

AGRICULTURE'S ROLE IN COMBATING GLOBAL HUNGER

HEARING BEFORE THE COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY UNITED STATES SENATE

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AGRICULTURE'S ROLE IN COMBATING GLOBAL HUNGER

Wednesday, December 2, 2015

UNITED STATES SENATE,
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY,
Washington, DC

The Committee met, pursuant to notice, at 10:04 a.m., in room 328A, Russell Senate Office Building, Hon. Pat Roberts, Chairman of the Committee, presiding.

Present: Senators Roberts, Boozman, Perdue, Ernst, Tillis, Sasse, Grassley, Thune, Stabenow, Brown, Klobuchar, Gillibrand, Donnelly, Heitkamp, and Casey.

Chairman ROBERTS. Good morning. I call this meeting of the Senate Committee on Agriculture, Nutrition, and Forestry to order.

Prior to making my opening statement, I am going to yield to the distinguished Ranking Member, who has another meeting she must attend—something about tax extenders, as I recall. You do have my list.

Senator STABENOW. Yes, I have your list.

[Laughter.]

Chairman ROBERTS. So I yield to my distinguished friend and colleague.

STATEMENT OF HON. DEBBIE STABENOW, U.S. SENATOR FROM THE STATE OF MICHIGAN

Senator STABENOW. Well, thank you very much, Mr. Chairman. I hope to be coming back. I am looking forward, maybe, to the day of saying, "Beam me up, Scotty," so we can be two places at once, because this is a very, very important hearing, and I am so pleased to welcome Krysta Harden, our Deputy Secretary of Agriculture, who is doing such a phenomenal job. She had been a steadfast champion of America's farmers and families, and I want to thank you for leading our efforts to implement the 2014 farm bill. Just extraordinary what you and the Secretary have been able to do. We put a lot on your plate, and you have worked very, very hard and diligently to move things forward.

I also want to thank you very much for the excellent job that you are doing in highlighting the leadership and contributions that women are making in the agricultural economy, food economy, not only in our country but throughout the world.

Mr. Chairman, back in August of last year, 2014, Deputy Secretary Harden joined Senators Klobuchar, Heitkamp, Cantwell, Hirono, and myself on the first-ever all-women's Senate delegation trip to Africa. It was really an extraordinary trip. Our time in Afri-

ca strengthened my appreciation of our country's commitments to helping fight global hunger and food insecurity, as well as our efforts to help empower women who represent the majority of all farmers in Africa.

Additionally, Senators Leahy, Brown, and I, alongside other colleagues, had the opportunity a few years ago to see the McGovern-Dole School Feeding Programs in action when we visited Haiti after its devastating earthquake. This program was providing children, and is still today, with their only meal of the day, and it sends a powerful message to Haitian families about our American values.

Chairman ROBERTS. Would the distinguished Senator just yield for a point?

Senator STABENOW. I would gladly yield.

Chairman ROBERTS. In Kansas, we refer to that as the "Dole-McGovern program."

[Laughter.]

Senator STABENOW. I should have known that, Mr. Chairman.

Chairman ROBERTS. Please proceed.

Senator STABENOW. Well, we are very, very proud to be bipartisan.

Chairman ROBERTS. Yes, ma'am.

Senator STABENOW. The McGovern-Dole/Dole-McGovern program. It really is very powerful when you see it in action, Mr. Chairman, as you know.

Tragically, today nearly 800 million people across the world are affected by hunger and poverty. Compounded by a growing population, climate change, strains on our natural resources, we face a significant challenge of how best to feed and sustain a growing world.

This has also become a significant global security issue, as we know. As we look at the crises around the world today, whether it is a prolonged drought in East Africa or a severe flooding in Bangladesh, our emergency food aid programs are vital to so many families.

It is in those moments of crisis that the United States has a proud legacy of extending a compassionate hand. The Food for Peace Program has become one of the most extraordinary partnerships to help alleviate hunger and suffering around the world. In fact, the story of the Food for Peace Program has been a story of partnerships throughout its history—partnerships between American farmers and those in need, the U.S. Government and the on-the-ground volunteer organizations, and partnerships between Democrats and Republicans in Congress.

We are proud of this record, and at the same time, we know that with new challenges come new responsibilities to make our international food programs even more effective.

During the farm bill, Senator Roberts and I brought together a broad coalition to reform food aid while honoring the traditional partnerships that keep the program strong. The farm bill made permanent the Local and Regional Procurement Program and gave additional flexibility for Food for Peace to address hunger wherever and whenever it exists.

Taken together, these changes represent the most significant reforms to our food aid programs in more than 50 years. Our long-term goal, however, should be to reduce the need for emergency food aid by focusing on achieving global food security through advancements in nutrition and the long-term productivity of agriculture.

New agricultural technologies provide a platform for world communities to create stable food sources for families as well as economic independence. We must invest in those technologies, in people, and in the infrastructure both here and abroad that support the growth of sustainable agricultural production. In doing so, we also invest in our own security.

Achieving global food security is not only the right thing to do, it is the smart thing to do. A food-secure world is a safer and more secure world. Freedom from hunger is a basic right for all humans, and those of us in agriculture have a commitment to upholding that covenant.

Mr. Chairman, again, I thank you for holding this important hearing, and I look forward to working with you and all the members as we continue to strengthen these effective programs. Thank you for allowing me to have the opportunity to speak here and then step away for a few minutes. Thank you.

STATEMENT OF HON. PAT ROBERTS, U.S. SENATOR FROM THE STATE OF KANSAS, CHAIRMAN, U.S. COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

Chairman ROBERTS. I will proceed with my opening statement and wish you good luck in your endeavors—or our endeavors.

Senator STABENOW. Yes.

Chairman ROBERTS. We hope that you can make it back as soon as possible.

As the distinguished Ranking Member has pointed out, one in nine people today, 800 million worldwide, will go to bed hungry. Around the world, impoverished regions are facing increasing challenges in trying to feed their people, from political unrest, social conflict like what we face in places like Yemen or Syria, to weather-driven crises with what we currently see in East Africa.

As Chairman of this Committee and former Chairman of the Senate Intelligence Committee, I can assure you there is no issue in global security more timely or more relevant than food security. Show me a nation that cannot feed itself, and I will show you a nation that is in chaos.

American farmers and ranchers have a deep understanding of the need to feed a troubled and hungry world. Back in 1953, a young Kansas farmer by the name of Peter O'Brien had the idea that U.S. farmers could give aid to other countries in the form of our commodities. He made the suggestion at a countywide Farm Bureau meeting, and eventually a resolution was accepted by both the Kansas Farm Bureau and the American Farm Bureau Federation.

The next year, U.S. Senator from Kansas Andy Schoeppel, with the help of another Senator from Kansas, Frank Carlson, my former boss, sponsored a bill that was ultimately signed into law by yet another native son of Kansas, Dwight David Eisenhower. To

this day, the Food for Peace Program, commonly referred to as “P.L. 480,” provides aid to nearly every country in the world.

Now, while P.L. 480 is an enormous instrument in fighting hunger, it is just one tool of many, one of many in the toolbox of assistance. Since 1985, the Department of Agriculture has been using the Food for Progress Program to help developing countries advance their own agricultural assistance, which would naturally benefit our farmers and ranchers and all of agriculture in this country. By increasing productivity and expanding market and trade opportunities, countries are better able to grow their economies and respond to any regional crisis. According to the USDA, last year the Food for Progress Program alone generated nearly 10,000 jobs and provided training for over 220,000 producers.

Then we have the McGovern-Dole School Feeding Program, or the Dole-McGovern Program. Through that program, the Department and partners have the ability not only to provide a child with a nutritious meal for the day, but offer the opportunity to receive an education. Yes, it is “female-friendly,” a new term that I had discovered in reading testimony for this hearing. With two granddaughters and two live-wire daughters and a very active wife, I would recommend to all members, all male members of this Committee, to adopt that term, “female-friendly.” That works pretty good.

Now, hard red winter wheat is currently traveling from fields in Kansas to Nicaragua in bags like the one that is shown over here to my right, right behind these very professional staff members who are trying to duck as I am pointing to the bag.

[Laughter.]

Chairman ROBERTS. At any rate, that is to be used as part of a school feeding program to boost nutrition among preschool and primary school children between the ages of 6 and 14.

Under this Committee’s leadership, we continued to help the mission of combating global hunger by making significant, realistic, and bipartisan reforms to food aid programs in the 2014 farm bill, adding flexibility, transparency, and efficiency. The United States has proven that American agriculture plays a pivotal role in addressing food shortfalls around the world, and we must continue to consider new and innovative ways to get ahead of the growing population and production challenges. We really have no other alternative.

International trade and the role played by the United States will undeniably play a critical role in getting food to those who need it the most. It is not enough, however, to improve the yields of small holder farmers if there is not a market where it can be sold, a silo where it can be stored, or a road upon which it can be transported.

The Department has invaluable expertise in developing agricultural policy and has the capability to offer important technical assistance to nations establishing critically needed infrastructure. I myself personally think that among all the feeding programs we have in the Department, we could do more and certainly share information to do a more coordinated effort.

The private sector has expensive knowledge in the development of the necessary value chains and new technologies that can address country-specific challenges. Our friends at the Department,

along with USAID, our land grant universities, our commodity organizations, our NGOs, our PVOs, have a strong history of working together to promote an efficient and affordable food supply. I am very proud of the critical role our agriculture has played and will continue to play in combating global hunger. Farmers and ranchers in Kansas and all across America are committed to doing our part to feed a troubled and hungry world.

I ask unanimous consent to enter statements for the record on behalf of industry stakeholders. I look forward to hearing from our witnesses.

[The following information can be found on page 104 in the appendix.]

Chairman ROBERTS. With that, we have recognized Senator Stabenow, so we will go ahead with our first panelist, our Deputy Secretary of Agriculture, Krysta Harden. The Committee extends a warm welcome to you this morning, Madam Secretary, in what I believe is your first time before our Committee since your confirmation hearing. Welcome back. Thank you for joining us to talk about an issue that I know is very close to your heart.

Deputy Secretary Harden returned just weeks ago from a trade mission to Sub-Saharan Africa, and I know you will share some of your findings.

The Deputy Secretary hails from Camilla, Georgia, where she began her roots in agriculture, coming from a line of three generations of southwest Georgia farmers. Ms. Harden has held leadership positions at the Department as Assistant Secretary for Congressional Relations and Chief of Staff to the Secretary, at the National Association of Conservation Districts as the chief executive officer, and with the American Soybean Association as senior vice president of Gordley Associates. She received her B.A. in journalism from the University of Georgia.

I have a note down here from staff saying that it is imperative that I say, "Go, Dogs."

[Laughter.]

Ms. HARDEN. Thank you for not saying the year I graduated. I appreciate that.

Chairman ROBERTS. Right. Welcome back, Deputy Secretary, and I look forward to your testimony. You are recognized. Thank you so much.

STATEMENT OF THE HONORABLE KRYSTA HARDEN, DEPUTY SECRETARY, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, DC

Ms. HARDEN. Thank you, Mr. Chairman, and I thank the members that are here. My home state senator, thank you very much for being here.

The last time I was here for my confirmation hearing as Deputy in August of 2013, it seems like a long time ago and then sometimes like yesterday. But the Committee has always been very gracious and very generous to me, and I appreciate that very much.

Thank you for going through my background. I think it is very important for this type of hearing to recognize where I came from, and it is from production agriculture. My parents are still on the farm, and my entire career I have thought about trade and mar-

kets that have been the focus of my very fun and successful career in this town and working in agriculture.

But that has changed, and I hope, Mr. Chairman, that it is okay if I just talk. I have a written statement that all of you have.

Chairman ROBERTS. Certainly.

Ms. HARDEN. But instead of reading something—you can all read. Instead of doing that, I am just going to talk, and I will try to look at these lights, but I get wound up and long-winded when I talk about this, so I will try to be as brief as I can and hope the Committee will indulge me.

When I joined the Administration in 2009, President Obama made his first farm policy priority global food security, and I recognized that I had some learning to do. I was aware of the issues in the abstract. I thought about them. I was certainly aware of the tools that USDA had from my time with the Soybean Association. But it was not an area that I knew very well or had delved into or really felt a connection to. I, like a lot of folks, need to learn firsthand. Getting briefed, going to meetings, listening to others can only go so far. For me, it really is about getting on the ground. Talking to our staff on the ground, talking to NGOs, talking with the folks that we are reaching out to, that we are interacting with, and hopefully helping is the best way for me to learn. I just dove right in as Deputy. With the Secretary's blessing and encouragement and with our team at USDA and partners across the Federal family, I was able to lead a trade mission to Sub-Saharan Africa after I was Deputy just for a month. But I also went to Mozambique to see our work on the ground there.

But one of the turning points for me was this spring when I really kind of got it, when the light bulbs went off for me, and I hope you will indulge me in this story.

It was in Honduras. I usually want to go to Africa. My heart is kind of there, but I went to Honduras and Guatemala in Central America and went with our Ambassador 4 hours from the capital city. I grew up on a dirt road, so I know about dirt roads. But I had never seen one like this. We drove almost to El Salvador, I think, to this tiny village with this wonderful little elementary school. We were greeted by kids standing out all lined up singing a song—I cannot tell you what it was—waving American flags, cheering, so happy we were there. It was very, very moving. You could not ask for a grander—it was like the red carpet on Oscar night. It was just that kind of moving situation.

The Ambassador and I were able to serve lunch to third and fourth graders, little kids, like kids anywhere except they brought their own little bowls from home. The mothers fix the food every day, the porridge for them, and it was a soy-corn mix that was provided by the U.S. This was—I am going to get this right—a Dole-McGovern project. I should have said that from the beginning. These kids were just so happy and so normal and just delighted we were there, looked so healthy, so good.

Some of the kids took us to a garden that they have on campus that the parents work with them in, and they are supplementing their diet with fruits and vegetables that we know is important, and your changes in the farm bill with LRP helped so that these

kids actually had it on campus and did not have to have it from the community.

Dads were there putting in latrines so the girls would stay in school. They need separate latrines. Everything you would think, even this remote area, you could see the difference that we were making. I was just feeling great.

As we were winding down the visit, we went to the kindergarten. Here are little kids. I know little kids. They are squirmy at 5. They are wiggly, they are active. These kids were not. Their hair was dull, their skin was dull, their eyes were lifeless. They were sweet, they were kind, and you could sit down at the little tables and talk to them. But they did not have the benefit of the nutrition that the older kids have had. The stark reality of what our support and our help and the generosity of American farmers and American taxpayers in that school, seeing the difference in someone who has not had the ability to have a balanced diet, not to have good nutrition, was so amazing to me. I was not prompted about this. No one said, "You are going to see a big difference. Look for this." It just was so amazing to see the difference. This one little girl's face I will never forget. I hope to see her after she has had a couple years of our rations.

The other thing that I will never forget about this school was a sixth grader, a young girl, stood up and read to us a little—kind of a poem, something to me and the Ambassador about her learning, and thanking us for being there, just a bright, a very talented young woman. Her question to us was, "Please help me go to high school. Help me continue my education."

I think about kids in our country, I think about kids in other places who take so much for granted, who do not want to get up in the morning, who complain about homework, who do not want to go to school. Here is a young woman who knows the only way she is likely to be able to go is if we help. It is just a memory, sir, that I will never forget. It is memories that make me know that our investments, that our caring, our commitment, what we do, how we use the tools and the flexibilities that Congress has given us at USDA makes such a difference in lives, in people. It is not about numbers. It is not about dollars. It is about giving hope and opportunity and a chance. They do not want handouts. They want partners. I think that is what USDA does.

I know that red light has been on, and I apologize, but I just thank the Committee for your work, for the additional reforms and changes. LRP is going to offer yet another tool for us. I appreciate the commitment this Committee has shown to this agenda, and you personally, sir. I know that the Dole-McGovern Program is at USDA I believe from one of your efforts a long time ago, to make sure that it stayed at the Department. It was a wise decision.

Thank you, and I encourage the members of the Committee, when you travel—and I have traveled with a couple of you, and we saw this firsthand. When you are out, I know you are busy, you have a lot of demands on your time and a lot of projects to see. I encourage you to work with USDA to get out to a school, and you will see firsthand the difference your commitment and your investment makes in someone's life.

Thank you, sir. I look forward to further questions and discussion.

[The prepared statement of Ms. Harden can be found on page 45 in the appendix.]

Chairman ROBERTS. Well, thank you for your personal testimony and your personal story, if it can be described as that. That is always helpful to put it in those terms, and I just have a couple of questions here for you.

One of the most powerful tools that we have in our arsenal to combat hunger is the research being done at and through the Department of Agriculture, partnerships with entities such as our land grant universities. I am very proud of my university, my alma mater, Kansas State, one of the leading partners in the Feed the Future research effort, hosting four innovation labs that work in areas like post-harvest loss, the development of heat-resistant and high-yielding crops.

My question would be: How do we take advantage of the long history and extensive knowledge we have of research, extension, and public-private partnerships, particularly in areas that you have described, in areas of the world that lack that structure? How do we put that together?

Ms. HARDEN. Thank you, sir. One thing I have found when I have traveled is—and I am sure you have witnessed this as well—extension and our land grant system are the envy of the world. We have such great partnerships and the partnership USDA has with both is very valid. I do not go anywhere that I do not see logos from our favorite land grants, and Kansas State certainly being one. Working on the ground with our land grants, having students go learn, having research done and research shared with our partners around the world I think is one of the key benefits of our system and being able to share that.

The Cochran and Borlaug, both of those programs I think are very key to the exchange of information as well, and you remember that the Committee has supported both of these for many, many years and making sure that researchers and scientists and other leaders from developing countries come to the U.S. and train at our land grants, learn about our systems, learn how to collect data, learn how to share that information with their producers.

So I think that we use our tools in as many ways as we can, the flexibilities that we have in building these partnerships. I am reminded of a processing plant in Guatemala that I visited. They had graduated out of our programs, our Food for Progress programs, but were still very much viable, exporting snow peas and beans the day I was there to the U.K., the workers walking around with caps on their heads, I think it was Texas A&M and maybe Arizona State just happened to be at that facility. But the lasting deep relationship that many people in these countries form with our universities I think is part of the residual benefit, the connections that they have. I think that it is a lasting commitment, and we see the results of that in the work on the ground, and I commend our land grant universities for their continued commitment to this agenda as well.

Chairman ROBERTS. We have a lot of resources and capabilities at the USDA. What resources and capabilities do you think would

enable us to better and effectively deliver food aid under programs such as McGovern-Dole, strengthen the agricultural development in other countries through Food for Progress? What skills and programs are underutilized? Just to add another question there so we can both share the red light here, are there things that you could be doing or should be doing that are currently limited by Federal rules and regulations?

Ms. HARDEN. Well, I will first answer the first part of that, and thinking about LRP, I am very hopeful we get a budget next week or very soon, and we will have for the first time a full program in LRP and we can actually utilize and complement, the McGovern-Dole/Dole-McGovern program by being able to buy locally, to have a more balanced diet for kids in that program. I think we will see additional results if we are able to fully utilize that program, which is \$20 million in our budget proposal. If we are funded, that is three or four different projects somewhere around the world where we can see the benefits. I think that is definitely very important.

I think the beauty of what we have at USDA in our programs is flexibility, to be able to adapt to the need and the desire and the demands and the needs of the communities that we are working in and being able to leverage our dollars. We look for projects where there is going to be buy-in from not only the national government but the local government, to be able to cut through the red tape, to be able to have lasting programs and get results, and also to use our NGOs, who are on the ground with so many resources.

So I think it is the partnerships that we build at USDA with all those that I just outlined, very much our land grants, I should mention that again as well, and being able to use the flexibilities that we have.

Chairman ROBERTS. My time has expired. I apologize to my colleagues. You did not mention any Federal rules or regulations that hamper you. If there are none, you are the only one in Washington that—

[Laughter.]

Ms. HARDEN. I guess I was just trying to be diplomatic, sir.

Chairman ROBERTS. You can submit that for the record, if you would like.

Ms. HARDEN. I will do that. That is a good idea.

Chairman ROBERTS. Okay. I appreciate that.

Ms. HARDEN. Thank you.

[The following information can be found on page 64 in the appendix.]

Chairman ROBERTS. Senator Perdue.

Senator PERDUE. Well, thank you, Mr. Chairman, and I am really proud to have somebody from my home State with roots at the—I know what the dirt road looks like down in Camilla, Georgia.

I have a little story, too. I saw the results of what you do in Haiti last year. After the election, my wife and I went down and spent a weekend at an orphanage down there, and we saw that one meal a day, and it really does make a difference. But I have three questions I would love to give you. I am going to just lay them out first and let you answer these at your discretion.

Ms. HARDEN. Certainly.

Senator PERDUE. One is this technology transfer. As you mentioned in your testimony, our universities, our land grant universities, as well as companies, the technology that we have developed in agriculture over the last 30 years is phenomenal. Our productivity has gone up dramatically. I have a very good friend who is CEO of Pioneer Seed Company, part of DuPont, and I look at corn just as an example. Productivity in corn since I was a kid, harvesting corn on our farm, I mean, it is just incredible. That only enhances our ability to help the rest of the world. So this technology transfer is one question. Can you speak to that?

Second is the procurement. LRP you mentioned a couple times, but can you mention how important that flexibility is long term? I want to remind the Committee for the record that it is important that we work on technology transfer, because honestly—and I say this with all due respect—40 percent of what we spent last year as a Federal Government, including every one of our philanthropy programs, 40 percent of those programs, Mr. Chairman, was borrowed. That means these programs are in great jeopardy, and we cannot let anything happen to these programs. I know the need out there.

The third area is waste. You mentioned in your written testimony 30 percent or so of the world's food production is waste.

Can you just speak to those three briefly for us?

Ms. HARDEN. I certainly can, sir. Thank you. They are all very valid and good questions, and, again, it is quite an honor to be with my home state senator always. I am so glad we always have a member from Georgia on the Ag Committee. It is nice to have two pictures up here, which we need to keep having more.

Tech transfer, Secretary Vilsack often says that science has got to be shared, and technology has to be shared. It is something I think USDA has been a leader in around the world with our partners, looking at the great research and the science and the technology that we do have and sharing with our partners who do not.

I was reminded of a story of how weather is just such a huge thing, weather predictions, for farmers. I mean, that is the first thing my Daddy asks, and it is the last thing he does before going to bed, is, "What is the weather?" so you know how to make decisions. He even asks me about weather here. I do not know why, but that is important to him. That is always the first question. Thinking about a producer in a remote area that does not get a weather report, has absolutely no idea. They do not know that the storm is coming. They do not know not to harvest and put maize out to dry and the weather is going to come. They do not even have the ability to know.

So how do we communicate better, how do we share that kind of data on some of the very basic fundamental issues, not even the more complicated that you are addressing, I think is something that USDA wants to be and has been a leader on and will continue to focus on with this Committee's help.

For LRP, long term I think it is the same relationship we see in our country in some ways with Farm to School, buy-in from a local community, a connection with that school, ownership of what is happening there, relationships, a local group of farmers who can help feed the kids in their school, whether they have kids there or

not. Building those ties I think is very key. Also just the balanced diet that the kids will get, even if they are getting our porridge, our rations from the U.S., just like kids here, they need more vegetables, and being able to make that connection. But it is not just nutrition. It is also the buy-in and the commitment from that community who wants that school to stay open, they want their kids going there, they have a connection there. It is a market for them. It is a way to provide the sense of community and investment in education for all kids, boys and girls.

Food waste, that could be a whole hearing on food waste, and the Committee maybe should do that at some point. Thirty percent is lost. In our country, it is more at the institutional level. At the personal level, folks like me who go to the farmers' market, I need three apples. I buy nine because I want to help that farmer, and then I do not eat them. I buy all this wonderful produce, and I swear to my husband every night, "We are going to eat at home. I am going to cook, or you are going to cook." Then we go out.

So a lot of us in the U.S. make those kind of decisions, but around the world it is post harvest, and it is some of the issues I have talked about, with not knowing weather, not being able to predict weather, not being able to gather crops, not having the tools to do so, the equipment to do so, the people to do so. Sometimes it can be a variety of things. But in the U.S., we have a pledge to cut food waste in half in the U.S. by 2015, and we are going to continue to work with the rest of the world. I was able to lead a discussion at the UN Conference this fall on these very issues with all of our partners around the world. How do we address these issues? We are going to have 9 billion plus people to feed by 2050. We need to be looking at all these tools, and food waste is one of them.

Senator PERDUE. Thank you, Mr. Chairman.

Chairman ROBERTS. Senator Heitkamp.

Senator HEITKAMP. Thank you, Mr. Chairman, and thank you, Deputy Secretary, for such a moving and appropriate opening statement. I think we do a lot especially in agriculture and alphabet soup, whether we call it Dole-McGovern or, USAID or USDA or this program and that program, we certainly saw a lot of them—World Food Program—when we are looking internationally. But the reality is that for those of us who have been to these places, especially rural communities in countries like El Salvador and countries like Ethiopia, we see the absolute critical need to engage. That engagement is not just about humanitarian interest. It is in our national security interest. We are seeing, again, because of the disruption of security in El Salvador, we are seeing a surge again at the border of unaccompanied minors, a lot of those children who are most at risk. I have been to El Salvador, Honduras, and Guatemala in the last probably 4 or 5 months and have seen what that migration from rural areas, for lack of ability to make a living, to urban areas, the disruption, the social disruption that that has created and what has happened in terms of risk.

So I want to talk not just about these programs but talk about the value of these programs in getting to those communities where there you can start talking about soil science, you can start talking about co-ops, you can start talking about storage of crops, maybe

even get a little electricity so that they can download weather reports. I mean, there are a whole lot of things that we will never be able to feed the world from relief programs.

I would like you to just speak to how this gives you an entree into those communities and what advice you would give us as we move through, I think, this discussion about food security and making sure that committees like the Ag Committee remain in charge of this distribution, because at the end of the day what we are trying to do is create more opportunity globally for farmers.

