



A Brief
Contrarian
Discourse
on

Global
Warming

By Eric Pearson, Professor of Law

Now that former Vice President Al Gore's full-length documentary, *An Inconvenient Truth*, has hit silver screens across the nation, the furor over global warming is sharpening all the more. In the Gorean view, the world is warming at an increasingly alarming rate. Left to its current trajectory, global warming will imperil the entire community of living creatures, in the long term, surely, but perhaps even in the short term as well.

This ecological scourge, moreover, is due to human activity, primarily fossil fuel combustion and deforestation endeavors that result in increased concentrations of carbon dioxide (CO₂) in the atmosphere. CO₂, like other "greenhouse gases," traps heat in the atmosphere, thereby warming the planet. Since America leads the world in fossil fuel combustion, it is America that is most blameworthy. What America should do is follow the lead of so many other nations by signing on to the Kyoto Protocol, the international treaty in place to address this potentially life-extinguishing problem. If America would only do so, committing itself thereby to reduce CO₂ emissions to about 7 percent less than the amount emitted in 1990, the problem would be, if not entirely solved, at least substantially alleviated.

Such is the orthodoxy of global warming. But is it true?

There is a lot to discuss here. This article, a brief sojourn into the science and policy of global warming, is meant to dispel, as much as possible, some of the dis- and misinformation surrounding this crucial issue. The article's author, lacking extensive training in environmental sciences, offers in its place a rigorous objectivity. Simply put, I have no dog in this fight, no vested interest pulling me toward one conclusion or another. In fact, I really do not care about Mother Earth's hot flash (except for the fact that it might lengthen the golf season). OK, OK, I do care, because I have a family and all the rest, but you get the idea.

When embarking on a discussion of global warming, there would seem to be four questions to address. First, is global warming actually taking place? Second, if so, why is it happening? Third, if global warming is taking place, is it a good thing or a bad thing? Fourth, if global warming is happening, is caused by humans and is



AP Photo/Elise Amendola

Former Vice President Al Gore talks to the media as he walks into a screening of the documentary *An Inconvenient Truth* in Boston on April 25, 2006.

harmful, what should we do, if anything, about it?

Is Global Warming Happening?

Starting where we ought, at the beginning, it seems scientists are finally assembling a consensus that the planet is warming.

In the view of many, the globe has warmed during the 20th century in an amount approximating one degree Fahrenheit (some say one degree Celsius; some say 1.4 degrees Fahrenheit — take your pick). Significantly, in the last four years, the American Geophysical Union, the American Meteorological Society and the American Association for the Advancement of Science have come to the conclusion that global warming is real.

Emblematic of this evolving consensus is the view of the National Academy of Sciences (NAS). In 1991, the NAS



AP Photo/Bullitt Marquez

A huge area of ash flow dominates what used to be the green mountain ranges near Mount Pinatubo (Philippines) following its major eruption in June 1991. The eruption cooled the planet for several years by littering the atmosphere with particulate matter that reflected sunlight away, while simultaneously promoting an Arctic warming effect.

asserted there was no evidence of climate change.

In 2000, at President George Bush's request, the NAS re-examined the issue and this time found the evidence to be deeply conflicted and, therefore, uncertain. Last year, though, when the NAS looked at the matter yet again, it asserted the evidence demonstrating global warming was now strong.

In June 2006, the NAS upped the ante again, this time declaring that "recent warmth is unprecedented for . . . potentially the last several millennia." (This latter comment is perhaps unduly bold because reliable temperature information only goes back about 150 years.)

This is not to proclaim a 100 percent certainty on this exceedingly complex scientific issue. Notably, while there is observable ice melting going on in Antarctica, it is mainly in the Antarctic Peninsula, which comprises only 2 percent of the continent. Inland in Antarctica, the ice sheet has actually *gained* 45 billion tons of ice between 1992 and 2003, enough

to lower sea levels by a reputed 0.12 millimeters annually.

The scenario in Greenland has been similar, with ice melting at the coasts and thickening in the interior. Another global warming contra-indicator: While ground-level temperature monitors in many locations have identified a decided warming trend, monitors in the low to mid-troposphere, positioned where one would expect to find warming, have not.

