



# Preparing for Global Warming

## SMART INSURANCE

**W**hy should the insurance community—insurance agents and brokers, primary insurers, risk managers, and reinsurers—put a premium on addressing global warming?

Consider the following:

- Most climate scientists believe that human activities are contributing to long-term warming of the planet.
- Although uncertainties remain, some climate models suggest that extreme weather events such as wind storms, heavy precipitation, and consequent flooding may become more frequent and severe in a warmer world, making it harder to predict losses.
- Inflation-adjusted losses to insurance companies from extreme weather have increased significantly in recent years.
- Many steps that individuals and institutions can take to reduce emissions of heat-trapping gases have the added benefits of saving money and making communities safer and healthier places to live.

The insurance industry has an opportunity to reduce risk and promote safety by informing policyholders about global climate change. Preparing for the potential effects of global warming can save lives and money.

### SEVERE WEATHER AND INSURED LOSSES

In 1998 weather-related natural disasters produced significant human and economic losses. According to a Worldwatch Institute estimate, in the first 11 months of the year, storms,

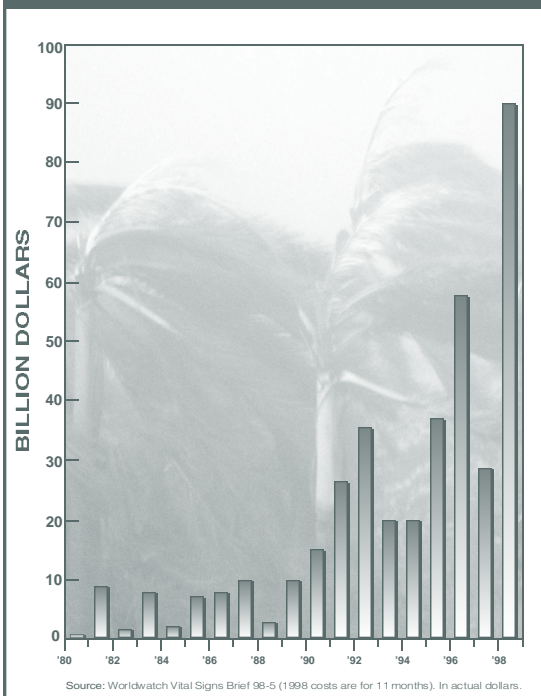
floods, droughts, and drought-related fires caused \$92 billion in economic losses worldwide. They caused at least 41,000 deaths and displaced some 300 million people, more than the entire population of the United States. During the first three quarters of 1998, the U.S. insurance industry alone had weather-related claims of more than \$8 billion—three times the claims of 1997.

Although the losses are staggering, they are no longer unusual. According to the Reinsurance Association of America, nearly 50 percent of the insured losses from natural catastrophes during the past 40 years have been incurred since 1990. Data from the insurance rating company A.M. Best Co. indicate that global warming could cause catastrophes that would cost insurers \$100 billion, reportedly equal to the total value of the capital and surpluses of the world's top 25 global reinsurers. According to the international reinsurer Munich Re, "continued climate change will almost inevitably yield increasingly extreme natural events and large catastrophic losses. This may make some vulnerable regions uninsurable."

Despite these trends, considerable debate remains about the economic threat that insurers face from the impacts of climate change, given the industry's overall financial strength,

### Economic Losses from Weather-Related Natural Disasters Worldwide, 1980-98

Put a Premium On PREVENTION



diversity, and adaptability. Some of the increases in losses are due in part to behavioral factors such as population movements toward high-risk areas and poor environmental management practices that exacerbate the impacts of droughts, flooding, and other severe weather events.

The risk of rising costs to insured property from flood damage is primarily a federal concern. FEMA's National Flood Insurance Program provides coverage to individuals in participating communities for commercial and residential

buildings and their contents. The rising insured costs attributed to flood damage are reflected in the program's indebtedness to the U.S. Treasury of approximately \$720 million as of December 1999.

