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Droughts, Floods and Food

Paul Krugman FEB. 6, 2011

We're in the midst of a global food crisis — the second in three years. World food prices hit a record in January, driven by huge increases in the prices of wheat, corn, sugar and oils. These soaring prices have had only a modest effect on U.S. inflation, which is still low by historical standards, but they're having a brutal impact on the world's poor, who spend much if not most of their income on basic foodstuffs.

The consequences of this food crisis go far beyond economics. After all, the big question about uprisings against corrupt and oppressive regimes in the Middle East isn't so much why they're happening as why they're happening now. And there's little question that sky-high food prices have been an important trigger for popular rage.

So what's behind the price spike? American right-wingers (and the Chinese) blame easy-money policies at the Federal Reserve, with at least one commentator declaring that there is "blood on Bernanke's hands." Meanwhile, President Nicolas Sarkozy of France blames speculators, accusing them of "extortion and pillaging."

But the evidence tells a different, much more ominous story. While several

factors have contributed to soaring food prices, what really stands out is the extent to which severe weather events have disrupted agricultural production. And these severe weather events are exactly the kind of thing we'd expect to see as rising concentrations of greenhouse gases change our climate — which means that the current food price surge may be just the beginning.

Now, to some extent soaring food prices are part of a general commodity boom: the prices of many raw materials, running the gamut from aluminum to zinc, have been rising rapidly since early 2009, mainly thanks to rapid industrial growth in emerging markets.

But the link between industrial growth and demand is a lot clearer for, say, copper than it is for food. Except in very poor countries, rising incomes don't have much effect on how much people eat.

It's true that growth in emerging nations like China leads to rising meat consumption, and hence rising demand for animal feed. It's also true that agricultural raw materials, especially cotton, compete for land and other resources with food crops — as does the subsidized production of ethanol, which consumes a lot of corn. So both economic growth and bad energy policy have played some role in the food price surge.

Still, food prices lagged behind the prices of other commodities until last summer. Then the weather struck.

Consider the case of wheat, whose price has almost doubled since the summer. The immediate cause of the wheat price spike is obvious: world production is down sharply. The bulk of that production decline, according to U.S. Department of Agriculture data, reflects a sharp plunge in the former Soviet Union. And we know what that's about: a record heat wave and drought, which pushed Moscow temperatures above 100 degrees for the first time ever.

The Russian heat wave was only one of many recent extreme weather events, from dry weather in Brazil to biblical-proportion flooding in Australia, that have damaged world food production.

The question then becomes, what's behind all this extreme weather?

To some extent we're seeing the results of a natural phenomenon, La Niña — a periodic event in which water in the equatorial Pacific becomes cooler than normal. And La Niña events have historically been associated with global food crises, including the crisis of 2007-8.

But that's not the whole story. Don't let the snow fool you: globally, 2010 was tied with 2005 for warmest year on record, even though we were at a solar minimum and La Niña was a cooling factor in the second half of the year. Temperature records were set not just in Russia but in no fewer than 19 countries, covering a fifth of the world's land area. And both droughts and floods are natural consequences of a warming world: droughts because it's hotter, floods because warm oceans release more water vapor.

As always, you can't attribute any one weather event to greenhouse gases. But the pattern we're seeing, with extreme highs and extreme weather in general becoming much more common, is just what you'd expect from climate change.

The usual suspects will, of course, go wild over suggestions that global warming has something to do with the food crisis; those who insist that Ben Bernanke has blood on his hands tend to be more or less the same people who insist that the scientific consensus on climate reflects a vast leftist conspiracy.

But the evidence does, in fact, suggest that what we're getting now is a first taste of the disruption, economic and political, that we'll face in a warming world. And given our failure to act on greenhouse gases, there will be much more, and much worse, to come.

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