



Grain Reserves: A Smart Climate Adaptation Policy

Consider these four developments: 1.) Climate change is having a profound effect on current and anticipated food production; 2.) Those effects are expected to be greatest in some of the world's most impoverished regions, particularly in the countries that sit around the equator; 3.) The anticipated effects of climate change, coupled with the already evident disruptions to natural phenomena, including rainfall, wind patterns and storm activity, exacerbates the inherently volatile nature of commodity markets; and 4.) Climate change is occurring at a time of great uncertainty in the world of food and agriculture because of actual and anticipated crises related to the depletion of freshwater, oil and soil fertility.

The recent estimate by the U.N. Food and Agriculture Organization (FAO) that agriculture commodity prices are likely to rise in 2011 and food import bills are expected to surpass the \$1 trillion mark is another stark reminder of how vulnerable the global food system is today to any disruption.¹

In this context, climate change negotiators need to be talking to their counterparts in the world of food and agriculture—not just agriculture ministries, but also ministries of health, rural development and, where they exist, food. Where governments are also donors, they need to talk to all the agencies involved in investing in agriculture as well. Agricultural investments that ignore climate change risk wasting money and could exacerbate the climate crisis (agriculture has been identified by the Intergovernmental Panel on Climate Change as a major contributor to greenhouse gas emissions). Climate change policies and projects that do not understand the challenges confronting food and agriculture could likewise do more harm than good.

Climate change destabilizing agriculture

In the past 20 years, the number of recorded natural disasters has doubled from roughly 200 to over 400 a year. The U.N. estimates that nine out of ten of these natural disasters are linked to climate change.² The U.S. National Center for Atmospheric Research released a report in October 2010 that shows the percentage of the earth's land area facing serious drought more than doubled between 1970 and the early 2000s.³

The implications for agriculture are consistently sobering, not to say alarming, even allowing for the uncertainty that inevitably accompanies numbers generated from models and probabilities. An article from *Environmental Research Letters* by Wolfram Schlenker, a professor at Columbia, and David Lobell, from Stanford, suggests climate change will cause medium-term production drops in sub-Saharan Africa of, on average, 22 percent for maize (corn), 17 percent for sorghum, 17 percent for millet, 18 percent for groundnuts and 8 percent for cassava.⁴

These numbers in any context would demand urgent attention. But in the context of sub-Saharan Africa, where agriculture in some countries is upwards of 40 percent of GDP, the implications are very serious indeed. Agriculture accounts for 80 percent of employment in some of these countries, leaving most of the population either directly or indirectly dependent on agriculture for their survival. By way of comparison, in the U.S., agriculture is 1.2 percent of GDP; in Brazil, it's 6.1 percent.

Here is how analysts at the World Food Program summarized the situation in a background paper written for the FAO's Committee on Food Security:

By 2015 the number of people affected by climate-related disasters is expected to reach 375 million per year. By 2050 the risk of hunger is expected to increase by 10 to 20 percent while the number of malnourished children is expected to increase by 21 percent (or 24 million children) more than without climate change.⁵

Grain reserves help stabilize the food supply

Given the challenges posed by climate change, here is an idea that makes a lot of sense: grain reserves. Why? Because grain reserves are a relatively cheap public insurance policy in the face of tremendous uncertainty, when the risks of failure include starvation. Governments can use a reserves policy to invest in storage and transportation infrastructure; to work with the private sector to cover gaps and market failures; to provide farmers with guarantees that encourage investment; and to increase transparency to discourage hoarding and speculation.

Confronted with the reality of climate change, governments must take a smarter approach towards managing our food supply. Grain reserves have an impressive pedigree. For thousands of years, households and governments have stored some of each harvest as an insurance against the uncertainties of the next. Food reserves respond to inherent characteristics of agriculture, particularly the presence of relatively constant, inelastic demand coupled with much more variable short-term supply. Unregulated agricultural markets often over-produce, leading to a pattern of many years of declining prices, interrupted by short, sharp, upward spikes. Food reserves can lessen the unwanted consequences of unstable agricultural markets.

There are many models to choose from—indeed, most governments have some form of reserve in place—though most have been scaled back considerably since the days when food reserves were the norm. In the past, some of the major exporting countries (notably Canada and the U.S., in the case of wheat) held reserves that effectively both established a price floor for their growers and gave wheat importers confidence that the grain supply was safe, even if one year's harvest was poor.

In other cases, national governments have operated domestic-focused reserves. Many such national reserves in sub-Saharan Africa were troubled by poor finance and oversight. Even those that worked relatively well were dismantled over the 1990s, largely because they did not fit in the model of economic liberalization that dominated donor thinking at the time. But there are compelling reasons to consider their re-establishment given the vital nature of food security, the effects of climate change on

agricultural production, and the failure of purely market-based approaches to provide an adequate and appropriate food supply and distribution. Countries can learn from their experiences in establishing independent and accountable central banks, which in the past were similarly crippled by poor governance and a lack of accountability. They can also benefit from the dramatic changes in information technology, communications and transportation to build reserves that are flexible, and that are responsive to change in market conditions.

Gaining momentum

After the last food price crisis in 2007-08, governments and civil society networks engaged in food policy began to reconsider grain reserves. Reserves were referenced in the 2009 LAquila G-8 declaration, and then the U.N.-led Comprehensive Framework for Action on the Global Food Crisis. In March 2010, Brazil, Russia, India and China (the BRIC nations) agreed to support the establishment of a system of national grain reserves. In October, members of the Association of South East Asian Nations (ASEAN) signed a new agreement to coordinate an emergency rice reserve among their membership and with non-members South Korea, Japan and China. The recent resurgence in food prices has added urgency to this debate: governments must move beyond affirmations of the importance of reserves to actually establishing them.

The discussion on agriculture in the context of climate change is relatively new and still not well developed. The focus has been almost entirely on what happens in the field, and how to minimize the practices that are most closely associated with greenhouse gas emissions. But climate change is not just about mitigation—with the effects already making themselves felt, it must be about adaptation as well. Grain reserves are an important policy tool for governments to be smart about the adaptation challenges ahead.

Governments are confronted with really big challenges in agriculture. But the need to produce enough food while mitigating climate change is also an opportunity for new ideas. Reserves should be on that list—an ancient idea, ready for new challenges.

References

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