Sustainable Developments

# Making Development Less Risky

**Innovative forms of insurance could unshackle a green revolution in Africa and other poor nations**

BY JEFFREY D. SACHS

BRUCE GILBERT/EARTH INSTITUTE

**Life at the bottom of the** world's income distribution is massively risky. Poor households lack basic buffers—savings accounts, health insurance, water tanks, diversified income sources, and so on—against drought, pests, disease and other hazards. Even modest shocks, such as a temporary dry spell or a routine infection, can be devastating.

These risks have knock-on effects. To take one prime example, the expected economic return on the use of fertilizer is very high in Africa, yet impoverished farmers cannot obtain it on credit because of the potential for a catastrophic loss in the event of a crop failure. Their households cannot bear the risk of a loan, and so they remain destitute. Managing risk is therefore important not only for smoothing out the well-being of these farmers over the years but also for enabling their escape from extreme poverty.

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For these reasons and others, financial risk management is likely to come to the forefront of strategies for poverty reduction. Microfinance has already introduced markets for the poor. Microinsurance and other kinds of risk management will likewise yield important tools.

Traditional crop insurance is almost nonexistent in Africa for several reasons. Suppose a company tried to sell a crop insurance policy to a peasant farmer with a one-acre farm. A standard policy would specify payments in the event of measured crop losses from specified hazards (such as drought, pests and temperature extremes), and would require an actuarial model of applicable

But, I rejoin, there *are* bad apples, no? Yes, of course, Zimbardo concedes, but most of the evil in the world is not committed by them: "Before we blame individuals, the charitable thing to do is to first find out what situations they were in that might have provoked this evil behavior. Why not assume that these are good apples in a bad barrel, rather than bad apples in a good barrel?"

How can we tell the difference? Compare behavior before, during and after the evil event in question. "When I launched my experiment at Stanford, we knew these students were good apples because we gave them a battery of tests and every one of them checked out normal," Zimbardo explains. "So, on day one they were all good apples. Yet within days the guards were transformed into sadistic thugs and the prisoners were emotionally broken." Likewise at Abu Ghraib. Zimbardo notes that before going to Iraq, Staff Sergeant Ivan "Chip" Frederick—the military police officer in charge of the night shift on Tiers 1A and 1B, the most abusive cell blocks at Abu Ghraib—"was an all-American patriot, a regular churchgoing kind of guy who raises the American flag in front of his home, gets goose bumps and tears up when he listens to our national anthem, believes in American values of democracy and freedom, and joined the army to defend those values."

*The guards were transformed into sadistic thugs, and the prisoners were emotionally broken.*

Before Abu Ghraib, Frederick was a model soldier, earning numerous awards for merit and bravery. After the story broke and Frederick was charged in the abuses, Zimbardo arranged for a military clinical psychologist to conduct a full psychological assessment of Frederick, which revealed him to be average in intelligence, average in personality, with "no sadistic or pathological tendencies." To Zimbardo, this result "strongly suggests that the 'bad apple' dispositional attribution of blame made against him by military and administration apologists has no basis in fact." Even after he was shipped off to Fort Leavenworth to serve his eight-year sentence, Frederick wrote Zimbardo: "I am proud to say that I served most of my adult life for my country. I was very prepared to die for my country, my family and friends. I wanted to be the one to make a difference."

Two conclusions come to mind. First, it is the exceedingly patriotic model soldier—not a rebellious dissenter—who is most likely to obey authorities who encourage such evil acts and to get caught up in believing that the ends justify the means. Second, in *The Science of Good and Evil*

(Owl Books, 2004), I argued for a dual dispositional theory of morality—by disposition we have the capacity for good and evil, with the behavioral expression of them dependent on the situation and whether we choose to act. Aleksandr Solzhenitsyn, who knew a few things about the capacity for evil inside all of our hearts of darkness, explained it trenchantly in *The Gulag Archipelago:* "If only there were evil people somewhere insidiously committing evil deeds, and it were necessary only to separate them from the rest of us and destroy them. But the line dividing good and evil cuts through the heart of every human being. And who is willing to destroy a piece of his own heart?" ■

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MATT COLLINS

## THE EDITORS' BLOG

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### ROCK FESTIVAL AS HUMAN EXPERIMENT: HIP-HOPPING FOR SCIENCE

What would happen if all 1.3 billion Chinese jumped in unison?

Umm … nothing, really.

That's the deduction from an experiment carried out today with tens of thousands of human lab rats who attended the German music festival Rock at the Ring. The idea of enlisting rock-crazed youths to advance geological science got started when the creators of a science program on German television asked themselves what would happen if the entire Chinese population engaged in synchronized hopping.

They saw Rock at the Ring as an opportunity to provide an answer to that question on a microcosmic scale. At the concert (total attendance 50,000), the band We Are Heroes cued the masses of rock fan/hoppers with drumbeats to go airborne, while the program's crew recorded the event on videotape and the Potsdam Geological Research Center recorded it on seismometers.

A producer of the science program, Quarks & Co., characterized the "gang boing" as a "mini-mini earthquake," according to a news report from radio Deutsche Welle. A seismometer measured four oscillations per second, while the earth moved only $^1/_{20}$ of a millimeter. "We showed that people cannot start a (real) earthquake by hopping," remarks Ulrich Grünewald, producer of the program, who emphasized the difficulty of getting tens of thousands of people to synchronize their jumps.

Maybe just stick to the Wave.

*Posted by Gary Stix, June 4, 2007*

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Forum

# Have Brain, Must Travel

**A successful space exploration program requires astronauts as well as robots**

BY JIM BELL

**These are incredibly exciting** times for space exploration. NASA currently operates more than 50 robotic spacecraft that are studying Earth and reaching throughout the solar system, from Mercury to Pluto and beyond. Another 40 unmanned NASA missions are in development, and space agencies in Europe, Russia, Japan, India and China are running or building their own robotic craft. With such an armada at our disposal, delivering a stream of scientific data from so many distant ports, you might think that researchers like me who are involved in robotic space exploration would dismiss astronaut missions as costly and unnecessary. To the contrary: many of us embrace human exploration as a worthy goal in its own right and as a critically important part of space science in the 21st century.

Although astronaut missions are much more expensive and risky than robotic craft, they are absolutely critical to the success of our exploration program. Why? Because space exploration is an adventure—a *human* adventure—that has historically enjoyed broad public support precisely because of the pride we take from it. President John F. Kennedy committed the U.S. to sending astronauts to the moon to make a statement about the power of democracy and freedom, not to do science. As a by-product, some outstanding lunar science was done, leading ultimately to an understanding of the moon's origin. What is more, the Apollo moon program trained and inspired an entire generation of researchers and engineers, who made the breakthroughs that paved the way for robotic missions, as well as much of the tech-

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