Insurance and Reinsurance in a Changing Climate*

Virginia Haufler[1]
University of Maryland, College Park

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Insurance and the Risks of Climate Change

After Hurricanes Dennis, Katrina, Rita and Wilma, insurance companies are withdrawing from coastal markets in the U.S. fearing the combination of disastrous climate trends with population growth. One recent news report stated, "Some believe the two are creating a risk of losses so large that insurers could be pushed to the breaking point..."(Hsu 2006 p.1) If the insurance industry responds to weather-related disasters by steadily withdrawing from markets, what are the implications for public policy? The industry has three primary methods of responding to "excessive" risk: by raising prices for what it sells; by withdrawing from product lines and markets; and by changing the financial, legal, organizational and political practices of the industry.

To one degree or another, all three of these can pose problems from the standpoint of the public interest. Withdrawing from a market leaves people and property without any recourse in a disaster except to draw on the public treasury. Raising prices will drive people away, limiting overall levels of private coverage. Legal and organizational change might include such practices as shifting financial risk to other institutions, or redefining and litigating contract terms in such a way that the behavior of customers must change. While all three responses are in play with regard to climate change risk, only the last one has the possibility of contributing to mitigation of climate change as opposed to reacting after the fact to the impact of disasters. Yet, the latter is the option that has the least amount of support within the industry so far.

The global climate change issue is complex, and has gone through a period of hot contestation to one in which many of the main issues have been settled. There is now general agreement that global warming is occurring, and that human activities contribute to it. The predicted effects of climate change will cause sea levels to rise, modify ocean circulation, and change marine ecosystems. These effects will place increased stress on coastal resources, and threaten low islands and coastal zones. Some island countries could even become uninhabitable, and low-lying urban areas would be endangered. All of these effects would be made worse if weather patterns became more severe, as might happen if the surface temperature of the oceans increased. There is the risk that some agriculturally productive regions would experience drought, and pressure on habitats would increase. New diseases might spread globally out of areas now isolated.(Stone 1992: 448)

All of these pose increased risk of loss to property and commerce, and in turn, to those who insure against risk. Just about every type of insurance may be affected: obviously property insurance, due to weather-related damage; but also health and life, due to harm caused by severe weather, in addition to the global spread of disease related to climate change. Director's and officer's liability insurance may also be affected if shareholders bring lawsuits for breach of fiduciary duty. Finally, the insurance sector is one of the largest institutional investors in the world, and changes in climate and weather patterns will affect investment choices and returns.

Recognizing the Problem

The insurance industry began to consider man-made climatic change a threat to its health following a series of weather-related disasters in the 1980s and 1990s, such as hurricanes and floods, which have since only grown worse. The property-casualty insurers experienced what were then considered to be record-breaking losses, and the trend since then has been continually upward. In both 1995 and 1996, the losses broke all previous records.[2] In comparison to the 1960s, the 1980s had 3.1 times more overall economic losses from major natural disasters; 4.8 times more insured losses; and 5.0 times as many major catastrophes. (1993 p.3) We have about 5.5 times as many weather-related natural disasters today on a global basis than we saw forty years ago.(Mills, Lecomte et al. 2001 p.13) In 2004, losses linked to weather were $145 billion, with insurers covering $45 billion. In 2005, weather related losses topped $200 billion and insured losses were around $70 billion. (UNEP 2005) Global weather-related losses have been trending upwards, and these trends outstrip increases in population or inflation or non-weather-related events.(Berkeley Lab 2006) Some observers estimate that, worldwide, the losses are a staggering $80 billion each year, although only around $20 billion are actually insured.(Krotz 2005) This year, hurricane forecasters in the U.S. are predicting there will be five major storms of Category 3, with a chance of landfall around 81%– compared to a 100-year average of only 52%–which means that issues related to weather will not be going away anytime soon, no matter what anyone believes about global warming.(Hsu 2006 A10)[3]

