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Food Insecurity Impacts on the U.S. Poor as the World Warms

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Studies exploring the vulnerability of human populations to climate change-induced food insecurity have understandably focused on developing nations, where 98 percent of the world's hungry are. The threat to food security in those regions is indeed a critical issue as climate change affects every aspect of food security: food availability or amount of food production; food access, which refers to the ability of a person or community to acquire an adequate supply of available food; utilization or the ability to attain necessary nutrition from the acquired food; and stability, which refers to the ability to consistently access food in adequate amounts. *See* Food and Agriculture Organization of the United Nations, *Climate Change and Food Security: A Framework Document, Defining Terms and Conceptualizing Relationships* 3, U.N. Doc. K2595/E (2008) [hereinafter, "U.N. Framework Document"] (definition of food security).

Chronic drought and desertification are expected to threaten the agricultural productivity of much of Sub-Saharan Africa, parts of South Asia, and Latin America. An area twenty times the size of Washington, D.C., for example, is lost every year in northern Nigeria to desertification. And these poorer regions have less capacity to adapt to the changing climate and to purchase more food when agriculture fails them. The purchasing power of these nations is also expected to further diminish, as the economies of these agriculture-dependent nations will become more tenuous with desertification. Added to these challenges is the burgeoning world population, which is expected to exceed nine billion by 2050. This increase would require the planet to produce more than half again as much food than it does now.

The political uprisings of the recent past in the Middle East after wheat commodity prices rose steeply in response to wheat shortages offer only glimpses of that uncertain future. Extreme weather events in 2010 and 2011—a drought in China and heat waves, fires, or excessive precipitation in wheat-growing regions of rest of the world—devastated wheat production and caused China, a wheat exporter, to spend $1.9 billion to strengthen irrigation, which led to a higher price for wheat grown there. In combination with China's increased wheat importation to compensate for its decreased harvest, the global wheat shortage led to a doubling in wheat commodity prices between June 2010 and February 2011. In the Middle East, where the top nine wheat importers are located, with Egypt being the largest importer, this rise in commodity prices severely raised bread prices and threatened supply. Shortly before Egypt's regime change in February 2011, food price inflation was 20 percent for a population who spends close to 40 percent of its income on food and obtains a third of its calories from bread. Compare that to the U.S. figure of about 10 to 20 percent of income being spent on food. Thus, food access for the world's vulnerable populations is indeed a challenge worthy of our attention.

Discourse in the United States on climate impacts on food security, on the other hand, has predominantly left out the U.S. poor and other vulnerable populations. Focus has so far been on agricultural productivity; increased vulnerability of crops to insect infestations, weed proliferation, and plant disease outbreaks; food storage challenges to prevent spoilage; vector control for protection of grain stock; food distribution and access in extreme weather events; and food safety in the manufacturing and storage processes in a warmer environment. Even among antipoverty advocates and environmentalists, climate change's consequences on food insecurity have not yet ripened as a topic for serious consideration for research and planning, although scholars have begun some work in the area. *See, e.g.*, Ellen Kersten, Rachel Morello-Frosch, Manuel Pastor and Marlene Ramos, *Facing the Climate Gap: How Environmental Justice Communities Are Leading the Way to a More Sustainable and Equitable California*, Program for Environmental and Regional Equity (Oct. 2012) [hereinafter *Facing the Climate Gap*].

The lack of serious consideration of food access for the U.S. poor in the warming world appears to be due to several factors, aside from the sheer number of people affected in other parts of the world compared to the United States. Food costs in the United States are a lower percentage of household expenditures. Food price inflation also has historically registered at a far less astounding number than that in the developing world, at about 3 to 5.5 percent even in the periods of commodity prices increases (compared to 2.5 percent annually during 1991–2006). This and next year's food price inflation is expected to be at similar levels, even though last year was the warmest year on record and the second most extreme weather year with severe drought conditions affecting the Midwest. As the richest nation in the world, the United States is also expected to be better able to adapt than its poorer global neighbors through strategies reliant on technological developments for growing more with less water, stockpiling grains, and decreasing exports of agricultural products.