Ms. HARDEN. Thank you, Senator. You and I have talked about these issues many times, and I know we share a passion for them, and so it is great to be with you today.

A lot of things you hit on are so true. I think we all know that it is much better if kids are listening to a teacher instead of their empty stomach growling, and that is what our programs are able to do, and it does build stronger communities, it offers jobs, when we are in a location and can actually provide opportunity for the young people to be educated and to help their families, help their communities.

So I have seen the benefits of our programs and our work on the ground, and I hope that this Committee continues to provide us the flexibilities like with LRP and other reforms that give us more tools to get to work with folks.

As I said earlier, people do not want a handout. They want a partner. I think that is what we are at USDA.

I think that we relate so well to folks in rural communities. When I am on the ground, it is like rural communities here. It is so fun to sit and talk with a group of farmers. I always talk to women farmers, as you know, but men and women farmers relate to each other. You could be anywhere, except for some language barriers sometimes, it is anywhere. They are worried about weather. They are worried about what is happening on their operations. They are worried about their families. Farmers and ranchers are the same at the heart level. I do believe that. We have so many tools here that we can share, and I think we need to do that.

Senator HEITKAMP. We have a lot of really great partners in the philanthropic world—Howard Buffett, the Gates Foundation very involved, we saw their work in terms of doing extension. But one of the things—and I had a chance to just spend time with Mike Johanns before he left, who I have just such tremendous respect for, and I said, doing international work, what is the one priority that you think we should exercise? He said, building out co-ops and that extension. Extension and co-ops have really—I mean, they are the bedrock of what we have been able to do in American agriculture.

How can we do a better job assisting in building out, farmer-to-farmer relationships internationally and then obviously, extension, which is critically needed?

Ms. HARDEN. I think a couple of things, and I have mentioned some of them already with our Cochran and Borlaug exchanges. I think having folks come from other countries, come to the U.S. to understand how we do that, how things are set up to be able to take that back home and do it working with folks, there is no doubt extension and our land grant systems are the envy of the world,

and we probably take them for granted. But being able to help do that, and co-ops as well, and for women in particular, I think it is very helpful. These are small farm holders. They are not large, so you do not need a huge tractor. You need a small machine or tool that you can actually share and work together. I saw a great co-op, milk collection, in Rwanda this summer where the milk is delivered sometimes by hand and by bicycle, a can strapped to the back of a bicycle, or maybe a little motor scooter. This is, a couple of cows, but it is delivered every day, and these farmers—many of them are women—are bringing their milk there together, and it is pasteurized and provided for the local community.

So there are small co-ops. It is a different concept. It is teaching and explaining and gathering information and sharing it with many of the farmers in other countries. We just take it for granted. We understand how working together might make sense. We have to help teach and guide and show them how this can be done.

Senator HEITKAMP. Thank you, Mr. Chairman.

Chairman ROBERTS. Senator Klobuchar.

Senator KLOBUCHAR. Well, thank you very much. Deputy Secretary, I want to thank you for your incredible work, and last year, Senator Heitkamp and myself and Senator Stabenow and Senator Hirono and Senator Cantwell had the opportunity to travel with you to Africa on the first-ever women Senators trip. We would have invited you, Mr. Chairman, but it did not work. Glass ceiling.

But I wanted to commend you for your work not only on that trip, but just how hard you work in terms of making not only the words sound so meaningful at this hearing, but also actually taking action. There we saw on that trip in Senegal, Tanzania, and Ethiopia some of the partnerships going on with companies from my State like General Mills and Cargill in terms of getting more nutritious food, like at Faffa Baby Food, a place I think the President later visited.

Could you talk about how we can build on this public-private partnership in terms of making sure that we increase the effectiveness of our own Government programs?

Ms. HARDEN. I think we have to. There is absolutely no way that we can do it by ourselves in the Federal family, and we should not be, frankly. We need the investment and the buy-in and the commitment from other partners, and we do have that in the private sector. I remember the incidents with the food as well. There is fortification of products that are done. I was just in Ghana recently, as the Chairman mentioned, and went to a facility that Hershey from Pennsylvania is actually supporting with peanuts. Not coming from Georgia, that was the only kind of downside about this project, but they were actually making a fortified supplement, a nutritional supplement for kids, an investment working with USDA, working with private entities, working with our land grants. It is all about partnerships, and we continue to look for opportunities. That way we can leverage the resources that we do have to get them to more places, to more people, and to make a bigger difference.

Senator KLOBUCHAR. Very good. The other aspect of that trip is we focused a lot on women in agriculture, and then closer to home, I know you visited Minnesota and North Dakota. I have a great

photo of the three of us and a rather large piece of agricultural equipment. We know that women account for more than 60 percent of global food production. They are the backbone of so many of our rural economies in the developing world, yet they face challenges of land rights, access to credit. So they are basically doing the work, but do not always have the ownership or get the amount of money that they should for their work.

I know that the Food and Agriculture Organization of the United Nations estimates that if women had access to the same resources as men, their farms would increase yields by 20 to 30 percent. That alone would alleviate hunger for 100 to 150 million people.

In what ways do our current food assistance programs focus on empowering women as part of the solution to world hunger?

Ms. HARDEN. I could talk the whole day about women and the work of women and the dedicated, hard work that they do around the world, in our country as well as in developing countries even more so. They are also responsible for raising their kids, taking care of their families. I think of a woman that I met in Ethiopia at a small dairy, and she was one of the women who actually had men working for her, very unusual, with seven men, including her husband, and she had a methane digester that heated her cook stove in her house. She could not read or write, and so everything that she learned through this program was by demonstration.

So many women, they are ambitious. They want to do more. Ritu Sharma is quoted as saying that if you teach a woman to fish or farm, that she will not only feed her family but her community. I believe that is exactly right. The numbers that you read are so disturbing to me personally, to think about that women do not have access to credit. Maybe 10 percent of that 50 or 60 percent that are farming, and they are producing about 80 percent of the food, many of them cannot own land or transfer land. I think about my own family. If anybody told me that my sister and I could not inherit our farm, I cannot imagine how that must feel to young women, to daughters, to granddaughters, to nieces, to think that that would not be available.

Senator KLOBUCHAR. So do you think that with the aid that we do give we could use that as leverage to get these countries to change their laws?

Ms. HARDEN. I think there are a couple of things we do. We make sure girls get educated, and we focus our feeding programs on girls. We highlight girls. Many of them not only come to school because they can get a meal that day, but there are bags of beans or rice that they can take home. So it is an incentive for the entire family to make sure that girl, that daughter, those daughters are educated. We can make sure the girls feel comfortable going to school, that they have separate latrines. There are things that we can do to help educate so the decisions come—they become the leaders, they become from the ground up.

One of the most powerful, effective Ministers of Agriculture on the continent of Africa in my personal opinion is a woman in Rwanda, and she is just a dynamo. She participated in the Borlaug program at Michigan State. I am sorry that Senator Stabenow did not hear me say that. She is back home, and when you talk to her about issues about women farmers and women landownership, she

was educated, and she came here, and she understands the value and the need. We have to empower women. We have to keep the pressure on.

I remember when we met with the Prime Minister in Ethiopia, and we raised the question to him and he said, "Even though it may be not the law, as long as I am Prime Minister, it is going to be this way." Well, what about when you are not? That is the questions we have to continue to answer.

So I think it is from the top down and asking the questions, encouraging the dialogue at your level, at my level, the Secretary's level. But it is also making sure that girls are educated and we are helping to do that with the programs that we have on the ground, and then working with women farmers, business owners. I had a roundtable in Ghana with 40 producers, small business owners, researchers—all women—talking about the barriers of export and how they get involved. We can help and empower them often by being there and using all of our tools and our flexibilities.

I know I am out of time. I told you I could get wound up on this one, so I am sorry.

Senator KLOBUCHAR. Very good. Thank you. Well, I am glad you have shared that with all of us, so it was very meaningful, and I hope—of course, women are not the only ones that can raise the issue. Everyone can raise this issue.

Ms. HARDEN. Exactly right.

Senator KLOBUCHAR. Because I think it is one of the keys to moving forward here internationally. Thank you.

Ms. HARDEN. Thank you.

Chairman ROBERTS. Thank you, Senator Klobuchar, and thank you for targeting a most important topic. Madam Secretary, thank you for your passion.

Senator BOOZMAN?

Senator BOOZMAN. Thank you, Mr. Chair, and I thank Senator Klobuchar for her question. It is interesting, and you know better than anybody, but the instance of grinding poverty has decreased substantially in the last 10 years, and a lot of it is due to the fact that, through our hard work and others' hard work, we have a situation where people can get out and start earning a living by breaking down in Africa just the barriers of the borders, all of those kind of things. The good news is it seems like that, the various countries involved see that they are having success, and it is kind of snowballing a little bit.

But I think that anything we can do along with the food aid, as the Senator is alluding to, to help that process, particularly with women, them being such the fabric of the society in these different countries, is really very beneficial. So I would just echo what she brought up.

We continue to be the most generous Nation on the Earth as far as providing food aid. Since World War II, I think we have literally saved millions of people from malnourishment and things. We can be so very, very proud of that. As the co-chair of the Hunger Caucus and then somebody that represents lots of farmers in Arkansas, like I say, we are very, very proud of all that we have done.

Can you talk a little bit about the USDA Food Aid Program and the impact it is having on the world in these very difficult situations where people desperately need some help?

Ms. HARDEN. Yes, thank you, sir. We are very fortunate, I think, at USDA to have so many tools that we can use. As I mentioned earlier in the very beginning of my statement, being able to adapt the tools that we have, have the flexibilities to create partnerships, to adapt to the needs and concerns, to build the relationships on the ground, to work with the private sector, NGOs, and other partners from the U.S., I think that is what is most effective for us. Also having buy-in from the national government where we are, so when we are not just there, we pull out, the program is graduated and it goes away. What have we accomplished? We have helped for a few years, but we do not have that lasting residual benefit.

So I think we are very careful and try to be at USDA to make sure we have not only buy-in at the national level when we have projects, but also at the local level. I mentioned the school on Honduras where the entire community embraced that little elementary school. LRP is going to give us even more opportunities. I was talking earlier about having the local procurement of vegetables and maybe fruits for a school so the community sees the benefit of having kids in that school. It is a market for them. That helps build infrastructure. It helps with storage. It helps with all the things that are needed to make sure that the farmers stay successful. It just helps build an infrastructure.

I also would just add that our trade does the same as well.

Senator BOOZMAN. I was going to ask about that. I know you were in Sub-Saharan Africa promoting—

Ms. HARDEN. Yes, sir, with a lot of Arkansans.

Senator BOOZMAN. Well, again, promoting—we talked about the importance of jobs in solving these, but talk a little bit about trade in regard to that.

Ms. HARDEN. Yes, sir. I just mentioned the trip to Ghana, as the Chairman mentioned in the very beginning. I led a trade mission and included—also I was very happy to see a number of States represented, including Kansas, sir, as well had a representative from the State Department of Agriculture. We were looking at ports. We were looking at refrigeration. We were looking at all the elements in the chain that are needed to have trade. Trade is two-way. We were looking at markets there. There is a growing consumer group in western Africa, actually in Ghana, but there were representatives and buyers probably from five or six or ten other countries in that area wanting our goods, really wanting the quality, the consistency that you get from American product, but the infrastructure has to be there. We spent a lot of time at the port, looking at where the goods would come in. Is there enough refrigeration? Are there enough checks and balances there to make sure folks are going to get paid? There are certain kind of issues that you have to work through.

But as we worked through being able to have the two-way trade, it builds infrastructure that the local producers can use as well, and I think that is the residual benefit.

Senator BOOZMAN. Right. One last thing. You talked about in your testimony the worldwide demand for food is going to increase

60 percent by 2050, really being able to feed 9, 10 billion people. Can you talk about the importance of agricultural research in meeting that demand?

Ms. HARDEN. It is so understated, sir. I do not think the rest of the public understands the value—they do not even understand the results of the research that we have gotten, that they benefit from every day, that not only our farmers and ranchers benefit from but consumers do. So I think we still need to continue to have the investments in ag research. We very much appreciate the foundation that was created in the last farm bill by this Committee. I think that is one step in making sure that we can leverage private dollars with public dollars, but we certainly need to be focusing on many of these key issues, and working with our land grant institutions as well. I think it will be the combination of the Federal Government as well as land grants and the private sector.

Senator BOOZMAN. Thank you, Mr. Chairman.

Chairman ROBERTS. Senator Ernst. You are recognized, Colonel.

Senator ERNST. Thank you, Mr. Chair. I appreciate that. Thank you very much, Secretary Harden, for being here today.

When the USDA and other agencies that are involved in that whole-of-government approach to food aid programs determine where to focus their efforts, is the political stability of the country or the region that you are looking at, is that a factor when making those determinations?

Ms. HARDEN. It certainly has to be for USDA, and that is who I will speak to. When we are looking at the best places to make investments and build these partnerships, you have got to have a partner. You have got to have a willing and able partner to make sure that there is a lasting commitment, as I was talking with the Senator from Arkansas just a moment ago, making sure that there is buy-in, there is commitment. We obviously want to make sure that our personnel are safe, so you want to go to places that are stable, but also where there is a commitment from the other governments, whether it is at the national level and the local level, to make sure there is buy-in, so it is not just a drop in the bucket, that it is leveraged, that it is a lasting commitment, and so you do need, again, a willing partner from the host country.

Senator ERNST. Then looking at those willing partners, then, do you look at what that national security risk might be to the United States to determine would that be a willing partner? Is it worth a long-term investment to make sure that they are not—as we look at the turmoil in the Middle East, if we can help ease some of their food instability, maybe they would be less likely to produce people that would be wanting to harm us, is that part of the process as well?

Ms. HARDEN. I think Senator Heitkamp, before you came in, Senator, talked a little bit about that. It also helps with national security. Global food security is also a national security issue, and I think you are exactly right. Hungry people, disgruntled people, nothing is worse—I know how irritable I get when I am a little bit late for a meal. I have never really missed a meal. I will be honest with you. I could probably miss a few and be okay. But I just know how aggravated I get, and I cannot imagine if that is a sustained symptom that you do not have enough food, how you are suscep-

tible to others, I can see just in my own body how I react when I do not have enough nourishment. If it is chronic and if it is lasting, obviously there are going to be some problems.

So we do look at that, and I was talking about Honduras earlier, and so was Senator Heitkamp, our work there, and Guatemala, trying to find opportunities for our young people, getting them educated, having them well fed, well nourished. That is very much part of the overall goal.

Senator ERNST. That is very good. Earlier last week, I attended a conference in Des Moines that focused on a number of these issues, and food security, of course, is one. Then there are other avenues or lines of effort that we can use in making sure that the world is a more secure place.

Since many of the commodity and food transfers are to areas of the globe that are not as politically stable as we are here in the United States, what do you see the role of the armed services in doing some of those food transfers or working in those particular regions?

Ms. HARDEN. That is probably less of my expertise, but certainly in emergency situations, I know that the Government, the Department of Defense, has been involved in those things. In the work that we do at USDA, it is less involved. I believe maybe National Guard has been involved in some of our work in Afghanistan earlier in the Administration. I do not remember all the details, but the work that we do at USDA, it is less of a need for the Department of Defense to be involved. It might be for more emergency and certain situations.

Senator ERNST. That is very good, because I know that we do—and Iowa has participated in this as well, but agricultural teams that have deployed through the Iowa Army National Guard, a number of other States have done that as well.

Ms. HARDEN. Afghanistan may be an example.

Senator ERNST. Afghanistan is a great example. We did have a team there about 4 or 5 years ago that did a rotation in Afghanistan. I think that is one way that we can utilize our military forces in those areas that are less stable than some of the other regions of the world in trying to teach and educate others.

Any particular thoughts on those types of programs?

Ms. HARDEN. I do not. Like I say, for USDA, we are usually in more stable environments than others may be, except maybe in emergency situations. So I do not have, but I am happy to talk to folks at USDA who know a lot more about this than I do, and we will get you an answer.

Senator ERNST. Well, I appreciate it so much. Thank you, Mr. Chair, very much.

Ms. HARDEN. Thank you, Senator.

Senator ERNST. Thank you.

Chairman ROBERTS. Senator Casey.

Senator CASEY. Mr. Chairman, thank you very much, and I am sorry I was not here earlier. I would just make a brief statement and maybe ask one question as well.

First of all, I want to thank Deputy Secretary Harden for being here and for her work. As was discussed, I know, earlier today when I was not here, this issue of food security and how we put

in place strategies to reduce the likelihood that someone does not have enough to eat around the world and here in the United States is a security issue. I know others have discussed that. It is literally a national security issue.

The good news here is that in the last number of years, starting before the current administration but really amplified since then is the success, the remarkable success of Feed the Future, which I know is not the direct subject of today's hearing, but certainly has a connection.

Senator Isakson and I are leading the effort to pass the Global Food Security Act, which would, in essence, codify, put into permanency the Feed the Future Program, which here are the numbers on Feed the Future:

In 2014, Feed the Future reached more than 12 million children in the world with nutrition interventions and helped nearly 7 million farmers gain access to new tools or technologies to help them have greater yields with their crops and also to feed the world and especially to feed children. So among the many things we have got to do domestically, I want to make sure that we continue that success with Feed the Future.

I want to ask, Deputy Secretary Harden, I know that USDA is a leading participant in what Feed the Future is, which is a whole-of-government approach. How can we better draw upon both USDA's expertise and resources to make sure that we keep moving in this direction with regard to Feed the Future especially, but maybe in some other contexts as well?

Ms. HARDEN. Thank you, Senator, and thank you for your leadership and your commitment to this. Feed the Future has been extremely successful, and as I said in my opening statement, it was the President's very first foreign policy priority, and I believe it has been successful. I believe it is recognized as successful. There are 11 different agencies, you are right, who are involved in Feed the Future, and USDA certainly is front and center. We work very closely with our Federal family on the ground in many locations around the world.

One of our main roles is capacity building, which I think is very key for the lasting residual commitment so that when we leave a community, there is still an infrastructure there, there is still the ongoing benefits of the investment. I think that is one of the great things we have.

Our folks at USDA, to quote the Administrator of FAS, Phil Karsting, we are "more work horses than show horses," so sometimes folks do not really fully know what we do on the ground. They just know the work gets done. We have that get-'er-done attitude, as we do across USDA. Here in the U.S. our folks on the ground have the same kind of commitment to working with farmers and ranchers and helping landowners, helping them build infrastructure, helping them develop market streams so they can continue to create livelihoods for themselves and grow their operations and have stability.

So I think the work that we are doing just needs to be continued and enhanced. I think that we know what to do on the ground. We know how to work with landowners and with the farmers.

Senator CASEY. I appreciate that.

Mr. Chairman, I am giving back a minute. Thank you.

Chairman ROBERTS. Senator Grassley.

Senator GRASSLEY. Secretary Harden, I just have one question.

Ms. HARDEN. Yes, sir.

Senator GRASSLEY. That is, you stated in your testimony that the United States is the largest donor of food in the world. Do you have any figures on whether other countries come close to donating what the American taxpayers do along this same line?

Ms. HARDEN. Sir, I do not have exact numbers. I am happy to get those for you. I know that the U.K. comes to mind. There are others, other developed countries and entities around the world that do. But I will be happy to get you those exact numbers. I do not have them off the top of my head.

Senator GRASSLEY. I would appreciate it for the record then.

Ms. HARDEN. Yes, sir, I certainly will.

Senator GRASSLEY. Thank you. I yield back my 4 minutes and 23 seconds.

[Laughter.]

Chairman ROBERTS. That is rather remarkable, Senator Grassley.

[Laughter.]

Chairman ROBERTS. Senator Grassley, I have a note here delivered to me by Senator Boozman in your behalf stating that you are extremely disappointed that the leadership of this Committee is not providing snacks.

[Laughter.]

Senator GRASSLEY. I would think you could at least as well as Ms. Stabenow.

[Laughter.]

Ms. HARDEN. Where are the Georgia peanuts, sir?

Senator BROWN. We kind of like sunflower seeds. Sunflower seeds could work.

Chairman ROBERTS. We will have order.

[Laughter.]

Chairman ROBERTS. Sir, the snacks have been delivered to the World Food Program.

[Laughter.]

Chairman ROBERTS. I think are on the way to Bangladesh. But we have a reserve. We do not have the necessary funds for that. Perhaps you could be of help to us in the appropriations process, so snacks will be delivered if you will just be calm. I know that is very difficult for you, but at any rate, we will have snacks for you momentarily. Would you like to—

Senator GRASSLEY. Well, I am shocked at how fast you operate. Usually it is not that fast. Thank you very much. I will be glad to eat them.

Chairman ROBERTS. You ask, we deliver.

I am not sure where we are.

[Laughter.]

Chairman ROBERTS. Mr. Boozman?

Senator BROWN. Snickers?

Chairman ROBERTS. You could share that down to Senator Thune and over here to Senator Brown.

Senator STABENOW. Mr. Chairman, are those made in Kansas?

Chairman ROBERTS. Yes. This is a Mars company product from Topeka, Kansas, as a matter of fact.

Senator BROWN. Koch brothers own it. Don't the Koch brothers own this?

Senator GRASSLEY. If you want to continue——

Chairman ROBERTS. If that is the case, you should consider that a hot basket, Sherrod.

[Laughter.]

Senator GRASSLEY. If you want to continue this discussion, it was the Senator from Arkansas that had the idea of writing you the note, but it happened that he told me that——

Chairman ROBERTS. This is in your handwriting, sir.

[Laughter.]

Chairman ROBERTS. All right. Let us get back to a serious situation. Madam Secretary, I apologize for this diversion. Senator Brown?

Senator BROWN. Thank you, Mr. Chairman.

First of all, Madam Secretary, thank you for the work that you have done on McGovern-Dole. A number of my colleagues have seen these programs at work. I was in Haiti a number of years ago and saw what it did for particularly getting young girls to school, what it does for the children themselves, what it does for the families, what they are able to take home in the evening and for weekends, and what it does for American agriculture, too. But there are fewer things that—I hate the cliché “win-win-win,” but there are fewer things that fulfill that the way McGovern-Dole does, so thanks for your leadership, your outspokenness, and always your assertiveness on that program.

I wanted to ask you one question. In your testimony, you touch on the impact that climate change will have on agricultural production and food insecurity around the world, something that we do not maybe want to think about enough, the impact of what we are doing in this country on what happens for people who are self-sufficient, who are feeding themselves and their neighbors, and the impact that has especially on the poor in the developing world.

Discuss, if you would, the ways USDA can prepare farmers in the developing world for these changes and work into that how USDA projects climate change will affect global hunger.

Ms. HARDEN. It is interesting, Senator, that when you talk with farmers in this country or around the world, some of the conversations are very much the same. They worry about extreme weather. They worry about drought, pests, and disease. All the problems that our farmers have to deal with here farmers around the world are having to deal with. So the conversations are very similar.

We are lucky here in that we do have tools to deal with many of these issues, and sharing those tools with the rest of the world is something that is a call to action, is something that USDA cares about, this Administration has supported, and making sure the information, the technology, the conservation practices.

I know firsthand that our farmers and ranchers are the best stewards of the land and given the right tools—sometimes it is technical assistance, sometimes it is financial assistance, sometimes it is a combination. But given the right tools, the right infor-

mation, they are going to make wise decisions about their natural resources.

Farmers around the world, and landowners, do not always have those tools. They do not have that information. We have what Secretary Vilsack created here, Climate Hubs, which is just a place for information and data that farmers can go to to get it. I actually visited one. They are not actually bricks and mortar, but just a collection of information, and people who have worked together in Puerto Rico and looking at the coral reef loss and the impact of drought on Puerto Rico, and now countries in Central America are coming to that Climate Hub and saying, "We would like that data. We would like that information. We are having very similar issues. We are neighbors in that region, and we would like to be able to have that information."

So I think it is something that we can do, we can share our information, the data that we have, the conservation practices, the tools that our farmers are using in adapting to help mitigate many of the impacts of the changing climate.

Senator BROWN. Mr. Chairman, thank you very much.

Chairman ROBERTS. Senator Stabenow.

Senator STABENOW. Well, thank you very much, Mr. Chairman. Again, thank you, Deputy Secretary Harden. I apologize again for having to step away, and we appreciate your time. Obviously, there is a tremendous amount of interest in what you are talking about today and the important actions of the Department.

I wondered if you could expand just a little bit more as you are talking about weather-related things and climate-smart agricultural initiatives, because the USDA is playing a leadership role, not just here with our farmers playing a leadership role, but internationally, the Secretary is speaking about this now. So how, when we look at the administration's overall effort to address global food security projects, a little bit more about the specifics of what is being done and what more could be done.

Ms. HARDEN. Well, the Climate-Smart Alliance, as you mention, is just that. It is an alliance. It is a group of like-thinking countries and other groups who have come together to say we need to pay attention to this, we need to share information, and it creates a platform for being able to do that.

As you know, we talked about that in our travels, in all of my travels. It always comes up with Ministers of Agriculture and other leaders to talk about how do we get this information. Again, as I was just saying with the last question, farmers and landowners have the same concerns. They see changes in trying to farm and produce food, and we know if we do not adapt, if we do not make changes ourselves in our conservation practices or how we farm, where we farm, if we do not use all the science and technology that is available, we are going to have greater problems. We have the information or much of it in the U.S., and sharing that and having the buy-in and the commitment to work together I think is what the alliance is able to do and really encourage the discussion, encourage the exchange of information and the science and the data that we have, and that is evolving. It changes all the time, and we need to make sure that we are staying on the forefront of these issues.

Senator STABENOW. Thank you very much. I want to go back. I know you talked a little bit about AGOA in general, and it was so interesting for me when we traveled together to see that the majority of agriculture is women, leading the co-ops, doing the work, and so on, the vast majority, which was interesting to me. When we talked to the President of Ethiopia about the fact that to strengthen them from an economic standpoint, it meant empowering women to own their own land, to be able to get loans, to be able to have inheritance rights and so on.

