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## **SUSTAINABILITY RISK MANAGEMENT**

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This article features a panel discussion on sustainability risk management organized by Dan R. Anderson for the American Risk and Insurance Association 2007 annual meeting. The moderator, Mr. Dan Anderson, is the Leslie P. Schulz Professor of Risk Management and Insurance at the University of Wisconsin-Madison School of Business and author of *Corporate Survival: The Critical Importance of Sustainability Risk Management*. Anderson is a past president of the American Risk and Insurance Association (ARIA) and the 2007 winner of the Geneva Association/International Insurance Society Research Award, including a \$10,000 stipend, for his paper, "Sustainability Risk Management as a Critical Component of Enterprise Risk Management (ERM): Global Warming—Climate Change Risks." He also was recently presented with the Risk Innovator Award by *Risk and Insurance* magazine for his work in sustainability risk management. The next panelist is Kenneth E. Anderson, Director of Aon's Environmental Services Group. Mr. Kenn Anderson is a graduate of the University of Wisconsin's Risk and Insurance Management program and has spent the last 20 years advising organizations about their exposure to environmental risk and designing, negotiating and implementing appropriate environmental insurance programs to meet specific client needs. He will emphasize business opportunities associated with sustainability risk management and the availability of insurance coverage for sustainability risks.

**Dan R. Anderson:** Sustainability risk is a newly emerging risk area and, I believe, one of the critical risk areas of the 21st century. During this discussion I will introduce the general area of sustainability risk management and talk about the identification/assessment function.

I have been thinking about sustainability risks probably for my entire career, but especially during the last 10 years. Sustainability risk management is concerned with environmental and social responsibility risks. That is, corporations are being pressured to address their environmental and social responsibility performance, in addition to the traditional bottom line. I have long tried to make a business argument for companies to become more sustainable by using risk management principles. There are several

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**TABLE 1**  
Create Business Opportunities Through Sustainability Strategies

- |            |                     |
|------------|---------------------|
| • GE       | • Intel             |
| • Toyota   | • Johnson & Johnson |
| • Swiss Re | • SC Johnson        |
| • Allianz  | • Johnson Controls  |
| • Shell    | • Hewlett Packard   |
| • 3M       | • Alcoa             |
| • Baxter   | • Herman Miller     |
| • FedEx    | • Kimberly-Clark    |
| • P&G      | • Veolia            |

informed authors who have written excellent books on sustainability, but no one has really approached it from a risk management framework or recognized that it needs to be approached in this manner. Further, sustainability risk management needs to be a critical part of enterprise risk management (ERM).

Table 1 contains a list of companies that are financially successful and have strong sustainability records. Of course, this list is not meant to be an exclusive one. Improving environmental conditions inside the company and improving the social conditions of workers used to be thought of as a social cost. Now, the argument can be made that the firm will build a better reputation, enhance financial performance and improve competitive advantage by pursuing sustainability risk management.

Sustainability risk management can be thought of in terms of the “triple bottom line” (TBL) developed by John Elkington, a leading consultant in the United Kingdom and author of *Cannibals With Forks*. The TBL can be articulated as follows:

$$\text{Maximize: } F + E + SR = \text{TBL},$$

where  $F$  = financial performance,  $E$  = environmental performance,  $SR$  = social responsibility performance, and  $\text{TBL} = F - \text{risk costs of } E - \text{risk costs of } SR$ .

According to Elkington, you need to consider all three areas to get to maximize the triple bottom line. You can see the risk management aspect of the TBL because the costs of risk are subtracted from profit (or financial performance). Obviously, if you reduce the environmental and social responsibility risk costs, everything else held constant, the TBL will increase.

To provide a background to the scope and exposure associated with sustainability risk, I am going to discuss six areas of sustainability risk very briefly: global warming/climate change, boycotts, environmental liability, ecosystems, social responsibility, and directors and officers liability. Global warming/climate change is probably the most significant and the most discussed in the business and popular literature. Global warming/climate change refers to the fact that the earth’s atmosphere is getting warmer and will continue to get warmer; for example, 24 of the 25 warmest years have occurred since 1980. The

