Laws Peacemaking Lecture on Global Food Security

Columbus, Indiana
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It is an honor to deliver the Laws Lecture and to once again be in Columbus, Indiana, among many good friends. I thank Pastor Martinez for his generous introduction and the Congregation of the First Presbyterian Church for hosting this event. I am also excited that the organizers of this event asked me to talk about global food security as an essential element of a stable, peaceful world.

I admit to a preoccupation with the problem of global hunger. As a past Chairman of both the Senate Agriculture Committee and the Senate Foreign Relations Committee, a longstanding goal of mine was to develop and pass legislation authorizing a comprehensive program to advance global food security. The culmination of these efforts was the Lugar-Casey Global Food Security bill of 2009. Lugar-Casey did not become law immediately, but the bill and the reports on which it was based helped stimulate debate and established principles that were important to the foundation of Feed the Future program under President Obama.

Upon leaving the Senate in 2013, I wanted to continue my efforts to advance global development and food security. I joined with some talented individuals who worked with me in the Senate to establish The Lugar Center, which is devoted to advancing nuclear non-proliferation, bipartisan governance, foreign assistance effectiveness, and indeed, global food security. One of the proudest moments of the last several years was the signing of the Global Food Security Act in July 2016. This bill contained many elements of the original bill that Senator Bob Casey and I had introduced back in 2009. The Lugar Center was one of the outside advocates that had worked to inform the legislative process and pass the bill. Although it does not solve the global food security problem, it places U.S. efforts on a much more secure footing heading into the critical decades to come.

My own interest in food security began about 45 miles from here on a 604-acre farm in Indiana, which my father, Marvin Lugar, bought in the 1930s. I still manage the farm, which today sits within the city limits of Indianapolis. Each year we plant roughly 200 acres of corn and 200 acres of soybeans, to go with our acreage of Black Walnut trees.

Our chances of a bumper crop year-to-year are excellent, given the astounding array of technologies that our farm and most of American agriculture uses to maximize yield and protect the environment. Our farm is benefitting from genetically engineered seed, advancements in soil analysis, GPS mapping of the land, sophisticated weather forecasting, and numerous other technologies. In past years, we have produced corn yields of more than 190 bushels per acre. This is roughly a fourfold increase from
the yields my family experienced on the same land when I was a boy. At that time, my dad was pleased when we achieved even 50 bushels an acre.

I relate this personal experience, to underscore that agricultural science is capable of delivering miraculous results. Humanity currently possesses the technologies necessary to grow, store, distribute, and market a safe and nutritious supply of food. Having witnessed such an amazing transformation in the span of my lifetime, I have always been optimistic about the world’s ability to expand food production so we can feed all inhabitants of our planet. That is the good news.

The bad news is that technological ingenuity may be the simplest part of the equation. Feeding the world has become, first and foremost, a political and economic problem. Too many governments have erected protectionist barriers to agriculture trade. Too little public money is being devoted to agriculture research and rural development. Too many regimes in the developing world manipulate food production and distribution for political or personal gain. Too few elected leaders across the globe prioritize the long-range security of their nation’s food supplies. And too many societies have rejected the benefits of biotechnology in food production, despite overwhelming scientific evidence that it can be used safely to improve yields and plant characteristics.

The challenge of global food security is effectively and widely applying the technological tools that we have developed in the face of conflict, poor governance, corruption, poverty, lack of infrastructure, lack of credit, trade barriers, the disadvantages of women farmers, and many other cultural limitations to productivity. Or to put it another way, how do we ensure that a farmer in Africa or Asia has the same opportunity to quadruple yields that the Lugar family farm had? And if we can improve harvests, how do we ensure the political and economic conditions that will convert higher yields into declining hunger?

The consequences of failing to achieve a solution to those questions are severe, both for those who are threatened directly with starvation and hunger, and those of us who hope to live in a world with less conflict and more stability and prosperity.

The United Nations estimates that roughly 800 million people globally – more than ten percent of the world’s population – suffer from chronic hunger. Almost a quarter of Africans experience chronic hunger or worse. Up to 21,000 people die each day from malnutrition-related causes. Prolonged malnutrition in children results in permanent stunting and cognitive impairment. Poverty and hunger deny opportunity to the world’s young people and breed extremism and instability that spills over borders. It is not surprising that the CIA has long tracked and analyzed global food supplies as an indicator of potential conflict.

Thomas Malthus famously warned two centuries ago that food production would not keep pace with population growth. Up to the present era, human ingenuity has prevented a global Malthusian disaster. He did not foresee how technology and innovation would dramatically increase food production. The
Green Revolution produced high yield seeds and improved agricultural techniques that resulted in vast gains in the aggregate amount of food.

