The climate treaty being hammered out this month at The Hague may be doomed to failure; the key, some say, will be keeping the treaty going now and rethinking its controversial goals later

Can the Kyoto Climate Treaty Be Saved From Itself?

SAVING KYOTO

These two articles examine the obstacles to ratification of the Kyoto Protocol.

▶DOOMED TO FAIL?

CARBON SINKS

Later this month, representatives from 160 countries will convene at The Hague to work out details of one of the boldest attempts at international diplomacy ever: reining in the gusher of gases threatening to warm the planet. Taking their cue from the successful Montreal Protocol for the control of ozone-destroying emissions, governments crafted the outlines of a "big bang" approach to controlling greenhouse gas emissions at a meeting in Kyoto in 1997. Negotiators established strict targets mandating how much industrialized countries would have to reduce their gas emissions by 2008–12. But they left vague the rules of exactly how countries could achieve these reductions—for instance, how much they could rely on emissions trading or carbon "sinks" (see p. 922). Those details are now on the table at the Hague, and it's the details, some say, that could make or break the protocol.

But even before the meeting, there are murmurings that the negotiations are bound to fail. The United States simply won't ratify any treaty that requires such wrenching reductions, numerous observers say. "I don't know anyone who believes the U.S. is going to ratify this agreement" as it stands now, says economist Henry Jacoby of the Massachusetts Institute of Technology (MIT). Others are less pessimistic, but nobody is truly optimistic. "As it is currently configured, U.S. ratification would be really tough," says economist James Edmonds of the Washington, D.C., office of the Pacific Northwest National Laboratory. And if the United States bails out, the protocol is, if not dead, in very deep trouble. "You don't absolutely have to have the United States," explains Jacoby. "But without the U.S., all of Europe, Japan, and Russia are needed" to meet the requirement that countries responsible for 55% of greenhouse emissions must ratify the treaty to put it in force. Already, policy wonks on the fringes of the negotiations are scrambling for alternatives. Some think that by tweaking the rules, the negotiators at The Hague can sweeten the deal enough so the United States could eventually sign on. But if it is too sweet, other countries may balk. The United States, for example, would like to buy its way out of many of its obligations through deals reducing emissions beyond its borders.

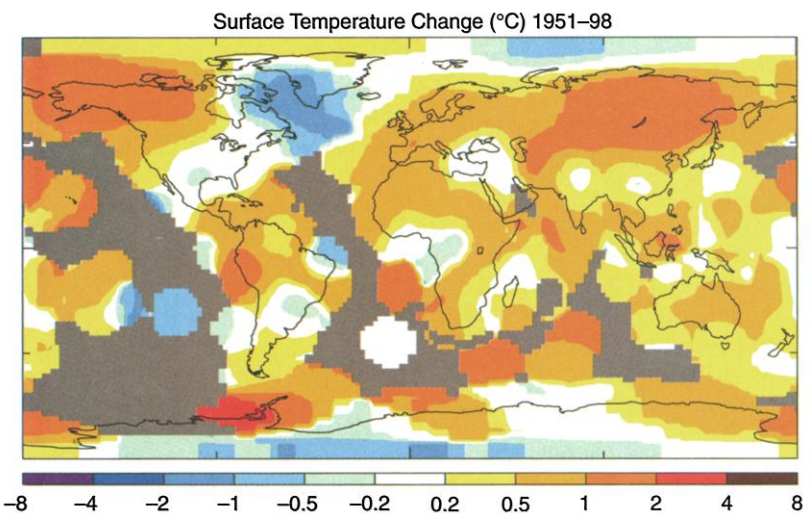
Other analysts say that, eventually, the targets themselves will have to be delayed. Still others are planning how to reduce emissions in a post-Kyoto world if the U.S. bails out completely. None of these options would be popular with many European developing nations, who expect the United States to shoulder emissions cutting at home.