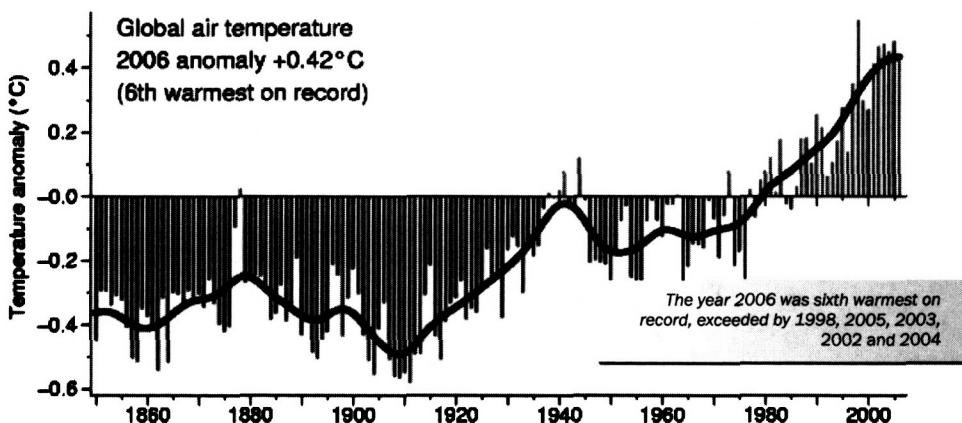
main driver for this is human activity related to increasing greenhouse gases, in both emissions and concentrations, from burning fossil fuel—coal, petroleum, and natural gas.

Scientific evidence and consensus about the existence of global warming/climate change is virtually overwhelming. This evidence is perhaps best exemplified by the four assessments of the Intergovernmental Panel on Climate Change (IPCC), with the latest assessment occurring in 2007. This panel consists of thousands of the world's leading scientists representing over 120 countries. According to the panel, with better than 90 percent certainty, it is "unequivocal" that global warming is substantially caused by human activity. (As scientific groups go, "better than 90 percent certainty" is probably the maximum that they can ever say about anything.) Many of the major scientific organizations in the world support this assessment such as the National Academies, the American Geophysical Union, and the American Meteorological Society. Yet, misinformation is still being spread that global warming may not be occurring.

Naomi Oreskes examined 928 scientific articles (in scientific journals) on climate change over a 10-year period (1993–2003), and 75 percent of these found evidence supporting the link between human activity and climate change. Twenty-five percent of the articles examined were concerned with methodologies to measure climate change and weren't focused on reaching a conclusion about global warming at all. None of the articles offered hard evidence indicating that there is no connection between human activity and climate change (Oreskes, 2004).

Figure 1 indicates the global land and marine surface temperature record from 1850 to 2006. Warming trends are indicated in this figure. In fact, in the last 150 years, there has been an exponential increase in the concentrations of greenhouse gases, like carbon dioxide, nitrous oxide, and methane in the atmosphere (Kennedy et al., 2006). These increasing concentrations of greenhouse gases create a blanket-like effect in the earth's

**FIGURE 1**  
Combined Global Land and Marine Surface Temperature Record From 1850 to 2006



Climate  
Change

Source: Climatic Research Unit and the UK Met. Office Hadley Centre  
Brohan, P., J.J. Kennedy, I. Harris, S.F.B. Tett and P.D. Jones, 2006

atmosphere. Solar radiation comes through the atmosphere, but as it is reflected back from the earth's surface toward space, more of it is captured by this thickening blanket of greenhouse gases. Increased warming conditions are created as a result. One place this is noticeable is in the shrinking of glaciers all over the world. Another example is the ice cover in the Arctic Ocean, which has gone down by one-third, both in terms of size and thickness, in the last decade.

Increased property risks and storms are a well-known consequence of climate change/global warming to risk management professionals. Hurricanes Katrina, Rita, and Wilma are recent examples of storms. Munich Re has collected a significant amount of information about property exposures and global warming. According to Munich Re, the frequency of weather disasters has tripled since the 1960s. Also, natural disasters resulted in a record \$200 billion in damages in 2005, including \$75 billion in insured losses. Natural disaster damages and insured losses more than doubled their record-setting levels of \$90 billion and \$35 billion, respectively, in 2004. Global climate research predicts more intense rainfall, stronger storms, stronger hurricanes, increases in sea levels, and more severe droughts (which can affect wildfires). All of these predictions, of course, suggest that increasing property damage is going to be one of the most severe consequence of global warming/climate change from a risk management perspective.

This is not to say that liability will not also increase due to global warming/climate change. Litigation is ongoing, although not much has been paid out in damages yet. For example, countries such as the United States that have not joined the Kyoto Protocol, and industries involved in heavy carbon dioxide emissions such as coal and oil, are being sued for their impact on the atmosphere. The groups that are considering/instigating litigation include environmental groups such as Greenpeace, the World Wild Life Fund (WWF), Natural Resources Defense Council (NRDC), Friends of the Earth (FOE), and Climate Justice. Island states, such as Maldives, Tavalu, and Kiribati, concerned with rising sea levels, are also involved in litigation. Hurricane Katrina victims have sued oil companies for contributing to global warming and the increase in hurricanes that have resulted. Eight states led by California and New York City have sued five utilities for damages related to global warming, a development somewhat reminiscent of the tobacco lawsuits. The state of California sued six major auto manufacturers for damages caused by storms related to global warming. A *Business Insurance* poll states that almost 60 percent of risk managers feel that global warming liability risk will be a very serious or somewhat serious problem (Ceniceros, 2007).

