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Economic Affairs, and International Environmental Protection  
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Thank you for the opportunity to testify today on global food security. I would also like to thank the Subcommittee for their ongoing attention to this issue.

I join my colleagues on this panel in arguing for a more concerted effort in achieving global food security. The Obama administration deserves much credit for prioritizing this issue in its Feed the Future initiative and its leadership at G8 and G20 meetings. The challenge of achieving food security for the approximately 870 million people who live with chronic hunger has thankfully enjoyed bipartisan support beginning with the Bush administration's initiative to End Hunger in Africa and increases in development assistance for agriculture that began in 2008. The Lugar-Casey Global Food Security bill also had bipartisan support in the Senate.

As we have heard here today, the Feed the Future initiative seeks to increase productivity and incomes among some of the poorest and least productive populations in Africa, Central America, and South Asia. While this focus is necessary, it may not be sufficient given anticipated global trends.

I would like to identify three trends that will put incredible pressure on farmers around the world. Then, I will comment on how Feed the Future can help to address these trends. A forthcoming report from the Chicago Council on Global Affairs will elaborate on these trends and possible solutions, and will be shared with the Subcommittee in early December.

First, the global population is projected to increase by 28 percent, reaching 9 billion people by 2050. While this projection may seem like a time too distant in the future to have much urgency, the long lag time in bringing new technologies on line demands that attention be given now to increasing productivity. For example the Food and Agriculture Organization (FAO) estimates that cereal production will need to increase by 60 percent by 2050 to keep pace with demand. Especially disconcerting, global annual productivity has stagnated since the 1980s with some exceptions in China, India and Brazil.

Increasing the productivity of the least productive – largely smallholders in Sub-Saharan Africa and South Asia - is an important first step to reducing poverty and hunger, but these farmers will not be able to feed the world. All farmers in every part of the world will need to grow more to meet that demand.

Second, wealthier populations demand a more protein-rich diet, as has been demonstrated in emerging economies. We anticipate that populations will become more prosperous in the decades ahead. Because the livestock industry is a cereal-intense one, demand for feed grain is likewise expected to increase.

Third, climate change and weather variability will result in productivity losses in many of the current breadbaskets of the world. Whether one believes climate change is man-made or a naturally occurring cycle, it still requires adaptation – new seeds that are drought and heat resistant, more efficient use of farm inputs and water resources, and techniques that protect the environment while not contributing to greenhouse gas emissions. The effects of global warming are projected to significantly reduce agricultural productivity by as much as 16 percent by 2080, and by as much as 28 percent in Africa.

These three trends – population growth, changing diets, and climate change – suggest that current calls for a 60 percent increase in production may be a best-case scenario.

If we are unable or unwilling to overcome these three challenges, the world may become politically, economically, and ecologically more unstable. There is a link between rising food prices, the global economy and political unrest. If supply does not keep pace with demand, high food prices will push millions more into poverty. As food takes up a larger portion of consumers' budgets, there are less discretionary funds left for other necessities. Sharp increases in food prices have added fuel to the fire among populations that may already be suffering from unrepresentative or unresponsive governments.

From an environmental perspective, agriculture both suffers from, and contributes to, climate change, producing between 15 and 25 percent of greenhouse gas emissions. Farmers of all sizes will need to adopt new approaches and techniques. With limits on the availability of arable land and continuing pressures on water resources, farmers will need to produce more on existing cultivated land and do it more efficiently, something that has been called resilient intensification.

These challenges require that the global agriculture system, one in which evidence shows is becoming increasingly fragile, must be seen as one system with inter-related parts rather than as a zero sum scenario. These are not problems that the United States can or should solve on its own, but American farmers and businesses would benefit from a more prosperous global system.

Investing in agriculture has been shown to reduce poverty by increasing family incomes and revitalizing rural economies in developing countries. It results in more affordable food for both rural and urban consumers. Focusing on women farmers has been shown to improve the health and productivity of their children.

For these investments to be effective, the United States must prioritize science, research and development, and be supportive of a greater role for the private sector and increased trade flows. These areas are all ones in which the United States has comparative advantages, but the scope of U.S. food security programs needs to be widened accordingly.

The United States was once the global leader in science and agriculture-related research and development, but it is no longer. Those earlier investments made American farmers some of the most productive in the world. The benefits of the Green Revolution since the 1960s allowed productivity to triple even as the world's population doubled. But since the 1980s, investments in the agricultural sciences have fallen with the United States being overtaken by China, Brazil and India. Research investments made in the United States, with the land grant universities in the

lead, benefit American farmers and consumers, and also have spillover effects globally. There are roles for both advanced breeding techniques – GM technologies – as well as traditional breeding for improved seed varieties. Much progress needs to be made in standardizing evidenced-based approval processes for all types of scientific advances.

U.S. assistance to build the capacity of foreign universities and research facilities has also dropped off, meaning that U.S. scientists lack partners in developing countries to tackle such issues as plant disease and pests that cross national borders with increasing frequency. The spread of disease and pests, and issues of food safety take on greater importance given their rapid transmission around the world. Increased opportunities for exchanges of students and faculty between U.S. and foreign educational institutions would greatly aid the caliber and effectiveness of research efforts.

The private sector is increasingly investing in global agriculture as businesses seek new markets and suppliers. But, businesses avoid investments in areas that lack a governance framework that protects property rights or that allows rampant corruption. The World Bank's Doing Business index lists just seven African countries above the median suggesting the necessity of focusing on the factors that will contribute to business expansion and job creation.

Local businesses are also less likely to expand or create new ventures in areas where financing and infrastructure are lacking. Agriculture can help create vibrant rural economies, but businesses that support or benefit from agricultural investments need some degree of confidence that their investments will produce a return.

U.S. food security and development strategies should more fully integrate market analysis to identify barriers to investment. Current strategies by the Millennium Challenge Corporation and the Partnership for Growth model, while requiring analysis to identify obstacles to economic growth, are often lacking the perspective of local and international business that could be helpful in facilitating greater private investment.

Likewise, trade barriers – both globally and regionally – need to be lowered. It is often easier to export to Europe than to a neighboring African country because cross-border trade is burdened with corrupt or untrained officials, outdated regulations, or poor infrastructure that impedes the flow of commodities. The World Bank estimates that just 5 percent of grain or cereal imports to African countries originates from the continent.

Additionally, differing standards and approval processes for the importation of improved seed, for example, mean that African farmers often do not have access to inputs that would make them more productive. Further, in a world that is more susceptible to weather variability, commodities need to more easily move from surplus-producing regions to those suffering shortages. The goal should be to eliminate the need for food aid except in cases of disaster, but this requires a strong global trading system.

The challenge of feeding 9 billion people has not been a focal point of Feed the Future. However, its scope will need to be broadened if we want to prevent more people from falling into poverty if food supply does not keep pace with growing demand. And while the

administration has recently recognized the role of the private sector and trade, there is a lot more work that needs to be done to fully develop and integrate these aspects into a U.S. food security program.

Feeding a growing world and eliminating hunger are daunting challenges. During this period of budget austerity, targeted investments in science, research, and development can be catalytic drivers that also have domestic benefits. Additionally, supporting business and facilitating trade can be accomplished through policy reforms and do not require large budgetary resources.

I thank the Subcommittee and welcome any questions.