So when Senator Roberts and I led the amendment to AGOA, which would expand the USDA's role in trade capacity building specifically for women-owned farms and businesses, I wonder if you might talk about this new authority and what it means for USDA and how trade and the Foreign Agricultural Service can address the long-term food security issues by strengthening those from an economic standpoint that are doing the work.

Ms. HARDEN. I can first just say thank you for your leadership to you and the Chairman for that amendment. I think it is spot on. I think it is exactly right. I hope that we get our budget soon and we can be ready to implement this. It is something I want to bird dog myself and make sure that it is done and done properly.

I mentioned earlier, I think when you were out of the room, that I was able to host a roundtable just in Ghana recently with women farmers, small business owners, researchers, leaders, talking about exports and how they can send products to the U.S. They have products they want to send. They want to use AGOA benefits, but they have trouble with SPS. They have other issues. They do not understand all the requirements that we have.

I think getting that implemented would help very much women just like the 40 that I happened to meet with and others around the continent work through those kind of delicate, sensitive, but very, very important issues to make sure that they can export to the U.S. They are ready to do so, they have product, but they need to know how to maneuver in many cases and get their products ready to meet our standards.

So just hats off, thank you very much for that leadership, very well needed, very well timed.

Senator STABENOW. Thank you, Mr. Chairman.

Chairman ROBERTS. I have one other question, and I apologize to the other witnesses. We have some expert witnesses on the next panel.

Imagine that you are with me in Dodge City, Kansas, and you are at the local restaurant where we have the Dodge City coffee klatch, which is my—these are all my advisers. They talk about the weather. They talk about price at the country elevator, et cetera, et cetera. You are familiar with these things with regards to Georgia.

Ms. HARDEN. Yes, sir.

Chairman ROBERTS. I turn to you and whisper that you might want to pick a number a little higher. It is a numbers game when they try to stick you for the coffee.

[Laughter.]

Chairman ROBERTS. But I would like to have you explain to them why the LRP program is so important. They do not even know

what that is. That is an acronym. We all have acronyms. I am not sure how to pronounce that one. I am not going to try it. But focus on that a little bit from the standpoint of developing or having the opportunity for a country to develop that capability and what that means for them in terms of price and in terms of the agricultural community of Dodge City to export products to that country.

So I just have introduced you, and I say, "Please explain to these farmers why LRP is important with regards to what you are doing."

Ms. HARDEN. I would first hope they could understand my Southern accent, so you may have to be the translator.

Chairman ROBERTS. Do not worry about it.

Ms. HARDEN. But assuming that they could understand it, LRP, Local and Regional Procurement is what LRP stands for. We do talk a lot in Washington about acronyms, and it is a whole different language, and I am guilty of it myself, and we should not—

Chairman ROBERTS. Do not worry about that. Just explain to farmers why this is important.

Ms. HARDEN. We should connect the dots. It is important because it actually gives a market, an opportunity for local farmers to connect with their schools, to connect with other entities in their own community. It creates a market and all the infrastructure that goes into that. It helps bring stability to a local community. It creates jobs. It creates a system, a purchasing system, a marketing system, an operations system for agriculture. Just like in a small town—I am from Camilla, Georgia, a small town. My Daddy grew up on a produce farm. You need markets. You do not have a long shelf life. It is not like a grain. You have to have a market, a nearby market in many cases. That is what this creates. It creates stability in communities. It gives jobs. It gives opportunity for local farmers to help themselves, to create markets for themselves.

Chairman ROBERTS. But in turn, I am trying to describe to them how that benefits them. We have had a history of a Food for Peace Program and all the rest of the programs and the PVOs and the NGOs and the Gates Foundation and the UN, the World Food Program, and then all of the programs within the Department of Agriculture which is the basis of what we are doing, and you are doing an outstanding job.

I know what some of these guys would say. They would say simply, "Why don't we have an LRP program for Dodge City?" We do in different ways.

Ms. HARDEN. We do. Yes, sir, that is what I would say, is we do.

Chairman ROBERTS. With different agencies. What I am trying to point out is that if you develop that to the degree that you have a stable community, and that is a tough—that is a high bar, but it also provides a market for us to sell them other things, fertilizer, tractors, et cetera, et cetera. It benefits them as well.

Ms. HARDEN. It creates markets. If we want to sell, we have got to have someone able to buy. You have to have a customer. The way you create a customer and help build and establish a customer is to build stability and create a market, create demand. The only way you are going to do that is to have stability. Otherwise, we are just going to be giving handouts. We are just going to be donating.

That is not what we want to do. We do that when we need to, when we have to and it makes sense. But to have the complete balance and help us create markets for our farmers, to help our farmers stay on the farm and ranch, which is what we want to do, we need markets outside of the U.S..

Chairman ROBERTS. Thank you for that.

Ms. HARDEN. We need more markets here, and we need markets outside of the U.S.

Chairman ROBERTS. Thank you so much for that. You have hit the nail on the head. We will not stick you for the coffee.

I thank you for your testimony. We would like to welcome the next panel at this particular time.

Ms. HARDEN. Thank you, sir.

Chairman ROBERTS. We are eager to hear the testimony from all of you on this very important issue. We have compiled a panel of witnesses, I believe, who have broad experience and knowledge on these issues.

Mr. Wade Ellis was named vice president and general manager of Bunge North America's Milling Unit in 2012. He has been with Bunge since 2003 where he has served as vice president of sales for milling and general manager of Bunge's Rice Mill in Woodland, California. Prior to Bunge, Mr. Ellis worked in the hybrid seed corn industry where he held various agronomic sales and consulting roles for especially hybrids, now a party of Monsanto. He received his bachelor's degree at Purdue University in agribusiness management—where a quarterback played at one time that threw a pass that defeated Kansas State in a bowl game, Mr. Drew Brees. I will not hold that against you.

Welcome, Mr. Ellis. I look forward to your testimony. I will introduce the rest of the witnesses after you give your statement, sir.

STATEMENT OF WADE ELLIS, VICE PRESIDENT AND GENERAL MANAGER, BUNGE NORTH AMERICA MILLING, ON BEHALF OF THE NORTH AMERICA MILLERS ASSOCIATION, ST. LOUIS, MISSOURI

Mr. ELLIS. Well, I appreciate the opportunity to be here, and I was at the Alamo Dome for that game, by the way. I was in school at the time. I am Wade Ellis. I am vice president and general manager of Bunge Milling, a part of Bunge North America in St. Louis. I oversee milling operations for Bunge in the states of Kansas, Nebraska, Illinois, California, and Indiana.

Raised on a corn and soybean farm in central Indiana myself, where my mother and father still operate today, one of the greatest joys I have in my work is seeing the process connected from start to finish where Bunge gets to truly operate in the middle of the agriculture supply chain. We connect America's growers to food processors and consumers alike, and seeing the country's hard work translating to feeding the world is something we are all very proud of each day.

For decades, Bunge has been proud to provide ready-to-use foods for distribution in the U.S. food aid programs. What began as a program to supply large bulk quantities of simple products has shifted to a product line of high-quality, nutritious foodstuffs to meet the requirements of famine emergencies wherever they occur.

We can specially prepare foods for infants, children, their mothers, the elderly, and others with specific needs. Ready-to-use therapeutic foods now supplement local staples, and when they are used together, our food aid products become more effective in saving lives and mitigating the effects of malnutrition.

Many of our products over the years have been formulated to provide vital nutrients quickly and efficiently in forms and flavors acceptable to people with widely varying diets. Working with other companies and the USDA over the years, we have contributed to the progress and enrichment of blended foods by volunteering resources and expertise. Further, we have made significant investments in both our milling and packaging capabilities to best meet the changing needs of the distribution and storage requirements of these programs.

Now, our role as processors of these vital products gives us a unique perspective into the value this program brings from one end of the value chain to the other. Ultimately, the real winners are the people receiving the U.S. food aid in an acceptable, usable form, with other benefits accruing up and down the food supply chain to the Nation itself.

Looking back at some of the history on P.L. 480, now 60-plus years, some of President Eisenhower's remarks stuck out to me. He knew that the collapse of political systems as well as crop failures leave millions without food or the means to acquire it. When help does not come to people caught in these circumstances, the world becomes a more dangerous place. President Eisenhower saw Food for Peace among the best tools he had at his disposal. One look at the USAID food bags with the words "From the American People," people understood that America was responding to their need. Food for Peace buoyed the U.S. reputation for doing good in the world, and it still brings the agricultural sector a major source of pride today.

Bunge representatives have made numerous visits in-country to see our products in action, and the sense of pride is immeasurable upon return.

The world has changed tremendously since this Committee considered legislation to formalize food aid in 1954. What has not changed is the need for food aid. Crises stemming from hunger occur all too frequently today, and they reshape the world as we know it. Back-to-back crop shortfalls in key producing areas were a catalyst to popular uprisings in the Middle East not even a decade ago. Today the consequences continue to reverberate around us.

Also unchanged is the agricultural sector's pride and the support for this program. We have faith that the Senate and House Agriculture Committees will maintain a vision of Food for Peace consistent with its original intent. As it evolves to meet the needs of a world with 9 billion people, new flexibilities will be needed. P.L. 480 also has a role to play in achieving a 70-percent increase in world grain and oilseed production by 2050. Its farmer-to-farmer connections, its support for education by feeding school children in the developing world, its ties to global institutions that monitor supply-and-demand balances, and its overall contribution to food safety and security are important assets for the future.

It will take many commitments in many forms to feed the world. Just as there is an imperative now for food aid, the imperative for food aid will always be with us. Specific expertise in food aid and an industry positioned to provide it will also be necessary. With compassion and prudence, the U.S. should continue to claim this as one of our areas of expertise contributing to a better world.

Thank you again for the opportunity to be here, and I look forward to answering questions later.

[The prepared statement of Mr. Ellis can be found on page 40 in the appendix.]

Chairman ROBERTS. Thank you.

Our next witness is Mr. Leach, a well-known witness testifying on world hunger, food programs, what we can do, what we should be doing, what we should not be doing.

Please proceed.

STATEMENT OF RICHARD LEACH, PRESIDENT AND CHIEF EXECUTIVE OFFICER, WORLD FOOD PROGRAM USA, WASHINGTON, DC

Mr. LEACH. Thank you. Thank you, Senator Roberts and Senator Stabenow, not only for convening this hearing, but for your steadfast, unrelenting, and longstanding commitment to addressing global hunger.

If I may, before my planned comments, I would like to acknowledge that early this morning or late last night, a good friend, a great American statesman, Sandy Berger, passed away. Sandy served on our board for almost a decade and did a lot of work for us and for the Government as it pertains to the link between national security and food security. The people he has impacted around the world will ensure that his legacy will continue, and I felt it was important to acknowledge his passing this morning.

U.S. support has been and is today vital in helping the World Food Program provide life-saving assistance to upwards of 80 million people in more than 82 countries. It provides hope to communities grappling with natural disasters, refugees fleeing conflict, and families living in extreme poverty.

U.S. food has alleviated hunger and has literally transformed lives. In fact, over 3 billion people in more than 150 countries have been helped by U.S. food aid since the Food for Peace program was launched in 1954. It has promoted global stability, responded to humanitarian needs, whether caused by conflict or natural disaster, and contributed to economic development.

As was said earlier, providing food to those suffering from hunger is a statement about the American people. Moreover, it is a statement about our American values and what we stand for. It is something that all of those who have worked to make these programs a success take great pride in—whether they are farmers, relief organizations, Members of Congress, or Government officials across numerous administrations.

So we should celebrate the success—the success that this program and these programs have had for many years, but we must also continue to build on the lessons that we have learned. Today we have greater capacity to analyze market conditions, and to assess the needs of vulnerable populations so that we can determine

what is the most effective mechanism to help those suffering from hunger.

Through this capacity, we have learned what types of food assistance are best to meet specific needs: LRP, Local and Regional Procurement, in-kind assistance, or cash and vouchers. We can now match the most effective tool to help meet the specific food and nutritional needs of vulnerable populations.

In-kind food aid is needed when food shortages are widespread and local markets cannot address the needs. Cash and vouchers have proven effective in situations, particularly in urban areas, where local markets have adequate food, and vulnerable populations, if they have the resources, would buy it. Local purchase of food, when surplus production is available, has shown to reduce costs, delivery time, and also increase the incomes of small-scale farmers. So, bottom line, we need to use the most appropriate strategy as the circumstances require.

In addition to increasing the overall effectiveness of our food assurance programs, the U.S. Government's global food strategy today is more comprehensive than it has ever been; we consider this strategy in terms of four interrelated pillars that address all the multiple faces of hunger:

First, the emergency response efforts that save lives in crisis.

Second, the nutrition programs that help the most vulnerable. These are especially important for pregnant women and young children in their first 1,000 days when malnutrition could cause irreversible damage, stunting, and other problems that will last throughout their lives.

Third, the use of safety net programs. This is an area where I think we need to have more and more focus. Safety net programs, like School Feeding, help people climb out of extreme poverty and chronic hunger, and also bounce back from weather shocks, and societal shocks. The LRP authority that was referenced earlier, and linked to the McGovern-Dole Program, both authorized in the farm bill, is a critical tool. I would love to talk more about how it can build long-term sustainability and local control over these school feeding programs, as part of our exit strategy.

The fourth pillar is the whole range of agricultural development efforts to increase productivity and access to markets of small-scale farmers, who actually comprise about half the population of people who suffer from chronic hunger around the world.

We have made great progress, and the U.S. has been leading the world in pursuing this more comprehensive strategy to combat global hunger.

But, as noted, we have to be cognizant of the current humanitarian crises that are threatening some of the progress that we are making. Right now there are over 60 million people who have been displaced because of conflict. We have not had that number of people displaced since World War II. We have weather shocks that occur more frequently and with greater severity. Although we have significant threats, we know how to grapple with them. But we are going to have to work with the international community to take these efforts to the next level.

In conclusion, I want to thank this Committee for your long-standing support. I think all Americans can be proud of the work

of this Committee and the longstanding bipartisan commitment to addressing global hunger. I thank you very much for allowing me to be here today.

[The prepared statement of Mr. Leach can be found on page 57 in the appendix.]

Chairman ROBERTS. Rick, I owe you an apology. I did not really address your background and what you have done in the past, which I will do right now before recognizing Senator Stabenow to recognize our next witness.

Mr. Leach currently serves as president and CEO of the World Food Program, if people did not know that. Over his career he has worked on major social issues at a range of organizations, including the World Health Organization and the U.S. Department of Health and Human Services. Rick also got his start on Capitol Hill on the foreign policy staff of the U.S. House of Representatives Select Committee on Hunger. In 1997, Rick established the World Food Program USA, formerly Friends of the World Food Program, and has since traveled across the world to witness firsthand the effects of chronic hunger.

So with that apology, Rick, thank you for your testimony.

Senator Stabenow?

Senator STABENOW. Well, thank you very much, Mr. Chairman, and welcome to everyone. I want to particularly welcome and introduce Arlene Mitchell today. She is the executive director of the Global Child Nutrition Foundation, 40 years of experience working in international hunger and development programs. She also grew up on a family farm in Michigan, is a graduate of Michigan State University, the Eastern Division Big 10 champs, I will say, with the final game, Mr. Chairman, on Saturday night. I hope you will be rooting for us on Saturday night.

Prior to leading the Global Child Nutrition Foundation, she worked for the Bill and Melinda Gates Foundation as deputy director for access and markets in the Agriculture Development Program, where she worked to assist small farmers in Sub-Saharan Africa and South Asia. She also previously worked as executive director for the United Nations World Food Program and in the Foreign Agricultural Service at the United States Department of Agriculture. Before that, she was a volunteer and staff member for the U.S. Peace Corps.

So, Mr. Chairman, she is an important voice in this discussion. Thank you.

Chairman ROBERTS. We will turn to questions now of the panel—oh, I am sorry. You are going to give your testimony, Arlene. I apologize. All 38 pages.

[Laughter.]

**STATEMENT OF ARLENE MITCHELL, EXECUTIVE DIRECTOR,
GLOBAL CHILD NUTRITION FOUNDATION, SEATTLE, WASH-
INGTON**

Ms. MITCHELL. Thank you. As you noted from my written testimony, I had a lot to say. Thank you, Chairman Roberts and Senator Stabenow and all the distinguished Committee members and fellow panelists. It is a real honor to be here today.

Hunger, as we have talked about, particularly chronic hunger, is terrifying and it is debilitating. Hunger limits potential and causes people to behave in extreme ways. Hunger also takes a toll on those of us who are far removed through the cost of humanitarian assistance and health care as well as lost education and productivity and millions of people and subsequent generations.

Agriculture can and must play a role in combating hunger. I want to call attention to ten issues for special consideration. Some have already been mentioned today.

First, we need to reduce food loss and waste. We are losing about a third of what is produced around the world.

Second, we need transportation and storage systems and solutions that leapfrog the current systems. Many of our current systems are expensive, outmoded, unsafe, unusable, and/or corrupt. We can get around in little vehicles on Mars and the Moon, and we have all-terrain vehicles that can negotiate rivers, sand dunes, ice, and snow, but we cannot get African tomatoes 5 kilometers down the road to market from the farm.

We also have spent huge amounts of money on building and maintaining roads, trucks, trains, ships, and planes, but the cost and complications of moving food long distances are still impediments to getting food to those who need it quickly and at a cost they can afford.

Food safety problems such as E. coli, salmonella, and aflatoxin need more attention.

It is time to effectively involve women. There has been a lot of talk about that today. In addition to comprising half of the world's population, we play important roles in farming and water use, food handling and preparation, family well-being, policymaking, et cetera, but we are not really included in key decisions and activities.

Fifth, we urgently need solutions to address age issues. Farmers and agriculture scientists are getting old. At the same time, not enough young talent is entering into agriculture professions.

Sixth, market and adoption issues thwart progress, especially in Africa. Why would a farmer invest in seeds, fertilizer, and technology to produce more if there is no way to cover the costs by selling the surplus that they produce?

Seventh, we need to better control crop and animal diseases and pests that threaten the world's food supply.

Eighth, it is time to insist on linking agriculture and nutrition. The goals and programs are not in sync, and they do need to be.

Ninth, protecting biodiversity is critical. We also need to explore the use of plants and animals that are not currently familiar to us in the United States.

Tenth, agriculture affects health and health affects agriculture, but the two sectors work in silos.

These items are critical to global food security. They are also the reason that I am working in the Global Child Nutrition Foundation. We see large institutional meal programs, nutritious and, if possible, locally purchased, as an avenue to addressing many of these issues. Building on the school infrastructure that exists in some form in every country gives programs a foundation, and using the power of education ensures that these programs will have a

positive impact for the involved children, farmers, and families both now and for generations to come.

Now I want to mention two other issues that factor into the equation: First, traditional methods of development and humanitarian aid are being challenged by technical, digital, and cultural divides, by global weather patterns, conflict and displacement, political trade and economic pressures, the demands and actions of large emerging players such as China, India, and Brazil. Secondly, economic growth in Africa is positive, and the trends are expected to continue to be positive. These factors are causing shifts in power dynamics and call for new paradigms.

Finally, the U.S. Government could tackle some entrenched behaviors and systems that, if alleviated, might speed progress. Five possible actions are:

First, providing incentives for interagency cooperation and other good behaviors in Government agencies both here and abroad.

Second, encouraging nongovernmental players to cooperate as equal partners and work from their comparative strengths rather than each competing to be in the lead.

Third, instituting rewards for programs and organizations that work themselves out of jobs rather than creating and sustaining dependency.

Fourth, creating safe ways to honestly discuss failures and challenges.

Fifth, continuing the tradition of bipartisan support and jointly sponsored initiatives for combating hunger.

That ends my remarks, and thank you for the opportunity to speak today.

[The prepared statement of Ms. Mitchell can be found on page 64 in the appendix.]

Chairman ROBERTS. Thank you very much, Ms. Mitchell.

I think I am going to go to Mr. Ellis first. You mentioned there have been critics of the involvement of U.S. agriculture in foreign assistance programs. This is sort of motivational question. What motivates you and your company to remain committed to these programs? This is against the backdrop of declining prices worldwide for commodities, all sorts of weather changes. You are facing some difficult decisions, but you still have that commitment to these programs. What motivates you to do that?

Mr. ELLIS. So I think it is important to say there is an extremely feel-good portion of this to us as an organization. Because we have been in it as long as we have, too, there are several layers through our management that have a tremendous amount of support for what we have done. A lot of that is because they have seen what it does for folks in-country when the service is being provided. I think that is a very large part of it.

There are times in the decision making process when you think about the volumes decreasing and some different things changing over the years, I think the amount of research that has been spent and the nutrient level and the consistency of the products now, there is a firm belief that we are delivering something that is making a big difference. I think that is what it is about.

Chairman ROBERTS. Well, you have touched on this. How has Bunge approached the task of creating high-quality products that

help combat malnutrition and stunting, particularly for women and children? Both Rick and Arlene have spoken to that.

Mr. ELLIS. So in my 13 years with Bunge now, I have had some exposure to this program throughout, and I think a lot of the products that would come through the program in the first 5 to 7 years, I would estimate, would have been more basic cornmeals that are enriched. But where we have moved today is to target specific age groups, mothers, lactating mothers, etc. The specificity to the actual product is a tremendous advance for all of us in the industry.

One of the things that I find amazing is the commitment we have made to this program. In our milling business, outside of rice, we do not pack anything under what would be a 25 kg bag. Recently with the super cereal, we have installed equipment to be able to pack the 2 to 5 kg type bag for the super cereal product because we feel it will deliver a better product in this program.

So the research that goes into that, at the end of the day, it does take staff's time from our business, and we are committed to doing that, and we work with our association partners. NAMA is a strong leader in that category as well, and I think it is a testament to where the program has come to the amount of work and the amount of nutrients that are in these products versus even 10 years ago.

Chairman ROBERTS. Rick, you mentioned this in your testimony. I am interested in what steps you would advise the Committee that can be taken that can actually happen to help countries try to develop programs that will help mitigate the conflicts and other economic shocks that we see today that threaten the world's food supply.

Mr. LEACH. Well, there are a number of things that can be done—many of which are being done now.

Chairman ROBERTS. Your top three. Pardon the interruption. Your top three, perhaps.

Mr. LEACH. I think the capacity to have flexibility in the response is critical. That is what the Committee provided an opening for in the last farm bill.

Chairman ROBERTS. Right.

Mr. LEACH. I will give you an example. The authority for flexibility under Title II to use local purchase through the expanded 202(e) authority, allowed the World Food Program to respond to a drought that occurred in Malawi. USAID had prepositioned food there, but WFP had to move more quickly than was expected to address an expanded need. The authority you provided allowed for WFP to buy local food that was used to address the short-term gap. That authority provided the opportunity to address the gap immediately.

Other efforts are addressing those issues that would promote resilience—so that when weather or other shocks occur, we are not dealing with an emergency response because we already have operations on the ground. For example, building containment for rain water would help protect against the effects of a drought and provide an opportunity to withstand those problems.

I would like to focus on some of the things the Committee could do to further enhance the capacity of local safety net systems. This is an area where we need to have a much greater focus. For exam-

ple, if the USDA had the authority to use its safety net programs to provide technical assistance overseas, it could have a huge impact. Safety net systems should become a part of a countries' good governance and rule of law. There should be a third point, and it should be effective safety net systems. Safety net systems should include, not just school feeding programs that we are supporting, but a more comprehensive system throughout a country. That is where, once again, the LRP Program, provides the capacity to create linkages, between building technical capacity, and local relationships so that we can evolve beyond external projects to those run locally.

So I just would like to emphasize that we need to raise the profile of safety net systems at large—with school feeding being one of the most important. This is how countries can address shocks when they occur. For example, a drought occurs and a farmer has a dairy cow. If crops are destroyed because of the drought, you do not want that farmer to have to kill the dairy cow to feed his family. Therefore, we need safety net systems to help people get through shocks such as this.

Enabling countries to have their own safety net systems in place, reduces the need for the international community to intercede. So I think there needs to be a larger focus on helping countries build their own systems. More than 80 percent of countries around the world do not have effective safety net systems. This is an area that we might not realize is such a critical point, I think we need to spend more time focusing on.

Chairman ROBERTS. I appreciate that.

Senator Stabenow, I am over time, but I do want to say to our next witness, Ms. Mitchell, you have done an exceptional job. I actually turned off Megyn Kelly last night and——

Senator STABENOW. That is good.

[Laughter.]

Chairman ROBERTS. That is not a regular thing. Now, had it been "Blue Bloods," it might have been something else. But, at any rate, I read your entire testimony. I took the liberty of numbering your pages. You have 38. I want to thank you. It is a syllabus, sort of an Agriculture II, or 101/102. It is required reading by all members of the Committee who are not here, but they should be informed that we will have a test next week on this. But you said something here—I thought I had it marked. I will find it, hopefully. It is worth waiting for.

Well, one thing I did is compare you to Samuel P. Huntington in "The Clash of Civilizations and the Remaking of World Order," who is one of my favorite authors. He said, "With 200 million people aged between 15 and 24 (the youth bracket), Africa has the youngest population in the world.

The current trend indicates that this figure will double" in the next couple of decades, which indicates something that I asked in 1980 in a campaign ad, and I said: "The most important question in agriculture today in the United States is, 'Where is the next generation of farmers going to come from?'" That question still exists, and you have also referred to a new term, "older agriculturalists." Could you put "wise" in front of that, maybe? Just a little thing. But you had a marvelous summary here, if I could just find it. It

was a great quote. I might yield to Senator Stabenow, and if I find it, I can come back with it. Let us do that.

Senator STABENOW. All right. We will go ahead. Well, I also appreciate very much all of your testimony of all of our three witnesses, and your thoughtfulness. But, Ms. Mitchell, we do appreciate all of the expansive information that was in the 38 pages that we received, so thank you very, very much.

