



REINSURANCE
ASSOCIATION
OF AMERICA

STATEMENT

Testimony

Of

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**Reorienting The U.S. Global Change Research
Program Toward A User-Driver Research
Endeavor: H.R. 906**

Before

**Subcommittee On Energy And Environment
House Committee On Science And Technology**

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Chairman Lampson, Ranking Member Bartlett and Members of the Subcommittee on Energy and Environment:

My name is Frank Nutter and I am President of the Reinsurance Association of America (RAA). It is an honor to appear before you on behalf of the RAA. The RAA is a national trade association representing property and casualty organizations that specialize in assuming reinsurance. Together, RAA members and affiliates write over 70% of the reinsurance coverage provided by U.S. property and casualty reinsurers and affiliates.

No financial services business is more dependent on the vagaries of climate and weather than property and casualty insurers. The industry is at great risk if it does not understand global climate variability and the severity and frequency of extreme events. It must be more than a pass-through mechanism for the costs associated with natural disasters. Understanding global climate change and integrating that information into the insurance system is an essential part of addressing climate extremes and conveying information to governments and the public about the economic consequences of human activity in the face of changing global climate.

We believe that the enactment of H.R. 906, The Global Climate Change Research Data and Management Act of 2007, with an increased emphasis on input to government climate research by user communities will greatly enhance adaptation and response to the effects of global change.

Climate and Catastrophes

The General Accounting Office reports that from 1980 through 2005 private and Federal insurers paid \$320 billion in claims on weather related losses. The insurance

industry paid 2/3 of those losses. The number of insured natural catastrophes has doubled since 1990; the insured losses in this decade already exceed the decade of the 1990s. The year 2005 alone produced a record: total global insurer catastrophe claims were \$83 billion, 80% of which were from US land-falling hurricanes. Even 2006, thought of as a benign catastrophe year, produced 43 insured loss catastrophes in North America out of a global total of 349. Although some of these catastrophes are earthquake related, over 90% of events causing damage to people and property originated in the atmosphere. Almost 12,000 people lost their lives to storms and floods in 2006. AIR Worldwide estimates that insured losses from natural catastrophes should be expected to double roughly every ten years due to increases in construction costs, increases in the number of structures and changes in their characteristics.

With respect to the impact of climate change, the Association of British Insurers concludes as follows:

- Average annual losses from the three major storm types affecting insurance markets (US hurricanes, Japanese typhoons and European windstorms) could increase by two-thirds by the 2080s.
- Focusing on the most extreme storms (losses with a probability of occurring once every 100 to 250 years), by the 2080s climate change could:
 - Increase wind-related insured losses from extreme US hurricanes by around three-quarters (the equivalent of 2 to 3 Hurricane Andrews annually).
 - Increase wind-related insured losses from extreme Japanese typhoons by around two-thirds. The increase alone would be more

than twice the cost of the 2004 typhoon season, the costliest in the last 100 years.

- Increase wind-related insured losses from extreme European storms by at least 5%.
- Increase the annual costs of flooding in the UK almost 15-fold.
- Under high emissions scenarios, insurers' capital requirements could increase by over 90% for US hurricanes, and by 80% for Japanese typhoons. Higher capital costs combined with greater annual losses from windstorms alone could result in premium increases of around 60% in these markets.

The ABI advises that these loss estimates do not include likely increases in society's exposure to extreme storms, due to growing, wealthier populations, and increasing assets at risk.

Financial losses from weather-related catastrophes have increased by an average of 2% per year since the 1970s, with climate change a major contributing factor, according to the chief researcher of catastrophe modeler Risk Management Solutions, Inc. The rate of loss increase holds true even when inflation, changes in wealth and population growth are taken into account. In its latest climate change report, Rapid Climate Change, Lloyd's of London warns that waiting on "definitive scientific pronouncements" on the impact of climate change "seems like an increasingly risky strategy."

The causes behind the dramatic rise in insured catastrophe losses are several:

- Population growth in high-risk areas. Dramatic increases in high risk coastal areas suggest people and local governments have placed too little emphasis on exposure to weather risk in a changing climate environment.

- Dramatic increases in insured coastal values. Florida now has nearly \$2 trillion of insured coastal properties. New York has \$2 trillion, Louisiana \$209 billion and South Carolina \$149 billion.
- The insurance industry's own expansion of coverage which had the effect of increasing potential insured damage; deductibles were lowered and full replacement cost added to homeowners' policies in the period 1970-1990. Government policy, which either endorsed weak building codes or failed to enforce existing building codes and which has facilitated development in high risk areas. Recent state government initiatives are encouraging however.
- Climate change and the incidence of more intense extreme events. Munich Re's Geo-Science Department has concluded that the proportion of severe storms has risen and that of moderate storms has fallen. Three of the ten most intense storms ever recorded in North America were in 2005.