Since its inception, FEMA has promoted mitigation actions to reduce future risks from flood damage. FEMA's Flood Mitigation Assistance and Hazard Mitigation Grant Program funds buyouts of homes and lots that are repeatedly flooded. From 1998 through April 21, 1999, FEMA had purchased 21,753 homes at a cost of \$533 million.

Although flood insurance for buildings is a federal program, private insurers face other risks from floods, such as the costs of disruptions to businesses. Approximately 20 percent of insured

economic losses from Hurricane Andrew were related to business interruption. Another risk is flood damage to automobiles, which is covered under the comprehensive sections of standard auto insurance policies. The risk of rising health insurance costs for victims of floods is still another risk borne by the private insurance industry. All of these risks could increase with a rise in the frequency and severity of storms and floods.

A number of insurance companies have concluded that the risks associated with global warming are serious enough to warrant precautionary action.

### WHAT IS GLOBAL WARMING?

One severe storm, hurricane, or heat wave is not evidence of climate change. Weather is naturally variable, and we can expect unusual conditions to occur from time to time. Still, current evidence suggests that global warming may make extreme weather events more frequent and possibly more severe.

The term *global warming* is used to describe a climate change that involves a gradual increase in the Earth's average temperature. Measurements indicate that global temperatures have increased by about 1 degree Fahrenheit over the past century. Moreover, according to the World Meteorological Organization, 1998 was the 20<sup>th</sup> consecutive year with an above-normal global surface temperature. The 10 warmest years since record-keeping began all have occurred since 1983, with seven of them since 1990.

The warming began happening during a period when human activities—especially burning fossil fuels such as oil, coal, and natural gas to power cars,

factories, utilities, and appliances—were beginning to increase the concentrations of carbon dioxide (CO<sub>2</sub>) and other heat-trapping gases in the atmosphere. Gases such as carbon dioxide and methane intensify a natural phenomenon known as the “greenhouse effect.”

Although most scientists believe that a rise in the concentration of CO<sub>2</sub> and other greenhouse gases in the atmosphere will lead to additional global warming, uncertainties remain about its timing and severity. Nevertheless, many are convinced that human activities have contributed to the long-term warming of the past century and lead to pronounced climatic changes.

### WHAT ARE THE RISKS?

Most current scientific research suggests that global warming may have serious impacts. These include increased human mortality from storm events, extinction of some animal and plant species, a rise in sea levels, and an increase in extreme weather events.

Although these impacts ultimately will touch every segment of the business sector, the insurance community is especially at risk from rising sea levels and more frequent and severe storm events.

Water expands as it heats, so as the oceans have warmed over the past century, sea levels worldwide have risen 4 to 10 inches. An additional rise of as much as 20 inches is expected during the 21<sup>st</sup> century. Studies by the U.S. Environmental Protection Agency and others have estimated that along the Gulf and Atlantic coasts, a 1-foot rise in sea level is likely by 2050 and could occur as soon as 2025. As the sea rises, it erodes beaches, increases storm surges, leads to a loss of property, and can destroy wetlands and compromise water supplies.

About one-half of the U.S. population resides within 50 miles of the coast. According to the American Insurance Association, the number of people who live in the hurricane-prone coastal



### INCREASES IN EXTREME WEATHER AND DISASTER CLAIMS

- There were three times as many natural catastrophes in the 1990s as there were three decades ago.
- Insured losses from natural disasters are 15 times higher today than they were in the 1960s, even after adjusting for inflation.
- The total dollars paid out in natural disaster-related claims since 1990 is 50 percent greater than the losses incurred over the past 40 years combined.
- People are moving to coastal areas at unprecedented rates, substantially increasing property values in high-risk areas.

## "By protecting environmental resources, you're also ensuring the economic integrity of coastal communities."

**James F. O'Connell**, *Coastal and Marine Resources Specialist*  
CAPE COD COMMISSION

areas that stretch from Texas to Maine will rise from 45 million people in 1960 to 73 million by 2010. The Institute for Business and Home Safety reports that in 1993, the dollar value of residential and commercial structures in a 50-mile-wide band along the Atlantic and Gulf coasts was \$3.15 trillion—a 69 percent increase over 1988. As a result of these trends, property damage from beach erosion, storm surges, and extreme weather could become very costly to insurers.