Despite the less dramatic food impacts of climate change on the United States, governments, policymakers, and environmental and antipoverty advocates must consider climate change impacts on food insecurity for the nation. In particular, the United States must move beyond food production from large farms, storage, and distribution issues and additionally consider impacts on food access, utilization, and stability

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for the poor and other vulnerable groups. United States policymakers must ask: Will these groups be able to consistently acquire an adequate supply of nutritious food in the face of climate change? Several factors underscore the importance of analyzing and planning for these impacts: the still large number of U.S. households that lack consistent access to adequate food; the expected rise in the price of basic necessities, including food and energy, especially beyond 2050; the expected increase in food price volatility; and the vulnerability of the already hungry to even modest price increases.

The connection between food prices and food insecurity in the United States is only just beginning to be studied among economists, even though that connection has readily been made for the globally vulnerable.

Too Many Americans Still Go Hungry

In a survey aimed at gauging food hardship in the United States, a shocking number of Americans answered yes to the question, "Have there been times in the past twelve months when you did not have enough money to buy food that you or your family needed?" Food Research & Action Center, *Food Hardship in America 2012* (Feb. 2013), *available at* http://frac.org/pdf/food_hardship_2012.pdf (last visited July 3, 2013) [hereinafter FRAC]. Since the economic recession that began in December 2007, this measure of food hardship has stayed above 17 percent of American households (or about one in six households), reaching nearly 20 percent in December 2008. Or, far greater than 50 million people are hungry at some time in the richest country in the world. Further, "African Americans, Latinos, low-income households, single-parent households, and children disproportionately experience food insecurity in the United States, and in California undocumented immigrants and the unemployed are also more likely to be food insecure." *Facing the Climate Gap* at 29. Households with working-age adults with disabilities are also particularly vulnerable to food insecurity. Alisha Coleman-Jensen and Mark Nord, USDA Economic Research Service, *Food Insecurity Among Households with Working-age Adults with Disabilities* (Jan. 2013). Significantly, these same subgroups are more at risk of suffering the harmful effects of climate change, such as vulnerability to heat strokes from working outdoors without shade and increased smog, which intensifies in higher temperatures.

While numbers vary somewhat from study to study, the simple conclusion is this: "Families simply do not have adequate resources—from wages, income supports and SNAP [Supplemental Nutrition Assistance Program, a successor to the Food Stamp Program]—to purchase enough food." FRAC at 2. Moreover, the problem cannot just be attributed simply to the recent deep recession, although it unquestionably worsened hunger. Hunger was prevalent before the recession began despite impressive gains in agricultural productivity in the last several decades: in 2007, about 11 percent of U.S. households were food insecure some of the time. Adding to the concern for food insecurity is the increasing poverty levels in the United States now as compared to historical levels and the connection between poverty and food insecurity.

Climate Change Is Expected to Exacerbate Food Insecurity for the Poor and Vulnerable

As noted above, fluctuations and steep rises in commodity prices in 2008 and since 2011 have not resulted in nearly the steep rise in consumer food prices in the United States as in other countries. Still, the United States will not long remain immune to food price increases and volatility and cannot count on factors present in 2012 that contributed to offsets in the inflationary pressures on U.S. food prices this year, such as the stronger U.S. dollar, low energy price inflation, and decreased prices for commodities unaffected by last year's drought.

Notably, agricultural productivity is expected to worsen in the warming world with precipitation irregularities such as the flooding of the Mississippi that has occurred this spring and continuing drought conditions this year. Consistent with this expectation, last year's heat, combined with severe drought conditions, which touched 80 percent of agricultural land nationally and is seen as the worst since the 1950s, affected more than 70 percent of corn and soybean production and nearly that amount in cattle production. Newspapers carried pictures of parched lands, dying cattle, and withering stalks of corn. The ears failed to form on this heat-sensitive crop because the heat hit it at a critical time. Extreme drought in this country, a once-in-a-twenty-year phenomenon, may occur every other year by 2050.

Continuing into 2030–2050, the production of U.S. corn, which accounts for 40 percent of the world's output, is expected to decrease by an average of 18 percent relative to 1980–2000 without adaptation and increases in field acreage. Corn prices are predicted to rise by 42 to 131 percent by 2050, adjusted for inflation, according to the International Food Policy Research Institute. After 2050, current temperature extremes are expected to be the new norm, resulting in major disturbances in food production and prices, not to mention the dramatic changes in the ocean environment, which have already devastated fisheries.