The Insurance Industry's Financial Interest

The insurance industry's financial interest is inter-dependent with climate and weather. It is the risk of natural events which drives the demand for insurance coverage and yet, if not properly managed, can threaten the viability of an insurer if it is over-exposed in high risk areas. An insurance company thrives or dies on its ability to make estimates of the economic consequences of future events.

We believe pursuant to H.R. 906, greater emphasis on basic climate research, coordination among sponsoring government agencies, improved integration of user needs

into the research agenda, and access to climate data will enhance risk assessment by insurers and lead to improved insurance markets.

Insurance and Science

Although a number of European insurers and reinsurers have shown greater interest in understanding the causes of climate change, including the impact of global warming, US insurers have been more focused on the effect of natural disasters. Thus, the US industry has been more attentive to approaches to mitigate the consequences of natural catastrophes and other extreme events. Some European insurers have called upon their governments to reduce the human factors they believe contribute to global warming. In the US, the industry's agenda includes the evaluation of building codes and building code enforcement in every community in the country. Additionally, through the Institute for Business & Home Safety, the US industry has greatly enhanced its support for hazard mitigation by conducting research on building design and building materials. Improved research on the likely impact of climate change on extreme weather and the built environment will improve society's hazard mitigation adaptation.

The initiative most related to science and scientific assessment of global climate change is the use of catastrophe computer models to integrate scientific knowledge about climate into the actuarial sciences. These catastrophe models incorporate scientific assumptions about climate trends and the probability of future extreme events and then produce estimated prospective costs associated with natural catastrophes. They assist an insurer with an analysis of its potential exposure and are used to support rates filed for approval with insurance departments. It is the classic example of using insurance to translate scientific analysis and data into the economic consequences of people's behavior, i.e., where they live and the value and potential loss of properties in those areas.

The pure result of the use of catastrophe models is the application of risk-based premiums and the understanding of aggregate exposure for insured property.

In the context of the Global Climate Change Research Program and its reauthorization pursuant to H.R. 906, the industry would benefit from enhanced research on historical extreme events; particularly those which pre-date satellite technology. Climate research which addresses the effect of climate change on the frequency and intensity of extreme weather would be of great value. Additionally, the consequences of climate change on extreme weather regionally would improve insurer adaptation strategies.

Insurance Related Adaptive Product Strategies

Although insurance often covers damages from climate related events, there is no insurance policy with specific coverage related to climate change. Insurers and brokers have however announced the development of several climate related financial products:

- Carbon emissions credit delivery guarantees providing coverage for non-delivery of credits due to project insolvency, political and investment risk, operational problems (Marsh)
- Insurance for one-third of waste to energy plants and one-quarter of wind farms (Lloyd's of London)
- A risk financing product that facilitates trade by companies that participate in global trading of emissions credits (an options contract) (Swiss Re)
- A financial product that provides a buyer for carbon credits in the secondary market if the primary buyer fails to deliver (Munich Re)

- Directors and officers liability coverage for failure to address corporate compliance with government regulations (Swiss Re)
- New risk transfer products for weather related damages: “Cat Bonds” (\$5 billion were issued in 2006, \$30 billion since 1996); weather derivatives (\$45 billion in notional value in 2005-6)
- Exchange traded weather securities (Chicago Mercantile Exchange and the New York Mercantile Exchange with Gallagher Re (2007))

Industry observers also note that, as an adaptive strategy, insurers should focus research on energy efficient technologies that have the potential to reduce ordinary insured losses. They also encourage the development of insurance products with premium discounts that reward safety enhancing energy efficiency. In addition, the industry has been encouraged to increase in its investment portfolio energy efficiency oriented investments.

In a world where “reducing carbon dioxide emissions from a high to a low scenario would reduce the impact on losses and insurers’ capital requirement for extreme windstorms by 80%” (Association of British Insurers), the industry is showing signs of initiative to address carbon related climate concerns. AIG recently (April 2007) joined as the first insurer in the US Climate Action Partnership (CAP), whose goal is a US cap and trade system. Prudential Financial and Hartford Financial Services have agreed to disclose to shareholders the potential financial risk they face from climate change (April 2007). Swiss Re set a target of being greenhouse neutral in its business operations by 2013.

Conclusion

Insurers are in the business of assessing risk, pricing it and providing risk financing or transfer. The insurance industry's long-term strategy, however, does not include bearing the cost of climate change without a commitment on the part of society to pursue a mitigation strategy – addressing the causes and consequences of climate change. H.R. 906 is to be commended as placing greater weight on basic research that emphasizes user needs and priorities and the coordination of research with the global research community, including public, academic and private resources.