Warmer, drier weather in parts of the United States also could exacerbate the risk of wildfires. Population increases in areas where wildlands meet urban development has put more people and property susceptible to damage from wildfires. The Federal Wildland Policy states, "The wildfire hazard has become a major fire problem that will escalate as the nation moves into the twenty-first century.... It is clear from recent episodes that losses will increase in the future."

Extreme weather in the 1990s already has taken a significant toll on some insurance companies. For example, the insured damage from Hurricane Andrew totaled approximately \$16 billion, pushing seven insurance companies into insolvency and prompting others to reduce their exposure or leave the market altogether. In 1991, the Oakland/Berkeley wildfire caused more than \$1.7 billion in insured losses. Recently, in North Carolina, flooding from Hurricane Floyd resulted in enormous economic costs from damage to wastewater treatment plants, dead livestock, polluted drinking water, and business disruption.

In terms of other risks, some research indicates that global warming may increase hurricane activity, but other

studies suggest that global warming actually could suppress their formation. Regardless, there is no disagreement that population trends have put more lives and property at risk in hurricane-prone areas and that hazard mitigation activities that reduce property loss, lost lives, and infrastructure damage are prudent for their own sake.

Another weather-related phenomenon that can cause devastation is El Niño, a naturally occurring warm ocean current that can change weather patterns around the world. El Niño cycles have been observed for hundreds of years, but the 1997–1998 El Niño was the strongest on record. It was marked by a number of unusually severe regional weather occurrences, including an ice storm in New England, a Texas heat wave, Florida wildfires spurred by drought, and Hurricane Mitch. From March 1997 to June 1998, El Niño caused total losses of nearly \$14 billion and insured losses of approximately \$2 billion. Studies at the National Center for Atmospheric Research suggest that global warming may accentuate El Niño's impacts by intensifying the strength and duration of the El Niño cycle.

Climate change may have additional impacts that could prove harmful to the health insurance community. As temperatures warm, for example, heat-related mortality is expected to rise. Respiratory and cardiovascular diseases could increase due to higher levels of air pollution and the incidence of infection could increase. These impacts could lead to increases in medical costs and illness-related losses to businesses.

## WHAT CAN THE INSURANCE COMMUNITY DO?

Insurance companies can take a number of actions to reduce the risks from climate change. Most of the following steps will not only lower risk but also will save money for individuals and companies.

**Learn about climate change:** First and most important, insurers should educate themselves about the latest climate change science, the risks that global warming may pose to the industry and insurance customers, and the steps that can be taken to reduce the risks and lessen the impacts of climate change. Learning more about global warming will help insurers make informed decisions, take responsible actions, and conduct practical outreach to customers, community leaders, and the public.

**Lead by example:** A number of insurers, including Swiss Re and Norway's Storebrand, have published statements concerning environmental issues. General Accident (now Commercial General Union) published a statement that asserts: "As a successful commercial business, we consider minimizing resource use, energy use, and waste production to be integral to good business practice."

In addition, many companies have initiated efforts to manage energy use in their own facilities. Swiss Re, Storebrand, and other insurers have adopted environmental criteria for purchasing office products and equipment. The voluntary ENERGY STAR® and Rebuild America programs offered by the U.S. Environmental Protection Agency and U.S. Department of Energy are available to facility managers seeking technical assistance in this area.

**Mobilize disaster preparedness technology and planning:** Many of the losses sustained during natural disasters stem from inadequate building codes or poor compliance. The Institute for Business and Home Safety offers special

"What Can the Insurance Community Do?" adapted from "The Coming Storm: Global Warming and Risk Management" by Evan Mills. Risk Management magazine. May 1998.