Table 1 – *Highlights of 2005 Weather*
1. Hurricane Vince was the first ever hurricane to approach Europe making landfall in Spain in October. It was also the most eastern and northern hurricane ever seen.
2. On 26 July, the meteorological station at Santa Cruz in north Mumbai, India recorded 944m of rain in 24 hours. This was the highest precipitation ever recorded in India
3. Hurricane Wilma, which formed in the Caribbean in October, was the strongest hurricane ever. It had a core pressure of 882 millibars and caused devastation in Cozumel and Yucatan. Economic losses have been calculated at 15 billion dollars with insured losses of 10 billion
4. At the end of November, tropical storm Delta hit the Canary Islands killing several people and leaving tens of thousands without electricity. It was the first tropical storm to ever strike the islands.

[2] Gordes gives the example of Hurricane Andrew's impact on insurers in Florida to illustrate the severity of the losses: this category 5 hurricane, which did not even make landfall in the most developed areas of the state, nevertheless caused $16 billion of insured losses and wiped out the premiums collected over the previous twenty years in only a matter of hours. (Gordes 1997)

[3] In his report, Hsu also makes a point of noting that the last few years have been some of the most profitable for U.S. insurers, despite a string of natural disasters, in part because the losses were borne by overseas firms or reinsurers, who buffer their risk with returns on their investments in global capital markets.(Hsu 2006 A10)

5. The number of tropical storms broke all records in 2005. By 1 December, there had been 26 or five more than previous record of 21. Fourteen of these 26 tropical storms were classified as hurricanes.
6. Hurricane Katrina, the 6th strongest since records began, has been the most costly weather-related disaster ever with economic losses totaling more than 126 billion dollars and more than 30 billion insured losses
UNEP, *2005 Breaks a String of Disastrous Weather Records* www.unep.org

One notable feature of the insurance sector response to climate change issues is the significant variation between European and American insurance cultures. In Europe, the insurance industry has been more proactive in changing their policies to respond to climate change, and in pressing governments to act on this issue. It is the European insurance sector that has attempted to initiate change, working with governments and international organizations to develop a better understanding of the issues and the potential role of the insurance sector. However, some observers have noted that even the more progressive European insurers have not acted strongly to mitigate climate change, despite their rhetoric. (Mills, Lecomte et al. 2001)

Reports of unusually severe natural disasters and dire effects on insurance profitability and even solvency began to appear in business journals in the 1980s. At the World Insurance Congress in July 1991, a representative of Continental Corporation noted that 1989 and 1990 were both record-breaking years for catastrophe losses; she mentioned the possibility this might be related to global warming but did not take a definitive stance. (Souter 1991) In 1992, the Munich Re corporation assessed losses that year as involving more than 500 natural catastrophes, one hundred more than in the previous year. Swiss Re did an analysis demonstrating the size and frequency of catastrophes had been increasing. (Gordes 1997). Insurers became increasingly reluctant by 1993 to provide insurance coverage in areas subject to these natural disasters, including many island states.(Environment 1993)

The entrepreneurial Jeremy Leggett, of Greenpeace International, was one of the first to make the link between insurance losses and global warming. In 1992, he began to urge the insurance industry to take action against global warming, making numerous presentations at industry conferences. (McIwaine 1992) He published a widely noticed article–a manifesto–citing those earlier insurance studies and linking their results to climate change, in an effort to mobilize insurers. (Leggett 1993) In it, he argued that the standard response of raising premium rates and deductibles, and restricting the terms and conditions for insurance policies, is a short sighted solution to a major problem. He believed the long term health of the industry depends on reducing greenhouse gas emissions to prevent, and not accommodate, climate change. At this time, Greenpeace was looking for a business group to organize in opposition to the fossil fuel interests that adamantly resisted efforts to limit carbon emissions. (Sabar 1994b; Gordes 1997) Leggett cited numerous statements by insurers that indicated a growing concern among some of them that indeed climate change was implicated in their current losses or could potentially become a severe problem in the future. (Leggett 1993; Gordes 1997)

