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The Other 80 Percent

IF predicting how climate will change is difficult and uncertain, predicting how society will be affected by a changing climate -- especially at the local, regional, and national levels, where decision-making takes place -- is immeasurably more so. And predicting the impact on climate of reducing carbon-dioxide emissions is so uncertain as to be meaningless. What we do know about climate change suggests that there will be winners and losers, with some areas and nations potentially benefiting from, say, longer growing seasons or more rain, and others suffering from more flooding or drought. But politicians have no way to accurately calibrate the effects-human and economic -- of global warming, or the benefits of reducing carbon-dioxide emissions.

Imagine yourself a leading policymaker in a poor, overpopulated, undernourished nation with severe environmental problems. What would it take to get you worried about global warming? You would need to know not just that global warming would make

the conditions in your country worse but also that any of the scarce resources you applied to reducing carbon-dioxide emissions would lead to more benefits than if they were applied in another area, such as industrial development or housing construction. Such knowledge is simply unavailable. But you do know that investing in industrial development or better housing would lead to concrete political, economic, and social benefits.

More specifically, suppose that many people in your country live in shacks on a river's floodplain. Floodplains are created and sustained by repeated flooding, so floods are certain to occur in the future, regardless of global warming. Given a choice between building new houses away from the floodplain and converting power plants from cheap local coal to costlier imported fuels, what would you do? New houses would ensure that lives and homes would be saved; a new power plant would reduce carbon-dioxide emissions but leave people vulnerable to floods. In the developing world the carbon-dioxide problem pales alongside immediate environmental and developmental problems. *The China Daily* reported during the 1997 Kyoto Conference:

From the archives:

"Our Real China Problem," by Mark

> The United States ... and other nations made the irresponsible demand ... that the developing countries should make commitments to limiting greenhouse gas emissions.... As a developing country, China has 60 million poverty-stricken people and China's per capita

Hertsgaard (November, 1997)
The price of China's surging economy is a vast degradation of the environment, with planetary implications. Although the Chinese government knows the environment needs protection, writes the author, who spent six weeks inside China investigating the growing environmental crisis, it fears that doing the right thing could be political suicide.

> gas emissions are only one-seventh of the average amount of more developed countries. Ending poverty and developing the economy must still top the agenda of [the] Chinese government.

For the most part, the perspectives of those in the developing world -- about 80 percent of the planet's population -- have been left outside the frame of the climate-change discussion. This is hardly surprising, considering that the frame was defined mainly by environmentalists and scientists in affluent nations. Developing nations, meanwhile, have quite reasonably refused to agree to the targets for carbon-dioxide reduction set under the Kyoto Protocol. The result may feel like a moral victory to some environmentalists, who reason that industrialized countries, which caused the problem to begin with, should shoulder the primary responsibility for solving it. But the victory is hollow, because most future emissions increases will come from the developing world. In affluent nations almost everyone already owns a full complement of energy-consuming devices. Beyond a certain point increases in income do not result in proportional increases in energy consumption; people simply trade in the old model for a new and perhaps more efficient one. If present trends continue, emissions from the developing world are likely to exceed those from the industrialized nations within the next decade or so.

Twelve years after carbon dioxide became

the central obsession of global environmental science and politics, we face the following two realities:

First, atmospheric carbon-dioxide levels will continue to increase. The Kyoto Protocol, which represents the world's best attempt to confront the issue, calls for industrialized nations to reduce their emissions below 1990 levels by the end of this decade. Political and technical realities suggest that not even this modest goal will be achieved. To date, although eighty-four nations have signed the Kyoto Protocol, only twenty-two nations -- half of them islands, and none of them major carbon-dioxide emitters -- have ratified it. The United States Senate, by a vote of 95-0 in July of 1997, indicated that it would not ratify any climate treaty that lacked provisions requiring developing nations to reduce their emissions. The only nations likely to achieve the emissions commitments set under Kyoto are those, like Russia and Ukraine, whose economies are in ruins. And even successful implementation of the treaty would not halt the progressive increase in global carbon-dioxide emissions.

Second, even if greenhouse-gas emissions could somehow be rolled back to pre-industrial levels, the impacts of climate on society and the environment would continue to increase. Climate affects the world not just through phenomena such as hurricanes and droughts but also because of societal

and environmental vulnerability to such phenomena. The horrific toll of Hurricane Mitch reflected not an unprecedented climatic event but a level of exposure typical in developing countries where dense and rapidly increasing populations live in environmentally degraded conditions. Similar conditions underlay more-recent disasters in Venezuela and Mozambique.

