social science, are needed to challenge the acceptance of residual risk by decision makers and citizens.

Forming collaborative relationships with social scientists, economists, and lawyers is not a normal part of our scientific training, and even well-intentioned scientists struggle in moving their work into the policy arena. More often than I'd like to admit, I've ended presentations and papers with a discussion of potential real-world applications, leaving the difficult task of actually turning that potential into reality to someone else while I moved on to my next project. My time here on Capitol Hill has shown me the perils of this practice.

While we will always have a great need for scientists devoted to research, I want to encourage action, preferably before the next Katrina, Northridge earthquake, or other natural catastrophe. I encourage you to leave your scientific comfort zone, partner with specialists in other disciplines, and devote the time needed to engage local decision makers and the public in an ongoing dialogue about what residual risks truly are acceptable.

This manuscript is submitted for publication by Maria Honeycutt, 2007–2008 GSA–U.S. Geological Survey Congressional Science Fellow, with the understanding that the U.S. government is authorized to reproduce and distribute reprints for governmental use. The one-year fellowship is supported by GSA and by the U.S. Geological Survey, Department of the Interior, under Assistance Award No. 07HQGR0140. The views and conclusions contained in this document are those of the author and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. government. Honeycutt can be reached at maria_honeycutt@billnelson.senate.gov.