Surprisingly, the connection between food prices and food insecurity in the United States is only just beginning to be studied among economists, even though that connection has readily been made for the globally vulnerable. In a 2011 study, the researchers concluded that food prices do indeed significantly drive the U.S. poor into food insecurity. This conclusion is hardly novel to antipoverty advocates. Particularly affected are low-income households with children. The research concluded that even a modest increase of about 6 percent in the prices of the food (or $10 a week increase) included in the Thrifty Food Plan, which is used to set SNAP benefits, could lead to an 8 percent increased vulnerability for that study population.

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As climate change is expected to be an increasing driver of food price volatility and not just food prices, the sensitivity of these vulnerable populations to price increases (without similar immediate increases in benefits since they are adjusted annually) can make a difference between providing adequate and inadequate nutrition to children and adults alike. Families that do not receive federal benefits may also be further at risk from price volatility. Among the concerns with price increases or volatility are how substitution of foods with cheaper choices affect food insecurity (in particular, nutrition for growing children who need more protein in their diets) since food price relative to income is an important driver of food choices in food insecure households. Racial disparities also raise equity concerns. Studies show that, in the last ten years, median spending on food among African American and Latino households was less than the amount necessary to purchase the Thrifty Food Plan basket.

Lastly, climate change is also expected to drive up the price of other basic necessities such as water and energy. Families spend as much as 25 percent of their income on basic necessities, and data suggest that when energy costs rose more than 40 percent last decade, low-income families reduced their food spending by 10 percent.

Benefits of Considering the Connection Between Climate Change and Food Security for the U.S. Poor

Not having enough food in the United States because of climate change impacts seems unlikely to most of us and receives far less attention than other climate-related problems such as the inundation of coastal areas. Most of us who read this magazine who have had the privilege to eat whenever and whatever we want cannot even fathom the possibility of massive food disruptions in this country. But here is former Secretary of Energy Steven Chu uttering these words: "I don't think the American public has gripped in its gut what could happen. We're looking at a scenario where there's no more agriculture in California." *Facing the Climate Gap*, at 29. The food impacts of climate change are just as likely to materialize as coastal inundation and threaten to be similarly catastrophic.

It is time to begin considering the climate change impacts on the food insecure in the United States. Explicitly recognizing, studying, and analyzing the connections between climate change, food insecurity, and the consequences for the U.S. poor will allow for intelligent planning and appropriate adaptation policies. Certainly, without that explicit consideration of food insecurity from the lens of climate change, long-term planning is unlikely to happen on the scale that other climate adaptation strategies are being developed.

First, at the very least, U.S. lawmakers must do nothing further to erode SNAP benefits in the short term. SNAP now serves more than 46 million Americans a year at a record cost of $75 billion. (Other food assistance programs provide about $25 billion.) SNAP has seen record participation primarily because of the poor state of the economy. Disaster SNAP provided temporarily for relief to those hit with Hurricanes Sandy and Isaac also contributed to some increases in participation. The average SNAP benefit is about $4.30 per person per day. The Institute of Medicine and the National Research Council found that this level of benefit may be inadequate for providing the necessary nutrition because the Thrifty Food Plan, on which SNAP benefits are calculated, relies on unrealistic assumptions about food prices, access to stores, and preparation time.

And yet SNAP cuts are already scheduled in November 2013 to erase the modest boosts made to benefits in the American Recovery and Reinvestment Act of 2009 because of premature sunsetting for reinvestments in other areas. The cuts are estimated to result in a $29 decrease in monthly benefits for a family of three. After the cut, a SNAP benefit recipient will have $1.40 available for a meal. Stacy Dean and Dottie Rosenbaum, Center on Budget and Policy Priorities, *SNAP Benefits Will Be Cut for All Participants in November 2013* (Aug. 2, 2013), *available at* www.cbpp.org/files/2-8-13fa.pdf (last visited Aug. 14, 2013). As discussed earlier, even a small decrease could affect food choices and food insecurity in families living on the margins. Further, the Senate Farm Bill in June 2012 proposed to slash $4.1 billion in SNAP funding over the next decade; and House Republicans pushed a bill through in September 2013 a cut ten times larger over the same period, under threat of a presidential veto.