Even the life and health risk management/insurance area is impacted. Of course, the consequences of heat stress are the best example. In France in 2003, approximately 15,000 people died of heat stress. Diseases generally spread as it gets warmer. Malaria is spreading north and south from the equator and also spreading up elevations of mountains. Insect born diseases spread more easily in warmer weather. Just recently, insecticide was sprayed in some places in Canada for the West Nile virus. All of these situations, unfortunately, tend to have the greater impact on poorer countries, such as African countries and Bangladesh. For example, in India and Bangladesh, the annual monsoon season was the worst in the last 25 years, and note that these countries have contributed little to global warming.

Boycott risk is another important risk associated with sustainability risk management. Risk management texts do not delve much if at all into boycott risk. Nike is an example of

a company that was significantly affected by boycotts. Nike was a profitable company with great employees and a great image. But Nike's goods were made in overseas factories/sweatshops with very poor working conditions. In many cases, children were working in these factories. After some nongovernmental organizations (NGOs) exposed this aspect of Nike, their profits and stock price suffered. As a result, Nike has done a turnaround in managing its sweatshop risks. You can now go to the Nike website and find any one of their 700 manufacturing locations. International monitoring groups can go to these locations and observe working conditions.

Because the Internet can be used to send information instantaneously around the world to large numbers of people at virtually no cost, boycotts can be a sudden, real threat to companies. Boycotts cause revenues and profits to decrease, and stock prices are adversely impacted. Boycotts are like business interruption risks, except no insurance is available to cover these risks. Employee morale suffers. A company's reputation and brand are damaged. To understand the seriousness, consider the following statement from an environmentalist NGO that "targeting brands is like discovering gun powder" (Allen and Root, 2004).

Arguably asbestos cases and Superfund highlight two really good examples of environmental risk. In both of those cases, there is a large accumulation of damages. Even before litigation, people were being injured by asbestos. Hazardous waste was being accumulated but nobody was responsible to pay for its disposal. There was no accountability. Then, all of a sudden, one event occurs and totally changes the landscape. In the case of asbestos, Dr. Irving Selikoff's studies of asbestos workers at Mt. Sinai Hospital in New York City in the 1960s established the link between asbestos and injured workers. The result was \$100s of billions of damages, with insurers paying around 60 percent of these damages. This litigation is still going on today, some 40 years later.

In the hazardous waste area, many firms strategized that they would just throw toxic materials away until the federal government set up rules about their treatment; once rules were in place, firms reasoned they would then start following the rules. However the Superfund law (or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)) imposed retroactive liability for hazardous waste on firms. Retroactive liability is very unusual. Suddenly, firms became responsible for the hazardous waste disposal that had occurred for many prior years. Again, damages have been in the \$100 billions, with insurers paying about 50 percent of these damages.

But there are many more examples of environmental liability. The Exxon Valdes spilled 11 million gallons of oil into Prince William Sound, Alaska in 1989. This resulted in \$3 billion in cleanup costs, a \$900 billion settlement with the U.S. and Alaska governments, and a \$5 billion punitive damages award that is still being contested. Monsanto and Solutia were hit with a \$700 million settlement in 2003 from PCB contamination of Aniston, Alabama. Perfluoro-roctanoic Acid (PFOA), used by DuPont in the manufacture of Teflon, contaminated water in Ohio and West Virginia. As a result, DuPont was forced to pay a \$340 million settlement in 2003 and was hit by a \$16.5 million fine by the Environmental Protection Agency (EPA), the largest fine ever. In 2005, General Electric agreed to pay an estimated \$500 million to begin cleanup of PCBs found in sediment in the Hudson River.

Perhaps the worst case of environmental liability for having both monetary damages and negative publicity involved Pacific Gas and Electric (PG&E) and their poisoning of the



**TABLE 2**  
Ecosystem Pressures

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- Fishing stocks of large ocean fish down 90% in last 50 years
  - Possible collapse of all fish species by 2050
  - Half the world's population will suffer water shortages by 2025
  - At current deforestation rates, the Amazon Rainforest will be gone in 80 years
  - Great Barrier Reef may bleach out, die, and collapse by 2100
  - 20–30% extinction rates in next 20–30 years; rates 100–1,000 higher than before humans
- 

water with Chromium 6 in Hinckley, California. Many people became sick and/or died. Note that children are particularly vulnerable in these situations. PG&E paid out a \$333 million settlement and suffered severe reputation damage from the massive negative publicity generated from a movie, *Erin Brockovich*, about the case starring Oscar-winning actress, Julia Roberts.

What types of chemical exposures are likely to result in environmental liability in the future? Good examples are methyl tertiary-butyl ether (MTBE), which is an additive in gasoline, and perchlorate, the main ingredient in rocket fuel. Both of these substances have been found in groundwater.