Munich Re, the largest reinsurance company in the world, called on governments in 1994 to stabilize greenhouse gas emissions and keep their Rio commitments. (Abbott 1994) A year later, just prior to the Berlin IPCC conference, Munich Re reported on further natural disasters, linked them to possible global warming, and called for a reduction in carbon emissions. Gerhard Berz of Munich Re stated that "There is no longer any doubt to us that a warming of the atmosphere and oceans is causing an increased likelihood of storms, tidal waves, hailstorms, floods and other extreme events."(Thiel 1995) In what amounted to a call to action, in 1995 H. R. Kaufman, General Manager of Swiss Re, stated "There is a significant body of scientific evidence indicating that last year's record insured loss from natural catastrophes was not a random occurrence...Failure to act would leave the industry and its policyholders vulnerable to truly disastrous consequences."(Environment 1995 p.23) At the Berlin conference itself, representatives of Munich Re, Swiss Re and Lloyd's of London lobbied for emission reductions, in the hope this would decrease the probability that the number of natural disasters would go up.

In 1996, the U.K. Climate Change Impacts Review Group for the British government predicted that British insurers would suffer a large increase in claims over the next fifty years from weather related phenomena caused by global warming. These claims would come both from British customers and from the extensive overseas business of U.K. insurers. (Unsworth 1996) At this point, the British insurance industry began to consider changing the patterns of its investments to reduce its own risk from the consequences of climate change. (Gordes 1997)

The major Norwegian insurer, Uni Storebrand, began lobbying other companies in Switzerland, Germany and Britain to organize more actively on climate change issues and participate in international negotiations. Uni Storebrand, General Accident and National Provident in the U.K., and Gerling in Germany, formed an environmental alliance, drawing up a letter of intent linked to a United Nations Environmental Programme (UNEP) statement. The UNEP Program Director at the time worked closely with the industry and cosponsored the "Statement of Environmental Commitment," in which the signatories promised to incorporate environmental considerations into their risk management and to adopt industry best practices in this regard. (UNEP 1996) They would regularly make public reports of their environmental actions, and would realign their asset management along with environmental considerations. (Kirk 1995) By November 1996, 62 insurers from around the world had signed on to this Statement.

A year later, UNEP sponsored a conference on the Insurance Industry and the Environment in London at which close to 100 insurance companies from around the world participated. The conference focused on ways the industry could implement their commitment to incorporate environmental considerations into their "best practices." They focused on eight areas: the handling of claims for losses; managing insurers' assets; designing insurance products; preventing losses; managing physical assets; mobilizing the company; and environmental reporting and lobbying. (UNEP 1996) This eventually became one element in the overall strategy

of the UNEP to organize the financial sector as a whole on environmental issues.[4] The UNEP Financial Initiative– UNEP FI– now was joined by an Insurance Industry Initiative, or UNEP III.

A UNEP Insurance Industry Initiative Position Paper on Climate Change from 1996 clearly pointed out the potential effects of climate change. It discussed not only the losses that might be suffered by property insurers, but also warned that life insurers and pension funds may also be affected by climatological effects on human health; long-term investors such as the insurance industry might be affected by major changes in economic activity. The Report argued that market forces alone would not make this shift efficiently or effectively, and concluded that the precautionary principle must be the basis for decision-making. (UNEP 1996) The insurers that were part of the UNEP III threw their support behind the Framework Convention on Climate Change, urged countries to achieve early and substantial reductions in carbon emissions, and argued for increased participation by non-governmental organizations, including business, in the negotiations.

Table 2 – *UNEP Finance Initiative - Signatories by Region 2006*	
Africa	3%
Asia	12%
Europe	72%
Middle East	1%
North America	7%
Oceania	3%
South America	2%
UNEP Finance Initiative, www.unepfi.org	

In recent years, the European, and particularly the British, insurance companies have continued to support the need for insurers to take account of climate risks in their business. Recently, the Association of British Insurers (ABI) produced a report arguing that climate change could increase the financial costs of extreme weather around the world; "even quite small increases in the intensity of major storms (hurricanes, typhoons, windstorms), as predicted by the latest climate change science, could increase damage costs by at least two-thirds by the end of the century. The most extreme storms could become even more destructive, making insurance markets more volatile, as the cost of capital required to cover such events increases." (Association of British Insurers 2006) Shortly after this, the Comité Européen des Assurances (CEA) reported that "Society will bear the costs of climate change in Europe, but insurance

