

Energy

Climate Change Is Hazardous To Your Health

Paul R. Epstein and Evan Mills 11.16.05, 9:00 AM ET

Public attention has focused on the devastating aftermath and global dimensions of Hurricanes Katrina, Rita and Wilma, but climate change is already having a less conspicuous, but just as dangerous, impact on humans and the natural systems upon which we depend. Efficient use of energy coupled with alternative sources can help stabilize the climate.

Of immediate concern are the implications for human health. For example, asthma rates have quadrupled in the U.S. since 1980. Recent research reveals that rising carbon dioxide--itself, the driver of photosynthesis--stimulates ragweed and some flowering trees to produce an inordinate amount of pollen. Some soil fungi produce many more spores when grown under conditions of elevated CO₂. These "aeroallergens" are carried deep inside our lungs by diesel particles common in urban areas. This unwelcome synergy may be contributing to acute and chronic lung disease. And this factor will grow stronger in a world with increasing levels of CO₂.

Another cause of respiratory disease: Dust clouds emanating from Africa's expanding deserts. Drought in Africa exacerbates this factor, and the clouds are propelled across the Atlantic Ocean by the pressure contrasts between warmer, saltier tropical seas and cooler, fresher water from Arctic and Greenland ice melting into the North Atlantic. The particles (and microbes) in these dust clouds then settle into the lungs of children in Florida and on Caribbean islands in which asthma rates have risen some twentyfold in the past several decades. A rise in wildfires with climate-change-exacerbated droughts are also projected to adversely affect respiratory health.

Some diseases, such as West Nile virus, threaten birds and occasionally jump to humans. West Nile is amplified in spring droughts (as the mosquitoes breed in foul, shallow drops of water that remain in city drains). If birds of prey die in large numbers, their control of rodents is weakened; and rodents carry Lyme-infected ticks and many viruses. Meanwhile, warming is projected to expand the range of ticks that carry Lyme disease as well as malaria-bearing mosquitoes and is projected to do so even more in a warmer regime.

Finally, food and water security are also threatened from changes in Earth's climate. Crops in wealthy and poor countries alike face the growing threats of less predictable and more extreme weather, depleted soils, disease and disappearing pollinators and predators of pests. One fungal disease, soybean rust--which appears to have been carried into the U.S. on the wings of Hurricane Ivan in 2004--alighted in 11 states, and warm, wet weather will hasten its spread. Water, with stores already overdrawn and underfed in many regions (including the southwest U.S.), will become scarcer and more contaminated in many areas, as alpine glaciers disappear and weather patterns shift.

The consequences of climate change are being felt in the boardrooms of corporations and on the trading floors of Wall Street. The inflation-adjusted economic damages from severe weather rose to \$80 billion per year in the U.S. in the 1990s, from an average of about \$5 billion per year during the 1950s, and surpassed \$200 billion this year. The majority of these losses come from smaller-scale events rather than mega-catastrophes. Over this time period, the percentage of insured losses has grown to over 30% from negligible levels, as more extreme events hit the U.S., Europe and Japan. Yes, more of us are living near the coast, insurance penetration has increased and real-estate prices have risen; *and* more intense weather extremes are occurring across the globe. Heat is accumulating in the deep ocean and an energized climate superimposed on patterns of natural variability helps explain the new, more volatile weather patterns we are experiencing today.

The escalating impacts encouraged Swiss Re and the U.N. Development Program to co-sponsor the Climate Change Futures project at Harvard Medical School aimed at raising awareness regarding the health, ecological and economic dimensions of climate change. Leading insurers, economists, bankers, rating agencies, asset managers and coal-based utilities were among the panelists expressing concern about rising risks at the launch of the report in New York at the American Museum of Natural History on Nov. 1. The prospects of increasing climate instability are daunting, and panelists expressed their concerns as to how to insure the future.

A well-funded, well-insured public-private partnership on a grand scale could fortify the world's settlements with better building codes and the like, apply efficient technologies to reduce the need for carbon-emitting energy supplies, and jump-start an overdue clean-energy transition. A diversified suite of clean, efficient and safe energy technologies includes efficient end uses and solar, wind, tidal and geothermal means of distributed energy generation. Together with hybrid, cogeneration and "smart" technologies for the grid, they can provide the best insurance in the face of storms and reduce destabilizing oil dependencies.

Aligning incentives for individuals, large investors, banks, insurance companies, nongovernmental groups and public and international bodies--via procurement policies, tax credits, rearranged subsidies and funds--can create the right market signals. A substantial investment in our common future would have enormous returns on investment in terms of public health, ecological integrity, global security and the international economy--including energy bill reductions for individuals, companies and nations--while helping to stabilize the climate.

Paul R. Epstein, M.D., M.P.H. is associate director of the Center for Health and Global Environment at Harvard Medical School. Evan Mills, Ph.D. is with the U.S. Department of Energy's Lawrence Berkeley National Laboratory. They are lead authors of the just-released [Climate Change Futures report](#), sponsored by Swiss Re and the United Nations Development Program.

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