

CLIMATE CHANGE: Food Supply Hangs in the Balance

By Stephen Leahy

UXBRIDGE, Canada, Oct 2 (IPS) - Rocketing food prices and hundreds of millions more starving people will be part of humanity's grim future without concerted action on climate change and new investments in agriculture, experts reported this week.

The current devastating drought in East Africa, where millions of people are on the brink of starvation, is a window on our future, suggests a new study looking at the impacts of climate change.

"Twenty-five million more children will be malnourished in 2050 due to effects of climate change," such as decreased crop yields, crop failures and higher food prices, concluded the International Food Policy Research Institute (IFPRI) study.

"Of all human economic activities, agriculture is by far the most vulnerable to climate change," warned the report's author, Gerald Nelson, an agricultural economist with IFPRI, a Washington-based group focused on global hunger and poverty issues.

The report, "Quantifying the Costs of Agricultural Adaptation to Climate Change", may be the "most comprehensive assessment of the impact of climate change on agriculture to date", as IFPRI claims, but researchers concede that there is no current way to quantify all of the future repercussions of changing weather patterns on the food supply.

A critical component of agriculture is knowing the best time to plant seeds, for example. Farmers rely on their past experience and weather records. But one of the most robust science findings is that climate change has and will produce significant increases in weather variability.

This means extremes like droughts or floods will happen more often or last longer, and extreme temperature shifts are more likely. The past is no longer a reliable guide for farmers because the fundamental conditions in the atmosphere have been altered - far more heat is being trapped in the atmosphere today because of carbon dioxide and other greenhouse gases than at any time since the dawn of agriculture.

Nelson told IPS that the IFPRI report is a "conservative estimate" of the potential impacts and does not include impacts of pests and disease, loss of farmland due to rising sea levels or loss of water from melting glaciers.

The enormous glacier system of the Himalayas–Hindu Kush and high-elevation Tibetan Plateau are the main source of water for 1.3 billion people in Asia. Recent studies as reported by IPS revealed that these glaciers are shrinking faster than anywhere on the planet and could melt away by 2035, according to the International Commission on Snow and Ice in Kathmandu, Nepal.

"There's been a super-rapid decline in the glaciers of the region," Charles Kennel of the University of California San Diego Sustainability Solutions Institute told IPS previously.

A similar situation is now evident in South America, where massive glaciers that provide water for tens if not hundreds of millions of people are melting away.

Moreover, the IFPRI study does not look at future expansion of biofuel, bioenergy crops or tree plantations that will occupy some of existing food production land.

Even without those additional and considerable pressures on global food production, the IFPRI report estimates that by 2050, irrigated wheat yield will have fallen by 30 percent and irrigated rice by 15 percent.

Food prices would normally be expected to rise over a period of 40 years, but with climate change, prices will skyrocket: wheat by 170 to 194 percent, rice 113 to 121 percent, and maize 148 to 153 percent higher.

Developing countries will be hit hardest by climate change, and will face bigger declines in crop yields and production than industrialised countries, the study found. The negative effects of climate change are especially pronounced in Sub-Saharan Africa and South Asia.

"Agriculture is extremely vulnerable to climate change because farming is so weather-dependent. Small-scale farmers in developing countries will suffer the most," noted report co-author Mark Rosegrant, director of IFPRI's Environment and Production Technology Division.

However, much of this scenario can be avoided with action on climate change and "seven billion U.S. dollars per year of additional investments in agricultural productivity to help farmers to adapt to the effects of climate change", Nelson said.

These investments would be for agricultural research, improved irrigation, and rural roads to increase market access for poor farmers, he said. Public agricultural research has suffered serious declines in funding for the past decade and more, according to many experts.

Currently, the entire global budget of the Consultative Group on International Agricultural Research (CGIAR) is less than half a billion dollars, said Nelson.

Founded in 1971, CGIAR is a global alliance of researchers, governments and civil society groups that mobilises science to benefit the poor.

"In the past, if investments in agricultural research are made they directly result in productivity boosts," Nelson noted.

Government investment is needed to provide public goods like improved crops, more efficient irrigation systems and infrastructure, he said, cautioning against "one-size fits all" solutions.

Agriculture is location-specific and it is "far more complicated than rocket science", he added.

Nelson is a supporter of small-scale traditional agriculture, which was also the overall finding of the three-year International Assessment of Agricultural Science and Technology for Development (IAASTD) in 2008.

"Traditional agriculture should be supported and its techniques widely shared when it works - not just because it's traditional," he said.

Future food security is much more than seeds and yields. For 30 years, industrialised agricultural nations in Europe and North America have dumped heavily subsidised foods on poor countries with devastating impacts on local food systems, says Michel Pimbert, director of the agriculture and biodiversity programme at the London-based International Institute for Environment and Development (IIED).

Such national and international policies need to be changed to favour "food sovereignty", meaning diverse, local, autonomous food systems, Pimbert told IPS.

IFPRI's call for a seven-billion-dollar investment will not guarantee that all negative impacts can be overcome, acknowledged Nelson, "But business as usual will guarantee disastrous consequences for the human race."

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