The dim prospects for ratification center on how disruptive and how expensive it would be for countries, particularly the United States, to achieve their target reductions. The protocol calls for an average 5% reduction of emissions below their 1990 level. For the United States, the world's biggest emitter, it mandates a 7% reduction below 1990 levels. What with the robust economic expansion of the past decade, the required U.S. reduction amounts to "a 30% reduction beneath business as usual," notes climate researcher Tom Wigley of the National Center for Atmospheric Research in Boulder, Colorado (see graph on facing page). "Can you imagine the United States in the next 10 years doing that?"

Eileen Claussen can't. She is president of the Pew Center on Global Climate Change in Arlington, Virginia, an organization dedicated to reducing greenhouse emissions. Even so, she says, "I think it's going to become clear to a lot of countries—not just the U.S.—that they're not going to meet their targets. It's already clear the U.S. won't meet its target." Indeed, a Pew Center study of five European countries suggests that only the United Kingdom is on track to meet its Kyoto target, and Germany is perhaps close. Not coincidentally, it's the United Kingdom that vehemently opposes U.S. efforts to buy its way out of substantial emission reductions in its domestic energy sector.

Costs to the United States are "highly uncertain," says economist John Weyant of Stanford University. Given the range of assumptions about Kyoto and the economy, says Weyant, "model projections range from relatively low cost—a couple of tenths of a percent of U.S. gross domestic product [per year]—up to 3% to 4%." For instance, if countries bring online new energy-efficient technologies—everything from light bulbs to hydrogen fuel cells for cars—costs would drop significantly. But major technology changes are unlikely before 2012, Weyant maintains.

For that reason, U.S. negotiators want to adjust the basic rules, often called the "framework" for the Kyoto Protocol, to allow for maximum flexi-



No return. Even if the goals of the Kyoto Protocol are reached, the recent half-degree warming widely attributed to rising levels of greenhouse gases won't go away for millennia.

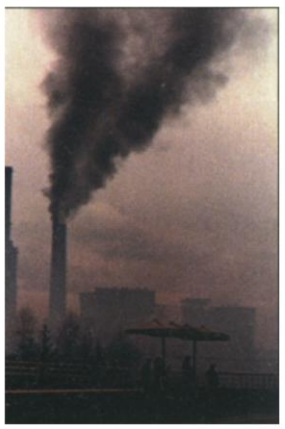
SOURCE: GISS

A Well-Intentioned Cleanup Gets Mixed Reviews

Climate researcher James Hansen just wanted to help. By publishing an alternative, and decidedly upbeat, scenario for how greenhouse warming might play out in the next half-century, the director of NASA's Goddard Institute for Space Studies (GISS) in New York City hoped to open new prospects for attacking the problem. Instead, he got a lot of grief. "Some very thoughtful people didn't understand what we were saying," he said at a recent workshop on his alternative scenario. "The paper has been misconstrued by both ends of the spectrum."

Rather than abandoning his position that rising levels of carbon dioxide from the burning of fossil fuels pose a serious threat to society, as some observers supposed, Hansen merely was trying to emphasize that there is more to the greenhouse problem than carbon dioxide. Specifically, controlling many of the components of what's popularly regarded as "pollution"—dirty hazes and throat-searing smog—would also help, perhaps through the use of more renewable energy and inherently clean fuels like natural gas.

Hansen's proposed scenario, published in the 29 August issue of the *Proceedings of the National Academy of Sciences*, rests on the observation that the warming effect of carbon dioxide so far seems to have been largely counterbalanced by the cooling effect of pollutant hazes, which reflect solar energy back to space. That cancellation, Hansen and four colleagues from GISS write, points up that there are additional targets for reducing warming in the next 50 years, including such pollutant greenhouse gases as methane from rice paddies, chlorofluorocarbons from air conditioners, and the ozone of smog—as well as dark, soot-laden aerosols from such sources as diesel engines and agricultural burning. Holding these pollutants in check over the next 50 years is plausible, they argue—indeed, much of it is already being done, at least in the United States, under the Clean Air Act and the Montreal Protocol. It is also possible to reduce the growth rate of carbon dioxide in the atmosphere so as to hold the warming from that gas to a modest amount, says Hansen, who reiterates: "We're not de-emphasizing carbon dioxide." Although resource economist Henry Jacoby of the Massachusetts Institute of Technology doesn't see much new in Hansen's latest proposal, he does see an upside. "The point is, you have to go after everything." **–R.A.K.**



Dirty heater. Soot can warm climate too.

bility. Emissions trading among nations may enable the most wiggle room. As outlined in the protocol, an industrialized nation that doesn't want to reduce its own emissions could buy a permit from another industrialized nation to emit so many tons of greenhouse gas, presumably at a lower cost. But there's a catch. Trading is already restricted to industrialized countries, and the United Kingdom has floated a proposal that restricts the proportion of a country's reductions—read, the United States—that can be taken this way.