## WHAT CAN THE U.S. GOVERNMENT DO?

- Listen and respond to the concerns of those in the insurance and risk communities.
- Bring together interested stakeholders to explore adaptation and mitigation options.
- Support climate change research.
- Invest in research and development to promote technologies that reduce green-house gas emissions, save energy, and lessen our dependence on foreign oil.
- Emphasize solutions based on flexible, market-based policies.
- Support a balanced, strong, and effective international climate change agreement that includes binding emissions targets, flexible implementation mechanisms, and the meaningful, equitable participation of all nations.

training for code officials and works with the Insurance Services Office—a supplier of statistical, actuarial, underwriting, and claims information for the property/casualty insurance industry—to implement a community-level code rating system. Insurance purchasers in communities that prepare for natural disasters through effective building codes receive discounts on their property insurance. Similar ratings programs exist for community fire protection and floodplain management. In another example of fostering disaster preparedness, U.S. insurer FM Global issues catastrophe warnings containing last-minute tips on property preparation via fax and e-mail to customers in areas threatened by a natural catastrophe.

**Support climate monitoring and research:** An increasing number of insurers are hiring staff climatologists to study weather phenomena as a part of their overall risk modeling. Many companies support international climate research to better understand and predict severe weather events, as well as examine potential risks from global warming. Since strategies to mitigate climate change through reducing emissions of heat-trapping gases have additional benefits to insurers and their customers, research on the risks can occur concurrently with activities to reduce the threat of global warming.

**Capitalize on energy efficiency and renewable energy:** Energy consumption is the largest contributor to human-induced greenhouse gas emissions. Fortunately, energy-efficient and renewable energy technologies help mitigate insurance risks. Energy-efficient refrigeration equipment, for example, minimizes the likelihood

of food or pharmaceutical spoilage following power outages. Solar energy systems can help maintain lighting systems following natural disasters. Insurers can encourage their customers to implement such technologies.

### Consider green investments:

Some insurers may opt to invest in ventures that reduce climate change risk. One private company has launched mutual funds that invest in companies that practice sound environmental management.

## EXAMPLES OF INDUSTRY ACTIONS

Insurers worldwide are taking important steps to address the impacts of climate change on the insurance and risk community. In July 1997, the United Nations Environment Programme created an association called the Insurance Industry Initiative for the Environment to promote a Statement of Environmental Commitment and coordinate working groups on topics of interest to the insurance sector.

The Statement of Environmental Commitment emphasizes the importance of a strong, proactive insurance industry as an “important contributor to sustainable development, through its interaction with other economic sectors and consumers.”

In December 1997, more than 200 top-level insurance executives and representatives of other financial institutions from 10 countries met in Tokyo to share experiences

and strategies for the implementation of environmental commitments in the insurance sector.

Taking steps aimed at reducing the risks from natural disasters is one of the primary objectives of the Institute for Business and Home Safety. The institute recognizes that much of the devastation caused by natural disasters can be alleviated through increased public awareness. To this end, IBHS engages in public outreach and encourages policies that promote safety from natural disasters.

In December 1998, Rhode Island became the first state to participate in the institute's Showcase State Program, in which IBHS helps states reduce their vulnerability to natural disasters. The governor signed an executive order initiating Rhode Island's participation in the program.

The Showcase State Program established a public-private partnership that develops safety strategies to help communities reduce deaths, injuries, property damage, and economic losses caused by natural disasters. The strategies include a statewide hazard analysis and risk assessment, as well as programs to increase public awareness about what can be done to protect homes and businesses.

## For More INFORMATION

The *Institute for Business and Home Safety* works to minimize the impacts of natural disasters by engaging in public outreach and encouraging policies that promote safety.

Tel: 617-292-2003

Website: <http://www.ibhs.org/>

EPAs *global warming website* provides in-depth information on climate change and includes links relevant to the business and insurance communities.

Website: <http://www.epa.gov/globalwarming/>

For more specific insurance information:

<http://www.epa.gov/globalwarming/actions/industry/insurance.html>