

PERSPECTIVE

Responses to Global Warming

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"Every generation faces a challenge. In the 1930's, it was the creation of Social Security. In the 1960's it was putting a man on the moon. In the 1980's, it was ending the Cold War. Our generation's challenge will be addressing global climate change while sustaining a growing global economy" (Pew Center on Global Climate Change, 1999).

Powerful individuals and organizations do not yet see the changes in our global climate as a crisis, but the evidence is compelling. 1998 was the warmest year in recorded history. The century's ten warmest years have all occurred since 1983, and every one of the last 20 years has been warmer than average (Mazza and Roth, 1999).

At the international level, the United Nations (Kyoto) Protocol on Climate Change and the follow-up conference in Buenos Aires in November 1998 faced huge political and scientific hurdles. Many problems still need to be ironed out and in the United States there is resistance in Congress to ratifying the Protocol. Fortunately, some countries are taking the initiative to decrease emissions and develop "clean" technology. Denmark is now the world's largest manufacturer of wind energy turbines. Japan is embarking on a large-scale solar program, perhaps the world's largest (Roth, 1998).

In the United States, Congress is moving slowly to address global warming issues. The National Sustainable Fuels and Chemicals Act (Senate Bill 935), sponsored by Senator Richard Lugar (R), Indiana, is designed to enhance ethanol development from materials other than corn (cellulosic ethanol). This form of ethanol is apparently cleaner and less expensive than that based on corn.

Another positive development in Congress is the work to reduce emissions from automobiles. The Alternative Fuels Promotion

Act (Senate Bill 1003), sponsored by Senator John Rockefeller (D), West Virginia, would provide tax incentives to stimulate the alternative vehicle industry. In addition, a group of over 30 Senators recently sent President Clinton a letter asking him to raise the mile/gallon standards of cars.

In the meantime it may be that local governments are where the action is in terms of innovative responses to global warming. In May 1998 the City of Denver began applying high performance and low emissivity window film to municipal buildings. This film reduces the amount of heat that enters buildings in the summer and that leaves buildings in the winter. It also cuts down on short wave radiation, protecting workers from excess ultraviolet light exposure. With a pay back period of only a little over four years, the program is saving the city \$30,000 per year. The savings in greenhouse emissions are the equivalent of permanently removing 94 cars from the Denver freeways. The program won Denver a certificate of merit for innovative technology from the Energy User News.

The City and County of Denver also installed 20,000 traffic lights with light emitting diode (LED) traffic signals. These efficient and long-lived bulbs use only 14 watts and last 8,000 hours. Denver is saving \$0.5 million per year in energy costs. Denver's overall energy conservation program has eliminated 15,000 tons of carbon dioxide annually (Winer, 1999).

In Los Angeles, California, a program called T.R.E.E.S (Trans-Agency Resources for Environmental and Economic Sustainability) is helping the school district plant trees and decrease pavement. The tree planting will increase shade and decrease air conditioning needs. They are also working to eliminate 1.9 million square meters of paved surfaces that absorb the sun's heat. These two efforts to decrease the "urban heat island effect" will decrease the schools' needs for air conditioning, perhaps by as much as 12-18 percent, lowering school energy bills and decreasing greenhouse gas emissions. T.R.E.E.S is a program of TreePeople and is sponsored in part by the U.S. Forest Service, city of Los Angeles Stormwater, and EPA (ICLEI, 1999; TreePeople, 1999).

In Hamilton County, Tennessee, the Chattanooga Area Regional Transportation Authority (CARTA) has a growing fleet of locally manufactured electric transit buses serving its riders. When the transit authority first decided to include electric buses in its long-term strategy, the buses needed did not yet exist. The Authority created a private non-profit corporation that researched and developed electric transit vehicles. A local company won the bid to produce the buses. One exciting piece of this endeavor is the fact that the technology used in the development of these electric buses is now in the public domain, not in the hands of private parties (CREST, 1999).

Some industries are also beginning to accept the challenge of global warming and to develop and market environmentally friendly technologies as well as change their own internal processes in order to emit fewer greenhouse gases. Last year, United Technologies initiated a conservation program that plans to reduce its energy and water consumption by 25 percent by the year 2007. United Technologies Chief Executive Officer George David states: "We, along with others, recognize the substantial ambiguities and open questions in research on global change. But we believe also that the prudent course is to work to reduce greenhouse emissions." (Pew Center on Global Climate Change, 1999) British Petroleum has invested \$5 million in the last five years for solar research and development. They are now the largest solar company in the world. Starting at home, they are installing solar panels on their gas stations in the United Kingdom and around the world (Browne, 1999).

Each of these examples illustrates that this is a great time for local and national governments, individuals, and industries to examine the cost savings and environmental benefits of conservation, alternative fuel sources, and other ways to reduce greenhouse gases. When developed and applied creatively, each of these innovations can bring economic benefits to communities and regions, as well as decrease greenhouse gases. Local, national, and international initiatives to decrease greenhouse gas emissions can give us hope and inspiration for reducing the impact of global warming.

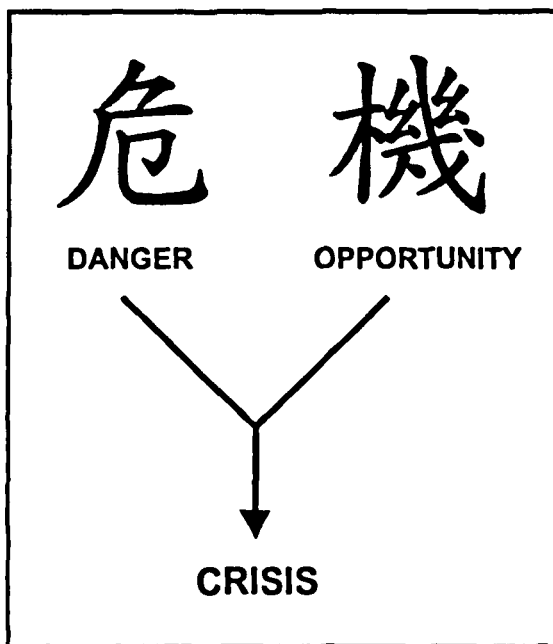


Figure 1. The Chinese phrase meaning "crisis."
Figure courtesy of Rose Jang.

The Chinese word for crisis is made up of the two characters—danger and opportunity (Figure 1). The crisis of global warming poses great danger and great opportunity. The opportunity to address the danger is just beginning, but it is a critical challenge for our generation—and for all of us as environmental professionals.

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