

Choking on Climate Change

By Paul R. Epstein

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IT IS HARD to convince the Bush administration to do anything significant about climate change. They're having enough trouble trying to stabilize the stock market and prop up public confidence. But climate instability is becoming hazardous to our health, and bold responses to this global problem would also boost the economy.

While some of us lose sleep wondering when birds and bugs will spread diseases like West Nile fever to Alaska and Argentina or whether diseases or drought-driven fires will consume forests first, a health problem close to us all is the epidemic of asthma. From the 1980s to the 1990s, asthma and asthma deaths doubled in the United States and elsewhere. Research has focused on indoor pollutants and genetic, emotional, and socioeconomic factors, including access to care. All are involved. But burning fossil fuels (coal, oil, and natural gas) is also related to asthma via several pathways.

First, a Lancet study recently revealed that ground-level ozone or smog causes as well as triggers asthma. Ozone, which burns lung sacs, is derived from automotive emissions - nitrogen oxides and volatile organic compounds. Warming speeds up the reaction, thus more heat waves will mean more smog.

Second, ragweed grown in elevated carbon dioxide levels produces a lot of pollen. Global warming skeptics reassure us that more CO₂ will green the planet by increasing photosynthesis. But opportunistic, weedy plants take advantage by allocating CO₂ to reproduction - the male parts - whereby they spread and prosper. Pioneering trees that spread quickly - like maples, pines, birches, and poplars - also appear to be boosting their seeds, cones, and pollen.

Warmer winters and earlier arriving springs that accompany climate change are also contributing - as seasonal pollen counts reach into the thousands per

cubic meter. ("Severe" warnings are issued when pollen grain counts are in the 100s.) Today CO2 levels are well over pre-industrial levels: 370 parts per million, while ice core records tell us they remained under 280 parts per million for more than 420,000 years! Opportunistic plants - like opportunistic mosquitoes and rodents - are the first responders in disturbed environments, and more CO2 will mean even higher pollen counts in the future.

The third contributor to breathing problems stems from diesel particles that block airways. Asthma rates are highest along inner-city truck and bus routes. Prolonged idling increases the exposure, and the EPA considers diesel particles probable carcinogens. Diesel also provides an excellent delivery system for pollen and molds, for they attach to the particles. This distasteful image is yet another additive effect of the direct impacts of air pollution and the indirect consequences of fossil fuel combustion on climate and plants.

What is being done to address this global problem? A lot - on many levels.

In Boston, the Public Health Commission and Department of the Environment called attention to the health impacts of air pollution and climate change, and Mayor Thomas M. Menino has committed to reducing municipal energy use 10 percent by 2005. As president of the US Conference of Mayors, the mayor spearheaded a strong resolution on climate change in June. A City Hall Working Group complements an Energy Advisory Committee (with broad representation), and Boston and many surrounding cities and towns have joined the Cities for Climate Protection to adopt clean energy technologies for streetlights, buildings and transport.

The six New England governors and premiers of the seven eastern Canadian provinces have made strong commitments to cut emissions, and California adopted legislation on July 22 to significantly limit automotive CO2 emissions. Massachusetts is finalizing its Climate Action Plan.

In July the attorneys general of 11 states urged the president to adopt strong regulations to reduce greenhouse gases. (Will lawsuits against major polluters follow?)

In Congress, Vermont Senator James Jeffords is forwarding a "four pollutant" bill - to cap nitrogen oxides and sulfur oxides, mercury, and CO2.

Internationally, most industrial nations have signed the Kyoto Protocol on global warming, and many US businesses are voluntarily cutting emissions through efficiencies and investments in new technologies. A Clean Development Fund - akin to the Global Fund for AIDS, TB, and malaria - could jump-start an economic recovery and help stabilize the climate.

Missing in action, however, is the oil-industry dominated US administration.

We underestimated the rate that climate would change, the biological responses to that change, and the costs of increasingly extreme weather. This administration does not yet grasp the magnitude of the problem.

We are also going to have more trouble breathing in a warmer and CO₂-enriched world.

Big problems require bold solutions, and a significant investment in clean energy would be the best insurance policy against the growing risks of climate change to our health and safety.

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