The problem we face now is that advancements in agriculture technology have been lagging, even as a dangerous confluence of factors threatens to severely limit food production in some regions. This is occurring in the context of rapid population growth in the developing world. Between 1970 and 1990, global aggregate farm yield rose by an average of 2 percent each year. Since 1990, however, aggregate farm yield has risen by an annual average of less than one-and-a-half percent. If we fail to accelerate food production, many more people will die of hunger-related causes than are dying now. We also are likely to experience frequent food riots and perhaps warfare over food resources. We almost certainly will have to contend with mass migration and intensifying health issues stemming from malnutrition.

Here are the basic parameters of the problem:

First, the world’s population is projected to increase to about 9.8 billion people by 2050. Growing affluence in China, India, and elsewhere is increasing demand for resource-intensive meat and dairy products. If this trend toward richer diets continues, those 9.8 billion people may eat enough food to feed more than 13 billion people at today’s nutritional levels. Based on projections for population growth, rising incomes and more meat consumption, it is estimated that the world’s farmers will have to double their output by 2050.

Second, food security is closely tied to energy costs that will continue to be highly unpredictable. Farming is an energy intensive business. Crops have to be transported efficiently to market, and petroleum based fertilizers and pesticides are used in many agriculture systems. Future energy price spikes are inevitable, especially in the developing world. Although we are making progress on renewable energy and battery technology, at some point in the next few decades we may see declines in supply that will raise fossil fuel costs to unprecedented levels.

Third, water scarcity is projected to increase in coming decades in response to population growth, urbanization, and land use pressures. According to UNESCO, 1.8 billion people will live in areas with water scarcity by 2025. The upshot is that we can’t count on increasing food production through heavier applications of irrigation without incurring high environmental costs.

Fourth, these factors are converging at a time when global climate change will challenge farmers on every continent to deal with changing weather patterns, different agricultural pests, and new water conditions. These changes could cut food production in many parts of the globe – especially in the Southern Hemisphere. It is estimated that a 2 degree Celsius increase in global temperature would cut agricultural yields in Africa by as much as 35 percent. Thus, farmers around the world will be asked to meet the demands of global demographic expansion, even as they may be contending with a degrading agricultural environment that significantly depresses yields in some regions.
Given these conditions, world leaders must understand that over the long term, satisfying global demand for more and better food can be achieved only by increasing yields per acre. Increasing acreage under production will not come close to satisfying the growth in food demand and could have dire environmental consequences. Often this involves cutting down forests or plowing under grasslands, both of which have negative implications for climate change. We must create a deeper understanding of the challenges facing us and rally a global effort behind rapid improvements in agriculture productivity and food security.

The complexity of the problem demands that we have a plan that emphasizes efficiency and transparency and leverages our relationships with other countries, institutions, and donor groups. We should be focusing intently on what global agriculture should look like ten to twenty years from now and how we can get there. We must do a better job of applying research and science, breaking down trade barriers, facilitating the flow of agricultural knowledge, modernizing global regulatory institutions around scientific advances, and putting more meat on the bone of public-private partnerships. And we will not end chronic hunger without ensuring that women and other smallholders have greater access to technology, credit, extension services, land tenure rights, advanced seeds and other components that large-scale farmers take for granted.

I would like to share with you my observations on three political factors related to our efforts to ensure a safe and abundant food supply, because each of them represents a grave threat to our success. The first is resistance in some nations and among some political groups to the use of advanced biotechnology in global food production. Biotechnology, including genetically engineered seed, will be absolutely indispensable over the long run in feeding 10 billion people in the conditions of a changing climate.

Skeptics of GM technology -- even many who do not reject it outright -- often begin their critique by saying that biotechnology alone cannot solve the world’s food problems. That is true. But rejection of cutting edge biotechnology would be especially destructive to our quest for food security. It is likely to be essential to overcoming unexpected challenges -- such as increased drought, new pests, and other consequences of a changing climate.

Genetically modified crops have the potential to improve agriculture production in the poorest regions of the world. Yet many developing countries, especially in Africa, worry that if they adopt GM crops, they will not be able to export to markets in Europe. They also are deeply influenced by the direct advocacy of European government agencies and groups that are hostile to GMOs. The ironic result has been that many African nations have developed stifling, European-inspired regulations on GM technology, even as they struggle to ensure adequate food supplies.