I wonder if you might just talk a little bit—when we talk about the USDA, and you heard Deputy Secretary Harden talk about the breadth of their contributions in terms of hunger and nutrition and global food security and so on, what would you say the USDA is doing well at this point? Where should we be looking to help strengthen their role? Mr. Leach talked about technical assistance and global safety net systems, which I think is really an excellent point that we should be focusing on. But when we look at the enormous challenges we are facing, what should we do on our end to strengthen their role? What do you think they are doing really well?

Ms. MITCHELL. Well, in my years at USDA, I had the privilege of working in a role that cut across all the technical agencies of the Department. It is an extraordinary technical resource that I feel the world has not seen enough of. So I think the world needs to see more of USDA in its breadth and its technical skills, and I think USDA needs to see more of the world.

I also think that USDA can and should be involved in bringing the rest of the world to America, particularly rural America, where it is not well understood what is happen overseas and why the U.S. Government is investing the way they are.

So in terms of technical capacity, we have discussed many issues today that the USDA is the world's leading expert and has that deep technical capacity to address. But they are somewhat blocked. Quite frankly, there are some legal issues where, if the laws were tweaked just a little bit, USDA could have more flexibility.

They are also, in my viewpoint, constrained by tradition and policy. They are not used to working overseas, and they often have leaders who discourage international work.

So an action item in this area would be to tweak the law and encourage the leadership to allow USDA to do more international work. An example is Deputy Secretary Harden herself had to get special permission to do as much international work and travel as she is currently doing.

Secondly, USDA staff are very skilled in technical areas, but they are not necessarily skilled in doing international work, whether you talk about speaking foreign languages or understanding cultural and protocol issues. Especially in relating to low-income, low-resource countries right now and low-resource agriculture, our technology is such that there is a very big divide in the way we approach issues and the way a smallholder farmer in Africa approaches an issue.

So an action item in that area might be to encourage USDA to work closely with the Peace Corps, both to provide Peace Corps with technical expertise, but also on the other side of the equation to actually recruit from the Peace Corps or use those types of cul-

tural and language skill training programs for some USDA staff to engage more effectively internationally.

Lastly, I think the American public does not understand the work, as I was mentioning earlier, and I think that our land grant colleges, 1890s institutions, which, unfortunately, have not been mentioned today and I think are extremely important to international agriculture, and extension staff in particular could play a much stronger role than they currently do in helping the U.S. public to understand how important these issues are around the world.

Senator STABENOW. Thank you. Could you also expand a little bit about the connection of agriculture and nutrition and the importance of having, more connections more conversations, more work being done?

Ms. MITCHELL. Right. There has been a lot of attention over the last 3 to 5 years about the nutrition-agriculture linkages, but, unfortunately, there is still not enough being done. I think there are some serious issues.

The first 1,000 days are ultra-critical, and we all agree to that. There is no argument about that. But it does raise questions for agriculture. A woman is pregnant for 9 months. A child should be breastfeeding immediately after birth and up to 2 years. So where is the agriculture play in the first 1,000 days? It is very hard to think of institutionally how you would reach those people and in the time range and with the activities that they are involved with, it is hard.

So we believe in a life-cycle approach. You worry about nutrition throughout an individual's whole life, with special emphasis on the first 1,000 days, 1,001 days and through the formative years, which is basically school age. We know that brain and bone growth do continue up until roughly age 21. Pre-parenthood adolescent girls and their education are ultra-important and can be reached through schools and school feeding with nutrition education. At times of particular vulnerability, if someone is ill, they need special nutritional interventions. If they are elderly, they may need special nutrition.

In those areas, 1,001 days and beyond is where there is the strongest agricultural play, and I think we really need to focus on that, not to say it is either/or. The first 1,000 days we all agree is important, but we also need to worry about the life cycle.

Senator STABENOW. Thank you. Thank you very much.

Chairman ROBERTS. Senator Tillis, I am going to recognize you in just a moment. I think I have discovered the quote that I am looking for, Ms. Mitchell. You said, "There are moral arguments for dealing with hunger at home and abroad, but moral imperative aside, there is self-interest to consider. American interests are at stake, too. The productivity and competitiveness of American agriculture is closely linked to the issues and changing landscape of agriculture internationally; our own agriculture and the U.S. economy can benefit from progress against global hunger."

I think that pretty well sums it up with regards to what we are learning and what our goals are and our challenges are.

You even go on: "Key Issues; why this is not a question of business as usual," and you have listed ten reasons why. Then you have, "Possible actions to address the key issues presented The

United States Government...could do." I think that totals up to 11 different suggestions. We will give these to the Appropriations Committee and see if we can fund all this.

Then you finally sum up with, "Key Issues; why this is not a question of business as usual." Now, the reason I am taking up Senator Tillis' time here, because the questions have been asked of Senator Stabenow, is to compliment you on providing the Committee a blueprint, if you will—somebody said it was a syllabus, but it is a blueprint, and I thank you for that. You have 38 pages. I think you could probably do 50 and make it in 20 point and then people like me could read it. I think it is about 12 point now.

But thank you for this. It has been a very extensive statement. I do not think I have ever read a statement by a witness so comprehensive with regards to this challenge.

Senator Tillis?

Senator TILLIS. Thank you, Mr. Chair. I apologize for being late. I had three concurrent Committee meetings, one of which I was asked to chair the tail end of.

Ms. Mitchell, I would like to start with you. I think you made a comment just before I got here about the goal of some of the organizations involved in this program should set out with a goal of working themselves out of existence. It kind of leads to, the "teach a man to fish" sort of paradigm, too.

What more do we need to do to not make that aspirational but an expectation? How would you go about trying to provide the guidance to say, if you are not at that point, we need to get someone else in that can get to that point? What advice would you have for us, or any of the others?

Ms. MITCHELL. Well, I think it is primarily to give teeth so that it does not just become a perpetual you get away with it by not working your way out of a job, and to provide some of the tools that we have been talking about in terms of strengthening safety net programs, in terms of local and regional purchase where you can actually provide a market for a farmer's goods so that they do become sufficient, self-sufficient, and they can sell to commercial markets over time, et cetera.

So it is a combination of treating this as not business as usual, actually putting some teeth in some of the decision making around organizations who are involved, and they are all great organizations. I do not want to denigrate the organizations involved, but we have all become dependent ourselves on resources recurring, coming year after year, rather than working our way out of a job and saying, "Well done. We are moving on to something else."

Senator TILLIS. To add to that, what sort of metrics exist—in order to fairly judge whether or not someone is on the right trajectory to end the need for whatever need they happen to be fulfilling because they have somehow fixed the underlying problem, what sort of focus on metrics and other things can we do so that we make that a fair and more objective discussion that we have to have at some point in time?

Ms. MITCHELL. It is a tough equation because agriculture takes a while. I always say it takes 12 to 15 years before you can really see change in agriculture. But if you look at adoption rates, for example, there should be a way to actually measure whether some-

body is using your tool, your seed, your fertilizer, whatever, and they continue to use it once you have physically gone. That kind of follow-up action just does not exist in development operations.

It is also an issue of finding who is going to take over in the country and providing some capacity development, and that is an area which is very hard to convince development workers to do, because that means they are not needed anymore. These jobs are really interesting, very rewarding jobs. So who wants to give that up and turn it over to a local, for example? But that is what we need to do, and we need to incentivize that in a way that makes it valuable to the players to do that.

Senator TILLIS. It seems to me in our lifetime we are probably going to have needs maybe somewhere else, so it is not like the need does not exist. It may just move to a different theater.

Mr. Leach and Mr. Ellis?

Mr. LEACH. Sure. It is an important question, and I think it needs to be a consideration, in regard to everything we do. What is the exit strategy? How do we work ourselves out of a job?

That is not to minimize the importance of helping those who are impacted by crisis. There are still people unfortunately, a growing number of people, impacted by civil conflict or natural disasters that we have to help because they are no longer in their home or their village. There is still that cohort that we, the international community, need to help.

Senator TILLIS. Absolutely.

Mr. LEACH. But to your question, there are number of efforts underway. One I will mention, and then a challenge to all of us. The World Food Program operates a program called "Purchase for Progress", which has garnered a lot of support from the U.S. Government. Actually, most of the support came from two people who understand business—Bill Gates, and Howard Buffett—initially funded the operation. It was a pilot for 5 years, a proven success.

The goal was to help small-scale farmers, who comprise 50 percent of the people who suffer from hunger, become more productive and then access the market so that we no longer have to provide assistance.

This was a very focused effort to help increase productivity, by working with a wide range of partners, talking about everything from fertilizer and irrigation to warehousing, and access to credit. The World Food Program, one of the largest purchases of commodities in the world would be the initial market. But the goal is that they would graduate to participate in open markets.

This program is working, and we can measure it in terms of the number of people and farmers helped, and also the number of farmers who are now selling to companies such as Walmart and not us. That is a measure of success. I think earlier there were comments about how no one wants aid—they want to be able to fend for themselves, and they want to be successful. That is true for everyone around the world.

So that is an example of an overall effort that includes the U.S. Government's Feed the Future program. How do you create the capacity for them to become more productive, access markets, and not rely on external assistance?

In many respects, we buy food from hungry people to feed hungry people, and in the process you lift the first group out of hunger and poverty because they are now active participants in the marketplace.

One of the points Arlene Mitchell mentioned, is the need to build local capacity, and that gets back to the point I was making earlier about safety net systems. We need to place a higher priority on helping countries build their own systems so that they have the capacity to run their own school feeding, and to help people through shocks. The challenge to all of us is to figure out how to mobilize the international community to providing whatever assistance is needed in the short term so that we have an exit strategy.

Mr. ELLIS. Mr. Chair, I know I am over, but with your indulgence, if we could have Mr. Ellis maybe close it out?

Chairman ROBERTS. Sure.

Senator TILLIS. Mr. Ellis?

Mr. ELLIS. Our job in the value chain changes every year. We mentioned bulk quantities of an enriched cornmeal that would go probably two or three times what we ship out of our system today.

Our job is to stay relevant in the conversation, we feel, so you have target audiences. As we get a better understanding of what nutritional shortfalls there are, we continue to adapt the products, continue to get to where there is a more targeted audience that is going to take that product. That is, in a way working ourselves out of some of what we did in the past, and either we stay relevant by providing some better nutritional value, or there will be other solutions that can take place of that.

Senator TILLIS. Thank you.

Thank you, Mr. Chair.

Chairman ROBERTS. We have just heard from the Deputy Secretary of Agriculture as well as those working on the ground about the role that agriculture plays in combating global hunger and related topics. Agriculture is clearly at the epicenter of our ability to address food shortfalls around the world. We must continue to be forward thinking, find new and innovative ways to get ahead of the coming population and production challenges.

We in the agriculture industry have had a long history of exactly that kind of innovation. We can do this. It is through our dedication to research, our expansive knowledge in the development of value chains, and the advancement of new technologies that place the United States agriculture community on the front lines of the fight to end hunger around the world.

This will conclude our hearing today. Thank you to each of our witnesses for sharing your views. The testimonies provided today are extremely valuable for the Committee to hear firsthand. To my fellow members, I ask that any additional questions you may have for the record be submitted to the Committee clerk 5 business days from today or by 5 p.m. next Wednesday, December 9th.

The Committee is adjourned.

[Whereupon, at 12:14 p.m., the Committee was adjourned.]

A P P E N D I X
DECEMBER 2, 2015

**Testimony Prepared For
D. WADE ELLIS
Vice President and General Manager of Bunge North America Milling**

**Before the
Committee on Agriculture, Nutrition and Forestry
United States Senate**

December 2, 2015

Compassion and prudence are equally important in this undertaking; our food-for-peace program partakes of both.¹

*President of the United States Dwight D. Eisenhower,
September 1, 1960*

I appreciate the opportunity to testify as this committee considers international food assistance programs. I am Wade Ellis. I am Vice President and General Manager of Bunge Milling, a part of Bunge North America in St. Louis. I oversee our milling operations in Kansas, Nebraska, Illinois, California and Indiana. Our job is to develop and supply milled corn, wheat and rice products for our customers. We are proud of our role in the food supply chain. We purchase corn, rice and wheat from America's farmers and produce milled products for some of the most recognized brands in the world. To be successful, we must listen carefully to the whole value chain of people -- from researchers who reshape our knowledge, technologies and techniques, to producers who share their expertise, to societies and groups asserting their hopes and values in production and consumption choices and ultimately, to the customer's needs and preferences for food here and abroad.

We in the North American milling unit are part of a venerable agribusiness -- Bunge -- founded in 1818 in Amsterdam. Bunge moved and expanded with the development of modern agriculture around the world and today, our facilities circle the globe. More than 35,000 employees help farmers produce larger harvests, seamlessly connect with growers, processors, handlers and customers, maintain relationships within and among regions, and produce our own high-quality products ranging from animal feed to consumer foods to renewable fuels. Most of Bunge's history is that of a privately held firm, but in 1999, we moved our headquarters to White Plains, New York in anticipation of going public in 2001.

¹ Dwight D. Eisenhower: "Remarks at the fifth International Congress on Nutrition," September 1, 1960. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*.
<http://www.presidency.ucsb.edu/ws/?pid=11927>
Also: <https://www.youtube.com/watch?v=vNSr35r--kl>, Accessed November 23, 2015

For decades, Bunge has been proud to compete to provide basic commodities for distribution in U.S. Food Aid programs. What began as a program to supply bulk commodities later shifted to a product line of high quality, nutritious foodstuffs that meet the requirements for famine emergencies wherever they occur. Corn soy blend, corn soy milk, corn meal, soy fortified corn meal, bulgur wheat and soy fortified bulgur wheat were formulated to provide vital nutrients, quickly and efficiently, in forms and flavors acceptable to people of diverse cultures. And the program continues to improve. Working with other companies and the U.S. Department of Agriculture over the years, we've contributed to progress in the enrichment of foods by volunteering resources and expertise. For example, when the bulgur did not blend well with the added enrichment we worked with the supplier to find a solution. We found a product that had the same nutrition level, but created a higher quality finished product. Further, we have made significant investments in our packaging capabilities to best meet the needs of the distribution and storage requirements of these programs.

Advances in food and nutritional science have led to new and improved products and made it possible to deliver more nutritious foods to children, mothers, HIV-positive individuals, the elderly and others with specific food needs. Ready-to-use therapeutic foods, including lipid-based products, became available as supplements to basic food staples, allowing our food aid products to save more lives and to mitigate some of the effects of malnutrition, particularly for infants and toddlers.

Our role as processors of these vital products gives us unique perspective into the value this program brings from one end of the value chain to the other. Ultimately, the real winners are the people receiving U.S. food aid in an acceptable, usable form, with other benefits accruing up and down the food supply chain and to the nation itself.

Food aid in context

Some have called the U.S. food aid program -- PL 480 -- "a marriage of convenience" that let the United States dump its agricultural surpluses in remote places for use in emergencies as part of a development strategy. What these critics missed was the investment made in peoples' futures, an effort to build relationships, and the desire of Americans to contribute to a better, more peaceful world.

"Marriage of convenience" does not apply to the U.S. Food for Peace program.

To prepare for today's hearing, I looked at the 60-plus years of Public Law 480, which formalized U.S. international food assistance. From its inception, U.S. President Dwight D. Eisenhower demanded that PL 480 be administered prudently. He knew that there were risks if food aid disrupted overseas markets. At the same time, he understood how the scourges of hunger and starvation in places where crops -- or the political systems -- had failed made the world a far more dangerous place. U.S. food aid was to be a bridge to another harvest and a conduit to development and trade -- not a disruptor of local production and marketing.

President Eisenhower also saw Food for Peace among the best tools he had at his disposal. One look at USAID food bags emblazoned with the Stars and Stripes, and the words “From the American People” front and center and people understood the United States was responding to their need. Food for Peace buoyed the U.S. reputation for doing good in the world. It also has brought pride to the agricultural sector – a point I will cover in a moment.

Six years into the Food for Peace program, Eisenhower spoke about its significance, bringing relief and opportunity to those in the grip of poverty and war. But as he noted, “the world cups its ear to hear the rattling of rockets. It listens less closely to the sounds of peace and wellbeing that emanate from the slow but steady improvement in world health and nutrition.”²

(A copy of President Eisenhower’s statement is attached to my testimony. I ask that both be made a part of the hearing record. It is an excellent example of extolling leadership by the United States.)

Program changes

In fact, there has been relatively steady improvement in global nutrition and health. In Eisenhower’s presidency, one in three people on the planet faced chronic hunger and under-nutrition. By 1980, the numbers were one in five. Today, the FAO estimates that one person in nine goes without adequate nourishment. With rare exceptions throughout that period of time, the world production of food kept pace with demand.

But the world continued to change and so did PL 480 – sometimes for better; sometimes for worse. Critics complained when the program became too much a tool of U.S. foreign policy. This Committee helped ensure that PL 480 kept its agricultural roots. When the mix of commodities included in PL 480 was questioned, a review and more program modifications followed. When PL 480 became more rule-bound than suppliers, recipients and even administrators liked, Congressional agriculture panels took note and maintained the program features that made this agricultural program vital to the sector.

By the end of the cold war and with a new global order in trade, Titles I and III were suspended and the program shifted largely into emergency response and long-term agricultural development. New titles were added, such as farmer-to- farmer volunteer initiatives to provide technical assistance to farmers and agricultural operations in developing countries. The Emerson Trust, Food for Progress and McGovern-Dole joined the line-up in PL 480, playing their respective roles in the goals Congress created in 2008, to:

- Combat world hunger and malnutrition and their causes;
- Promote broad-based, equitable and sustainable development, including agricultural development;
- Expand international trade;

² Ibid.

- Foster and encourage the development of private enterprise and democratic participation in developing countries; and,
- Prevent conflicts.

What has not changed is the agriculture sector's pride and support for PL480.

Also unchanged is the agricultural community's support for domestic purchases of U.S. commodities as the basis for U.S. food aid.

The need for food aid has not gone away. Crises stemming from hunger occur all too frequently today and they reshape the world as we know it. Back-to-back crop shortfalls in key producing areas were a catalyst to popular uprisings in the Middle East not even a decade ago, and today the consequences continue to reverberate around us all.

We have had faith that the agricultural panels here and in the House of Representatives will maintain a vision of Food for Peace consistent with its original intent. As it evolves to meet the needs of a world with 9 billion people, new flexibilities will be needed. PL 480 also has a role to play in achieving a 70 percent increase in world grain and oilseed production by 2050. Its farmer-to-farmer connections, support for education by feeding school children in the developing world, ties to global institutions that monitor supply/demand balances and contribute to food security are important assets for the future.

Trade has grown to deliver surpluses to the places where they are wanted.³ Today, about 12 percent of the global population is served grains, oilseeds, pulses and their products through international trade. That's more than 700 million people deriving a substantial part of their diets through the international market.

By 2050, nearly 1.4 billion people's diets may be served by international trade. The world's bread baskets will be asked to deliver, but new production will have to go to those places with land, water and eco-systems suited to grow crops, and with infrastructure to get them to market. Trade will grow, but more areas of the world will have to adapt their agriculture to feed the world's growing, more-urban population.⁴ The margin for error becomes slimmer.

We know that it will take many commitments in many forms to feed the world. Just as there is an imperative for food aid now, the imperative for food aid will always be with us. Specific expertise in food aid and an industry positioned to provide it efficiently also will be necessary. With compassion and prudence, the United States should claim this as one of our areas of excellence contributing to a better world.

Just as the fight against hunger and malnutrition is a constant battle, keeping up with the world's perceptions and needs must be fought on many fronts – on far away continents and even here in Washington as program decisions are made. Food for Peace remains a critically

³ Bunge internal estimate

⁴ Ibid.

important part of the fight to feed the world. It is a program that Americans, farmers and businesses have been able to take pride in and it saves lives and lessens misery around the world.

Statement by Krysta Harden
Deputy Secretary
U.S. Department of Agriculture

Before the Senate Committee on Agriculture, Nutrition and Forestry
December 2, 2015

Hearing: Agriculture's Role in Combatting Global Hunger

Chairman Roberts, Ranking Member Stabenow, and members of the Committee, I am pleased to come before you today to discuss the role of the U.S. Department of Agriculture in combatting global hunger.

The Challenge of the Future

Today, the United Nations Food and Agriculture Organization (FAO) estimates that 795 million people around the world do not have access to an adequate supply of safe and nutritious food. The United Nations estimates that worldwide demand for food will increase 60 percent by 2050. During the same time frame, the world's population is expected to grow to between 9 and 10 billion. The growing world population will strain our ability to feed these people. To meet this need, production in developing countries will need to almost double. Some experts have estimated it will take as much innovation in agriculture in the next 40 years as in the preceding 10,000 years to meet the growing demand for food.

We must also focus on combatting global hunger in emergencies especially given that in 2015, the World Food Program reports the need to currently address six declared emergencies at the same time and several of them are long term relief efforts. Thanks to the support of this Committee and your congressional colleagues, the U.S. is the world's largest donor country for emergency food assistance, which contributes greatly to these critical humanitarian responses.

Our best hope for achieving global food security requires building agricultural production and productivity via research to achieve scientific and technology development and trade capacity, along with efforts to mitigate global food loss and food waste, areas in which the United States and USDA excel.

Investing in Global Food Security

Let me start with a little history. The G8 nations committed in 2009 to act with the scale and urgency needed to achieve sustainable global food security, noting the challenges on the horizons. President Obama pledged then that the United States would invest \$3.5 billion for

2010-2012. The subsequent effort, launched as the Feed the Future Initiative, led by USAID and State, drew on expertise from across the federal government agencies to address global food security. Feed the Future has now exceeded the President's commitment and in the latest report released by USAID, data shows that our work is making a difference in reducing poverty and increasing global food security. USDA is a key member of the whole of government effort on Feed the Future and supports global food security through in-country capacity building, basic and applied research, and support for improved market information, statistics and analysis. In our work around the world, USDA trains small farmers and foreign officials on plant and animal health systems, risk analysis, and avoiding post-harvest losses; completes assessments on climate change; and helps to increase agricultural productivity.

Expanding Research Globally

By leveraging the strengths of our intramural research, as well as our research partners across the federal government, the scientific community, and the Land-Grant University System, USDA continues to be a leader in global agricultural research.

In regard to global food security, our ability to understand the genetic make-up of livestock and crops allows us to be more efficient in growing crops and raising livestock, particularly in the context of climate variability and change and diminishing water and land resources. Genetic research also helps us assist other countries in dealing with pests and diseases they may confront. As part of our contribution to the U.S. Government's Feed the Future initiative USDA committed to four high priority projects. USDA researchers have sequenced the genome of wheat and the wheat stem rust pathogen and introduced UG-99 resistant wheat varieties; have improved the productivity and quality of the common bean; introduced AflaSafe in Kenya to combat aflatoxin in maize; have applied genomics to goat improvement for African producers; and are helping to develop a safe and economically sustainable vaccine for the pathogen that causes East Coast Fever, a devastating disease of cattle of eastern Africa. USDA's National Institute of Food and Agriculture also cooperated with the Department of Energy and the National Science Foundation to fund a multi-institutional team of researchers that sequenced the genome of the common bean, a crop that provides as much as 30% of the daily dietary protein in some developing countries. These are just a few examples of the significant advances we have made as a result of research that will have an impact on the capacity of the globe to produce enough food and help feed an ever increasing world population.

As Secretary Vilsack has said “research is not helpful if you keep it to yourself.” USDA has undertaken an ambitious open data initiative to unlock USDA research for others around the world. In 2013, the United States, along with the United Kingdom, launched the Global Open Data for Agriculture and Nutrition (GODAN) initiative, which seeks to support global efforts to make agricultural and nutritionally relevant data available, accessible, and usable for unrestricted use worldwide. The initiative, which USDA and USAID are supporting, focuses on building high-level policy and public and private institutional support for open data and encourages collaboration and cooperation among existing agriculture and open data activities, without duplication, to solve long-standing global problems. GODAN is open to public and private entities including donors, international organizations and businesses. To date, over 169 partners have signed on to the GODAN statement of purpose. Open access to research, and open publication of data, are vital resources for farmers, farmer organizations, researchers, extension experts, policy makers, and governments seeking to improve food security.

USDA has also led the charge to better coordinate global agricultural research efforts. In 2012, USDA advocated for and was instrumental in forming the establishment of the G20 Meeting of Agricultural Chief Scientists (MACS). Thus far, they have met three times. MACS seeks to promote collaboration among the major public funders of agricultural research and this forum has proven instrumental in identifying key global challenges, like the development of animal disease vaccines, development of crops and crop varieties, or technologies that reduce the needs for inputs such as water, nutrients, or pesticides that have a significant impact on global food security and would be mutually beneficial from a collective effort to solve. These can be particularly helpful to the developing world as key research is pursued among the G 20. USDA coordinates these efforts with other Administration agencies.

And because USDA has one of the premier collections of seed and genetic materials, USDA has partnered with the Global Crop Diversity Trust and Bioversity International to create GRIN-Global (Germplasm Resource Information Network/System.) GRIN-Global provides the world’s genebanks with a powerful, flexible, easy to use plant genetic resources (PGR) information system to safeguard plant genetic resources and information vital to global security. Our partners provided translation of GRIN into several languages including those used in the developing world.

The Challenge of Climate Change

I know—as do the farmers, ranchers and forest land owners at work across this country—that climate change is a threat. It is real. Climate change threatens the bottom lines and the livelihoods of producers, and weakens rural economies. That has implications not only for agricultural producers and forest landowners, but for every American.

Climate change represents a significant threat to the ability of America's farms, ranches and forests to meet global needs for food, fiber and fuel. In order to meet that demand, our producers have to prepare for, mitigate, and adapt to the impacts of climate change and the severe weather that comes with it. From producing biofuels and installing renewable energy systems on their operations, to discovering and implementing the latest conservation techniques, they have driven the development of many of the most critical components in the fight against climate change.