Still, despite these disparities in scientific data, we are sufficiently on notice that the earth may be warming to warrant moving on to the next question, why it might be happening.

Why is Global Warming Happening?

One potential cause of global warming is natural geologic processes. Over the centuries, the world has warmed and cooled cyclically, all on its own. During the first third or so of the last millennium, the world was engulfed in what is now known as the Medieval Warm Period. Thereafter, until the 17th century,

temperatures fell. This glacial period has come to be called the Little Ice Age. Since then, temperatures have trended up again. In the 20th century, the planet warmed from 1900 to 1940, then cooled until about 1975 (scientists in the early 1970s were worried about global cooling!), and then resumed warming. (Since 1998, temperatures appear to have remained essentially flat.)

While scientists simply do not understand the globe's warming/cooling cycles very well, nor climate change generally, it is clear that significant natural forces are at play. One such natural phenomenon is the Atlantic Multidecadal Oscillation (AMO). The AMO influences Atlantic Ocean temperatures which in turn disturb weather patterns. On the Pacific side are El Niño and La Niña, natural conditions that modulate underwater flows there and weather everywhere.

Also in the mix are random ecological perturbations, such as the volcanic eruption of Mount Pinatubo in 1991, which cooled the planet for a number of years by littering the atmosphere with particulate matter that reflected sunlight away, while simultaneously promoting an Arctic warming effect.

And, of course, there is the ever-present, quantitatively variable, and quite significant, factor of solar radiation. According to the National Center for Policy Analysis, solar radiation is responsible for 71 percent of the Earth's warming from 1880 to 1993. (Other scientists, it should be noted, are less certain of the relative importance of solar radiation.)

On the other hand, global warming in the current era might also be exacerbated, in

significant part, by the recent proclivity of human beings to emit greenhouse gases. While the most important greenhouse gas is water vapor, which is responsible for two-thirds of the world's greenhouse effect, it is human-caused increases in CO₂ emissions that may be making a qualitative difference in global temperatures. (For the moment, we'll give a bye to Bessie the Cow, who emits significant amounts of methane into the atmosphere. Methane, a greenhouse gas like CO₂, is 20-50 times more effective in trapping heat than its counterpart.)

As it turns out, the concentration of CO₂ in the atmosphere has risen by about 30 percent (some say 40 percent) since the beginning of the Industrial Revolution. This is significant, for there is some

proof that increases and decreases of CO₂ in the atmosphere over the last 300,000 years have correlated with increases and decreases, respectively, in global temperatures.

But again, the science on all of this is not as certain as the former next president would have you believe. An obvious wonderment: Why did temperatures not rise between 1940 and 1975? Those years were the culmination of the Industrial Revolution, precisely when CO₂ emissions skyrocketed. If CO₂ causes global warming, those years should have featured warming, not cooling. Beyond that, simple cause-effect observations can be misleading. It may well be the planet is impressively self-stabilizing, meaning that it can, and will, adjust to changes in

the mix of atmospheric gases by any of a number of ecological mechanisms, the full range of which we mere humans simply cannot fathom. If that is true, rising greenhouse gas emissions in the future may not translate into rising temperatures in the future.

We should be mindful as well, as we survey the wealth of conflicting data, that scientists have been far from prescient when proffering these kinds of environmental macro-forecasts. In 1960, for example, the well-known ecologist Paul Ehrlich predicted the starvation of hundreds of millions of people in the 1970s because of shortfalls in agricultural food production. Fortunately, that never happened. Ten years later, he predicted 4 billion people would starve in the 1980s.



AP Photo/John McCormico

An iceberg melts in Kulusuk, Greenland, near the Arctic circle on Aug. 16, 2005. Many scientists say that global warming has an increasing effect on the Arctic region with glaciers shrinking, temperatures of the Arctic waters warming and permafrost softening.

That never happened, either. After the first Earth Day, the *New York Times* predicted “intolerable deterioration and possible extinction” of the human race if immediate action was not taken to arrest pollution. Best I can tell, that hasn’t happened, either.