If these observations are correct, and we believe they are essentially indisputable, then framing the problem of global warming in terms of carbon-dioxide reduction is a political, environmental, and social dead end. We are not suggesting that humanity can with impunity emit billions of tons of carbon dioxide into the atmosphere each year, or that reducing those emissions is not a good idea. Nor are we making the nihilistic point that since climate undergoes changes for a variety of reasons, there is no need to worry about additional changes imposed by human beings. Rather, we are arguing that environmentalists and scientists, in focusing their own, increasingly congruent interests on carbon-dioxide emissions, have framed the problem of global environmental protection in a way that can offer no realistic prospect of a solution.

Redrawing the Frame

LOCAL weather is the day-to-day manifestation of global climate. Weather is what we experience, and lately there has been plenty to experience. In

recent decades human, economic, and environmental losses from disasters related to weather have increased dramatically. Insurance-industry data show that insured losses from weather have been rising steadily. A 1999 study by the German firm Munich Reinsurance Company compared the 1960s with the 1990s and concluded that "the number of great natural catastrophes increased by a factor of three, with economic losses -- taking into account the effects of inflation -- increasing by a factor of more than eight and insured losses by a factor of no less than sixteen." And yet scientists have been unable to observe a global increase in the number or the severity of extreme weather events. In 1996 the IPCC concluded, "There is no evidence that extreme weather events, or climate variability, has increased, in a global sense, through the 20th century, although data and analyses are poor and not comprehensive."

What has unequivocally increased is society's vulnerability to weather. At the beginning of the twentieth century the earth's population was about 1.6 billion people; today it is about six billion people. Almost four times as many people are exposed to weather today as were a century ago. And this increase has, of course, been accompanied by enormous increases in economic activity, development, infrastructure, and interdependence. In the past fifty years, for example, Florida's population rose fivefold; 80 percent of this burgeoning population lives within twenty

miles of the coast. The great Miami hurricane of 1926 made landfall over a small, relatively poor community and caused about $76 million worth of damage (in inflation-adjusted dollars). Today a storm of similar magnitude would strike a sprawling, affluent metropolitan area of two million people, and could cause more than $80 billion worth of damage. The increase in vulnerability is far more dramatic in the developing world, where in an average year tens of thousands of people die in weather-related disasters. According to the *World Disasters Report 1999*, 80 million people were made homeless by weather-related disasters from 1988 to 1997. As the population and vulnerability of the developing world continue to rise, such numbers will continue to rise as well, with or without global warming.

Environmental vulnerability is also on the rise. The connections between weather impacts and environmental quality are immediate and obvious -- much more so than the connections between global warming and environmental quality. Deforestation, the destruction of wetlands, and the development of fragile coastlines can greatly magnify flooding; floods, in turn, can mobilize toxic chemicals in soil and storage facilities and cause devastating pollution of water sources and harm to wildlife. Poor agricultural, forest-management, and grazing practices can exacerbate the effects of drought, amplify soil erosion, and promote the spread of

wildfires. Damage to the environment due to deforestation directly contributed to the devastation wrought by Hurricane Mitch, as denuded hillsides washed away in catastrophic landslides, and excessive development along unmanaged floodplains put large numbers of people in harm's way.

Our view of climate and the environment draws on people's direct experience and speaks to widely shared values. It therefore has an emotional and moral impact that can translate into action. This view is framed by four precepts. First, the impacts of weather and climate are a serious threat to human welfare in the present and are likely to get worse in the future. Second, the only way to reduce these impacts is to reduce societal vulnerability to them. Third, reducing vulnerability can be achieved most effectively by encouraging democracy, raising standards of living, and improving environmental quality in the developing world. Fourth, such changes offer the best prospects not only for adapting to a capricious climate but also for reducing carbon-dioxide emissions.

The implicit moral imperative is not to prevent human disruption of the environment but to ameliorate the social and political conditions that lead people to behave in environmentally disruptive ways. This is a critical distinction -- and one that environmentalists and scientists embroiled in the global-warming debate have so far failed to make.

To begin with, any global effort to reduce vulnerability to weather and climate must address the environmental conditions in developing nations. Poor land-use and natural-resource-management practices are, of course, a reflection of poverty, but they are also caused by government policies, particularly those that encourage unsustainable environmental activities. William Ascher, a political scientist at Duke University, has observed that such policies typically do not arise out of ignorance or lack of options but reflect conscious tradeoffs made by government officials faced with many competing priorities and political pressures. Nations, even poor ones, have choices. It was not inevitable, for example, that Indonesia would promote the disastrous exploitation of its forests by granting subsidized logging concessions to military and business leaders. This was the policy of an autocratic government seeking to manipulate powerful sectors of society. In the absence of open, democratically responsive institutions, Indonesian leaders were not accountable for the costs that the public might bear, such as increased vulnerability to floods, landslides, soil erosion, drought, and fire. Promoting democratic institutions in developing nations could be the most important item on an agenda aimed at protecting the global environment and reducing vulnerability to climate. Environmental groups concerned about the consequences of climate change ought to consider reorienting their priorities accordingly.