Earlier this year, at Michigan State University, Secretary Vilsack announced a series of ten Building Blocks for Climate Smart Agriculture and Forestry. This was an ambitious, voluntary strategy that builds on the good work of farmers, ranchers and foresters to reduce climate impacts and secure the future food security of our Nation. Through this comprehensive set of voluntary programs and initiatives spanning its programs, USDA expects to reduce net emissions and enhance carbon sequestration by over 120 million metric tons of CO₂ equivalent (MMTCO₂e) per year – about 2% of economy-wide net greenhouse emissions – by 2025. That's the equivalent of taking 25 million cars off the road, or offsetting the emissions produced by powering nearly 11 million homes last year. This strategy positions the United States and our producers as global leaders in climate-smart agriculture and forestry. It demonstrates to the world that these sectors can implement solutions to reduce greenhouse gas emissions, while simultaneously boosting productivity to meet growing demands for food and fiber, stimulating the rural economy, and offering compatible environmental and economic benefits.

Today, Secretary Vilsack, attending the Climate Convention in Paris, is announcing the release of a major scientific assessment entitled, "Climate Change, Global Food Security, and the U.S. Food System." USDA led the production of the report on behalf of the thirteen Federal Agencies of the U.S. Global Change Research Program. The report identifies the risks that climate change poses to global food security and the challenges facing farmers and consumers in adapting to changing climate conditions. While the report itself is global in scope, its findings

address the pressing issue of how climate change will affect the U.S. food system. This analysis will help us better understand specific risks and vulnerabilities due to climate change.

USDA is also leading efforts to establish a Global Alliance on Climate Smart Agriculture, which aims to integrate climate change planning into agricultural systems worldwide. USDA coordinates closely with Administration agencies in this effort.

Domestically, USDA is working closely with farmers, ranchers, and foresters to promote their capacity to conserve ecosystems, survive droughts, maintain soil, and prepare for climate change and extreme weather events. We have enrolled a record number of acres in conservation programs over the past six years, working with as many as 500,000 farmers and ranchers each year to implement conservation practices. Between 2010–2014, USDA invested nearly \$170 million to help producers apply on-farm conservation measures on over 700 thousand acres to address air quality resource concerns for designated high priority geographic locations. Since 2012, USDA has invested \$638 million to increase irrigation efficiency, and approximately \$481 million in soil health practices that help retain soil moisture--healthy soil is more resilient to erosion and better able to store water through extended drought periods. We've also invested more than \$610 million in research by USDA scientists and partners at land-grant universities to develop innovative climate solutions and tools that can be applied on the farm and in the forest.

Our network of regional Climate Hubs established last year can tailor and disseminate these tools and transfer information to meet regional conditions and help producers implement climate-informed management practices. On a recent trip to Puerto Rico, I had the pleasure of visiting the USDA Caribbean Climate Sub Hub in Rio Piedras. I was truly impressed by the collaboration taking place at every level – federal, state, and local. Producers in the Caribbean understand that climate change can have very real impacts on their operations and way of life – they see it every day from more extreme hurricane seasons, an uptick in drought and fires, and loss of coral reefs. The folks at the hub said their goal is to turn this into action – instead of turning producers away from the land, they want to teach them how to adapt to these changes so they can stay on the land.

Reducing Food Waste

Just this past September 2015, the United States announced its first-ever national food loss and waste reduction goal, a commitment to cut food waste in half in 15 years. Our newly-announced national goal is aligned with the United Nations' Sustainable Development Goals,

which include a target to reduce global food loss and waste by 50 percent by 2030. Food loss and waste, which the United Nations Food and Agriculture Organization (FAO) estimates accounts for 30 percent of the global food supply, strain our ability to sustainably nourish our growing population while also safeguarding our natural resources. According to the USDA's Economic Research Service, food loss and waste in the United States is also estimated to account for around 30 percent of the food supply, which USDA's Economic Research Service estimates is approximately 131 billion pounds per year.

At USDA our philosophy, at its core, is simple: Let's feed people, not landfills. Meeting our national and international goals to reduce food waste will require leadership from all sides to reduce, recover and recycle from individual families, business, communities, charitable organizations, faith-based organizations, NGOs, the entire food systems supply chain, including on farm, storage and transportation systems, restaurants and retail systems. USDA will continue to encourage the private sector—food service companies, institutions, restaurants, grocery stores, and more—to set their own aggressive goals for reducing food loss and waste. We will also continue to encourage businesses to donate wholesome food to qualified nonprofit organizations. USDA recently streamlined regulations for donating wholesome misbranded meat and poultry products. Finally, we are very focused on public education to raise awareness in the United States about impacts of high levels of food loss and waste and about ways to reduce it. In this effort, USDA and EPA launched the U.S. Food Waste Challenge – and have already been joined by over 4,000 businesses and organizations in the effort to reduce, recover, and recycle food loss and waste.

Building Global Food Security through Trade

Achieving global food security is important not only to hundreds of millions of hungry people, but also to the sustainable economic growth of developing nations and the long-term economic prosperity of the United States. International trade contributes to global food security by enhancing supplies and variety of foodstuffs in food insecure countries. As we help countries become more food secure and raise incomes, we also enhance export opportunities for American producers.

For example, between fiscal years 2009 and 2015, U.S. agricultural exports to developing countries grew 51.7 percent, significantly outpacing the 33.8 percent to developed countries over that same time period. With a strong economic outlook, a growing middle class, and surging

demand for consumer-oriented foods, sub-Saharan Africa is one of the fastest-growing regions for U.S. agricultural exports. Over the past decade, U.S. agricultural exports to the region have grown by more than 50 percent, totaling \$1.9 billion in 2015.

That is why two years ago, I launched USDA's Sub-Saharan Africa Trade Initiative, with a trade mission to South Africa and Mozambique, with the aim of expanding U.S. commercial ties to the region. Last month, I returned to Africa to continue that effort with a mission to Accra, Ghana. The mission included 26 U.S. companies and agricultural commodity trade associations representing agricultural products including grains and feeds, peanuts, soybeans, meat and poultry products, agricultural machinery, and more. Participants met potential customers from more than a dozen countries across Sub-Saharan Africa, forged relationships, and learned about the market conditions and business environment in the region. This first-hand intelligence will help them develop strategies to start and expand sales to these key markets.

Trade agreements like the Trans-Pacific Partnership (TPP) are also critical. The TPP is about opportunity. The agreement will advance U.S. economic interests in a region that accounts for nearly 40 percent of global GDP. This high-standard agreement will expand U.S. agricultural exports, generate more rural economic activity, and support higher-paying American jobs. In Southeast Asia in particular, it will break down barriers to U.S. exports and smooth regulatory processes, increasing our ability to work with each other for mutual benefit, including increasing food security in our partner's nations.

Utilizing New Technology

Part of the solution to increasing global food security is utilizing new products that are more productive and are able to resist pests and disease. Biotechnology has already delivered significant benefits to farmers and consumers and it holds even more promise for agriculture here in the United States and around the world. Over the past 20 years, due to improved plant breeding practices and biotechnology, agriculture yields have increased. Since the first authorized biotech crops in 1985, we have witnessed an amazing development of new varieties that resist pests and drought, and reduce the amount of water and fertilizer needed to grow staple crops. Recognizing the benefits of these products, today, farmers are planting these new varieties. We believe that biotechnology stands to play a significant role in our effort to support our drive toward energy independence, conserve our natural resources, and meet the world's growing demand for food, feed, fiber, and fuel.

Farm Bill Authorized Programs at Work

Through our Foreign Agricultural Service (FAS), USDA programs established by Congress support global food security through in-country capacity building and trade facilitation. These programs include the Food for Progress program (FFPr), the McGovern-Dole International Food for Education and Child Nutrition Program (McGovern-Dole), the Cochran Fellowship Program (Cochran), and the Norman E. Borlaug International Agricultural Science and Technology Fellowship Program (Borlaug). Should Congress provide appropriations, USDA will take steps towards implementing the Local and Regional procurement (LRP) program. We appreciate the meaningful reforms in the 2014 Farm Bill, which included authorization of the LRP program and flexibilities within the Food for Peace (P.L. 480) Title II program that enable USAID to achieve more sustainable results and reach about 600,000 more people annually. We also support the additional reform proposed in the President's Budget.

Food for Progress Program: Building Sustainable Agriculture

Since Congress established the Food for Progress program in 1985, it has been a cornerstone of USDA's efforts to support sustainable agricultural production in developing nations that are committed to free enterprise in the agriculture sector. USDA enters into agreements with developing country governments, private voluntary organizations (PVOs), nonprofit agricultural organizations, cooperatives, and intergovernmental organizations.

In FY 2015, FFPr provided 341.1 thousand MT of U.S. commodities valued at \$121.6 million. FFPr projects funded in previous years continue to operate throughout the world. Currently, FAS oversees \$814.6 million in programming in 57 countries that were funded in 2011-2015. FAS is reviewing 31 FFPr proposals received for FY 2016.

I have had the privilege of seeing firsthand how this program is a sound investment in sustainable capacity building in developing countries. Last April, I had the opportunity to meet female rose farmers in Guatemala's Chimaltenango area. The Ixoqui (pronounced ee-SHOW-key) Women's Training and Food Processing Center works only with indigenous women from one of the poorest rural areas in Guatemala. This rose production facility was developed through the FFPr program and implemented by Texas A&M University from 2008-2012. The project started with an irrigation system for the greenhouses and then support was later provided to build a processing and packing room. I met with widows and mothers, grandmothers and daughters

who now possess the skills and knowledge to produce and market roses, thereby generating income for themselves and their families. They are engaging in regional trade, exporting roses to El Salvador. While the project started with USDA funds, it is now a sustainable enterprise.

Last year, I was able to spend time in Ethiopia witnessing how USDA's work is helping the country's agricultural sector to grow and thrive. I visited a small-scale, woman-owned dairy farm to see how the Feed Enhancement for Ethiopian Development (FEED) Project, an activity supported by USDA's Food for Progress Program, has boosted milk production through better feeding practices and farm management. I met farm owner, Ms. Yetemwork Tilahun, at her operation near the town of Mojo, about 50 miles south of Addis Ababa. This project helped her expand her operation from a single dairy cow to her current herd of 10 crossbred Holsteins, each valued at about \$3,000. As a result of this expansion, Ms. Yetemwork is generating extra income by selling fresh milk to restaurants and hotels, as well as the nearby cooperative. Ms. Yetemwork now employs seven outside hands to help with the increased workload, bringing further benefits to the neighboring community. Ms. Yetemwork has even developed a biogas unit where she composts the livestock waste from her farm to power her home. With USDA assistance, Ms. Yetemwork's farm is the model that other local dairy owners are seeking to emulate.

We also have the ability to respond to requests by governments. At the request of the Government of Jordan, one of our most steadfast partners in the Middle East, Food for Progress is providing 100,000 MT of U.S. wheat, valued at approximately \$25 million. Proceeds from the sale of the commodities will improve the country's agricultural productivity and security; specifically through water conservation (over 20 percent of Jordanians are water insecure). The effort will relieve some of the country's economic burden associated with over 600,000 refugees from Syria living in Jordan.

McGovern-Dole Program: Supporting International Child Nutrition

The McGovern-Dole Program provides U.S. agricultural commodities and technical assistance for school feeding and maternal and child nutrition projects in low-income, food-deficit countries committed to universal education. If funding is maintained at the 2016 President's Budget requested level, the program is projected to assist three million women and children worldwide in 2016.

I had a chance to visit a McGovern-Dole program first hand during a trip to Central America last spring. I saw sixth grade girls in an elementary school in rural Honduras who are enthusiastic about learning and actively engaged in their school gardens. These girls are being, and have been fed daily meals through a McGovern-Dole program in Intibuca (pronounced in-tee-BOO-ka), Honduras through a project with Catholic Relief Services (CRS). Not only are these girls being fed but they are getting educated about nutrition, food safety and sanitation, knowledge they take back to their families. Nearby this elementary school was a kindergarten school where the young girls have only been in a school feeding program for a few months. Their energy level is markedly different from their older classmates. Their hair was not shiny. Their eyes were lifeless and dull. They have probably been undernourished much of their 5 years, and their lack of energy was palpable. But due to the McGovern-Dole program, which provides transportation to distant schools for the most vulnerable students, these girls finally will have the chance to experience school that their elder classmates enjoy.

Congress identified a priority of awarding McGovern-Dole grants that foster local self-sufficiency and ensure the longevity of programs in recipient countries. In Bangladesh, FAS is witnessing success in obtaining local support and sustainability. The Government of Bangladesh pledged that from 2015 onward it will spend \$49 million annually for school feeding programs in poor areas. By 2017, the Government of Bangladesh will manage school feeding in 50 percent of the schools currently receiving food under McGovern-Dole.

Borlaug Fellowship Program: Promoting Agricultural Science

Congress established the Borlaug Fellowship program to promote food security and economic growth by educating a new generation of agricultural scientists from developing countries. The program provides collaborative research opportunities with experts from U.S. land-grant colleges and similar universities and organization working in agricultural research. An illustrative example is the partnerships we have developed with the World Cocoa Foundation through the Borlaug Fellowship program. We have trained over 50 Cocoa Borlaug Fellows to research topics such as pest management, breeding, soil management and disease control and prevention.

Cacao is the perfect commodity to demonstrate how our helping other farmers contributes to food security and, through trade, benefits our own economy. The United States is not a

significant producer of cacao, but for every dollar of imported cacao generates two to four dollars of sales of U.S. peanuts, sugar and dairy.

Just last month, I visited Ghana and met with Sona Ebai the Chief of Party of the World Cocoa Foundation, African Cocoa Initiative, which links public sector with private chocolate buying companies to promote sustainable cocoa production. I saw firsthand the security and opportunity that successful cocoa production can bring to rural communities. Something that meant so much to me was the fact that in these cacao farms, women constituted the majority of the workforce harvesting, sorting, and fermenting the cocoa beans. These women farmers spoke with pride and passion about the importance of land ownership.

USDA is also working to strengthen international production. For example, a \$13.8 million FFPr project is helping Liberian producers expand cocoa production and markets. Following Liberia's civil war, farms lay abandoned and cocoa trees were infected with black pod disease. USDA's project established commercial nurseries for farmers to access high-yielding hybrid seedlings and high-quality plants. In 2008, before the project started, farmers produced a total of 107 tons of cocoa, with sales valued at \$64,000. After the implementation of the project, participating farmers were producing over 1,000 tons, valued at \$2 million. By 2015, farmers were producing a higher-quality cocoa, resulting in a 400 percent increase in prices that the Liberian farmers received.

Cochran Fellowship Program: Operating in Concert with Other Programs

The Cochran Fellowship program was established by Congress to assist countries develop agricultural systems to meet food and fiber needs and improve trade opportunities with the United States. One country example that shows how the Cochran program meshes with other programs in a unified approach to food security is Honduras.

In 2011, the Cochran Fellowship Program helped coffee producers develop a coffee waste biomass digester in Honduras to produce biogas to fuel coffee dryers. That success was a catalyst for a 2012 Food for Progress program that assisted coffee producers in improving their production.

In 2013, Cochran funded a program on capacity building in school nutrition to enhance Honduran officials' understanding of how both U.S. international food aid programs and domestic school feeding programs function. This program will enhance sustainability of

McGovern-Dole school feeding program by helping Honduran government officials determine which type of school feeding program best fits their circumstances.

In 2014, the Cochran program trained Honduran participants on methods of identifying foodborne diseases. This work dovetails with activities under the 2015 Food for Progress agreement that will strengthen the capacity of Honduran officials in sanitary and phytosanitary training. Combined, the training will help Hondurans apply appropriate sanitary and phytosanitary measures to imports, including those from the United States.

At USDA we coordinated with USAID, which helped identify opportunities and provided funding for training to meet a Cochran Fellowship goal of enhancing trade opportunities. Nearly 1,400 Honduran government and private sector officials received training in certification and inspection. Due to the training, Honduras is now home to the only international supplier of Terra Chips, a snack food featuring a wide-variety of Central American vegetables.

From farm to port, from nutrition to food safety, from helping farmers to feeding children, USDA uses the full force of all of its resources to improve food security in Honduras.

Conclusion

Attaining global food security is important not only to hundreds of millions of people, but to the sustainable economic growth of developing nations and the long-term economic prosperity of the United States. USDA appreciates the support of the Committee for our research programs in agricultural science and technology, and for our food assistance and capacity building programs that are so important in combatting global food insecurity.

If you have not done so already, I encourage Members to visit Administration food aid projects as well as project sites around the world that build capacity to see the impact of our food assistance and research, as well as our efforts improving nutrition, increasing school attendance, building agricultural and trade capacity, and building food security.

Thank you. I look forward to your questions.

Agriculture's Role in Combating Global Hunger
Hearing Before Senate Agriculture Committee
December 2, 2015
Testimony for the Record of Richard Leach
CEO, World Food Program USA

Good morning Chairman Roberts, Ranking Member Stabenow and members of the Senate Agriculture Committee. On behalf of World Food Program USA (WFP USA) and the United Nations World Food Programme (WFP,) I want to thank you for holding this important hearing to examine the U.S. role in combatting global hunger. I appreciate this committee's work and the leadership of the chairman and the ranking member.

WFP USA works to solve global hunger through policy advocacy, education and fundraising in the U.S. in support of the mission of WFP, the largest humanitarian agency fighting hunger worldwide. Last year, WFP delivered life-saving food assistance to more than 80 million people in 82 countries, providing hope to communities affected by natural disaster, refugees surviving conflict and families living in extreme poverty. WFP programs provide school meals, nutritional assistance to mothers and young children, and support to communities in building long-term food security that in turn reduces their future need for food aid. The U.S. is the largest donor to WFP programs. We are proud of our partnership with the U.S. Government in delivering hope to millions of extremely vulnerable people in some of the most dangerous and remote places in the world

It is important to recognize the strong, bipartisan support this committee has provided in fighting global hunger – from creating the Food for Peace program back in the 1950's, to launching the McGovern-Dole school feeding program over 10 years ago, to establishing the Local and Regional Purchase program in the 2014 Farm Bill.

U.S. Agriculture's Historical Role

The United States has a long history of providing food assistance to vulnerable people in time of need, beginning as early as 1812 in response to an earthquake in Venezuela. Over the last century, American involvement in international food assistance took on a wholly new dimension as the United States began to emerge as a world leader, notably by providing food assistance to the people of Europe during the First World War.

Thirty years later, following the devastation of the Second World War, in June 1947, Secretary of State George Marshall proposed a strategy to rebuild war-torn Europe known as the Marshall Plan. The affected nations of Europe came forward with their first request through the Marshall Plan: a request for food, which became a major component of U.S. assistance to rebuild Europe. As the U.S. took its first step

as leader on the stage of a post-war world, it was U.S. agriculture in the form of international food assistance that served as a primary catalyst for that entry. U.S. leadership, and the ability of U.S. agriculture to feed people in need, had become a primary source of global stability at one of the most crucial moments in world history.

A decade later, the Eisenhower Administration worked with the Congress to enact sweeping legislation that set in place the major U.S. international food assistance tool that remains the flagship program for American food aid, the Agricultural Trade Development Assistance Act of 1954, enacted as Public Law 83-480 (known popularly ever since as PL 480), and designated in 2008 as the Food for Peace Act.

Title II of the Food for Peace Act is designed to target populations suffering from emergency conditions and those highly at risk from food insecurity and malnutrition. Since the 1950's, Title II expenditures, adjusted for inflation, have totaled nearly \$140 billion. I cannot overstate the importance and incredible outcomes Title II activities have and continue to achieve throughout some of the most troubling and tragic places on earth.

While the Food for Peace Act may be viewed as the most important and far-reaching food assistance program this Committee has created, it was certainly not the last. The Agricultural Act of 1980 created the Food Security Wheat Reserve, known today as the Bill Emerson Humanitarian Trust. Later, the Food for Progress program, included in the Food Security Act of 1985, provided mandatory spending out of the Credit Commodity Corporation (CCC) to use U.S. commodities abroad for developmental purposes.

In this century, recent farm bills have authorized two new programs that have become important tools in the fight against global hunger. These are the McGovern-Dole International Food for Education and Child Nutrition Program, included in the Food Security and Rural Investment Act of 2002, and the program for Local and Regional Purchase (LRP), authorized in the Agricultural Act of 2014.

The McGovern-Dole program is achieving remarkable results in providing nutrition to impoverished children, combined with a school setting, to ensure that not only young bodies, but young minds, especially those of girls, are receiving proper nourishment, growth, and development. Based loosely on the mission of our domestic school feeding programs, McGovern-Dole activities bring together improved nutrition, basic education, health outreach, and community support targeted to long-term sustainability. In fact, a number of countries have graduated from international assistance and now fund their own school feeding programs.

The LRP program is another opportunity to improve food security on a regional basis by supporting local food producers, many of whom are small-scale farmers, and local food marketing systems. The practical benefits of LRP may seem obvious through the potential for more rapid emergency response and lower delivery costs.

But the higher long-term benefit is the development of food systems that may, in time, increase the availability and predictability of the food supply, allow market forces to improve farmer and regional income, and in time contribute positively to the global economy. The UN World Food Programme (WFP) has been an innovator in using its considerable local food purchasing power to buy more from small farmers, thus increasing their market access, incomes, and food security.

It should be noted, that most of the food assistance programs mentioned above have been historically, and statutorily, tied to U.S. agricultural production. This partnership has served well the interests of both the U.S. farmer, and the food recipients on distant shores, and has also benefitted the U.S. transportation sector. In 2008, this Committee created a pilot program for Local and Regional Purchase (LRP) and fully authorized LRP in the Agricultural Act of 2014. These LRP initiatives complement US in-kind food aid and, as was recognized in the 2014 farm bill, LRP linked to the McGovern-Dole program can help make the transition from international assistance to nationally funded sustainable school feeding programs.

While not a program under the jurisdiction of this Committee, it is important to mention another food assistance program that plays an essential role in emergency response and complements the programs described above. It is the Emergency Food Security Program (EFSP), part of the International Disaster Assistance account authorized under the Foreign Assistance Act. EFSP supports local and regional food procurement, food vouchers and cash in emergency situations.

Development food security programs efforts such as Feed the Future and global health nutrition funding also work in tandem with those created by this Committee all toward a common goal of combating global hunger. These programs draw upon America's rich agriculture tradition and experience in order to help small farmers around the world feed themselves and their communities. This experience includes our land grant universities, agricultural experiment stations, and the cooperative extension service that have literally built, perfected, and disseminated the dynamic knowledge base of our current agricultural system.

This combination of program benefits and outcomes, over the course of six decades, is evidence of a larger, and welcome, evolution of U.S. international food assistance programs. Program experience brings recognition of the potential for innovation. In short, U.S. food assistance programs continue to improve in both content and execution, and only through all participants working together can we achieve, or at least approach the goal of a world free from the individual and societal degradation of hunger. To move forward we must embrace a continuing expansion of partners, each with unique purpose, to challenge and overtake hunger as a long-term outcome.

A Comprehensive Approach to Ending Global Hunger

Ending global hunger by 2030 as called for by the Sustainable Development Goals is an ambitious but achievable goal. U.S. leadership in contributing to ending hunger requires a comprehensive global food security strategy in which international food assistance is only one of the important ingredients. Nutrition programs with a strong focus on mothers and young children; assisting countries to build food safety nets for those who lack the economic resources to meet food needs; and agricultural development to help increase incomes and food security for poor, small scale producers should also be important priorities for the U.S. Government. U.S. commitments to the Feed the Future Initiative and the Scaling Up Nutrition (SUN) movement are essential contributions to implementing a comprehensive global food security strategy. More attention should be given to how the US can assist developing countries willing to invest in effective safety net systems that can reduce chronic hunger and mitigate the negative effects of food crises caused by natural disasters and/or economic shocks. Effective coordination between all U.S. government agencies and department involved in food assistance, nutrition and agriculture is essential to implementation of a comprehensive U.S. government food security strategy.

Current Challenges

The world has made substantial progress in reducing hunger over the past 25 years. The proportion of undernourished people in developing countries fell by almost half, from 23.3 per cent in 1990–1992 to 12.9 per cent in 2014–2016. This means there are 216 million fewer hungry people in the world today than in 1990. There are still, however, 795 million chronically hungry people that can achieve food security with the right policies and sufficient investments in proven approaches to hunger reduction. Progress in reducing this number further is threatened by the large number of food crises resulting from protracted conflicts and weather-related disasters.

There is currently an unprecedented need for emergency food assistance. South Sudan, Yemen, Iraq, and Syria are the largest of the many humanitarian crises resulting from conflicts that are the main reason so many hungry people need international food aid to survive. There are now nearly 60 million internally displaced, refugees, asylum seekers, and stateless people globally—the most since World War II.

Weather events are also affecting the most vulnerable and increasing food aid needs. This year's El Nino effect is one of the largest on record with weather disruptions projected to peak between October 2015 and January 2016. It has already produced droughts in Central America and parts of Africa. Its impact will be felt by millions more people in Eastern and Southern Africa throughout 2016.

Food aid donors, led by the United States, have been generous in responding to these expanded needs but rising contributions still fall short of the even larger increase in food aid requirements. As of November 3, the \$3.8 billion in contributions from all donors to WFP in 2015 are still less than half of total annual WFP program requirements of \$8.6 billion. Funding shortfalls have already forced WFP to cut rations for nearly two million refugees and displaced persons affected by conflicts in Syria, Iraq, and Mali. As the effects of El Nino continue to grow, food aid programs in the Horn of Africa and Southern Africa may also face cutbacks due to funding shortfalls.

Credible international assessments have found the recent drop in humanitarian support to Syrian refugees has correlated with the increase in the number of Syrians risking their lives in the hope of finding a better future in Europe. Continued robust funding of U.S. international food assistance programs is vital. Failure to respond adequately to food security crises in conflict situations contributes to instability that ultimately affects U.S. national security interests.

Effective and efficient responses to growing emergency and development food needs require a mixed toolbox of food assistance instruments. The food aid community's needs assessment and market analysis tools are more sophisticated than ever. We have learned a great deal about which types of food assistance – international in kind commodities, local and regional purchase food purchase (LRP), food vouchers, and cash – can best meet the food and nutritional needs of vulnerable people in different circumstances. This knowledge should be applied to the maximum extent possible in the design and implementation of all international food aid programs, including those funded by the U.S. government.

