

THE EDITORS' BLOG

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Are Taxpayers Going to Foot the Bill for Disasters Brought about by Climate Change and Runaway Development?

Posted by Christopher Mims, August 2, 2007

That's a trick question—they already are. As Victoria Schlesinger and Meredith Knight reported in a just-posted exposé for *Scientific American*—"Insurers Claim Global Warming Makes Some Regions Too Hot to Handle"—insurers are dumping coverage of those who may be in the path of global-warming-super-charged storms and rising sea levels.

While the climate change angle of this story is relatively new—insurers will not yet disclose to what degree climate change factors into their calculations when they're deciding to increase prices or in some cases dump coverage of entire areas—what's not new is the accelerating pace of coastal development that has put so much property in harm's way.

When big storms like Katrina and Rita come, it's a one-two punch, and the insurers, who are after all for-profit entities, were shaken by the huge losses racked up by these disasters.

Since 1968 the federal government has stepped in to cover individuals who could not get coverage otherwise.

Since its inception, the National Flood Insurance Program (NFIP), which has typically run at a loss, has become the country's primary provider of flood insurance. For instance, in 2005 and 2006 NFIP requested and was granted \$24 billion in loans from the U.S. treasury to reimburse Gulf Coast customers for losses caused by Hurricane Katrina. Evan Mills, an environmental and energy systems scientist at Lawrence Berkeley National Laboratory, says it is unlikely NFIP will ever be able to pay back the loan, given that it pulls in an average of only about \$2 billion a year in premiums from consumers.

Whereas some researchers have already completed analyses of the current and ultimate cost of global climate change—Sir Nicholas Stern, former chief economist at the World Bank, commissioned a report that puts the figure at \$9 trillion—others have countered with what they believe will be the even

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Sustainable Developments

Ending Malaria Deaths in Africa

One of the world's worst killers can be stopped soon if we make the investment

BY JEFFREY D. SACHS



For Africa, the epicenter of the world's malaria scourge, a historic breakthrough in health and economic development is now within reach. A combination

of new technologies, new methods of disease control and rising public awareness is poised to bring malaria deaths down by 90 percent or more—if we follow through.

Efforts at malaria control in the 1950s and 1960s successfully used the insecticide DDT and the medicine chloroquine to eliminate the disease in many temperate and subtropical regions. But malaria persisted in

the tropics and especially in Africa, where the intensity

Malaria control is the bargain of the planet.

of transmission is the world's highest for ecological reasons. Africa pays a fearful price for its ongoing malaria burden, not only in more than one million deaths every year but also in significantly reduced economic growth.

Until very recently, things were getting worse, not better. The malaria parasite became widely resistant to chloroquine. Confusion over DDT's prudent antimalaria application (sprayed as a thin film on the inside walls of houses) and its function as an insecticide in open fields (which is environmentally unsafe and promotes resistance) also curtailed use of the chemical.

The most promising long-term solution is a vaccine, and exciting candidate vaccines are now in clinical trials. Yet even as we await a vaccine, a confluence of advances gives a chance for a break-

through in the near term. The first is the invention of long-lasting insecticide-treated bed nets, which protect sleeping individuals against indoor nighttime biting. These nets last for five years, unlike earlier nets that needed retreatment every few months.

The second advance, which can save countless lives, is a new generation of highly effective medicines based on artemisinin, an herbal extract discovered by Chinese scientists. (Artemisinin should be used only in combination with more traditional drugs, however, to prevent the onset of resistance in parasites.)

The third advance is a new approach to disease control. In the past, the U.S. government and other donors favored the sale of bed nets at a discount.

The result was a very slow uptake of the nets because most African rural households were too poor to buy them. Moreover, the discounts were targeted only for young children and pregnant mothers, the groups most likely to die from malaria. That targeting policy neglected a crucial point: unprotected individuals serve as reservoirs for malaria infection, not only becoming sick themselves but facilitating transmission back to the "protected" groups because the nets are not 100 percent effective.