Ecosystems also pose sustainability risks. Ecosystems consist of, among other things, oceans, water in lakes and rivers, forests, and biodiversity, and we are putting tremendous pressure on all of these. There are many examples of ecosystem pressures, and some of these are listed in Table 2. It is difficult to pick out the most notorious of these statistics, but projections that half of the world's population will suffer water shortages by 2025 is a good contender. Information like that in Table 2 is not just idle speculation; it is massively documented by science. For example, the *Millennium Ecosystem Assessment*, consisting of thousands of the world's scientists, issued a major statement in 2005 that ecosystems are under major pressure. Under the European Union's Environmental Liability Directive, corporations are responsible for damages to protected species, natural habitats, biodiversity, water systems, and natural resources. Within 3 years, environmental liability insurance for these damages may become compulsory there.

Social responsibility, another sustainability risk, frequently focuses on treatment of employees. In particular there have been a number of discrimination suits, especially gender discrimination suits. Typically, these suits involve a group of women employees bringing a suit based on lack of promotion opportunities and lack of equal pay, relative to men. The following companies are being sued/ have settled/ made payments as a result of gender discrimination suits: Morgan Stanley (\$54 million settlement in 2004), Boeing (\$72.5 million settlement in 2004), Dresdner Bank (\$1.4 billion sought in class action), and Walmart (where 1.5 female employees are involved in largest class action gender discrimination suit ever filed). These liability suits don't always involve gender discrimination, however. For example, Texaco settled a case for \$176 million for race discrimination involving its minority employees.

Finally, there is tremendous pressure on directors and officers for liability relating to shareholders resolutions, boycotts, and reputation risk. As Warren Buffett puts it, "It

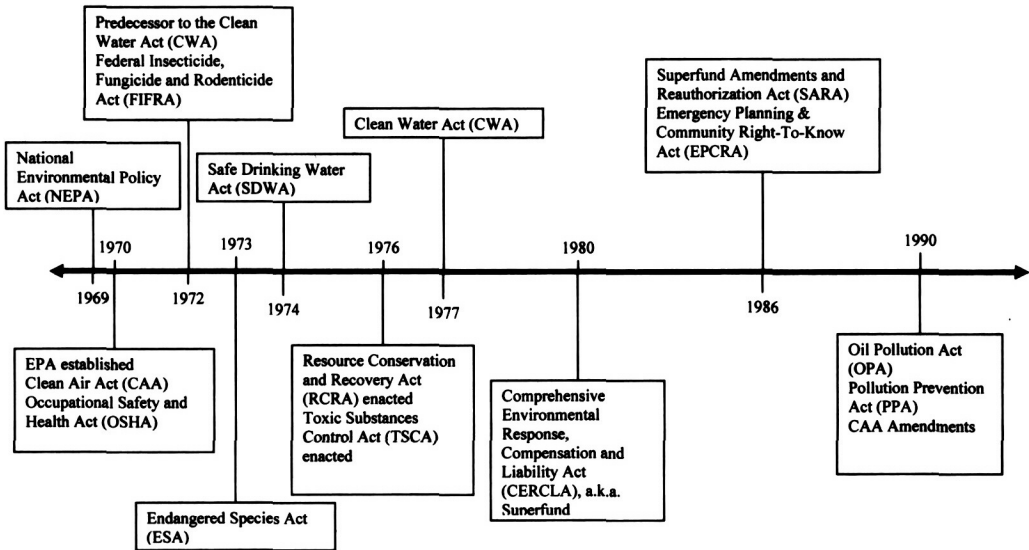
takes 20 years to build a reputation and 5 minutes to ruin it. If you think about that, you will do things differently" (Eisinger, 2005). Particularly with respect to global warming, heavy carbon-producing companies are at risk. Financial studies have suggested that if a country such as the United States would adopt regulations limiting greenhouse gas emissions in a short period of time and companies haven't been making any plans for this, these companies can have a market value loss of 30–40 percent. A Carbon Disclosure Project report estimated that the market value of some heavy carbon emitters could be slashed by as much as 40 percent because of lack of planning for reducing greenhouse gas emissions. And an Innovest Strategic Value Advisors report found similar results with as much as 45 percent of earnings and 35 percent of market capitalization being at risk.

In these times, it is not possible for a company to hide what it is doing in the environmental and social areas. More transparency is being required. And most monitoring is not being done by the government. Instead investors are doing monitoring through projects like the Carbon Disclosure Project and the Carbon Risk Disclosure Initiative. Of the world's 250 largest companies, 67 percent have made sustainability reporting part of the risk management program.