In emergency situations, internationally provided in-kind commodities work best where market structures are weak and/or disrupted by conflict and a country faces large overall food deficits. This is the situation in much of South Sudan and Yemen, where in-kind U.S. food assistance funded by the Food for Peace Title II program has played a vital role in responding to emergency food needs. Delivery of U.S. in-kind food aid to respond to emergencies is timelier than ever before, due to better early warning, assessment, and advance shipment to pre-position food in areas of projected need.

Voucher programs are often the best choice for urban, non-camp refugee and displaced persons situations where local food markets function effectively. WFP and non-governmental organizations (NGOs) have had considerable success in implementing efficient, and well-targeted food voucher programs to assist refugees from Syria, and urban and semi-urban displaced persons and refugees in Iraq and many parts of Africa.

Local and regionally purchased food offers advantages when there are areas that produce food surpluses physically close to other places where there are significant food deficits due to conflict, natural disaster, or chronic vulnerability.

Kenya, Tanzania, Uganda, Central America, and parts of West Africa are just a few of the examples where purchase of food locally can significantly reduce transportation and distribution costs and increase income and market opportunities for small-scale food producers.

Achieving the best nutritional results may require a combination of food aid tools within the same situation. For example, it can be very effective in many circumstances to complement an in-kind commodity basic ration with some cash/voucher assistance for purchase of fruits, vegetables, and dairy in order to provide better dietary and nutritional diversity.

Looking Forward

Agricultural development for small producers, nutrition, safety nets, and emergency food assistance will continue to be the essential four pillars of a comprehensive approach to combating global hunger. U.S. agriculture is well placed to be a food assistance leader and innovator in strengthening all four of these pillars.

U.S. agricultural technical assistance and research can help increase small producer productivity in current food insecure regions, as envisioned by Norman Borlaug and currently supported by the U.S. Feed the Future initiative.

The U.S. food industry and research community can further develop food products with high protein and other features highly suited to address the special nutritional needs of young children, pregnant and lactating women, and people suffering from severe acute malnutrition.

U.S. expertise in food based safety net programs can help developing countries build their own safety nets to reduce hunger among their poorest and most vulnerable citizens. School feeding programs are one of the most widely used safety net programs around the world. The McGovern-Dole International Food for Education and Child Nutrition Program should be implemented in a way that maximizes its contribution to building sustainable national safety net systems.

Congress should build on the positive elements of changes made in U.S. food assistance programs over the past several years. The U.S. is now the largest government donor of both in-kind and cash-funded food assistance. There is clear evidence of the success of the increased flexibility in food aid programming provided in the last two farm bills. Such changes have increased the flexibility of US food aid to respond to market conditions through expansion of programs like local and regional purchase and food vouchers.

The December 2012 Independent Evaluation of the USDA Local and Regional Food Aid Procurement (LRP) Pilot Program authorized by the 2008 Farm Bill found that food aid provided through the pilot program had significantly shorter delivery times

than traditional in-kind food aid with significantly reduced costs of up to 33% on all commodities except vegetable oil. The positive results of the additional cash flexibility in the Food for Peace program provided by the 2014 farm bill are also beginning to be documented by USAID and implementing partners, including WFP. The inefficient practice of food aid monetization has been further reduced, resulting in better programming that reaches more people at the same cost.

Modernizing our food aid programs should be based on evidence and the evidence is clear. Continuing to increase over time the portion of US food aid that can be used for local and regional purchase and food vouchers will increase program effectiveness and reduce costs. Ending the minimum requirement for food aid monetization should be seriously considered. Delinking Agriculture Cargo Preference (ACP) costs from the U.S. food aid budget would allow U.S. food aid programs to serve over a million more hungry people. To the extent the US government determines it necessary to subsidize American shipping for U.S. national security purposes, those costs should appropriately be paid by national security and defense accounts.

Need for Cooperation

I again want to thank the Committee for raising the topic of global hunger as the focus of this hearing. Today's international food assistance programs have grown from those first enacted sixty years ago, and it is appropriate to conduct their regular review and, as may be found proper and necessary, reform and improvement. Regardless of what programmatic changes this Committee and the Congress find prudent, it remains clear that U.S. agriculture has and continues to have a lasting role as we all face the ever-present reality of global hunger.

It is my hope that this Committee will succeed in bringing together all points of view on this critically important subject. It may appear obvious, but all programs benefit from a pursuit of flexibility, efficiency, and effectiveness. In a town growingly unaccustomed to agreement and compromise, international food assistance has long been a place of common ground, common recognition, and common action. Given all that is happening in the world today, there are millions of people who can't afford for our combined efforts to discontinue.

In the final analysis, we are all partners in the fight against global hunger, with U.S. Agriculture, and this Committee, leading the way. The history of this country is the story of how the American farmer had crossed a continent, tamed a wilderness, survived a Dust Bowl, and became the leader in a fight against global hunger. That fight, as are the American flag and symbols that adorn the packages of food delivered to the people most in need across the world, has come to be not only a source of great pride to all Americans, but says more than can words about who we truly are as a people.

Agriculture's Role in Combating Global Hunger

Written testimony to the United States Senate Committee on
Agriculture, Nutrition, and Forestry



Arlene Mitchell, Executive Director
11-30-2015

Introduction

As the Executive Director of the Global Child Nutrition Foundation (GCNF) and as a private citizen, I appreciate the opportunity to submit testimony to the United States Senate Agriculture Committee Hearing on the Role of Agriculture in Combating Global Hunger.

GCNF is a small 501c3 organization with a global reach and reputation. We work with country governments and a number of partner organizations and experts to support developing countries that are implementing school nutrition programs. School nutrition programs are at the nexus of agriculture and nutrition; education and health. Every issue addressed in this testimony is relevant to school nutrition, and smart investments in school nutrition constitute avenues for strengthening agriculture and local economies as well as combating hunger for this and subsequent generations.

The issue of agriculture's role in combating hunger is of keen importance to me personally, as well. From my childhood on the family centennial farm in Michigan, to my service as both a volunteer (in Niger) and staff in the United States Peace Corps and the U.S. Department of Agriculture, through a decade spent working with the United Nations World Food Program and nearly six years in the Agricultural Development section of the Bill & Melinda Gates Foundation, and now, nearly two years into working at the Global Child Nutrition Foundation, my career has been devoted to the interrelated issues of agriculture, nutrition, education, health, and the elimination of hunger.

My testimony at this hearing pulls from all these experiences, though I cannot possibly do justice to the enormous knowledge and experience housed in these entities. The assertions in this document are my own, presented in a simplified manner, with some supporting citations, but without claim that I am expert in all these areas or that each of the issues and examples provided have been exhaustively researched. It is also worth noting that much work is already going on in the areas highlighted herein. I have focused on these areas because they are so critical, in my judgment, and because I feel that a combination of new approaches and more urgency are needed.

Agriculture Must Play a Major Role in Combating Global Hunger

Agriculture—especially American agriculture—can play a major role in combating global hunger. Hunger is a scourge that has negative ramifications both for the hungry themselves and even for those far removed. The hungry suffer the direct anguish and debilitating effects (even death) for themselves and their families; those far removed from hunger also pay a price, through the costs associated with humanitarian assistance and health care as well as the toll of lost education and productivity.

The United Nations World Food Program cites six major causes of hunger: the poverty trap, lack of investment in agriculture, climate and weather, war and displacement, unstable markets,

and food wastage.¹ In fact five of those six causes (all but war and displacement) are directly linked to agriculture. It can therefore be argued that the primary solutions to hunger can also be found in agriculture.

There are moral arguments for dealing with hunger at home and abroad, but moral imperative aside, there is self-interest to consider. American interests are at stake, too. The productivity and competitiveness of American agriculture is closely linked to the issues and changing landscape of agriculture internationally; our own agriculture and the U.S. economy can benefit from progress against global hunger.

Summary Section

This report highlights and explores those issues which closely link agricultural solutions to world hunger and domestic agriculture and broader U.S. interests. The changing global landscape and additional reasons for considering new and relatively urgent strategies are also covered, followed by some actions that could be considered for addressing the issues discussed. This section summarizes the full document; the full document goes into more detail regarding the Key Issues.

Key Issues; why this is not a question of business as usual:

1. Too much food is wasted or lost in and outside the U.S.; experts estimate that a third of the food produced is not eaten. This is a triple loss: There is less food available for those who need it; the entire original investment involved in producing the food is lost; and additional investment is required to replace the amount lost or wasted.
2. Transportation is a major cost and hindrance to addressing hunger both domestically and internationally. Storage is a related challenge. Transportation and storage issues alike contribute to the huge losses described in #1., above. They also can hinder access to inputs and, thus, agricultural production.
3. Food safety threatens the food supply globally as well as for American consumers.
4. Agriculture globally—including American agriculture—does not adequately include women, despite their indisputably important roles throughout the interrelated fields of farming, water use, food handling and preparation, and family wellbeing.
5. Agriculturalists are getting old, the world around. There is a burgeoning youth population; unemployment rates for youth are very high—particularly in developing countries, but youth are not studying nor pursuing careers in farming or other agricultural fields.
6. Markets are weak or broken in key areas of the world (especially in sub-Saharan Africa), resulting in limited access and few incentives for farmers to invest and produce commodities in additional quantities and of higher quality; adoption of improved seed

¹ <http://www.wfp.org/stories/what-causes-hunger> "What Causes Hunger", United Nations World Food Program (WFP), November 2013

varieties and better farming and post-harvest techniques remain low in the poorest countries of the world.

7. There are crop and animal diseases and pests which—left unchecked and unstudied—threaten the world's and the United States' food supply.
8. Agriculture and nutrition goals and programs are not in sync.
9. The protection of biodiversity and the exploration of plants and animals currently unfamiliar to those outside their indigenous communities are critical to food security.
10. Agriculture affects health and health affects agriculture, but the two sectors work in silos.

Other relevant developments affecting agriculture and global hunger reduction:

- A. Investment and developments in agricultural science in China, Brazil, India, and elsewhere have been growing and becoming more sophisticated.
- B. Population growth and the buying and pricing policies and practices of middle income countries and commodity market investors are having significant impact on global food supply, prices, and movements.
- C. Political and economic pressures, the technical and digital divide, conflict and displacement, and global weather patterns are challenging providers to consider the sustainability of traditional models of development assistance, food aid and humanitarian relief.
- D. Better methods for dealing with challenging weather and growing conditions are needed to address domestic food security as well as global hunger.
- E. The protection of biodiversity and the exploration of plants and animals currently unfamiliar to those outside their indigenous communities are critical to food security.
- F. Economic growth trends in Africa are positive and projected to continue to be positive.

Possible actions to address the key issues presented

The United States Government and its partners could:

1. Address the transport issues by mobilizing private sector players such as vehicle and aircraft manufacturers and public sector actors such as USDA and the U.S. military to develop developing-country appropriate, 21st Century transportation systems to leap-frog outmoded systems through:
 - a. Two new interlinking systems:
 - i. Farm to aggregation point (consider containerized all-terrain vehicles to navigate from farm-to-market where there are no roads or only tracks that are vulnerable to recurring weather conditions)
 - ii. Medium- to long-haul (consider containerized airships or other options to bypass the currently time-consuming, expensive, dangerous, and corrupt

trucking routes and prohibitively expensive and/or infrastructure-intensive air and sea transport systems)

- b. Ensuring that the new systems are developed with their intended users and that they are “female friendly” so that they will be adopted and will not limit usage by half the population.
2. Promote proven, smallholder- and female-friendly food harvesting and (clean, secure, easy-to-use containerized) storage systems, drawing from both hard and soft sciences and ensuring that they are female friendly to ensure that they will be practical for and used by the intended populations.
3. Address food wastage and loss issues in the U.S. and other developed countries by:
 - a. Educating the public regarding “sell-by” and “use-by” dates and providing guidance for the public to better understand the economics and practices of food use
 - b. Clarifying and strengthening laws and rules about food donations by restaurants, grocers, processed food manufacturers, and others who currently dispose of large quantities of perfectly edible food items
 - c. Developing cost-effective and/or incentives systems for the use of “Grade B” commodities (which are safe to eat, but unattractive or otherwise deemed to be of less than the highest quality)
 - d. Applying fees or other disincentives for particularly egregious or repeated acts involving the waste of food products safe for use.
 - e. Support for research and the development and implementation of waste- and loss-reducing measures and technologies.
4. Address food loss issues in developing countries and elsewhere by:
 - a. Supporting policies and actions such as those listed in #s 1-3, above by other countries and partners
 - b. Supporting the development, implementation, and enforcement of evidence-based food safety standards and control interventions (i.e., through the programs such as the joint USAID-USDA Sanitary-Phytosanitary Standards program and the Partnership for Aflatoxin Control in Africa
 - c. Educating farmers and value-chain players in proper post-harvest handling techniques and about specific health threats (such as aflatoxin and other mycotoxins, E-Coli, Salmonella, and Listeria)
 - d. Investing in training and professional certification (for women, especially) to perform food safety (laboratory, handling, preparation) and inspection services;

support the development of these professions via U.S. Government-funded programs, including McGovern-Dole and other food aid program

- e. Encouraging first-stage processing at the local level to capture some of the value and reduce losses of perishables
 - f. Promote the use of second grade (blemished, ill-formed, or otherwise not “consumer attractive” but otherwise good quality) commodities in processed products, and (also in transformed state) for meals prepared for national school, military, prison, or hospital feeding programs
5. Effectively include women in agricultural and hunger-reduction programs by:
- a. Investing in programs that involve women in the design and implementation of labor-saving devices (consider programs such as the United Nations Development Program-led “Multi-Functional Platform” program which provides motorized, electricity-producing, post-harvest processing machinery and basic literacy and business training to existing women’s groups far off the power grids in African countries).
 - b. Encouraging development and humanitarian actors to develop and implement female-friendly and context-specific communications materials and interaction models. The use of methods such as pictography, oral messaging in local language; hands-free phone and other technologies; and safe transport, child care, and other time-conserving and responsibility-relieving means of including women are needed in order to be effective with women in developing countries (who are generally less-literate, less likely to speak an official language, and more involved in time-consuming and labor-intensive daily work than are men).
 - c. Investing in programs that educate and incentivize men to support women’s full participation in effective agricultural and hunger-reducing activities; expecting ongoing U.S.-funded activities to include these components.
 - d. Encouraging humanitarian and development actors to find opportunities to develop new or re-configure former jobs and their titles and descriptions to prevent the positions from labels or expectations that they are closed to women.
 - e. Supporting training programs such as proposed in 4.d., above that create new opportunities for women that are directly linked to agriculture and reducing hunger and malnutrition.
 - f. Insisting on stringent gender-disaggregated indicators for monitoring, evaluation, reporting, and on evidence-based gender-sensitive interventions as prerequisites for project approval
6. Address the aging of agriculture and create momentum and opportunities for youth to be involved in agriculture and hunger-reducing activities, by:
- a. Investing in accelerated education and training programs targeting particular needs (such as career in farming and agricultural sciences) that incorporate

youth and early-stage professionals from both developing countries and the United States, building on the programs and networks of the following players and programs-- but speeding, improving, and ensuring their immediate relevance to developing countries' agriculture and the domestic need for strong, youthful agricultural talent:

- i. 1890s and Land Grant colleges and their linkages to developing country agricultural institutions
 - ii. Youth program such as 4-H and FFA programs
 - iii. Private sector training and internship programs
 - iv. The Cochrane, Borlaug, Aspen and other such fellows programs
 - v. Private funding and programs (such as those of the MasterCard and the Bill & Melinda Gates Foundation)
 - b. Establishing new models of training specifically for women and supporting ongoing programs (such as the AWARD program for African female scientists), which incorporate support systems necessary for women to be able to participate.
 - c. Promoting agriculture and agricultural careers in modern and effective ways, and to a broader set of audiences (i.e., using social media, reaching beyond rural audiences, involving economic arguments, demonstrating the need for cutting edge innovation, etc.)
7. Support activities to engage developing country smallholder farmers in markets and off-farm employment (where relevant), and delve into understanding and addressing the issue of low adoption rates by:
- a. Supporting well-designed local and regional purchase programs such as the World Food Program's (WFP's) "Patient Procurement Platform" in collaboration with large private sector commodity buyers and "home-grown school feeding" programs. These are programs that are specifically structured to patiently work within developing country contexts to ensure that smallholder farmers can learn to access and produce for large-scale markets. These efforts build on the experiences and lessons of:
 - i. The pilot Purchase for Progress ("P4P") program funded by the Howard G. Buffet and Bill & Melinda Gates foundations and donor governments and implemented by WFP
 - ii. The U.S. Government's pilot Local and Regional Purchase programs implemented by USDA and USAID
 - iii. "Home-grown" school feeding activities supported by the Millennium Development Project's Hunger and Education and Gender Task Forces, New Partnership for Africa's Development (NEPAD), the Global Child Nutrition Foundation (GCNF), the Partnership for Child at Imperial

- College, WFP, the Government of Brazil, more than ten African governments, and others
- iv. The experiences of public procurement programs with specific rural development goals, such those implemented in the U.S. (Farm to School, for example), Brazil, Scotland, and elsewhere
 - b. Supporting 21st Century knowledge exchange/extension activities that involve meaningful two-way communication between farmers and technical resources; providing incentives for listening, learning, and effective gender inclusion as well as rewarding solutions and adoption
8. Understand, prevent, control or eradicate crop and animal diseases, pests, and threats which—left unchecked and unstudied—threaten the world's and the United States' food supply, by continuing to do what is already done well and by:
- a. Working with international organizations and partners to improve early warning and—especially—early-investment systems to detect and counter threats earlier--upon detection of the problem whenever possible
 - b. Mobilizing unique U.S. laboratories and expertise to address outbreaks and potential problems internationally, even if they do not seem likely to directly threaten U.S. agriculture. This can help to ensure relationships and access regarding issues that can unexpectedly become problems for the U.S. and for other issues which are of domestic concern
 - c. Investing in strengthening the capacity to study diseases and pests outside of the U.S. so that the problems can be studied in situ and mitigate the need for importing or transporting hazardous material across borders in order to conduct credible research
 - d. Learning from and sharing lessons with the human health community (e.g., learning from the experience with Ebola in West Africa)
9. Align agriculture and nutrition goals and programs through:
- a. Prioritizing programs and projects which demonstrate concrete linkages between the sectors, such as research and other activities which:
 - i. Support the production, affordability, and consumption of nutritious plants and animal products
 - ii. Incorporate nutrition education
 - iii. Involve obesity prevention and mitigation measures
 - iv. Promote diet diversity
 - v. Measure nutritional value of lesser-known edible flora and fauna and make the results known to the general public
 - vi. Contribute to public understanding of the nutritional value of locally-available foods

- vii. Provide tools and expertise to promote nutrition in developing countries and at home
 - viii. Measure nutritional impact
 - ix. Address the root causes of poor nutrition
 - x. Increase understanding of linkages between certain environmental factors (such as mycotoxins) and nutrition
 - xi. Support the life-cycle approach to nutrition, which goes beyond the first 1,000 days, with particular attention to the second and third thousand days and adolescent girls
 - b. Provide incentives for nutrition-sensitive agricultural activities and/or disincentives for activities which do not promote nutrition
 - c. Prioritize food safety initiatives that address problems such as aflatoxins, which have a known relationship to nutritional status
- 10. Protect biodiversity and support the exploration of plants and animals currently unfamiliar to those outside their indigenous communities by:
 - a. Taking urgent steps to halt the loss of plant and animal species
 - b. Supporting seed banks and other efforts to protect and preserve genetic materials
 - c. Exploring the nutritional and commercial value of products currently unfamiliar or unexploited in the Northern & Western worlds, such as those listed in the “Lost Crops of Africa” Volumes I (Grains), II (Vegetables), and III (Fruit) and “Lost Crops of the Incas” books and initiatives²
 - d. Encouraging small teams of young American and developing country scientists to undertake this adventurous, but significant work, with strong technical and political support and guidance
 - e. Supporting local community understanding and involvement in protecting indigenous crops and animals
- 11. Encourage agriculturalists and health workers to collaborate in areas of mutual impact related to combating hunger through:
 - a. Providing incentives for relevant activities to be jointly planned and implemented
 - b. Supporting specific and relevant collaborative research
 - c. Requesting reports on joint activities, learning, and progress

² <http://www.nap.edu/catalog/2305/lost-crops-of-africa-volume-i-grains> Board on Science and Technology for International Development; Office of International Affairs; Policy and Global Affairs; National Research Council, 1996-2008

- d. Inspiring universities that offer both relevant health and agricultural programs to offer coordinated or integrated health and agriculture curricula and to support a subset of students to pursue double majors
- e. Identify and remove obstacles that deter relevant U.S. Government agencies (i.e., USDA, USAID, HHS/CDC, etc.) from cross-sector collaboration and coordination
- f. Promote humanitarian and development projects that involve on-the-ground inter-sectoral coordination

Other possible actions to strengthen agriculture's role in combating global hunger

There are additional cross-cutting issues that affect agriculture's role in combating global hunger which are less about technical subject matter and are more about relationships, bureaucracies, turf, and funding. These are issues of competition when collaboration is needed, about vested interests when objectivity is needed, and working in silos when cross-sectoral coordination is needed.

While it would require tackling some entrenched behaviors and systems, the U.S. Government could play a role in alleviating some of these dynamics which impede progress in reducing hunger. Some possible ways are:

1. Providing incentives for interagency cooperation and other good behaviors
2. Piloting programs that might change the current paradigm of competition between non-governmental actors, that encourage them to cooperate as equal partners and work from their comparative strengths
3. Instituting rewards for programs that can truly demonstrate decreased dependence on outside assistance; that the work has been completed successfully (in most cases, successful completion of the work would mean that there is no longer need for the implementing organization's presence and services to keep hunger at bay in the targeted community)
4. Creating (again on a pilot basis) some safe ways for development and humanitarian players to honestly discuss failures and challenges
5. Continuing the tradition of bipartisan support and jointly-sponsored initiatives for combating hunger

Full Report

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The United Nations World Food Program cites six major causes of hunger: the poverty trap, lack of investment in agriculture, climate and weather, war and displacement, unstable markets, and food wastage.³ In fact five of those six causes (all but war and displacement) are directly linked to agriculture. It can therefore be argued that the primary solutions to hunger can also be found in agriculture.

There are moral arguments for dealing with hunger at home and abroad, but moral imperative aside, there is self-interest to consider. American interests are at stake, too. The productivity and competitiveness of American agriculture is closely linked to the issues and changing landscape of agriculture internationally; our own agriculture and the U.S. economy can benefit from progress against global hunger.

Some challenges related to ending global hunger are presented in the “Key Issues; why this is not a question of business as usual” section below, with a special focus on those that may not be receiving adequate attention and highlighting the close relationship between agricultural solutions to world hunger and domestic agriculture and broader U.S. interests is discussed. The “Key Issues” section also highlights the changing landscape and some reasons for considering new and relatively urgent strategies. Some actions and ideas for innovation to address the Key Issues can be found in the subsequent section, “Possible Actions”, followed by “Final Notes”.

Key Issues; why this is not a question of business as usual

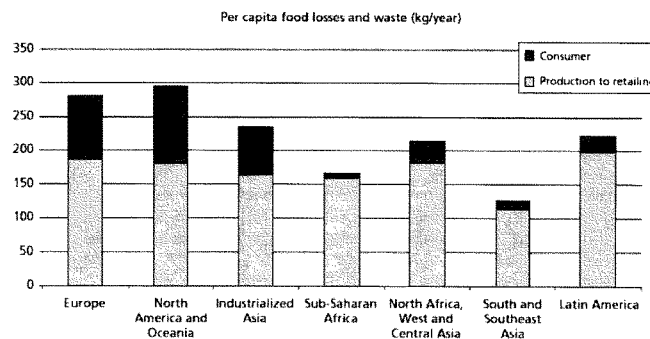
1. Too much food is wasted or lost in and outside the U.S.; experts estimate that a third of the food produced is not eaten. This is a triple loss: There is less food available for those who need it; the entire original investment involved in producing the food is lost; and additional investment is required to replace the amount lost or wasted.

³ <http://www.wfp.org/stories/what-causes-hunger> “What Causes Hunger”, United Nations World Food Program (WFP), November 2013

Consider:

“Roughly one-third of the edible parts of food produced for human consumption, gets lost or wasted globally, which is about 1.3 billion ton per year. Food is wasted throughout the food supply chain, from initial agricultural production down to final household consumption. In medium- and high-income countries food is to a great extent wasted, meaning that it is thrown away even if it is still suitable for human consumption. Significant food loss and waste do, however, also occur early in the food supply chain. In low-income countries food is mainly lost during the early and middle stages of the food supply chain; much less food is wasted at the consumer level. (See chart below.)”⁴

Figure 2. Per capita food losses and waste, at consumption and pre-consumptions stages, in different regions



2. Transportation is a major cost and hindrance to addressing hunger both domestically and internationally. Storage is a related challenge. Transportation and storage issues alike contribute to the huge losses described in #1., above. They also can hinder access to inputs and, thus, agricultural production.