[4] UNEP work with the insurance industry is part of its larger Financial Initiative, in which the organization gains commitments from banks, investment houses, and the wider financial community.

arrangements will determine who will pick up the bill..." (Comité Européen des Assurances 2005)[5]

The U.S. industry remained outside this mobilization, despite the efforts of Greenpeace to enlist them in the cause. They did not sign the environmental pledge co-sponsored by UNEP at the time it was put forth, and to date, few have signed on to the UNEP Insurance Industry Initiative. They view the UNEP III as a European initiative; and, from the other side, the participants in the UNEP III have shown little interest in working with American insurers. American insurers suffered losses similar to those of the European reinsurers, but viewed the problem as simply one of catastrophes which reduced their financial reserves and undermined their financial health, and not some larger problem.[6] The link the American insurers made is not between global warming and disasters, but between over-development in threatened areas and the costliness of disasters, requiring government intervention.

Only a few American insurers mentioned global climate change as a threat to their business until recently. American Re has been one of the few U.S. companies to invest in technologies to reduce environmental risks. The company was purchased by Munich Re, a European leader in linking insurance losses and climate change, and this may have led it to become more active on environmental issues. Frank Nutter, of the Reinsurance Association of America, has been the primary liaison between the U.S. industry and Greenpeace, and initially expressed doubts about the climate change-insurance loss link.(Sabar 1994a) Many U.S. firms have yet to come out publicly on this issue. Only recently did AIG, a major insurance firm, acknowledge that climate change is a significant financial risk to the industry, and that action must be taken.(Mills, Roth et al. 2005)

The U.S. industry response to severe weather patterns has been a traditional one– lobbying the U.S. government to establish a federal disaster fund as a safety net for the industry, on the grounds that major catastrophes threaten the solvency of insurers, and their solvency is crucial to the economic health of the nation. (Gordes 1997)

Neither U.S. nor European insurers have chosen change their premium prices based explicitly on climate risk assessments, as yet. (Economist 2004) There is still a great deal of uncertainty regarding models of weather patterns, and how the distribution and impact of changes will affect insured property and lives. The string of hurricanes in 2005 is now being incorporated into the most recent risk prediction models, however, and may lead to higher premiums in 2006. (Consumer Reports 2006) In the United States, the insurance industry is

[5] The Europeans are understandably concerned with floods while the U.S. tends to be preoccupied with hurricanes, since these are the most recent–and common–natural disasters related to climate change (though Spain is more concerned with desertification).

[6] The legal and political system in the United States is such that insurers often pay more for catastrophes than in other jurisdictions. As one British insurance lawyer put it, "Experience shows that if a catastrophe happens in the U.S., you can expect to pay up to 30 times more damage claims than you would elsewhere in the world."(Souter 1991: 31).

doubtful that state regulators will allow them to raise their prices based on models of the future, as opposed to traditional pricing based on historical data. (Mills, Lecomte et al. 2001) So far, Massachusetts is the only state that has allowed changes based on future estimates. (Mills, Roth et al. 2005; Environmental Science and Technology 2006)

The slow response in the U.S. insurance sector, however, has prodded other actors to respond. There has been a long-standing interest on the part of environmental advocacy groups in persuading the financial sector to use its leverage over other firms to provide incentives for them to adopt more sustainable practices. In addition to the UNEP Financial and Insurance Industry Initiatives mentioned above, there has been continuous work by groups such as the World Resources Institute and World Wildlife Fund to develop partnerships and dialogue with the financial sector. Recently, the Ceres coalition of investors and environmentalists sponsored a prominent report on climate change and insurance. (Mills, Roth et al. 2005). It also organized twenty institutional investors, with 800 billion dollars in assets, to ask thirty publicly held insurance companies to create risk analyses of climate change and report these to the public by August 2006.[7] These investors include state treasurers from California, Connecticut, Kentucky, Maryland, New York, North Carolina, Oregon, and Vermont; two of the largest public pension funds; the New York City Comptroller, the Illinois State Board of Investment, and others. The are all members of the Investor Network on Climate Risk (INCR), a non-profit that is working to influence climate change policies. (Economist 2004; Consumer Reports 2006; GreenBiz.com 2006) Nevertheless, there is still little reporting of this nature.[8]

Why the Variation in Response?