Is Global Warming Good or Bad?

But let us go on. Assuming global warming is a fact of life, would it be good

or bad? Surely, one possible consequence of warming, rising sea levels, would cause difficulties in lots of places — Pacific atolls, New Orleans, Bangladesh — but such a rise might occur so gradually that the effects could be well buffered.

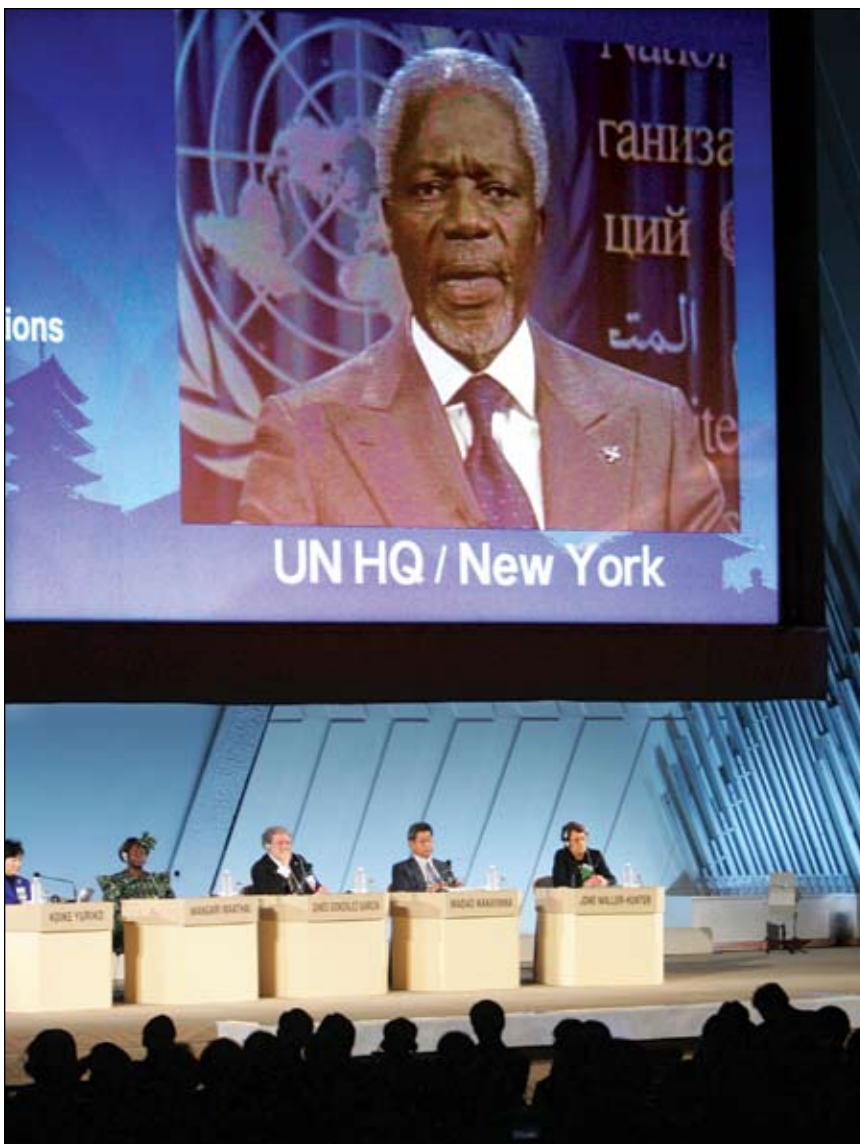
Warming could also decrease the availability of fresh water resources, enhance the spread of infectious diseases (many of which are retarded by cold

weather), and harm select species of animals and plants. But warming would be helpful in some ways, too. It would likely help agriculture in the American Midwest, for example. Warming, moreover, might operate more to make winters tolerable than to make summers intolerable. And while it might harm some species, it most certainly would help others.

The short of it may be well summarized in two statements. First, we cannot identify with any real confidence the identity and gravity of the impacts continued warming might produce. Second, whatever the impacts might be, they would be positive in some ways and negative in others. If these two statements are true, a pattern of ever-rising temperatures is best understood as presenting an unabashed gamble. My thought is that such a rush into the unknown would be unwise. Bets based on spotty and unreliable information typically are bets best not made.

