

## **Managing the next disaster**

By Roger A. Pielke Jr. and Daniel Sarewitz

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LIKE A BAD horror movie in which the villain keeps coming back, Hurricane Rita, the 18th storm of the season, is spinning toward an inevitable rendezvous with the Gulf Coast. We've already seen more death and destruction than the last 35 hurricane seasons combined. And many people, including some European and U.S. politicians, are hoping that the carnage — represented most poignantly by the destruction in New Orleans — will help bring this country to its senses on dealing with global warming.

But understanding what this hurricane season is really telling us about why we're so vulnerable to climate-related catastrophes means facing up to an unavoidable fact: Efforts to slow global warming will have no discernible effect on hurricanes for the foreseeable future. Reducing greenhouse gas emissions and adequately preparing for future disasters are essentially separate problems.

Reducing emissions is a crucial environmental, economic and geopolitical goal. But if we are concerned about hurricanes, then we need to manage what is within our control on the ground, not what is proving to be beyond our control in the atmosphere.

The truth is, the number and scale of disasters worldwide has been rising rapidly in recent decades because of changes in society, not global warming. In the case of hurricanes, the continuing development and urbanization of coastal regions around the world accounts for all of the increases in economic and human losses that we have experienced.

Even if tomorrow we could somehow magically put an end to global warming, the frequency and magnitude of climate-related disasters would continue to rise unabated into the indefinite future as more people inhabit vulnerable locations around the world. Our research suggests that for every \$1 of future hurricane damage that scientists expect in 2050 related to climate change, we should expect an additional \$22 to \$60 in damage resulting from putting more people and property in harm's way.

None of this means that we should not pursue reducing greenhouse gas emissions, or that mitigating climate change is a bad idea. But we simply cannot expect to control the climate's behavior through energy policies aimed at lowering greenhouse gas emissions.

The current international policy framework for reducing greenhouse gas emissions — the Kyoto Protocol — is far too modest to have any meaningful effect on the behavior of the climate system. And even the modest agreements reached under Kyoto are failing.

For example, the European Environment Agency reported in 2004 that 11 of the 15

European Union signatories to Kyoto "are heading toward overshooting their emission targets, some by a substantial margin." And the other four are meeting their targets only because of non-repeatable circumstances, such as Britain's long-term move away from coal-based energy generation. To make matters much worse, most of the growth in emissions in coming decades will occur in rapidly industrializing nations such as China and India, which are exempt from Kyoto targets.

To make matters still worse, because of the way that greenhouse gases behave in the atmosphere, even emissions reductions far more rapid and radical than those mandated under Kyoto would have little or no effect on the behavior of the climate for decades. As James Hurrell, a scientist at the U.S. National Center for Atmospheric Research, testified before the U.S. Senate in July, "It should be recognized that [emissions reductions actions] taken now mainly have benefits 50 years and beyond now."

The implications are clear: More storms like Katrina are inevitable. And the effects of future Katrinas and Ritas will be determined not by our efforts to manage changes in the climate but by the decisions we make now about where and how to build and rebuild in vulnerable locations.

Do we have the will to pay the upfront economic and political costs of strict building-code enforcement and prudent land-use restrictions? Will we have the imagination to build resilience into the local economy, rewarding companies that find ways to preserve jobs after a disaster and contribute to a faster recovery? Do we have the decency to counter the market forces that cause poor people to live in the most vulnerable areas?

As we learn the lessons of this terrible hurricane season, the answers we give to these kinds of questions will create the conditions that determine the effects of future hurricanes. We are, that is, about to begin the process of managing the next disaster. What kind of disaster do we want it to be?

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