Directors' and officers' liability is changing as sustainability gains momentum. According to Matthew Kiernan, CEO of Innovest Strategic Value Advisors, "The 'prudent' fiduciary equation is being turned on its head. Since there is now evidence that superior environmental and social performance improves the risk profile, profitability, and stock performance of publicly-traded companies, fiduciaries can be seen to be derelict in their duties if they do not consider sustainability" (Kiernan, 2002). And Sarbanes-Oxley requires that the CEO and CFO certify the financial statements and certify that internal controls are in place. In addition, under Sarbanes-Oxley, there is increased pressure to disclose environmental liabilities and to develop environmental risk management control systems.

Many examples can be given of sustainability risk management. These include preparing a sustainability report, engaging in waste reduction and voluntary reduction of greenhouse gases, using more efficient energy systems, incorporating more fuel-efficient vehicles into transportation systems, putting up green buildings (with LEED Certification), developing partnerships with NGOs (e.g., Environmental Defense), designing products that consider the environment, anticipating regulatory changes, seeking certifications (e.g., ISO14000), and enhancing worker-based programs. When you get right down to it, sustainability risk management is just high-quality environmental and social responsibility management.

Because it is so important for business, sustainability related courses are becoming more common in business schools. For example, the School of Business of the University of Wisconsin-Madison has three courses that deal in environmental strategy and sustainability, including the one I teach on Sustainability Risk Management. Business schools are even being rated in terms of how well the school educates students in the environmental and social areas. The website of The Aspen Institute Center for Business Education provides the results of a biennial survey, *Beyond Grey Pinstripes*, that ranks full-time MBA programs on how well they integrate social and environmental stewardship issues into their curricula and research (see <http://www.beyondgreypinstripes.org/index.cfm>).

**FIGURE 2****Major Environmental Laws in the United States 1969–1990, A Federal Perspective**

My discussion has set the picture in terms of sustainability risk situations that companies are facing. Next, Kenn Anderson will elaborate on environmental liability and its implications for companies. He will also briefly discuss the insurance marketplace for sustainability risks.

**Kenn Anderson:** I work within a group specifically focused on environmental sustainability risk management and insurance issues at Aon, a very large risk management and advisory organization and insurance broker. The clients I service are located primarily in the United States, many of which have operations and environmental exposures throughout the world. Environmental issues became important to our clients primarily because of the development of environmental laws and regulations and, in turn, the enforcement of these by the government. Figure 2 summarizes the major environmental laws enacted in the United States from 1969 to 1990. Generally speaking, there were little or no environmental laws or regulations, nor any enforcement, prior to 1970. A major environmental law, commonly known as Superfund, was passed in 1980. It focused on cleaning up abandoned hazardous waste sites and dumps. Our clients experienced losses associated with these laws, and, in the case of Superfund, many of our clients were (and still are) held liable for their activities in the 1940s, 50s, and 60s, long before the environmental laws and regulations establishing responsibility were passed.

Twelve years after the passage of Superfund, the Securities and Exchange Commission (SEC), which governs publicly traded companies, determined that 62 percent of the companies at that time were not accruing known environmental liabilities on their financial statements. Many other reports have also been issued questioning the disclosure of environmental liabilities. A 1993 Government Accountability Office (GAO) report indicated that insurers practiced poor Superfund liability accruals and disclosures. A 1996 study by Freedman and Stagliano indicated there was a 54 percent nondisclosure



rate of known Superfund liabilities in initial public offerings (IPOs) and a 61 percent nondisclosure rate for all registered companies.<sup>1</sup> Also, a 1998 EPA study indicated a very high nondisclosure rate for environmental legal proceedings on companies' 10-K filings, and the EPA issued guidelines in 2001 to clarify a regulated entity's duty to meet SEC requirements.<sup>2</sup>

It is not just public companies that are subject to scrutiny by government and other organizations. Any organization that produces an audited balance sheet is concerned with disclosing their environmental liabilities because it could significantly negatively affect the equity value of that organization. Furthermore, the organization's owners, lenders, and other interested parties are focused on the correct value of its equity. For example, all of the partners in an accounting firm (whether they individually did anything wrong or not) could suffer from its firm's reputational risk and lawsuits relating to audited financial statement misstatements (e.g., consider the demise of Arthur Andersen from the Enron accounting scandal). As indicated earlier, Sarbanes-Oxley places responsibility on directors and officers about environmental liability disclosures as well, and board members may be subject to directors' and officers' liability when misstatements occur.

