

The World Bank Now Agrees: We Need Another Green Revolution

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The World Bank is warning of “climate chaos” and demands a rebuilding of the world’s agricultural science centers to keep everyone fed. The basic message is right on target, even if it is swathed in climate hype. Katherine Sierra, the World Bank’s vice president for sustainable development, says climate change will mean more droughts, floods, more outbreaks of pests and disease, more heat stress for livestock and less arable land for crops. She warns the world “dropped the ball” on agricultural science after the Green Revolution saved a billion people from starvation and preserved 16 million square miles of forest from being plowed for more low-yield crops.

We are delighted that Ms. Sierra now agrees with us—that the world faces its biggest-ever food production challenge in the next 40 years—but global warming doesn’t seem to have much to do with it. World temperatures today are just about the same level as 100 years ago.

The real food challenge is the world’s last surge of population growth and the continuing surge of human affluence. Population will increase another 40 percent before it starts to decline in the 22nd century. The World Bank also says per capita incomes will double rapidly due to technology and trade—if there’s energy.

Crop yields are fortunately still rising, thanks in part to plant breeding and biotech—and partly to the “CO₂ secret.” Experiments show that more CO₂ in the air acts like fertilizer to all plants, even as it increases their water use efficiency. But yields won’t double by 2050 at their current pace. Hence, the need for another Green Revolution.

Droughts will continue to be important in the 21st century, but they’re always the biggest threat to our food supply. California had century-long droughts during the Medieval Warming, and a cave stalagmite in West Virginia tells us to expect a century-long mid-Atlantic drought sometime during the next “little ice age” in 500 years or so. These droughts happen roughly every 1,500 years, thanks to unstoppable solar cycles.

Luckily, there’s no upward trend in storms. The climate records tell us the cold phases of the cycles were terribly harsh and unstable compared to the sunny, well-fed Roman and Medieval Warmings.

The best news is that high-yield farming will serve humanity and protect our forests whether the climate warms or cools. We ardently agree with Katherine Sierra that science—especially biotechnology—offers the best hope of being able to feed 8-10 billion people (up from the current 6.5 billion) in 2050. Major progress is already being made on drought tolerance, nitrogen efficiency and stacked pest resistance traits. We urgently need more investment in hardier

varieties of such secondary crops as potatoes, yams, peas and beans where companies see little profit opportunity.

History says the 1,500-year warmings have been abrupt but moderate, so we've probably had most of the heating from this one. Expect another half-degree C or so by 2100.. Expect science and technology to keep developing new sources of energy, communication and wealth creation. About 7 billion affluent people will thus have fewer children but lots more pets. They'll demand more meat, milk, ice cream—and more of Fluffy's favorite food.

Unless crop and livestock yields at least double, quickly, anxious people will clear the remaining forests to plant more scraggly crops, wiping out vast numbers of wildlife species as they cut and clear.

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