Consider these words of Ambassador Kenneth Quinn, president of the World Food Prize Foundation:

“Want to make a dent in world hunger? Build better roads. Roads help farmers get their crops to market and their children to school...As we confront the greatest challenge in human history—whether we can sustainably feed the nine billion people who will be on the planet in 2050—the importance of upgrading rural roads

⁴ <http://www.fao.org/docrep/014/mb060e/mb060e00.htm>

“Global Food Losses and Food Waste”, Food and Agriculture Organization of the United Nations (FAO), 2011

has never been more evident, nor more in need of emphasis by global leaders. Today, road penetration in Africa is only about 35 percent. In most other parts of the world, where there are lower rates of hunger and malnutrition, road penetration is 95 percent.”⁵

Landlocked countries and countries with large land areas, dispersed populations, and weak infrastructure are the most vulnerable: In the saddest of realities, transport issues—combined with other factors—have played a role in hunger occurring in one part of a country even as there is surplus in another part of the same country. Examples include, but are not limited to, Ethiopia:

“In 2002, despite good harvests in the previous years, Ethiopia was hit by another famine: Production was insufficient, and food did not flow from surplus to deficit areas.”⁶

We know that transport infrastructure is essential to economic growth, and that it is particularly important for the movement of agricultural goods and services. The large-scale investment in the interstate highway system in the U. S. in the 1950s and 1960s greatly expanded is credited with boosting U.S. productivity thereafter; China’s investment in its tremendous trunk road system over the past twenty years has resulted in internal trade gains, even a reported increase of 6 percent of China’s aggregate real income in 2007.⁷

Trucks, trains, ships, and planes move food around the world. But even in developed countries, time, expense, corruption, politics, and/or cross-border issues of these 20th Century mechanisms can have devastating effects. Consider:

“[The 2014/2015 slowdown by workers in West Coast U.S. ports] has created a bottleneck at container ports along the West Coast. Chilled beef and pork, poultry, apples, frozen and dehydrated potato products, frozen vegetables, hay, forest products, Christmas trees, nuts and rice all have suffered combined sales losses in the hundreds of millions of dollars. The U.S. beef and pork industry just obtained access to South Korea’s market only to lose it because of the slowdown...But even after a new contract is signed, the fallout will continue to hurt the region’s agricultural exporters and the farmers who depend on them...It will take months to clear congestion at ports and restore shipments to normal, and there will be the

⁵ <http://news.nationalgeographic.com/news/2014/10/141014-fight-poverty-hunger-ambassador-quinn-agriculture-environment-ngfood/> Kenneth Quinn for National Geographic, October 14, 2014

⁶ <http://cip.cornell.edu/DPubS?verb=Display&version=1.0&service=UI&handle=dns.gfs/1200428184&page=record> Joachim von Braun, Tolulope Olofinbiyi (2007). Case Study #7-4, “Famine and Food Insecurity in Ethiopia”. In: Per Pinstrup-Andersen and Fuzhi Cheng (editors), “Food Policy for Developing Countries: Case Studies.” 11 pp. URL: <http://cip.cornell.edu/dns.gfs/1200428184>

⁷ [http://www.african-review.com/Vol.%204%20\(2\)/Ethiopia%27s%20Investment%20Prospects.pdf](http://www.african-review.com/Vol.%204%20(2)/Ethiopia%27s%20Investment%20Prospects.pdf) African Review of Economics and Finance, Vol. 4, No.2, June 2013, which cites also Fernald (1999) and Nadiri and Mamuneas (1996) regarding U.S. road construction, and Faber (2012), Roberts et al. (2010), Sahoo et al. (2010) and Banerjee et al. (2012), regarding the impact of road construction on China’s economy.

long-term loss of overseas customers, said Peter Friedmann, executive director of the Agriculture Transportation Coalition.”⁸

Another example is fertilizer. The quote below refers to the fertilizer market in Africa, but transport is significant portion of fertilizer cost all around the world.

“The fertilizer market is dependent on the logistics management expertise required to move large quantities of a bulky product. Generally, freight represents the second highest portion of total cost after procurement. These costs can reach astronomical levels when the transport infrastructure is inefficient, in disrepair, or non-existent...To survive and thrive in the fertilizer industry, firms must be logistics gurus, if not magicians.”⁹

3. Food safety threatens the food supply globally as well as for the American consumer.

Again, the problems are most acute in the poorest families and communities of the poorest countries:

“Food production, processing, and marketing systems are complex. In many developing countries they are also highly fragmented and dependent upon a large number of small producers. While this may have socioeconomic benefits, as large quantities of food pass through a multitude of food handlers and middlemen, the risk of exposing food to unhygienic environments, contamination and adulteration increases. Problems occur as a result of poor post-harvest handling, processing and storage of food and also due to inadequate facilities and infrastructure such as the absence or shortage of safe water supply, electricity, storage facilities including cold stores, and transport facilities and networks, etc. Furthermore, a majority of food producers and handlers lack appropriate knowledge and expertise in the application of modern agricultural practices, food hygiene, and good food handling practices.”¹⁰

Consider the long-neglected situation in developing countries regarding aflatoxins, for example. The following summary was prepared by this author in 2011.

⁸ http://www.capitalpress.com/Nation_World/Nation/20150205/port-slowdown-has-damaged-western-ag-export-markets “West Coast Port Slowdown has Damaged Western Ag Export Markets”, by Dan Wheat, Capital Press, February 5, 2015

⁹ http://www.inter-reseaux.org/IMG/pdf/IFDC_ChemonicsFertilizerSupplyandCostsinAfrica_Study_for_BMGF-2.pdf Chemonics, 2007

¹⁰ <http://www.fao.org/docrep/006/y8705e/y8705e06.htm> “Assuring Food Safety and Quality: Guidelines for Strengthening National Food Control Systems”, FAO, 2003

Aflatoxins are highly toxic, cancer causing fungal metabolites—very potent microscopic poisons produced by a widely disbursed family of fungi (*Aspergillus*) which can often be found in soil, and which can remain and thrive in food crops as they move from fields to consumers. Because of its toxicity and prevalence, aflatoxin contamination is a public health and food safety issue. Aflatoxins are considered to be one of the most potent naturally occurring toxic substances. Aflatoxins are known to cause liver disease and, in high concentrations, death in both humans and domestic animals. According to the US Center for Disease Control (CDC) about 4.5 billion people in the developing world are chronically exposed to dangerous levels of aflatoxins through diet.

Chronic dietary exposure to low doses of aflatoxins is a known risk factor for liver cancer and may also affect protein metabolism and immunity, thus worsening infectious diseases and malnutrition. A 2004 outbreak in Kenya resulted in 317 people seeking hospital treatment for symptoms of liver failure, and 125 deaths from acute poisoning. Similar events occurred in 2005 and 2008. Chronic exposure to aflatoxin is also strongly linked to immune-system suppression, increased susceptibility to diseases, and growth retardation. Children are particularly vulnerable, with exposure significantly hindering growth and resulting in micronutrient deficiencies, while newborns of exposed mothers have low birth weights.

Because of food safety concerns, aflatoxin impairs trade as contamination prevents major commodities such as groundnuts, maize, sorghum, cassava, yam chips, cotton seeds, cocoa, copra, and oils from meeting international, regional and local agricultural trade and food safety standards. Farmers suffer economically due to the loss of or lack of access to formal markets resulting from food safety concerns. In 2001, a study estimated that African food exporters lose \$670 million per year by not meeting European Union safety standards alone. Contamination also wastes investments in seeds, tools, and fertilizers, as well as finance, credit, and other programs intended to boost agricultural development and trade.

The handling of contaminated products is also a safety hazard. In Africa, much of the post-harvest manual labor for smallholder farm households falls on women, meaning that they suffer disproportionately from exposure to aflatoxin.

Beyond affecting crops, aflatoxin contamination also impacts the production of healthy livestock through contaminated feed. Animal exposure causes decrease in milk and egg yields and serious illness. Aflatoxin is carried in the milk of animals that have been exposed to the toxin. Among some 200 mycotoxins identified, aflatoxins are the ones of major concern to dairy producers. When feed contaminated with aflatoxins is consumed by lactating cows, they not only can be toxic to the cow but also can appear in the milk within 24 hours... While ruminant animals such as dairy cows are more resistant to aflatoxins than non-ruminants, toxicity does occur with disastrous results. Chronic exposure to aflatoxins has caused decreased breeding herd efficiency, birth of smaller

and unhealthy calves, and more. Calves are particularly sensitive, and aflatoxins can cause noticeable reductions in milk production and appetite.”¹ Similar issues are reported by the University of Kentucky and others regarding beef cattle, sheep, and swine.

Poultry also suffer from exposure to aflatoxin: “Aflatoxins have produced severe economic losses in the poultry industry, affecting ducklings, broilers, layers, turkeys, and quail. While it takes high levels to cause mortality, very low levels are detrimental if fed continuously.

Presenting at a March 2, 2011 meeting in Brussels, Dr. Sarah A. H. Olembo, Sanitary-Phytosanitary and Food Safety Technical Expert for the African Union reported “One third of all maize stores--maize is one among the major staple diets in sub-Saharan Africa--contain concentrations of aflatoxins that are higher than 20ppb, the allowable health safety limit for most countries. The effect on human health is even more exaggerated because the aflatoxin-free foods tend to be exported, whereas aflatoxin-contaminated food is retained in the local food chains.”

Kenya is the most-studied example of aflatoxin contamination in Africa. A report from CDC described tests they conducted of maize flour from 20 large millers in 6 Kenyan provinces in 2010. While the majority of the millers reported taking various precautions to prevent aflatoxin contamination, CDC found 100% of the samples from four of the provinces tested above the government standard of 10ppb; in fact the median was above 20ppb in all those four provinces. Only the Rift Valley province samples showed no contamination above 10ppb; 17% of the samples from the fifth province tested at levels of 10ppb or higher. The conclusion: “Aflatoxin contamination of commercial maize flour was widespread, representing a significant source of exposure for all Kenyan residents, both urban and rural.”

Aflatoxin occurrence is influenced by environmental factors (especially heat and humidity), so that the extent of contamination varies greatly within and across geographic locations, according to production practices, damage by pests, and the susceptibility of crops to fungal infestation during harvest, storage, and/or processing periods.

Because it is realized that absolute safety is never achieved, most developed countries have attempted to limit exposure to aflatoxins by imposing regulatory limits on commodities intended for use as food and feed. Aflatoxin contamination is, in general, not appropriately controlled and regulated in developing countries unless the product is exported, however. Aflatoxin contamination is particularly wide-spread and acute in Africa because of its climate, the fact that there are so many dispersed, small-scale farmers, and challenging drying and storage conditions in the region. As a result, millions of people living in sub-Saharan Africa are chronically consuming high, unsafe levels of aflatoxin through their diets.

There has been little or no investment in poor countries for developing alternative uses for contaminated products. This means that infected food supplies are not re-purposed for safe use as is often the case in developed countries: Depending on the level of contamination, and within prescribed guidelines, infected commodities can be diluted by the addition of sufficient quantities of uncontaminated product, used for ethanol production, and/or used for animal feed (especially when treated with toxin-eliminating binders). Without the knowledge and implementation of such measures in developing countries, the contaminated commodities are eaten by people or animals, or—in very rare occasions—are confiscated and/or destroyed, undermining the welfare of those concerned.

Local and regional purchase programs such as the World Food Program's Purchase for Progress (P4P) program are also undermined when contaminated crops do not meet required food safety standards. Sampling, testing, and diagnostic measures are complicated, expensive, and time-consuming. There is a lack of awareness and regulatory controls, and price differentiations rarely exist between crops that are contaminated and those which are not. These are barriers to incentivizing local control methods, and result in contaminated commodities remaining in the food chain.

According to the United Nations Food and Agriculture Organization (FAO), 25% of world food crops are affected and countries situated between the 40°N and 40°S are most at risk. Small producers, most often women, food consumers, and vulnerable groups, particularly young children, are hardest hit. (Citations for this summary are available on request.)

4. Agriculture globally—including American agriculture—does not adequately include women, despite their indisputably important roles throughout the interrelated fields of farming, water use, food handling and preparation, and family wellbeing.

Consider:

“When women are economically and socially empowered, they become a potent force for change. In rural areas of the developing world, women play a key role in running households and make major contributions to agricultural production. But the inequalities that exist between women and men make it difficult for women to fulfil their potential.

Women rarely have access to the resources that would make their work more productive and ease their heavy workload. Ultimately, it is not just women who are held back, but also their families, their communities and local economies. Rural women have many roles, and they have responsibilities and knowledge that differ from those of men. As farmers, they plant, weed and harvest food crops and tend livestock. As caretakers, they look after children and relatives, prepare meals and manage the home.

Many women earn extra income by working as wage laborers, producing and selling vegetables, or engaging in small-scale trading and enterprises. Added to these multiple tasks, they spend long hours fetching water and collecting firewood. In developing countries in Africa, Asia and the Pacific, women typically work 12 more hours per week than men. In poor and marginal areas and...where men have been forced to migrate in search of work, women often have the sole responsibility for farming and raising the children.

Despite their many responsibilities, women have significantly less access to the resources and services they need to increase their productivity and their income and ease their burden of household duties. Women are held back by lack of education, unequal property rights and limited control over resources. Labor-intensive and time-consuming activities further hinder women's ability to improve their income-earning potential. In order for poor communities to prosper and grow, women's needs and rights must be addressed."¹¹

This is an economic issue, and one directly related to agricultural productivity and hunger.

"Closing the gender gap in agriculture would generate significant gains for the agriculture sector and for society. If women had the same access to productive resources as men, they could increase yields on their farms by 20–30 percent. This could raise total agricultural output in developing countries by 2.5–4 percent.

Production gains of this magnitude could reduce the number of hungry people in the world by 12–17 percent. The potential gains would vary by region depending on how many women are currently engaged in agriculture, how much production or land they control, and how wide a gender gap they face."¹²

5. Agriculturalists are getting old, the world around. There is a burgeoning youth population; unemployment rates for youth are very high—particularly in developing countries, but youth are not studying nor pursuing careers in farming or other agricultural fields.

Regarding the greying of agriculture, consider the situation in the United States, where the average of American farmers was 58.3 in 2012 (see the chart below, "Average Age of Principal Operator"); a full one third were over 65. Assuming the historical trend has continued, the average age of American farmers is now over 60. The average age of African farmers is reported to be over 55 as well¹³.

¹¹ http://www.ifad.org/pub/factsheet/women/women_e.pdf "Women and Rural Development", International Fund for Agricultural Development (IFAD), March 2011

¹² <http://www.fao.org/docrep/013/i2050e/i2082e00.pdf> "The State of Food and Agriculture 2010-11", FAO

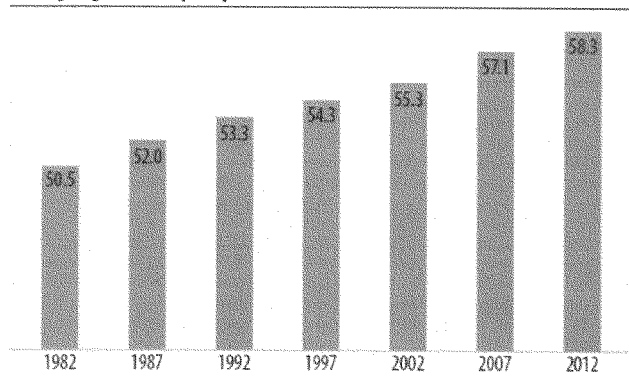
¹³ <http://ensia.com/voices/2014-the-year-of-family-farming/> "The Year of Family Farming", January 2, 2014

Average Age Rising

Consistent with a thirty-year trend, farmers average age continued to increase (Fig. 2). For principal operators, average age increased 2 percent between 2007 and 2012. Although second and third operators are younger, their average ages increased 4 and 3 percent respectively (Table 5). Among principal operators, 6 percent are under 35 years old, 61 percent are 35 to 64 years, and 33 percent are 65 and older. The older age groups all increased in number. (Fig. 3)

Figure 2

Average Age of Principal Operator, 1982 - 2012



Source: USDA NASS, 2012 Census of Agriculture.

Looking at the issue of age in agricultural scientist circles, the picture is equally grey (See Figures 5.1., 5.2., and 5.3. in the chart on the next page)¹⁴

¹⁴ <http://www.asti.cgiar.org/pdf/AfricaRegionalReport2014.pdf>

FIGURE 5.1 | Distribution of public researchers by age bracket and country, 2011

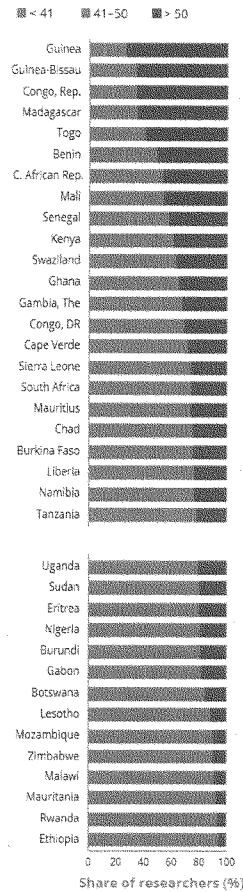


FIGURE 5.2 | Share of PhD-qualified researchers over 50 years old, 2011

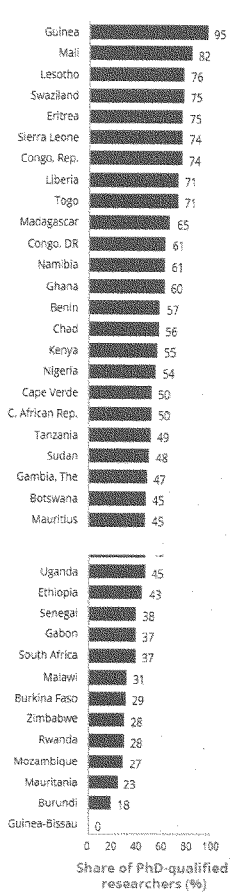


TABLE 5.1 | Official retirement age of researchers by country and sector, 2011

Country	Government	Higher education
Zambia	55	
Gabon	55	65
Chad	60	
Ethiopia	60	
Gambia, The	60	
Ghana	60	
Guinea-Bissau	60	
Lesotho	60	
Liberia	60	
Madagascar	60	
Malawi	60	
Tanzania	60	
Zimbabwe	60	
Benin	60	65
Botswana	60	65
Burundi	60	65
Congo, DR	60	65
Congo, Rep.	60	65
Namibia	60	65
Swaziland	60	65
Togo	60	65
C. African Rep.	62	64

Mozambique	60 for women/65 for men
Burkina Faso	65
Cape Verde	65
Eritrea	65
Mali	65
Mauritania	65
Mauritius	65
Nigeria	65
Rwanda	65
Sierra Leone	65
Sudan	65
Guinea	65 70
Kenya	65 70
Senegal	65 70
Uganda	65 70

Sources: Constructed by authors from ASTI data.

Notes: Data for Nigeria and South Africa only include institutes under the Agricultural Research Council of Nigeria (ARC) and the Agricultural Research Council (ARC), respectively. Data on age distribution in the higher education sector were not available for Burkina Faso, Malawi, Senegal, Sudan, and Tanzania.

Meanwhile, how many young people are there, and what are they doing?

“With 200 million people aged between 15 and 24 (the youth bracket), Africa has the youngest population in the world. The current trend indicates that this figure will double by 2045, according to the 2012 *African Economic Outlook* report prepared by experts from the African Development Bank (AfDB), the UN Development Programme (UNDP), the UN Economic Commission for Africa (ECA) and the industrialized countries’ Organization for Economic Cooperation and Development (OECD), among others.

The story of Africa’s worrisome youth unemployment is often told alongside the story of the continent’s fast and steady economic growth. While six of the 10 fastest-growing economies in the world are in sub-Saharan Africa, the unemployment rate for that region is 6%, according to the AfDB. Compared to the world average of about 5%, its rate may not seem that high. But the problem is that in most African countries, youth unemployment “occurs at a rate more than twice that for adults,” notes the AfDB.

Youth account for 60% of all African unemployed, according to the World Bank. In North Africa, the youth unemployment rate is an eyebrow-raising 30%. It is even worse in Botswana, the Republic of the Congo, Senegal, South Africa and several other countries.

Young women feel the sting of unemployment even more sharply. The AfDB found that in most countries in sub-Saharan Africa and all of those in North Africa, it is easier for men to get jobs than it is for women, even if they have equivalent skills and experience.”¹⁵

A PhD in agriculture currently takes between 9 and 12 years of post-secondary school work to complete. The attainment of a PhD also requires significant amounts of money¹⁶ and family sacrifices, as a rule. Few developing country aspirants (and almost no women) can afford the time, money, and family sacrifices required.

Furthermore, few Masters and PhDs in agricultural fields are offered by developing country universities; the technical divide is so great that very few programs anywhere turn out agriculturalists geared to addressing developing-country agricultural challenges. If they are employed in developing countries, well-trained agriculturalists are often hired into positions with development agencies or companies; if they are

¹⁵ [http://www.un.org/africarenewal/magazine/may-2013/africa's-youth-\"ticking-time-bomb\"-or-opportunity](http://www.un.org/africarenewal/magazine/may-2013/africa's-youth-\) “Africa’s youth: Ticking time bomb or opportunity?” by Kingsley Igebbor, May 2013

¹⁶ A quick review of MasterCard Foundation scholarships programs for undergraduate and graduate studies for African students in just two American universities (Michigan State and Arizona State) shows an average per-student cost of over \$235,000. <http://www.afterschoolafrica.com/7110/scholarships-in-usa-for-african-developing-countries/>

employed in government institutions, they may encounter environments that are less than supportive because of the lack of infrastructure, weak management systems, inadequate compensation and other discouraging conditions.

The U.S. Agency for International Development's once robust investments in agricultural training for African agriculturalists, implemented in coordination with the U.S. Department of Agriculture and Land Grant and 1890s agricultural colleges, ground to a halt in the 1990s. Many working in the field have remarked over the years that these training programs represent one of the best investments the United States has ever made in African agriculture and African-American cooperation in agriculture. Few scholarships are currently available to developing country nationals to study agriculture, although there has been some improvement in recent years, primarily via private funding, especially from the Bill & Melinda Gates and the MasterCard foundations and their grantees and partners.

6. Markets are weak or broken in key areas of the world (especially in sub-Saharan Africa), resulting in limited access and few incentives for farmers to invest and produce commodities in additional quantities and of higher quality; adoption of improved seed varieties and better farming and post-harvest techniques remain low in the poorest countries of the world.

Small-scale farmers are extremely vulnerable to the vagaries of weather and markets as well as the availability of communications and logistics infrastructures.

"... lack of participation in the markets is a common feature of small-scale farming systems worldwide and has also been identified as a constraint by Bie'nabe and Vermeulen (2011). Small farmers generally have low incomes and lack capital, and their attempts to market their products, is adversely affected by poor infrastructure and communication (Bie'nabe and Vermeulen, 2011)."¹⁷

Adoption of new varieties remains a major challenge in sub-Saharan Africa. The following excerpts are from the Bill & Melinda Gate Foundation's DIIVA Project, carried out by the International Food Policy Research Institute (IFPRI)

¹⁷ http://academicjournals.org/article/article1380899833_Berg.pdf "Socio-economic factors affecting adoption of improved agricultural practices by small scale farmers in South Africa", by J. Van den Berg School of Environmental Sciences and Development, North-West University, South Africa. August 2013

“The Consultative Group for International Agricultural Research’s (CGIAR’s) Diffusion and Impact of Improved Varieties in Africa (DIIVA) project collected data on improved crop varieties in Africa south of the Sahara. The project focused on 20 crops and 30 countries – 152 crop-country combinations, together representing over 70 percent of the region’s total agricultural production value.

The project generated three datasets:

- Scientific strength of breeding program. [Not reported in this section]
- The number and type of scientists focused on crop improvement for each country/crop combination.
- Varietal releases. [Summarized below] The number of new varieties released per country/crop combination per decade from the 1960s until the 2000s.
- Adoption. [Summarized below] Estimates of the share of area under each variety in 2009/10; where available, estimates for 1998 are also presented for the purposes of comparisons over time.

...the continued growth in area under Modern Varieties (MVs) indicates that research is continuing to provide farmers with useful technologies – and that farmers are continuing to find ways to take up these new technologies, in spite of the constraints that they face. Of course, there are crop-country combinations where adoption of MVs is still quite low – 14 of the crops are characterized by a mean adoption rate below 35%.

The DIIVA study team looked at this and found the area-weighted mean age of varieties in the field was 14 years across all crops – not much change from the earlier period. More analysis is clearly needed here to understand the causes of this. Some older ‘modern’ varieties are proving to be remarkably robust in the face of many new varieties being released – or, alternatively, recent research has not always succeeded in producing genuinely useful technologies.

The historical data on varietal release across the 20 crops approaches 3,600 entries. About 90% of these have information on the year of release. Maize leads all crops with over 1,000 entries. Rice is a distant second. Both rice and maize in ESA have benefited from multiple institutional sources of modern genetic materials. By contrast, low research intensities in pearl millet, sorghum, and cowpea in West Africa have translated into low output intensities.

About 45% of 3,194 dated entries had been released since 2000. The mid-point date for varietal release was 1998. Decade by decade, the incidence of release has increased steadily over time. Varietal output rose exponentially in maize in ESA between the 1990s and the 2000s because of surging private-sector releases. However, not all crops in all countries fit the pattern of a steady rise in varietal output over time. Between one-

fifth to one-quarter of the 146 crop-by-country observations were characterized by more releases in the 1980s than in the 2000s...

The area-weighted grand mean adoption level of improved varieties across the 20 crops is 35%. The distribution of adoption of improved varieties is skewed as 14 of the crops are characterized by a mean adoption level that falls below 35%. Crops with an estimated adoption performance superior to the overall average included soybean, wheat, maize, pigeon pea, cassava, and rice. About 23% of the 35% – i.e. a share of 65% – of MV adopted area is related to International Agricultural Research Centers (IARC)-contributed genetic materials. The IARC-related share in adoption is about 20% higher than its 45% contribution to released varieties.

The problem of lagging countries was also evident in the cross-sectional adoption estimates based on 152 crop-by-country observations. Adoption of MVs was uniformly low in Angola, Mozambique, and Niger across all crops.”

Commercial commodity markets are dynamic of necessity, but market unpredictability is a major risk for poor farm families with few resources to help them weather a bad harvest or depressed prices.

“For small-scale producers, like anyone else, feeding the family is the primary concern, not feeding the world; raising and sustaining a livable household income matters far more than GNP levels or changes in trade statistics. Of course, the economic health of the wider community that, ideally, is providing services such as health care, education and infrastructure for both household life (water, energy) and for productive activities (roads, warehouses, banking, etc.) is intimately linked to household welfare.