Why the big difference in response between the European and American insurers? Why the slow uptake in the U.S.? There are a number of possible reasons. First, American insurance companies invest relatively little into research, either individually or as an industry. The largest American insurance companies have not established research into climate change and its consequences, and there has been no systematic research by anyone–public, private, or academic–on the potential effects on the industry.(Mills, Roth et al. 2005) Many insurers say they are waiting for more certainty regarding the science of global warming.

This contrasts with the European industry, which regularly reports on environmental issues and the possible impact of climate change. (Mills, Lecomte et al. 2001) Swiss Re has been issuing reports on trends in natural disasters for decades. In Germany, Allianz Group established a "Climate Core Group" to study the issues, and is working with the government on how to respond.(Mills, Lecomte et al. 2001) European firms tend to have in-house scientific research capabilities that American firms do not, providing a voice within the corporate organization for

[7] This CERES initiative, along with a well-publicized report on insurance, have been funded in part by the Clinton Global Initiative.

[8] Only four of the largest 27 property and casualty insurers report climate change liabilities to the SEC. The five insurers reporting on climate change risks in their 2004 annual SEC filings were Allianz, Aspen Insurance, Chubb, Cincinnati Financial Corporation, and Millea.(Mills, Roth et al. 2005)

future-oriented planning. (Gordes 1997) However, a few U.S. industry research centers have produced reports in the last few years that note the possibility that climate change could be a factor in insurance losses. Most American insurers appeared to believe that the research on this topic is not conclusive enough to warrant active efforts to reduce carbon emissions; therefore, they simply recommended continued research instead of action. (Gordes 1997) A statement from Wallace Hanson, President of the Property Loss Research Bureau, reflects the common attitude:

> The industry mindset is: Is this part of the normal cycle? Or, as Greenpeace suggests, is it something that society is bringing on itself and will get worse? This is the fence companies are sitting on. I feel that fossil fuels may be the cause, but I'm afraid of throwing a whole lot of resources at it and finding out it's something completely different. (Gordes 1997, from Sabar 1994)

However, there is increasing evidence that scientific knowledge regarding climate change is beginning to be more widespread within the industry. In February 1995, the U.S. Insurance Institute for Property Loss Reduction, the Reinsurance Association of America, the Office of Vice President Gore, and Timothy Wirth, Undersecretary for Global Affairs, sponsored a meeting on climate change attended by a number of American insurers at which they agreed to review the link between environmental change and recent losses. Presentations were made by climate scientists and European insurers. (Gordes 1997) There is some indication that U.S. insurers began to absorb this new knowledge and at least consider the possibility that they should be concerned about climate change. In 1996, the head of the Reinsurance Association of America, Franklin Nutter, explicitly warned insurers about the need to promote energy efficiency and linked this to global climate change. (Hamilton 1997)

In the mid-1990s, insurers and reinsurers in Bermuda, the U.S. and Europe established the Atlantic Global Change Institute (AGCI) to conduct research on climate risks that affect business. It has established a Risk Prediction Initiative with the explicit aim of increasing interactions between scientists and businesses affected by climate change. It focuses on making available to insurers the latest scientific advances in predicting climate patterns. The AGCI identifies "cultural" differences between scientists and insurers as a barrier to communication, and therefore attempts to create tools for insurers to more easily understand and use climate research. (AGCI 1996) It has not been particularly influential, however. Ten years later, the National Association of Insurance Commissioners finally set up a task force to study climate change. (Hsu 2006 A10)