Disclosures are important to the investment community, too. The Dow-Jones Sustainability Indexes, initiated in 1999, are global indexes that track the financial performance of the leading sustainability-driven companies worldwide. In addition, there are social responsibility investments funds, such as the Rose Foundation, that invest in companies that they believe are socially responsible, and environmental and sustainability performance are key metrics for these funds. In 2002, the Rose Foundation petitioned the SEC to enforce the use of already existing measurement standards for environmental liabilities on companies because many companies denied their ability to quantify their environmental risks.<sup>3</sup> The SEC has received over 89 letters in support of this petition but to date has not responded. In 2004, the GAO issued a report entitled, "Environmental Disclosure—SEC Should Explore Ways to Improve Tracking and Transparency of Information," which argued that the SEC has no systematic way of evaluating the tracking and the transparency of information disclosed about environmental liabilities.<sup>4</sup> And in another report in 2005, entitled, "EPA Should Do More to Ensure That Liable Parties Meet Their Cleanup Obligations," the GAO indicated that the EPA needs to do more to force responsible companies and organizations to conduct cleanups, according to the companies' or organizations' financial ability.<sup>5</sup>

An important development related to environmental liabilities and accounting was the release in 2005 by the Financial Accounting Standards Board (FASB) of Interpretation

<sup>1</sup> For more information, see Freedman and Stagliano (1995) and Freedman and Stagliano (1998).

<sup>2</sup> For more information, see <http://www.riskworld.com/news/02q2/nw02a096.htm>, "EPA Reveals U.S. Publicly Traded Corporations Hide Billions in Environmental Debt," by Donald Sutherland.

<sup>3</sup> Available at: <http://www.sec.gov/rules/petitions/petn4-463.htm>.

<sup>4</sup> "Environmental Disclosure—SEC Should Explore Ways to Improve Tracking and Transparency of Information," GAO-04-808 (7/04).

<sup>5</sup> "EPA Should Do More to Ensure That Liable Parties Meet Their Cleanup Obligations," GAO-05-658 (8/05).

Number 47 (FIN 47).<sup>6</sup> This signaled a significant change in the way organizations must report their environmental liabilities. FIN 47 requires organizations to account for the fair value of an obligation when the responsibility is incurred, not only at final settlement. This has begun, and will continue, to change an organization's focus from the "don't ask/seek, don't tell" approach related to the potential cost of environmental liability. During the first year it was in effect, 93 companies reported FIN 47 AROs totaling \$1.36 billion, an average of \$14.7 million per company.<sup>7</sup>

By now, companies recognize that liability for greenhouse gases may develop in a similar way to environmental liability. In fact, last year, seven of the largest corporations in America requested the opportunity to help develop federal guidelines for monitoring of greenhouse gas emissions and development of emission credits. Companies anticipate federal laws about this issue. And, as argued earlier, it is not just the government that companies have to worry about—investors and others are concerned with sustainability risk management (e.g., the Dow Jones sustainability index). Recently, numerous institutional investors, lead by the California Public Employee's Retirement System, petitioned the SEC to require companies to report exposures and liability related to global climate change.<sup>8</sup>

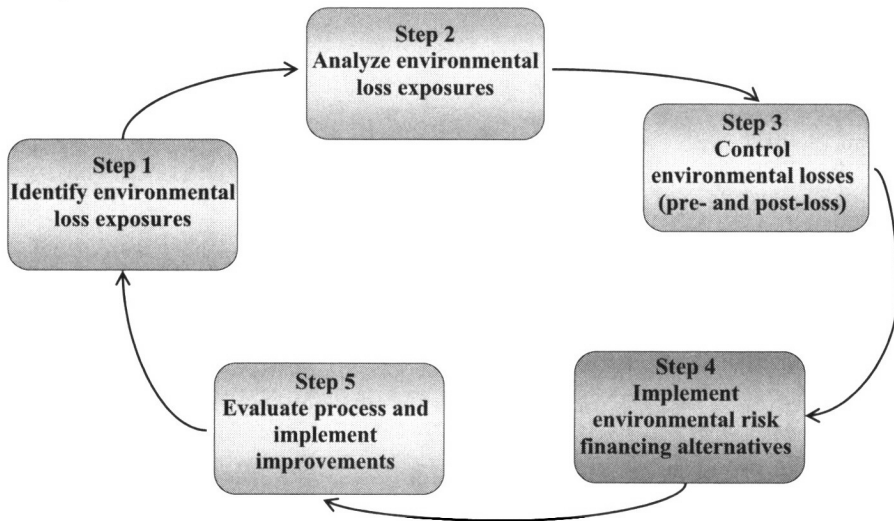
For my clients, I stress the environmental risk management process, which is depicted in Figure 3. I tell my clients that they can manage environmental risk and financing issues, both pre- and postloss, in a similar way to the way they evaluate and manage the other risks of the organization. However, although there are five steps in the environmental risk management process, most organizations spend their time and money on Step 3, environmental loss control. The reason for this goes back to Figure 2, which details laws concerning companies' obligations and responsibilities for environmental exposures. Environmental laws emphasize that organizations must control their environmental exposures. As a result, organizational environmental risk management focus is on environmental risk control (Step 3). In general, hardly any organizational time or money is spent on Steps 1 and 2, environmental risk identification and analysis.