The new strategy is based on mass free distribution of nets, with one net for every sleeping site. Everybody is protected from illness, and no group is left as a reservoir for transmission. The artemisinin-based medicines should also be available for free within the villages. This approach is highly affordable for donor

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more enormous cost of changing our ways in order to avert these harms: Lombard Street Research, a for-profit macroeconomic research think tank that advises businesses, has put the figure as high as \$18 trillion.

No matter what we do, it's clear that climate change could be a significant drag on the world economy for centuries to come—not to mention the indirect effects such as wars caused by climate change: current, projected and historical.

Run to Starbucks, Get Less Cancer?

Posted by JR Minkel, July 30, 2007

At first glance, this new droplet of research linking caffeine mixed with exercise to protection against skin cancer in mice seems like grounds for excitement. Mice who were fed the equivalent of one to four cups' worth of caffeine per day and also ran on their wheels showed nearly four times as much destruction of ultraviolet-damaged skin cells as sedentary, decaffeinated mice after two weeks. (The paper was published online July 30 in the *Proceedings of the National Academy of Sciences USA*.) Interestingly, the (premium) blend of coffee and exercise conferred more protection than the added effects of caffeine or exercise alone. The two things seem to be feeding on each other in some unknown way.

I can already imagine the marketing campaign: "SPF 15, now with caffeine!" Then people will start making their own by squirting sunscreen into the coffee grinder. It could all get really gross.

Of course, the normal caveats apply here: these are rodents, and we don't know how well this finding will translate to us nor how much cancer protection a given amount of cell self-destruction might confer.

And after a moment's percolation, I conclude that even if the effect holds for people, it is likely to be more of a comfort to coffee drinkers than a cancer cure.

True, coffee drinking has yet to max out: 37 percent of 18- to 24-year-olds drink it, averaging 3.1 cups per day, according to National Coffee Association numbers. But at

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countries, because the cost of each net is only \$5, and each treatment dose of medicine about \$1. Gratis distribution of nets is already being applied successfully in several impoverished countries.

Malaria control is the bargain of the planet. A study that my colleagues and I undertook recently showed that comprehensive coverage of nets and medicines, as well as indoor insecticide where advisable, can be accomplished for \$3 billion a year in the next few years, which equals just \$3 from each person in the high-income world. And these costs will come down in later years as infection rates decline. In addition to the lives saved, the economic

gains in Africa would soon amount to tens of billions of dollars a year, manifested in direct reductions of the cost of illness and increased economic growth.

Funding sources are coming into line. The Global Fund to Fight AIDS, Tuberculosis and Malaria is a natural funder and leader. The World Bank can play a pivotal role, especially because the bank's new president, Robert B. Zoellick, has shown leadership on this issue in the past. The Bush administration has recently increased malaria funding. The private sector is ready to step up with support in various ways, and the public is already donating tens of millions of dollars to buy bed nets for the poor through organizations such as Malaria No More (www.malarienomore.org). We are at the threshold of a great advance. It is now time to cross it. ■

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An expanded version of this essay is available at www.SciAm.com/ontheweb

MATT COLLINS

Skeptic

The Really Hard Science

To be of true service to humanity, science must be an exquisite blend of data, theory and narrative

BY MICHAEL SHERMER



Over the past three decades I have noted two disturbing tendencies in both science and society: first, to rank the sciences from "hard" (physical sciences) to "medium" (biological sciences) to "soft" (social sciences); second, to divide science writing into two forms, technical and popular. And, as such rankings and divisions are wont to do, they include an assessment of worth, with the hard sciences and technical writing respected the most, and the soft sciences and popular writing esteemed the least. Both these prejudices are so far off the mark that they are not even wrong.

I have always thought that if there must be a rank order (which there mustn't), the current one is precisely reversed. The physical sciences are hard, in the sense that calculating differential equations is difficult, for example. The variables within the

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