Another means of adding flexibility is the protocol's Clean Development Mechanism. The CDM would allow an industrialized country to join with a developing country, which under the protocol has no obligation to reduce emissions, in an emission-reducing project in that country. The idea is that the developing country would reap the benefits of a nonpolluting energy source and the industrialized country would get credit for the reduced emissions. But again, the devil is in the details. What projects would qualify? A nonemitting nuclear power plant? An ecologically disruptive hydroelectric dam? Some proposals stipulate that only renewable energy and energy-efficiency projects qualify.

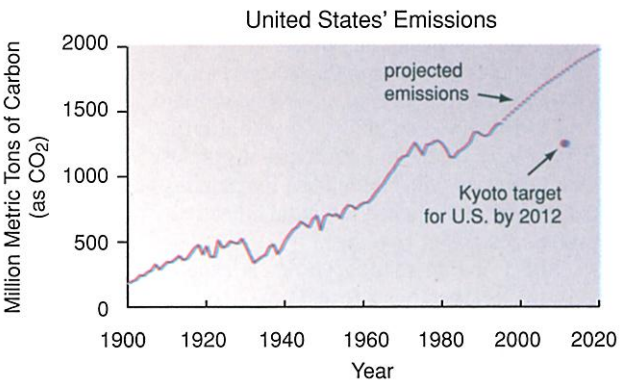
Claussen, who played a key role in negotiating the protocol while at the State Department, thinks getting the right rules in place is the first step. Basically, she would like to see minimal restrictions on flexible mechanisms such as CDM and on carbon sinks. Then, "after the framework is in place, people may still say, 'Oh my, we're not going to make it,' and there will be some adjustment of the targets."

Some think Claussen is being overly pessimistic. Daniel Lashof of the Natural Resources Defense Council in Washington, D.C., says, "It looks like the U.S. will get a lot of the flexibility it wants" at The Hague. Even so, the country "should and can get the majority of reductions domestically," he contends. "What will decrease future emissions is requiring firms to invest in emission reduction now."

Environmentalists may not see the necessity of delaying implementation of big emission reductions, but a lot of economists do. "Kyoto is a political compromise designed to get us moving on carbon-emission reductions," says Weyant. But "studies suggest it's not an optimum path" to the unspoken goal of Kyoto: stable greenhouse gas concentrations a century or two from now. Whereas the environmentally inclined insist that the world must tackle the greenhouse with vigor now, economists like Michael Toman and his colleagues at Resources for the Future (RFF) in Washington, D.C., argue that the world can reach its long-term goal much more cheaply by putting off much—but not all—of the needed emission reductions. This "back-loading" of deep cuts in emissions would be cheaper, Toman argues, because it would allow an orderly replacement of long-lived, fuel-burning equipment and the use of technology not yet available, among other advantages.

Economists also have alternatives intended to keep costs down and reassure countries that costs won't skyrocket. William Pizer of RFF, for instance, proposes a "safety valve" approach. The costs of emission permits could float until they hit a predetermined ceiling, so governments would know in advance the worst case, or most expensive, scenario. MIT's Jacoby agrees: "You need some sort of safety valve so governments aren't committing to something they can't meet. That's going to take time." He notes that it took 50 years for the General Agreement on Tariffs and Trade to evolve into the 138-nation World Trade Organization. Kyoto might evolve the same way, he says. "A few countries agree on really narrow things and gradually build up a system over time, in contrast to the 'big bang' approach of Kyoto. That way, it doesn't die."

–RICHARD A. KERR



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