Rather than encouraging African countries to avoid GMOs, we should be probing how promising GM technologies can be brought to bear more equitably and affordably in Africa. In the final analysis, all farmers should be able to choose the type of technology that best fits their purposes without having
their choices demonized or their production made unmarketable.

The second political condition that threatens our long-term response to global hunger is the willful rejection of scientific evaluations of climate change. Just as biotechnology exists as a positive “game-changer” that can dramatically alter the basic math of global food security in our favor, climate change sits on the opposite side of the ledger as a negative game-changer with the potential to undercut the basic assumptions upon which both global and regional agriculture function.

All of us understand the rancor that has developed in the climate change debate. The political argument over climate change has been between those who see it as an overblown liberal obsession or even a hoax, and those who see it as a grave environmental problem to be solved through sacrifice. I believe we need to see climate change, first, as a fundamental condition of global affairs. Whether some like it or not, most of the world has accepted the compelling and growing scientific proof supporting the contention that the earth is warming, at least in part due to man-made causes. This fact makes the President’s withdrawal from the Paris Climate Treaty a dead loss for U.S. prestige and leadership.

The global acceptance of climate change science is having a profound effect on the international economy. Already there is exploding demand for affordable sources of clean energy and the technologies necessary to store, move, and distribute that energy efficiently. These technologies are becoming less and less expensive and the industries and nations that perfect them will enjoy the potential for strong economic growth, cleaner environments, less expensive industrial and agricultural inputs, and potentially more equitable distribution of energy and food resources. They also will bring enormous benefits for national security and conflict prevention over the long run, if domestic energy generation is highly diversified and independent of energy imports from volatile regions of the world.

Without a doubt, American entrepreneurs have been and will continue to work on these technologies. But government policy is important to the process. If the official policy of the United States government focuses on de-emphasizing climate change rather than leading a technological revolution in energy resources and generation, the American economy will be a huge loser, just as it would have been had government policies inhibited development of the microchip or life-saving drugs.

If we care about feeding the world, we need to examine what practical steps should be taken to bolster food production in the context of climate projections. Just as the U.S. military has incorporated climate change into its planning, we must do the same.

The third political factor is the growing hostility toward free trade, especially within the Trump Administration. A reversal of the traditional U.S. leadership role in trade would have a huge negative impact on the global price of food, the ability of U.S. farmers to export, and the number of hungry people in the world.
In the contemporary context, global trade is unsettling to many Americans. But trade is essential to any economy and to global stability. It expands choices for consumers, holds down inflation, gives businesses the widest possible markets, stimulates innovation, and promotes economic growth. We also know that attempting to isolate a nation from trade competition is a self-defeating strategy that will hurt those at the bottom of the economic ladder before anyone else.

Trade barriers are especially destructive to agriculture because U.S. farm income is highly dependent on exports, and the affordability of food globally is enhanced when agricultural products can move efficiently and inexpensively between markets. The Trump Administration’s anti-trade actions, especially the U.S. withdrawal from the Trans Pacific Partnership and its anti-trade rhetoric, open the door for more protectionist policies worldwide.

Without sustained progress in improving yields and strengthening global agricultural networks, we will not keep up with the demand for food. The world will experience recurring price volatility and food shortages will contribute to political instability as witnessed by food riots and related events since 2008. Our diplomatic efforts to maintain peace will be far more difficult wherever food shortages contribute to extremism and conflict. Our hopes for economic development in poor countries will continually be frustrated if populations are unable to feed themselves.

But there is no shortage of good ideas about how we might improve the capacity of less developed areas of the world to grow more food. Any strategy that has a chance to succeed will employ a wide variety of techniques and reforms.

I believe that our nation’s continuing devotion to global food security is an essential component of our status as a moral nation. Moreover, my view of the importance of global food security to the United States is motivated not solely by the problems we can solve, but also by the economic and foreign policy opportunities available to us. We produce more abundantly than any other country, and we are on the cutting edge of research and farming techniques that could save hundreds of millions of people in the coming decades. Our farmers, agricultural businesses, NGOs, and research universities should be at the center of global efforts to meet burgeoning food demand. I believe that we should have a global food security program that is unrivaled in the world. It should be of a size and scope that, regardless of what other nations and peoples may think of us, they must acknowledge the United States’ altruistic role in eliminating hunger.

There is no good reason why more than one billion people should be food insecure or that the world should have to endure the social upheaval and risks of conflict that this insecurity causes. We know how to overcome hunger. We can bring America’s dedication to science, innovation, technology, and education together to lead an effort devoted to overcoming the obstacles to food security.