Such long-term efforts must be accompanied by activities with a shorter-term payoff. An obvious first step would be to correct some of the imbalances created by the obsession with carbon dioxide. For example, the U.S. Agency for International Development has allocated $1 billion over five years to help developing nations quantify, monitor, and reduce greenhouse-gas emissions, but is spending less than a tenth of that amount on programs to prepare for and prevent disasters. These priorities should be rearranged. Similarly, the United Nations' International Strategy for Disaster Reduction is a relatively low-level effort that should be elevated to a status comparable to that of the Framework Convention on Climate Change.

Intellectual and financial resources are also poorly allocated in the realm of science, with research focused disproportionately on understanding and predicting basic climatic processes. Such research has yielded much interesting information about the global climate system. But little priority is given to generating and disseminating knowledge that people and communities can use to reduce their vulnerability to climate and extreme weather events. For example, researchers have made impressive strides in anticipating the impacts of some relatively short-term climatic phenomena, notably El Niño and La Niña. If these advances were accompanied by progress in monitoring weather, identifying vulnerable regions and populations, and communicating useful

information, we would begin to reduce the toll exacted by weather and climate all over the world.

A powerful international mechanism for moving forward already exists in the Framework Convention on Climate Change. The language of the treaty offers sufficient flexibility for new priorities. The text states that signatory nations have an obligation to "cooperate in preparing for adaptation to the impacts of climate change [and to] develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas ... affected by drought and desertification, as well as floods."

The idea of improving our adaptation to weather and climate has been taboo in many circles, including the realms of international negotiation and political debate. "Do we have so much faith in our own adaptability that we will risk destroying the integrity of the entire global ecological system?" Vice President Gore asked in his book *Earth in the Balance* (1992). "Believing that we can adapt to just about anything is ultimately a kind of laziness, an arrogant faith in our ability to react in time to save our skin." For environmentalists, adaptation represents a capitulation to the momentum of human interference in nature. For their opponents, putting adaptation on the table would mean acknowledging the reality of global warming. And for scientists, focusing on

adaptation would call into question the billions of tax dollars devoted to research and technology centered on climate processes, models, and predictions.

Yet there is a huge potential constituency for efforts focused on adaptation: everyone who is in any way subject to the effects of weather. Reframing the climate problem could mobilize this constituency and revitalize the Framework Convention. The revitalization could concentrate on coordinating disaster relief, debt relief, and development assistance, and on generating and providing information on climate that participating countries could use in order to reduce their vulnerability.

An opportunity to advance the cause of adaptation is on the horizon. The U.S. Global Change Research Program is now finishing its report on the National Assessment of the Potential Consequences of Climate Variability and Change. The draft includes examples from around the United States of why a greater focus on adaptation to climate makes sense. But it remains to be seen if the report will redefine the terms of the climate debate, or if it will simply become fodder in the battle over carbon-dioxide emissions.

Finally, efforts to reduce carbon-dioxide emissions need not be abandoned. The Framework Convention and its offshoots also offer a promising mechanism for promoting the diffusion of energy-efficient technologies that would reduce emissions.

Both the convention and the Kyoto Protocol call on industrialized nations to share new energy technologies with the developing world. But because these provisions are coupled to carbon-dioxide-reduction mandates, they are trapped in the political gridlock. They should be liberated, promoted independently on the basis of their intrinsic environmental and economic benefits, and advanced through innovative funding mechanisms. For example, as the United Nations Development Programme has suggested, research into renewable-energy technologies for poor countries could be supported in part by a modest levy on patents registered under the World Intellectual Property Organization. Such ideas should be far less divisive than energy policies advanced on the back of the global-warming agenda.

As an organizing principle for political action, vulnerability to weather and climate offers everything that global warming does not: a clear, uncontroversial story rooted in concrete human experience, observable in the present, and definable in terms of unambiguous and widely shared human values, such as the fundamental rights to a secure shelter, a safe community, and a sustainable environment. In this light, efforts to blame global warming for extreme weather events seem maddeningly perverse-as if to say that those who died in Hurricane Mitch were symbols of the profligacy of industrialized society, rather than victims of poverty and the vulnerability it creates.

Such perversity shows just how morally and politically dangerous it can be to elevate science above human values. In the global-warming debate the logic behind public discourse and political action has been precisely backwards. Environmental prospects for the coming century depend far less on our strategies for reducing carbon-dioxide emissions than on our determination and ability to reduce human vulnerability to weather and climate.

(The online version of this article appears in three parts. Click here to go to part one or part two.)

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