These scheduled and massive proposed cuts are wrongheaded. Even though the price tag of SNAP is indeed large, the United States spends less of its gross domestic product on programs that are aimed at reducing inequality than its counterparts in Europe. The United States would need to quadruple its spending on those programs before it could match that of Scandinavian countries. Moreover, SNAP results in a doubling of community spending and thus stimulates the local economy. Americans across party lines also strongly support food aid to the vulnerable: 75 percent of voters polled opposed cutting food assistance programs.

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Second, aside from doing nothing to harm SNAP, policymakers should study the impact of the coming climate change crisis on food security for the poor and SNAP. The United Kingdom, for example, in 2010 began analyzing food access for vulnerable populations in recognition that very little literature existed about food access in the warming world for the vulnerable at the country level. Unfortunately, the results of the study were in essence that more study was needed, including case studies of coping strategies for dealing with food access. In the United States, the Economic Research Service is likely the government agency most capable of analyzing the relationship

between climate change, food insecurity, and their impacts in the near and long term on the U.S. food assistance programs. Country-level information is particularly important in this area because climate-related variability on food access depends on country-specific and local information, such as how the food markets function, how consumer food prices respond to commodity prices, how expensive other costs of living are, and who is vulnerable to the coming changes. Such analysis should in turn inform the level of SNAP benefits.

Third, federal and state agencies must explicitly consider poverty consequences (and environmental justice consequences in general) of every "environmental" decision made related to climate change and explore feasible alternatives to minimize adverse impacts on low-income populations who are already bearing the burdens of climate change impacts. Mitigation measures should also be adopted where feasible to ease the burdens on the nation's most vulnerable. Had serious consideration been given to analyze the impacts on vulnerable populations—and government agencies of course have authority for considering environmental justice issues in environmental decision making—the U.S. policymakers might have heeded the voices of those who warned them that the grain-based ethanol mandates could have devastating consequences on the poor. As it turned out, the ethanol mandates in Europe and the United States did in part contribute to the food price spikes of 2008. Philip C. Abbott, Christopher Hunt and Wallace E. Tyner, Farm Foundation Issue Report, *What's Driving Food Prices* (Mar. 2009 Update), at 23–35.

Fourth, the federal government should create a task force to study how different federal agencies need to coordinate their efforts to properly consider impacts of climate change on food security for the poor. In Congress, efforts to pass a bill (H.R. 3314, The Climate Change Health Protection and Promotion Act) to direct the secretary of health and human services to establish a science advisory board to provide recommendations on climate change impacts on public health failed twice. Similar congressional efforts appear unlikely to succeed. But coordination between the federal agencies can happen without congressional mandates. The president could issue an executive order, or the agencies themselves could make the coordination possible under their existing statutory authorities.

Last, the transformative power of local food sustainability projects cannot be ignored. For example, at the very least, governments at every level should support efforts of local communities to build resilience through local garden and animal husbandry projects. "By producing food in their own yards or neighborhoods, households and communities improve their resiliency to fluctuations in food availability and affordability." *Facing the Climate Gap*, at 31. Supporting such efforts includes ensuring that city and county ordinances allow for such production and that municipal planning takes water usage for food production into account. Other projects to address low-income communities' vulnerability to hunger in the warming world should be seriously considered and funded. Soil, water, and localized agricultural studies, for example, appear to gain paramount importance as local production must rely on dwindling water supplies, healthy soil, and appropriate crops.

Conclusion

Despite the looming food crisis in the world, the impact of this crisis on vulnerable populations in the United States has not been given the attention due. Just as other aspects of the climate change crisis are important to study, so too is food access by the poor and other vulnerable groups in the warming world. Only then can we protect them, who are already too numerous in the richest nation in the world. Governments must plan now to ensure that we properly allocate funds to protect food nutrition programs and prepare other adaptation strategies to meet the enormous challenge of feeding our large population adequately and consistently.