

Climate Change to Exacerbate Rising Food Prices

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Despite all human provisions to maintain a steady and even increasing food supply, post-Green-Revolution agriculture remains heavily dependent on seasonal weather. Just in the past few years, weather extremes caused significant jumps in food prices, causing social, economic, and political disturbances in both developing and developed countries. Between 2006 and 2008, world average prices rose by 217 percent for rice, 136 percent for wheat, 125 percent for corn, and 107 percent for soybeans. Droughts in grain-producing regions were a leading cause for this world food price crisis, which led to food riots and political change. In 2010, the floods in Pakistan inundated cropland and the severe heat wave and drought in Russia caused a grain embargo.

Climate change, which is observable in the long-term, does not equate to these fluctuations in weather, which take place in the short-term. However, the effects of climate change (higher temperatures, shifting seasons, more frequent and extreme weather events, flooding, and drought) will make such agriculture-disrupting events more and more likely. For the first time, a [new study](#) has established a direct relationship between human greenhouse gas emissions and extreme precipitation in the Northern Hemisphere. The study concluded that the probability of intense precipitation on any given day has increased by 7 percent over the last 50 years due to climate change. Nonetheless, the connection between specific extreme weather events and climate change remains difficult to trace in current climate model simulations.

Apart from extreme events of flooding and drought, climate change will necessitate agricultural adaptation to such stressors as rising temperatures and shifting seasons. The effects of climate change on agriculture, together with a growing world population and rising incomes, and thus demand, in the developing world threaten global food security. The UN Food & Agriculture Organization's (FAO) [World Food Price Index](#) hit

record peaks twice in January, which usually indicates resource scarcity. FAO Senior Economist, Abdolreza Abbassian, predicts the prices of grains will continue to rise in the next six months.

A December [study](#) from the International Food Policy Research Institute shows that global warming may further increase the prices of corn, wheat, and rice by at least two-thirds by 2050. At the UN COP-16 talks in Cancun, Gerald Nelson, co-author of the report, said,

“Climate change is a threat multiplier of the challenge facing us. In the context of food security, climate change represents about 20 percent of the larger challenges of food security facing us caused by higher population and income growth in the developing world.”

Depending on the level of warming and economic and population growth, the study predicts that corn prices, adjusted for inflation, will rise by 42 to 131 percent by 2050. Climate change is expected to diminish rice yields, lifting prices from 11 to 78 percent. Wheat prices may rise from 17 to 67 percent. In the scenarios with perfect climate mitigation, such that today’s climate remains unchanged in the future, these price increases are smaller.

Without mitigation, the threat would increase with time. Climate diminishes wheat yields from the 2000 amount by 1.3-9 percent by 2030, 4.2-12 percent by 2050, and 14.3-29 percent by 2080. The analysis considers the challenges from climate change up to 2050 as “manageable,” assuming successful adaption through wise investments in land productivity and water efficiency. The challenges of dealing with the effects predicted between 2050 and 2080, however, become much greater. Because of the inherent lag of the climate system, the need to slow emissions today to prevent those future consequences remains urgent. The additional stress of unmitigated climate change on the world food supply further challenges the Millennium Development Goal of eradicating extreme poverty and hunger.

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