What to Do — The Question of the Kyoto Protocol

Building upon these assumptions — that global warming is occurring, is significantly caused by human behavior and is best avoided — the question becomes what to do. Here, there is at least one clear answer, but the answer is not to the question of what to do, but rather to the question of what not to do. What not to do is sign on to the Kyoto Protocol. Simply put, Kyoto is a recipe for no progress at enormous cost. Consider: the United Nation’s Intergovernmental Panel on Climate Change, no friend to skeptics of climate change, has concluded that without ratification of Kyoto, average global temperatures would rise one degree Celsius by 2050. With Kyoto, the rise would be 0.94 degrees Celsius. The benefit of Kyoto, accordingly, would be six one-hundredths of



United Nations Secretary-General Kofi Annan speaks via video during a commemorative event to mark the entry into force of the Kyoto Protocol in Kyoto, Japan, on Feb. 16, 2005. The Kyoto global warming pact went into force that day, seven years after it was negotiated, imposing limits on emissions of carbon dioxide and other gases scientists blame for rising world temperatures, melting glaciers and rising oceans.

AP Photo/Isuo Inouye

a degree over a half century, an insignificant and probably immeasurable amount! Note that this estimate of the (non) benefits of Kyoto is the most optimistic one, even if it is, like other projections, rife with uncertainty.

This benefit assessment assumes, moreover, that nations signatory to the Protocol will actually meet their obligations. There is no sane reason to believe that will happen. Consider the compliance record thus far.

Of the 161 nations that have ratified Kyoto (as of its one-year anniversary of coming into force in February 2005; there are 162 ratifying nations as of this writing), only 34 have promised to do anything. Of the 34, the only countries on schedule to meet their targets are the former Communist countries, and their

emissions have increased, New Zealand has not reached its targets, and reportedly Canada would like to withdraw from the Protocol if it could. This pitiful track record prompted the signatories to the treaty to vote last year to eschew all binding penalties. The result is that countries that fail to meet targets face no penalties unless they agree to those penalties.

A rational analysis, therefore, leads to the conclusion that Kyoto scores a zero on the benefit side. What of the costs? The U.S. Energy Information Administration has estimated Kyoto compliance would cost the American economy between \$300-400 billion a year. This is huge. In addition, Kyoto's adverse economic impacts would fall disproportionately

If not Kyoto, Then What?

If the Kyoto Protocol is not the way to go, what is? One possibility is to do nothing. Hold on, now, there actually is a case for doing nothing. The projections about future global warming are all based, as would be expected, on the assumption that the world's future will simply be an extension of its past. Thus, absent mandatory controls, emissions of greenhouse gases will continue to climb, the effects on temperature will continue to be linear, and, before you know it, we will all be skillet-fried. But this scenario is assuredly false. Life as we know and live it today will be ancient history in a hundred years.

Michael Crichton, the famous author and scientist, made the point quite well in a lecture he gave a couple of years ago:

“Remember, people in 1900 didn't know what an atom was. They didn't know its structure. They also didn't know what a radio was, or an airport, or a movie, or a television, or a computer, or a cell phone, or a jet, an antibiotic, a rocket, a satellite, an MRI, ICU, IUD, IBM, IRA, ERA, EEG, EPA, IRS, DOD, PCP, HTML, Internet, interferon, instant replay, remote sensing, remote control, speed dialing, gene therapy, gene splicing, genes, spot welding, heat-seeking, bipolar, Prozac, leotards, lap dancing, e-mail, tape recorder, CDs, airbags, plastic explosive, plastic, robots, cars, liposuction, transduction, superconduction, dish antennas, step aerobics, smoothies, twelve-step, ultrasound, nylon, rayon, Teflon, fiber optics, carpal tunnel, laser surgery, laparoscopy, corneal transplant, kidney transplant, AIDS. None of this would have meant anything to a person in the year 1900. They wouldn't know what you are talking about.

Now you tell me you can predict the world of 2100 . . .”