<sup>6</sup> Available at: <http://www.fasb.org/st/summary/finsum47.shtml>.

<sup>7</sup> Since giving this talk, there have been two more developments related to environmental liability disclosures and accounting rules. In December 2007, FASB issued a revised Business Combination Standard, FAS 141(R), which requires a buyer of business assets, or a party acquiring a controlling interest in business assets, to recognize and/or disclose the fair value of contingent assets and liabilities acquired or assumed in a business combination. In general, FAS 141(R) requires contingencies that are assumed/acquired through a business combination, including environmental contingencies, to be fair valued as of the acquisition date. (Note that different criteria will apply depending on whether the environmental contingencies are contractual or non-contractual.) On June 5, 2008, FASB released its "Proposed Statement of Financial Accounting Standards, Disclosure of Certain Loss Contingencies." The proposed standard would significantly expand the quantitative and qualitative disclosure requirements for loss contingencies under SFAS 5 and 141(R), and it would be effective for fiscal years ending after December 15, 2008.

<sup>8</sup> Petition by California Public Employees' Retirement System California, California State Teachers' Retirement System, Ceres and others to the SEC → <http://www.sec.gov/rules/petitions/2007/petn4-547.pdf>.

**FIGURE 3**  
The Environmental Risk Management Process



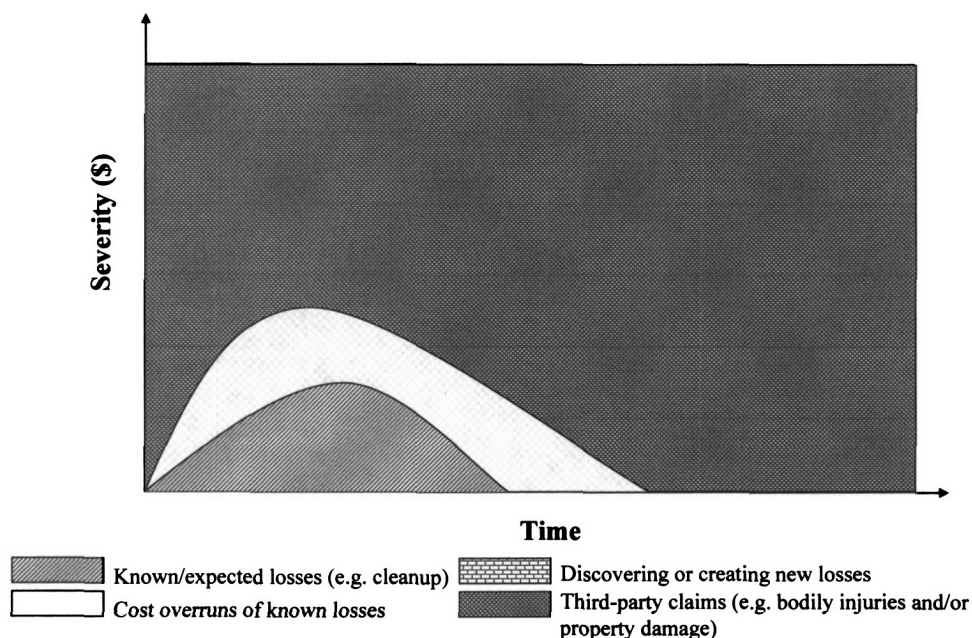
A key feature of the process in Figure 3 is that it is a continuous and dynamic one. At the present time, many organizations do not spend time on planning for the financial consequences of environmental losses. Instead, an organization will end up writing a check for unanticipated losses (pay-as-you-go process). Most organizations are un-, or under-, insured when it comes to environmental risks. This is a result of the lack of organizational focus on environmental risk identification and analysis as noted earlier. Because the “right” environmental insurance was not purchased, the client just writes a check for the loss. But the environmental risk management process isn’t supposed to always begin and end with lawyers, as it does so frequently now. Because of accounting rule changes and because of true corporate governance and responsibility resting at the CEO level, companies need to incorporate all aspects of the organization—real estate, operations, environmental management, finance, risk management, and insurance—in environmental risk management in order to truly achieve sustainability environmental risk objectives.

The work that I am involved in, day in and day out, is helping clients identify, analyze, mitigate and finance their environmental risk exposures. Generally speaking, environmental liabilities have not been insured under traditional commercial liability insurance policies (both primary and excess/umbrella) since the Insurance Services Organization (ISO) reinvented the exclusions related to pollution in the standard policies in 1985. This means that, unless organizations have actively negotiated environmental liability coverage in stand-alone “pollution/environmental liability insurance policies” (hereinafter, “environmental liability insurance”), their organizations are at best, underinsured, and are probably uninsured, for liabilities they face caused by pollution they cause and/or for which they are responsible.