Another reason for the conservative position of American insurers may be the liability system in the United States. In the past few decades, insurers have been forced by the court system to pay for environmental clean-up beyond what they had contracted for originally. Long after the relationship between the insurance company and the customer has been ended, the insurer may still be held liable for pollution and environmental damage. This may encourage

insurers to simply withdraw from markets, where possible, instead of dealing with liability in cases of property damage from climate change.[9]

Unlike their European counterparts, American insurers simply do not perceive the possibility of financial opportunities from climate change action. European insurers perceive good financial prospects for investing in emissions trading, renewable energy, climate friendly technologies, and new insurance products that help customers manage environmental risks. European insurers plan to become directly involved in carbon trading markets by providing incentives for industry to adopt more environmentally-friendly technologies through the terms of their insurance contracts. (Allianz Group 2006) The U.S. lacks such a "green" market, which reduces the opportunities for American insurers. U.S. consumers and business are less likely to reward commercial actors for taking the lead on environmental issues. In Europe, insurers are more sensitive about their reputations, which are more easily affected by public perceptions regarding their responsiveness on the environment. (Dlugolecki 2004)

Another reason for the difference in response is due to the paradoxical role of the U.S. government. The U.S. government has a large role in insulating insurers from particular kinds of risk, with extensive government programs for both flood and crop insurance. (Mills, Lecomte et al. 2001) At the same time, the government has done almost nothing on climate change mitigation. Government action on one and inaction on the other directs insurance industry attention away from this issue. There is both an assumption by insurers that the U.S. government will pick up the slack if the private sector does not provide insurance, and an awareness that any action by them on global warming issues probably would not elicit support from the government. (Mills, Lecomte et al. 2001) At the same time, the U.S. regulatory system discourages the use of new predictive models, and the tax system provides disincentives for the industry to build up reserves for future disasters. There is also strict regulation of the insurance sector, and any attempts to raise prices or withdraw from the market generate regulatory scrutiny.(Mills, Lecomte et al. 2001)

Choice and Consequences

There are three main options for insurers in the face of this debates over climate change, its potential effects, and the definition of their own interests. (Leggett 1993) These three options are not mutually exclusive, and some firms are attempting to pursue more than one at once. Many insurers, particularly in the United States, are simply doing nothing in the hope that the most dire predictions are simply wrong and recent natural disasters are a fluke and not a trend. These firms, despite the pressure from reinsurers and from increasing dissemination of knowledge about the risks of climate change, define their interest in terms of immediate short-term calculations of profit and loss. They are reluctant to give up a market that still remains profitable for many. No one firm will withdraw from a particular market unless it is assured that

[9] For an interesting discussion of environmental pollution and insurance, see Mark J. Spalding, "Is a Threat to Lloyd's Also a Threat to the Environment?" (1993)

all others will do so to; otherwise, the lone firm still selling insurance under the terms and conditions that others no longer agree to use will reap super profits. If natural disasters continue to increase in number and severity due to climate change, then the ultimate risk will be placed on governments, since the insurers will experience extreme losses, go bankrupt, or finally withdraw entirely from particular markets. The United States private sector is not alone in this attitude; in fact, some point to it as a particular problem in developing countries, where insurance markets are not yet well developed.[10] (Cheung 1995)

Many insurers are counting on government to provide the funding to recover from disasters, and to supplement the private market with public insurance funds. State governmentes in the U.S. are looking to the federal government to establish new disaster insurance funds. At a larger level, the Alliance of Small Island States, which will be the first to feel the effects of rising sea levels, have proposed that governments establish a global insurance institution to fund the costs of climate change in their countries. This would be a public insurance project, and not the kind of private market activity this paper focused on.

A second option is to directly confront climate change and its effects, and assume that it is an unstoppable force. The goal would be to make sure there are sufficient financial resources for the insurance industry to remain solvent, and to prevent harm to other financial sectors. Private markets would do what they do best–signal what adjustments others should make through the price and availability of insurance. (Stone 1992) Some argue that this would provide a smooth transition to a less fossil-fuel dependent world, but the pace of change may instead lead to extreme volatility in prices and availability, which is what we are seeing right now.