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Among the remaining signatory nations are the EU-15 (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom), as well as Canada, Japan and New Zealand. The EU-15 are nowhere near their targets. Japan's

upon minorities and the poor. Studies by the U.S. government have concluded Kyoto would cause the loss of 1.3 million jobs in the U.S. African American and Hispanic communities. Average minority family income, moreover, could decline by \$2,000. Economic output in states with large minority populations could plummet by \$5 billion or more.

And that is just an indication of the costs to the United States.



AP Photo/Yves Logghe

EU Commissioner for Environment Stavros Dimas addresses the media at the European Commission headquarters in Brussels, Belgium, on Feb. 16, 2005. The European Union welcomed the coming into force of the Kyoto protocol on climate change and insisted the participation of the United States was needed to combat global warming.

The point is the obvious one. It is foolish to assume that current patterns of human behavior will persevere. One pursuit that may fall away, of its own weight, is the burning of fossil fuels and the denuding of forests. As new technologies come into being, as supplies of fossil fuels decline, as changes we cannot even begin to foresee gain ascendancy, it may well be that the nations of the world end up reducing greenhouse gas emissions for reasons entirely unrelated to global warming.

Since the timing and character of any such future “pattern shifts” are unknown, however, present calls for action to reduce CO₂ emissions will surely persevere. Assuming these calls for action must be mollified, an intelligent way to go about the task would be to institute a cap-and-trade regulatory regime on stationary fossil fuel-burning CO₂ sources. (A separate regulatory program for mobile sources might be in order as well.) A cap-and-trade program, first, would set a national ceiling on the amount of CO₂ that could be emitted by all regulated entities. Having established this “cap,” the program would then allocate an emissions quota to each regulated source. The quantum of emission “rights” allocated out would come to a total equal to the pre-determined cap amount. Each regulated entity would be required to meet its assigned quota after a fixed period of years. When the quotas are met, by definition the regulatory goal would be met as well. CO₂ emissions on a national scale will have been reduced significantly.

Under such a cap-and-trade system, regulated entities could meet their obligations in any of three ways, undertaken singly or in combination. An entity could reduce its CO₂ emissions to its required level by: (a) in-process changes

or installation of control technology; (b) reduction of emissions beyond the required level and sale of the overage, in the form of emission “credits,” to other regulated entities (a “trade”); or (c) purchase of CO₂ credits from other entities in an amount sufficient to meet the regulatory requirement (another trade).

The beauty of a cap-and-trade system is the freedom of choice it gives to regulated entities. When allowed to choose among options, regulated entities can be counted on to pursue least-cost compliance strategies, which can in turn result in phenomenal cost savings. There is, to be sure, an historical basis to believe that such a system would reduce CO₂ emissions at much lower cost than any other known method. That basis is this nation’s cap-and-trade program to control sulfur dioxide (SO₂) emissions.

Instituted pursuant to the 1990 Clean Air Act Amendments, this so-called “acid deposition” program has been a resounding success. SO₂ reduction targets have been fully met on time, compliance among regulated entities has been universal (no need for enforcement!) and the



AP Photo/John McCormico

Sweeping views of glaciers, icebergs and details of the Greenland ice cap can be seen over Greenland. First-of-its-kind core samples, dug from deep beneath the Arctic Ocean floor, show that 55 million years ago an area near the North Pole was practically a subtropical paradise. The scientists say their findings are a glimpse backward into a much warmer-than-thought polar region heated by run-amok greenhouse gases that came about naturally. The studies appeared in the June 1, 2006, issue of *Nature*.

program has spurred virtually no litigation. And — here’s the relevant part — the program has accomplished its goals at costs far below those envisioned at the program’s outset. Before the program came in, emitters feared SO₂ removal costs in the range of \$1,500 per ton. The actual cost figure turned out to be one-tenth of that.

Add this cap-and-trade initiative to America’s existing program to rein in methane (yes, the Bush Administration has in place an unheralded, and largely unknown, methane reduction program) and Uncle Sam will truly be the world leader in greenhouse gas emissions abatement.



Photo by Mark Romesser

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