The 21st-Century Challenge

Michael Specter

Award-winning writer Michael Specter has been a staff writer at The New Yorker *magazine since 1998. His awards include the Global Health Council's Annual Excellence in Media Award (2002 and 2004) and the American Association for the Advancement of Science 2002 Science Journalism Award. His new book,* Denialism: How Irrational Thinking Hinders Scientific Progress, Harms the Planet, and Threatens Our Lives, *will be published in October 2009 (The Penguin Press).*

The reality of global warming must supersede debate about it, and urgent steps must be taken to reduce greenhouse gas emissions before it is too late, Specter writes in this overview of the issue.

Photo by Alex Remnick

Michael Specter

People who refuse to accept the truth — that AIDS is caused by a virus, for example, or that global warming is genuine and the result of human activity — will always be with us. But as the profoundly disturbing facts about the pace of warming become increasingly evident, the cries of climate change denialists seem finally to have been overcome by the mounting series of grim realities. Those realities are both obvious and subtle: Between 1961 and 1997, the world's glaciers lost nearly 4,000 cubic kilometers of ice; since the Arctic is warming at nearly three times the global average, Greenland's ice sheet may already have passed the point of saving.

Greenland is hardly the only place in acute danger of massive forced change. One projection, by no means the most alarmist, has estimated that the homes of 13 to 88 million people around the world would be flooded by the sea each year in the 2080s. As always, poorer countries will suffer the most. For the first time in memory, mosquitoes, carrying viruses as grave as malaria, now appear on Mt. Kilimanjaro and other African highlands — places that for centuries had served as cool reservoirs of safety from some of the developing world's most devastating diseases.

Although specific estimates vary, scientists and policy officials increasingly agree that allowing emissions to continue at the current rate would induce dramatic changes in the global climate system. Some scientists liken climate change to a tidal wave that can no longer be held at bay. These are not issues that can be easily solved — but it's not too late to prevent the worst effects of warming, despite what many people say. Still, to avoid the most catastrophic effects of those changes, we will have to hold emissions steady in the next decade, then reduce them by at least 60 to 80 percent by the middle of the century.

Is that possible? Absolutely. But it will require equal measures of sacrifice and science. (And the willingness of Americans and Europeans to stop expecting China and India to cut emissions as rapidly as we must in the West and to stop using their limited progress as an excuse to do nothing.)

Individuals can do a lot. According to one 2008 study

by researchers at Carnegie Mellon University, for instance, if we all simply skipped meat and dairy just one day each week, it would do more to lower our collective carbon footprint than if the entire population of the United States ate locally produced food every day of the year. In fact, producing just one kilogram of beef causes the same amount of greenhouse gas emissions as driving a small car more than 112 kilometers.

The most important way to rein in carbon emissions is to charge for them, either through taxes or with a cap and trade system. Obviously, when the cost of polluting is low there are few incentives to stop it, and the cost of pollution remains far too low. The Kyoto Protocol was never ratified in the United States because the Bush administration and the U.S. Congress feared it would result in large job losses; however, the Obama administration and an increasing number in Congress understand that the real costs of global warming will be, and in many cases are already, far higher than the costs of pretending the problem does not exist. Climate-induced crises pose the risk of destabilizing entire regions of the world.

Some scientists liken climate change to a tidal wave that can no longer be held at bay. These are not issues that can be easily solved — but it's not too late to prevent the worst effects of warming.

But how do we cut fossil fuel emissions? One way, of course, is to consume less. Another is to develop new types of fuel, fuel that will not tax our environment. Scientists throughout the world are trying to do just that. In the United States people like Craig Venter, who directed the team that won the race to sequence the human genome, are now working on engineering microbes that could help move the United States away from our addiction to oil — while drastically cutting greenhouse emissions. There are many similar efforts underway throughout the country. In California, for example, Amyris Biotechnology, which had already manufactured a synthetic malaria drug, has now engineered three microbes that can transform sugar into fuel, including one that turns yeast and sugar into a viable form of diesel. Amyris says that by 2011 it will be producing more than 750 million liters of diesel fuel a year — resounding proof of the principle that we can create new forms of energy without destroying the atmosphere. The Obama administration has signaled, with words and with money, that such endeavors will be supported, which, in a world dominated by the political might of entrenched interests, has not been easy.

Without international cooperation, none of these efforts will make enough of a difference. Many people are beginning to understand that — which is why, for example, conservationists are beginning to pay poor timber farmers in places like Indonesia not to allow their rainforests to be ripped apart by loggers. I can only hope it doesn't take a catastrophe to make the rest of us confront the serious challenges we face — or embrace the fact that we can and are capable of facing them successfully. ■

The opinions expressed in this article do not necessarily reflect the views or policies of the U.S. government.

The melting Greenland Ice Sheet is seen through an iceberg in Kulusuk, near the Arctic Circle. Polar melt, which may exacerbate effects of climate change, is more rapid than scientists anticipated.