Under this option, private insurers would need to consider climate risks more directly in determining where and what to insure and how much to charge. Many areas, particularly coastal ones, would no longer be insured by them at all. Coinsurance, perhaps through insurance pools, would become more common. Other financial sectors could take up some of the risk, for instance, through developing new products such as "catastrophe futures" to hedge against very high risks and losses. But it is through the terms of insurance contracts and the types of insurance they sell that insurers have a degree of leverage over industry. For instance, European insurers are considering imposing higher premiums on companies that do not have environmental management systems. Uni Storebrand plans to use its influence with housing suppliers to convince them to meet minimum environmental standards, and will include environmental criteria in marine insurance risk. ("Insurers..." 1995) Ceres has a project that is exploring whether shareholder lawsuits can be brought against corporate directors who can be accused of putting their companies' assets at risk by not addressing climate change. This liability could be used to influence investment decisions. The insurers that supply director's and

[10] While the market for insurance is global, in fact, most of it is sold in Europe, the U.S. and Japan. Developing country markets are being served to some degree by the international insurers based in New York, London, and Zurich, and this may be an area of future growth. One current research project based at the School of Management at the University of Bath is investigating how to improve environmental performance in developing countries through environmental conditions attached to credit and insurance.

officers liability insurance could be hard hit by this, and may require their customers to implement new environmental policies to reduce the risk.

Insurers could create new financial products and services that help companies reduce their carbon emissions (e.g., through risk consulting, carbon credit finance); facilitate investment in renewable energy technologies (e.g., through carbon credit insurance and structured finance); and which provide incentives for companies to improve their governance and performance on climate change (e.g., director's and officers liability policies which provide additional protection to companies that have taken steps to reduce their emissions). For example, assessment. Through insurance and its terms and conditions, other businesses would have to internalize the costs of climate change.

A third option would be to actively work to prevent climate change from occurring, instead of simply redistributing the losses. Political activism through such fora as the UNEP III represents this strategy, and the work of the Ceres coalition is another face of this. This strategy relies on the government not as a source of deep pockets to pay for losses in a disaster, but as a regulatory institution to force change on industry as a whole. The originators of the insurance environmental alliance had already established expertise and had begun developing both the normative and technical requirements of a proactive stance. Uni Storebrand has expertise in marine insurance, General Accident in climate change, National Provident in ethical investments, and Gerling has separate institute for environmental research. ("Insurers..." 1995) These insurers do not expect to lose business from this, but to gain new markets, especially from customers attracted to environmentally friendly business. Some insurers see their influence in terms of the research they fund and publish, which may redirect public funds.

Action on climate change by insurers will be facilitated by government policies to support them in covering areas of high risk. In the UK, the Association of British Insurers is working to help the government develop more sustainable policies for industrial development. They hope this will help make individuals and firms more insurable, in part by mitigating climate change, but also through better policies regarding where and how to build. They are particularly interested in seeing the government restrict development in floodplains. (Dlugolecki 2004)

It is clear that the insurance industry is beginning to change, but it is also evident that they are not as yet making any profound changes in how they do business. There are a few companies pursuing progressive strategies that attach environmental conditionality to the products they sell. But this is a very competitive market, and this strategy only works well where there is government support and a "green" market. There is increasing discussion among insurers about the need to prevent climate change, and political action. But as yet there is still relatively little actually being accomplished. Nevertheless, there are a number of reasons to think that insurers will make more significant changes in the coming years. The extreme weather of the last few years, combined with the increase in oil prices in the last few months, may have opened a window of opportunity. Governments, especially in Europe, are beginning to adopt policies that facilitate strategies premised on reducing greenhouse gas emissions. The emissions trading

scheme will be the most significant of these policies. In addition, there has been increased activism directed at, and coming from, the financial sector as a whole. This includes the projects of Ceres; the larger Carbon Disclosure Project; and such financial sector initiatives as the Equator Principles, which regulate project finance on social and environmental values.

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