The work I do with my clients goes beyond the realm of ERM. It entails a vision of how organizations and groups of organizations are going to survive for the next

**FIGURE 4**

Overview of Sustainability/Environmental Loss Exposures



generation and the generation after that. If companies don't identify, analyze, and mitigate environmental risk problems at a much faster pace than that used today, they will not survive.

In today's market, considerable buying and selling of companies and properties take place. We help our clients who have significant cleanup obligations to try to get a handle on the absolute cost associated with cleanups. We help them implement fixed-price environmental remediation agreements and environmental liability buyout agreements. We also help our clients understand the appropriate environmental risk management and insurance requirements when hiring vendors (e.g., ensuring proper environmental liability insurance coverage of vendors).

Four major areas are involved to identify and analyze exposures and to understand the control mechanisms and financing alternatives. Figure 4 contains a diagram that helps detail these four major areas. In this figure, time is on the X-axis and costs are depicted on the Y-axis. One area in the graph depicts the known/expected losses such as cleanup costs; these are losses for which the identification, analysis, and modeling have already been done. For these losses, the only realistic risk financing technique is to find a way to fund them.

Another important area depicted in Figure 4 concerns uncertainties about the known/expected losses. For example, an expected cleanup might be more costly or take more time than anticipated. The third area includes exposures that might have been created in the past that the company didn't know about or that is a brand new type of



exposure (e.g., new type of environmental loss). And the largest area in Figure 4 is the area depicting third party claims (e.g., bodily injury and/or property damage claims).

As a risk management professional/advisor in environmental and sustainability risk issues, I know that just because you don't know about the risk doesn't mean that it isn't there. And, unfortunately, the losses associated with environmental risks tend to get worse over time. For example, many people might become sick due to exposure to an environmental condition which may take years to manifest itself (e.g., cancer) and then could lead to a class-action lawsuit. My goal is to be proactive in getting a handle on environmental liability exposures, thereby helping my clients obtain a true value for their equity.

One mechanism for doing this is purchase of environmental insurance. The annual premiums spent on commercial property and casualty insurance in the United States was approximately \$448 billion in 2006.<sup>9</sup> An educated estimate is that exposures to insurable environmental liabilities in the United States for all organizations are at least 5 percent of their overall total exposure to risk.<sup>10</sup> Therefore, the environmental insurance market in the United States should be at least \$29.6 billion in annual premiums. However, the annual premium spent on environmental insurance in the United States in 2006 was estimated to be just over \$2 billion. Therefore, many organizations in the United States are severely un-/underinsured for their environmental liabilities. This is where the appropriate use of environmental insurance needs to be examined.

Environmental insurance is an often misunderstood, and is certainly an underused, financial mechanism for environmental risks. However, environmental insurance has proved to be very effective in mitigating many of the financial consequences related to environmental losses including cleanup costs and damages/injuries to third parties caused by pollution events. Environmental liability insurance can also be used to manage the financial impacts of environmental financial reporting. It can address the risks associated with unknown environmental exposures and funding for, and containing, the liability associated with a known remediation. The environmental insurance industry is dominated by many leading traditional insurers, specifically, AIG, Zurich, ACE, XL, Chubb, and Liberty International Underwriters.

In conclusion, sustainability risk and environmental liabilities do exist whether a company recognizes them or not, and they do not improve with time like a fine wine. These risks must be identified and laid out on the table (and that by itself can be a complicated process). These risks need to be disclosed to the CFO and CEO because directors' and officers' liability insurance does not adequately cover environmental risk-related losses. For example, there is a very specific exclusion in Chubb's and AIG's policies in the United States for losses that have anything to do with environmental pollution, including things such as a class action lawsuit brought by shareholders because the company's stock price declined due to an environmental issue. But there are niche products in the market to cover these types of losses on a global basis for interested companies (and their boards of directors).

<sup>9</sup> Available at: [http://www.iii.org/media/facts/statsbyissue/industry/?table\\_sort\\_746214=6](http://www.iii.org/media/facts/statsbyissue/industry/?table_sort_746214=6).

<sup>10</sup> In fact, many organizations' exposure to environmental risk exceeds 10 percent of their overall exposure to risk.



**Dan Anderson:** To close this discussion, I would like to refer to *The Stern Report*, published by the British Government (Stern, 2006). In this report the cost of mitigating sustainability risks is estimated to be approximately 1 percent of world gross domestic product (GDP). If nothing is done to mitigate sustainability risk, the costs of adverse impacts are estimated to range from 5 percent of world GDP to 20 percent. One of the difficulties in sustainability risk management is that companies are spending money today to prevent something from happening 20 or 30 years down the road. Business management and most of our business models don't take this long-term perspective. Clearly there is the need for more business, government, communities, and academics to get involved in this area.

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