For small-scale producers, the questions might be framed more in terms of: should I get big? Get out? Diversify? Should I work with others to maximize what can be achieved from a small base (of land or other resources)? Which leads to such questions as: what opportunities are there to increase sales? Add value? To protect the market I have? Will proposed developments bring new customers, new competition, or both? Am I equipped, or can I equip myself, to take advantage of the new market? Can I get the goods to the market? Can I meet the quality standards the buyers impose? If I can't, can I do it collectively? Can I afford collective action (time, money, effort)? Can I define new markets that play to my strengths?

To exercise agency, small-scale producers will need to think through both the global and national context, to understand where policy-makers are coming from, and to think through their own position in their local context.”¹⁸

It is small wonder, therefore, that they tend to manage their resources tightly and to be conservative in their investments and fearful of change. In fact, there is evidence to suggest that small-scale farmers in developing countries are more astute managers of their resources than are some larger-scale farmers.

“While yields on family farms are sometimes lower than those on large farms, family farm costs are often lower than large farms. For example, a study of major rice exporters that found that small Vietnamese farms had half the yield per acre, but produced each ton of rice at half the cost as large farms in Uruguay. Smallholder cultivation is also more equitable. Small farmer income is two times to ten times higher than the income from wage employment.

The export growth witnessed in Vietnam, Thailand and Peru following clarification of the property rights system illustrates the production boost prompted by secure property rights alone...

Large farmers tend to plant only one crop (monoculture production) because that is simplest to manage with heavy machinery. Small farmers, especially in the third world, are more like to intersperse crops and diversify their risk. Monoculture usually requires more pesticide use or higher labor costs.

Broadening land access sparks sustainable economic development. A 21-country analysis showed that a decrease in land concentration by one-third leads to a one-half reduction of the poverty level within 12 to 14 years.”¹⁹

7. There are crop and animal diseases, pests, and threats which—left unchecked and unstudied—threaten the world’s and the United States’ food supply.

Two current examples demonstrate the importance of this topic:

¹⁸ <http://www.ictsd.org/downloads/2012/08/changing-perspectives-small-scale-farmers-markets-and-globalisation-murphy-iiied.pdf> “Changing Perspectives: Small-scale farmers, markets, and globalization”, by Sophia Murphy, International Institute for Environment and Development/HIVOS, 2012

¹⁹ <http://www.landesa.org/wp-content/uploads/Is-Bigger-Better-Issue-Brief.pdf> “Is Bigger Better? A Fact Sheet on Large-Scale Corporate Farming Versus Small Family Farms in Developing Countries” (with source references) Landesa, May 31, 2011

The Ug99 wheat stem rust, that originated in Uganda "...poses a real challenge because it has taken hold in the developing world and it's leaping across international borders at an alarming pace," according to Hans Braun, head of the Global Wheat Program at the Mexico-based International Maize and Wheat Improvement Center (CIMMYT) and the CGIAR Research Program on Wheat, "Ug99 is extremely difficult to wipe out. The migration of the disease indicates it's widespread and can affect wheat production and food security on a global scale. No wheat-growing nation is safe -- all governments must unite to invest resources to tackle it."²⁰

Citrus Greening caused by a tiny Asian insect is having a devastating effect on Florida's citrus industry. "It imperils the state tradition of backyard citrus and the national habit of orange juice with breakfast...Consumption has fallen by nearly one-third in the past decade, partly thanks to higher prices caused by greening. Annual orange production in Florida is down... Acreage planted in citrus dropped by more than a third since 2000, mostly because of greening. Citrus remains a huge industry in the state, with a total economic impact of nearly \$11 billion per year, but greening has cost growers in the juice business \$7.8 billion since 2006..."²¹

Again, the poorest countries are often the most affected by crop and animal diseases, and are least equipped to combat such problems.

8. Agriculture and nutrition goals, policies, and programs are not in sync.

An article in The Economist covered the issue in 2011:

"Agriculture...is no magic solution [to malnutrition]. But farming could do more to improve nutrition—as is clear from countries' widely varying records. Malawi, Bangladesh and Vietnam all increased agricultural value-added by roughly \$100 a head from 1990 to 2007, and cut malnutrition by 15-20 percentage points. Egypt, Guatemala and India pushed up agricultural value-added more—yet their malnutrition rates rose.

The success stories are instructive. In 1990 a charitable organization called Helen Keller International started to encourage market gardens in Bangladesh, providing women (mostly) with seeds and advice. By 2003 (the year of the latest available research), four-fifths of families in the target area had gardens, against 15% in the whole country. Almost all women and children were eating green vegetables three times a week,

²⁰http://oklahomafarmreport.com/wire/news/2015/09/09611_Ug99StemRustUpdate09032015_055324.php#.VIZinTZdE2w Oklahoma Farm Report, September 3, 2015

²¹ <http://www.tampabay.com/news/business/agriculture/florida-lab-has-one-objective-stop-citrus-greening/2217619> Tampa Bay News, February 13, 2015

compared with only a third beforehand. And vitamin A intake had soared. Projects like this work because they improve what people like to eat anyway.

Changing the mix of crops works, too. Many countries' food policies are essentially about providing cheap grain, which is just a start. When people do not have enough calories, staples such as rice and wheat are vital: they provide the most calories per dollar. But when people have enough calories they need to diversify towards vegetables, pulses and meat. In many places, irrigation and fertilizer subsidies, government marketing and other schemes implicitly or explicitly favor cereal farmers. So poor countries go on encouraging cereals longer than they need to. And plant breeders tend to raise cereals which maximize calories, not nutrients."²²

Jeff Waage, technical adviser to the Global Panel on Agriculture and Food Systems for Nutrition last year wrote:

"...just producing more nutritious food does not mean it will be consumed by people suffering from malnutrition. Similarly, efforts to address unhealthy, energy-dense and nutrient-poor diets have had some promising results, but research is still limited and methods need improvement.

Most agriculture interventions for nutrition have focused on specific foods and communities... But there is another, complementary approach to this problem which has been profoundly under-explored. This approach involves understanding how existing national agricultural and food policies affect nutrition and how they might be changed. Not all policies are nutrition-enhancing...

Even the most successful policies can have their downsides. For example, the global investment in improving productivity of cereal crops in the last century, now known as the green revolution, lifted millions of people in Asia from poverty and undernutrition, but also focused research investment on energy-dense rather than micronutrient-rich crops. This led to differences in price that make nutritious foods more expensive today.

It is encouraging to see a growing global commitment to improved nutrition, with better interventions and more evidence on what works. However, even the best technical interventions are not going to make a difference until policymakers fully understand and play their role in making agriculture work for nutrition."²³

²² <http://www.economist.com/node/18438289> "How much can farming really improve people's health?" the Economist, March 24, 2011

²³ <http://www.theguardian.com/global-development-professionals-network/2014/jan/22/agriculture-nutrition-improving-policy> "Agriculture and Nutrition: You are what you sow", by Jeff Waage, director of

9. The protection of biodiversity and the exploration of plants and animals currently unfamiliar to those outside their indigenous communities are critical to food security.

"A global synthesis reveals biodiversity loss as a major driver of ecosystem change", a study coordinated by the University of Michigan concluded:

"Loss of biodiversity appears to impact ecosystems as much as climate change, pollution and other major forms of environmental stress, according to a new study. There has been growing concern that the very high rates of modern extinctions -- due to habitat loss, overharvesting and other human-caused environmental changes -- could reduce nature's ability to provide goods and services like food, clean water and a stable climate."²⁴

More specifically related to food security:

"Rural populations in developing countries, especially in the low-income areas with high biodiversity, are continuing to increase and are still largely dependent on local food production and agriculture-related incomes. Protected areas are inadequate to maintain long-term wild species populations and habitats, without a surrounding matrix of land use that is compatible with ecosystem health. Moreover, local people effectively control a high share of resources and have the greatest capacity and responsibility for environmental husbandry.

We draw three conclusions from assessing these inter-linkages:

- One of the root causes of hunger today is biodiversity loss associated with ecological deterioration; restoring ecosystem services and biodiversity will be essential in many regions to meet the MDG on hunger;
- Biodiversity will not be conserved in many ecosystems unless efforts are explicitly linked to increasing food security for large and growing rural populations.
- There is compelling evidence that integrated strategies for biodiversity and food security can work; these need to be scaled up dramatically.

...it is essential to reposition agricultural, forestry and fisheries policies in food-insecure regions to recognize the crucial role of biodiversity, and to reposition biodiversity conservation policies in such regions to prioritize strategies that explicitly support hunger

the London International Development Centre and technical adviser to the Global Panel on Agriculture and Food Systems for Nutrition, The Guardian, January 22, 2014

²⁴"A global synthesis reveals biodiversity loss as a major driver of ecosystem change", a study by David U. Hooper, E. Carol Adair, Bradley J. Cardinale, Jarrett E. K. Byrnes, Bruce A. Hungate, Kristin L. Matulich, Andrew Gonzalez, J. Emmett Duffy, Lars Gamfeldt, and Mary I. O'Connor, and coordinated by the University of Michigan. *Nature*, 2012; DOI: [10.1038/nature11118](https://doi.org/10.1038/nature11118)

and poverty reduction. The synergies between food security, poverty reduction and biodiversity conservation could be greatly expanded by investing in programs and technologies that explicitly seek such synergies. Even in places where the challenges are less acute, such linked approaches will often be more cost-effective in meeting policy objectives. In regions that are “hotspots” for both rural poverty and biodiversity, such as the Mesoamerican Biological Corridor, montane Southeast Asia and the east African highlands, such direct program linkages and policy harmonization will be essential.”²⁵

From a two year, multi-partner review conducted in Asia:

“Traditional and indigenous food resources constitute the bedrock of the diversity in traditional and indigenous food systems of communities in developing country. The underutilized food resources have a much higher nutrient content than globally known species or varieties commonly produced and consumed. With climate uncertainty, there is an urgent need to diversify our food base to a wider range of food crops species for greater system resilience. Traditional and indigenous food crops are less damaging to the environment and address cultural needs; they also preserve the cultural heritage of local communities. Successful food systems in transition effectively draw on locally available food varieties and traditional food culture. Although many traditional subsistence systems depend on one or more staples such as cassava, sago, rice or maize, such diets are kept diverse and balanced through small but complementary amounts of animal source foods including birds, fish, insects and molluscs (sic), as well as sauces and condiments obtained from forest plants.

It is imperative to collect and document local knowledge, encompassing all aspects of indigenous and underutilized foods, from traditional beliefs to utilization and agronomic practices. Promoting the use of underutilized species needs to be achieved by highlighting their importance in their current production areas as well as exploiting further opportunities to extend their production and consumption. This information should be useful for both product development and awareness-raising.”²⁶

10. Agriculture affects health and health affects agriculture, but the two sectors work in silos.

A 2011 review of studies conducted at the request of the Bill & Melinda Gates Foundation revealed that the linkages between agriculture and health have not received comprehensive attention and the reviewers recommended that more research be conducted, but nonetheless arrived at the following conclusions:

²⁵ http://ieham.org/html/docs/Hunger_Poverty_and_Biodiversity_in_Developing_Countries.pdf
“Hunger, Poverty and Biodiversity in Developing Countries”, by Sara J. Scherr, June 2003

²⁶ <http://www.fao.org/3/a-i3685e.pdf> “Promotion of underutilized indigenous food resources for food security and nutrition in Asia and the Pacific”, edited by Patrick Durst and Nomindelger Bayasgalanbat. Khon Kaen University, Thailand, the Food and Agriculture Organization of the United Nations and other partners 2014

"Agriculture underpins the health of rural households. It provides income that makes households resilient to health shocks; it provides food to meet their nutrient and energy needs; and it provides medicinal plants for treating ailments. But agricultural systems can also have negative effects on health.

Agricultural development may lead to environmental change with adverse health impacts: for example, irrigation dams that create suitable conditions for mosquitoes may lead to increased incidence of malaria locally. The use of agricultural inputs such as pesticides by untrained farm personnel often causes illness. Improper food harvesting and storage practices allow mycotoxins to flourish. Lack of diet diversity can lead to malnutrition. Certain animal diseases also can infect humans. Labor migration (including agricultural labor migration) can contribute to high incidence of HIV infection.

The effects of ill health on farm households include three broad impacts: absenteeism from work due to morbidity (and eventual death); family time diverted to caring for the sick; and loss of savings and assets in dealing with disease and its consequences. The long-term impacts of ill health include loss of farming knowledge, reduction of land under cultivation, planting of less labor-intensive crops, reduction of variety of crops planted, and reduction of livestock. The ultimate impact of ill health is a decline in household income and possible food insecurity—that is, a severe deterioration in household livelihood.

The research found that the household's ability to cope with a shock reflected both its asset portfolio—including human, physical, and financial assets—and its intangible social resources. Good health must be seen as both an investment and consumption asset, like agricultural production, in that it has compounding returns. Health problems, conversely, may trigger a cycle of lowered agricultural productivity and poor health. At the household level, the investment in health can improve resilience and enhance the ability to cope with emergencies, including ill health. But an investment in health in turn requires an adequate livelihood. Access to appropriate inputs (knowledge, land, tools, fertilizer, and seeds) and remunerative markets is necessary to improve the productivity, health, and resilience of farm households."²⁷

In 2008, three researchers with the International Food Policy Research Institute wrote:

"Strategic utilization and strengthening of the linkages between agriculture and health offers particularly strong opportunities for achieving poverty reduction and health goals in many low-income countries. This requires a new initiative for evidence-based and

²⁷ <http://www.ifpri.org/publication/interactions-between-health-and-farm-labor-productivity> "Interactions between health and farm-labor productivity", by Kwadwo Asenso-Okyere, Catherine Chiang, Paul Howard Thangata, and Kwaw S. Andam, International Food Policy Research Institute, 2011

research-intensive action across the agriculture and health sectors – allied with effective communications, capacity strengthening, and social mobilization.”²⁸

Other relevant developments affecting agriculture and global hunger

These developments are reported here because they raise questions relevant to global hunger and agriculture, but are not explored as deeply as the Key Issues discussed above.

A. Investment and developments in agricultural science in China, Brazil, India, and elsewhere have been growing and becoming more sophisticated.

For more than ten years since 2000, China’s investment in agricultural science grew more than 20% per year; by 2012 it was second only to the U.S. ²⁹

“...while Brazil and the United States compete in the global market, the two nations are also close collaborators in agricultural research and the advancement of science-based policies to govern international trade in food and agricultural products.”³⁰

“India has one of the largest and well-coordinated public agricultural research systems in the world. Its primary agencies are organized under the Indian Council of Agricultural Research (ICAR) and state agricultural universities (SAUs). Strong government commitment has resulted in a near doubling of public investment in agricultural research and development (R&D) since the mid-1990s. Funding is expected to increase further in the coming years...Private investment in agricultural R&D has increased fivefold since the mid-1990s.”³¹

- How do those scientific investments and achievements translate to developing countries?
- To American agriculture and business interests?

²⁸ “Bridging the Gap: Linking Agriculture and Health to Achieve the Millennium Development Goals, by Joachim von Braun, Marie T. Ruel, and Stuart Gillespie, International Food Policy Institute, June 4, 2008

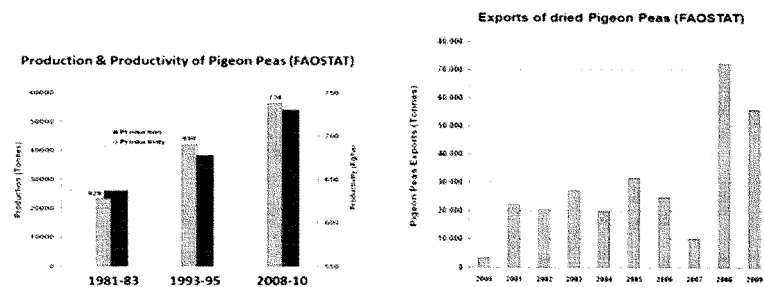
²⁹ <http://www.nature.com/news/china-s-budget-backs-science-1.10209> Nature, March 13, 2012

³⁰ <http://www.fas.usda.gov/regions/brazil> USDA/Foreign Agricultural Service November 2015

³¹ <http://www.asti.cgiar.org/pdf/India-Note.pdf> “Agricultural Science and Technology Indicators” (IFPRI) June 2012

B. Population growth and the buying and pricing policies and practices of middle income countries and commodity market investors³² are having significant impact on global food supply, prices, and movements.

The food purchases of India and China affect global commodity availability and prices on both a large and a micro scale, and well beyond their own borders. As a more micro example, bean production and sales in Tanzania are up, but bean consumption is down and prices are lackluster because Indian traders buy beans from Tanzania in quantity, but on their own terms.



--From "Tanzania Legumes Value Chain" presentation
by Victor Kongo, local advisor to the Bill & Melinda Gates Foundation

As another example, food flows from poorer neighboring countries into Nigerian markets on a regular basis, sometimes threatening food security in the exporting countries. This is especially problematic when populous Nigeria has food shortages due to weather or other conditions. Food prices spike and availability can become an issue for the whole sub-region.

- How does the United States factor into the changing market dynamics?
- What are the implications of population growth and changing market demands (particularly in Asia) for global hunger?
- Do these "food drains" from poor to richer countries pose particular risks and/or opportunities?

³² <http://necsi.edu/research/social/foodprices.html> "The Food Crises: A Quantitative Model for Food Prices including Speculators and Ethanol Conversion", by M. Lagi, Yavni Bar-Yam, K.Z. Bertrand, and Yaneer Bar-Ya, of the New England Complex Systems Institute (partly funded by the U.S. Army) September 21, 2011

- C. Political and economic pressures, the technical and digital divide, conflict and displacement, and global weather patterns are challenging providers to consider the sustainability of traditional models of development and food aid and humanitarian relief.
- What are the implications of factors such as the technical/digital divide and conflict for aid workers?
 - Does the U.S. adequately prepare its international development and humanitarian workers to operate successfully under these conditions?
 - Can political will be sustained in support of food aid? Development assistance?
 - How do wars and population shifts impact agriculture, the need for assistance, and our ability to reach people in need?
 - How long can donor countries afford to provide food aid, especially to countries with the potential to grow their own food?
- D. Better methods for dealing with challenging weather and growing conditions are needed to address domestic food security as well as global hunger.
- What can we learn from drought conditions and coping mechanisms in Kenya that can be shared with California, or the Pacific northwest, or vice versa?
 - What can be shared as drought-, flood-, insect-, and disease-resistant crops are developed?
 - Are there currently unknown or under-utilized crops which are naturally hardy?
 - Are there effective traditional or new methods for coping with natural phenomena that be learned from or shared with developing countries?
 - What is at stake in terms of food availability and nutrition and health solutions in relation to crops native to developing countries but currently unknown to us/unused by us or other parts of the world?
 - What is the "next quinoa"?
 - What potential is lost through the rapidly decreasing biodiversity?
- E. Economic growth trends in Africa are positive and projected to continue to be positive.
- As these economies develop, will they turn to the U.S. as a supplier and trading partner?
 - How can countries best ensure that the positive growth trends are benefiting the hungry?
 - To what extent does agriculture factor into the growth trends?
 - What changes in markets and consumer choices will accompany economic growth?

Possible actions

To address the challenges and opportunities discussed in the previous sections, the United States Government and its partners could:

1. Address the transport issues by mobilizing private sector players such as vehicle and aircraft manufacturers and public sector actors such as USDA and the U.S. military to develop developing-country appropriate, 21st Century transportation systems to leapfrog outmoded systems through:
 - a. Two new interlinking systems:
 - i. Farm to aggregation point (consider containerized all-terrain vehicles to navigate from farm-to-market where there are no roads or only tracks that are vulnerable to recurring weather conditions)
 - ii. Medium- to long-haul (consider containerized airships or other options to bypass the currently time-consuming, expensive, dangerous, and corrupt trucking routes and prohibitively expensive and/or infrastructure-intensive air and sea transport systems)
 - b. Ensuring that the new systems are developed with their intended users and that they are “female friendly” so that they will be adopted and will not limit usage by half the population.
2. Promote proven, smallholder- and female-friendly food harvesting and (clean, secure, easy-to-use containerized) storage systems, drawing from both hard and soft sciences and ensuring that they are female friendly to ensure that they will be practical for and used by the intended populations.
3. Address food wastage and loss issues in the U.S. and other developed countries by:
 - a. Educating the public regarding “sell-by” and “use-by” dates and providing guidance for the public to better understand the economics and practices of food use
 - b. Clarifying and strengthening laws and rules about food donations by restaurants, grocers, processed food manufacturers, and others who currently dispose of large quantities of perfectly edible food items
 - c. Developing cost-effective and/or incentives systems for the use of “Grade B” commodities (which are safe to eat, but unattractive or otherwise deemed to be of less than the highest quality)

- d. Applying fees or other disincentives for particularly egregious or repeated acts involving the waste of food products safe for use.
 - e. Support for research and the development and implementation of waste- and loss-reducing measures and technologies.
4. Address food loss issues in developing countries and elsewhere by:
- a. Supporting policies and actions such as those listed in #s 1-3, above by other countries and partners
 - b. Supporting the development, implementation, and enforcement of evidence-based food safety standards and control interventions (i.e., through the programs such as the joint USAID-USDA Sanitary-Phytosanitary Standards program and the Partnership for Aflatoxin Control in Africa
 - c. Educating farmers and value-chain players in proper post-harvest handling techniques and about specific health threats (such as aflatoxin and other mycotoxins, E-Coli, Salmonella, and Listeria)
 - d. Investing in training and professional certification (for women, especially) to perform food safety (laboratory, handling, preparation) and inspection services; support the development of these professions via U.S. Government-funded programs, including McGovern-Dole and other food aid program
 - e. Encouraging first-stage processing at the local level to capture some of the value and reduce losses of perishables
 - f. Promote the use of second grade (blemished, ill-formed, or otherwise not “consumer attractive” but otherwise good quality) commodities in processed products, and (also in transformed state) for meals prepared for national school, military, prison, or hospital feeding programs
5. Effectively include women in agricultural and hunger-reduction programs by:
- a. Investing in programs that involve women in the design and implementation of labor-saving devices (consider programs such as the United Nations Development Program-led “Multi-Functional Platform” program which provides motorized, electricity-producing, post-harvest processing machinery and basic literacy and business training to existing women’s groups far off the power grids in African countries).
 - b. Encouraging development and humanitarian actors to develop and implement female-friendly and context-specific communications materials and interaction models. The use of methods such as pictography, oral messaging in local language; hands-free phone and other technologies; and safe transport, child care, and other time-conserving and responsibility-relieving means of including women are needed in order to be effective with women in developing countries

- (who are generally less-literate, less likely to speak an official language, and more involved in time-consuming and labor-intensive daily work than are men).
- c. Investing in programs that educate and incentivize men to support women's full participation in effective agricultural and hunger-reducing activities; expecting ongoing U.S.-funded activities to include these components.
 - d. Encouraging humanitarian and development actors to find opportunities to develop new or re-configure former jobs and their titles and descriptions to prevent the positions from labels or expectations that they are closed to women.
 - e. Supporting training programs such as proposed in 4.d., above that create new opportunities for women that are directly linked to agriculture and reducing hunger and malnutrition.
 - f. Insisting on stringent gender-disaggregated indicators for monitoring, evaluation, reporting, and on evidence-based gender-sensitive interventions as prerequisites for project approval
6. Address the aging of agriculture and create momentum and opportunities for youth to be involved in agriculture and hunger-reducing activities, by:
- a. Investing in accelerated education and training programs targeting particular needs (such as career in farming and agricultural sciences) that incorporate youth and early-stage professionals from both developing countries and the United States, building on the programs and networks of the following players and programs-- but speeding, improving, and ensuring their immediate relevance to developing countries' agriculture and the domestic need for strong, youthful agricultural talent:
 - i. 1890s and Land Grant colleges and their linkages to developing country agricultural institutions
 - ii. Youth program such as 4-H and FFA programs
 - iii. Private sector training and internship programs
 - iv. The Cochrane, Borlaug, Aspen and other such fellows programs
 - v. Private funding and programs (such as those of the MasterCard and the Bill & Melinda Gates Foundation)
 - b. Establishing new models of training specifically for women and supporting ongoing programs (such as the AWARD program for African female scientists), which incorporate support systems necessary for women to be able to participate.
 - c. Promoting agriculture and agricultural careers in modern and effective ways, and to a broader set of audiences (i.e., using social media, reaching beyond rural audiences, involving economic arguments, demonstrating the need for cutting edge innovation, etc.)

7. Support activities to engage developing country smallholder farmers in markets and off-farm employment (where relevant), and delve into understanding and addressing the issue of low adoption rates by:
 - a. Supporting well-designed local and regional purchase programs such as the World Food Program's (WFP's) "Patient Procurement Platform" in collaboration with large private sector commodity buyers and "home-grown school feeding" programs. These are programs that are specifically structured to patiently work within developing country contexts to ensure that smallholder farmers can learn to access and produce for large-scale markets. These efforts build on the experiences and lessons of:
 - i. The pilot Purchase for Progress ("P4P") program funded by the Howard G. Buffet and Bill & Melinda Gates foundations and donor governments and implemented by WFP
 - ii. The U.S. Government's pilot Local and Regional Purchase programs implemented by USDA and USAID
 - iii. "Home-grown" school feeding activities supported by the Millennium Development Project's Hunger and Education and Gender Task Forces, New Partnership for Africa's Development (NEPAD), the Global Child Nutrition Foundation (GCNF), the Partnership for Child at Imperial College, WFP, the Government of Brazil, more than ten African governments, and others
 - iv. The experiences of public procurement programs with specific rural development goals, such those implemented in the U.S. (Farm to School, for example), Brazil, Scotland, and elsewhere
 - b. Supporting 21st Century knowledge exchange/extension activities that involve meaningful two-way communication between farmers and technical resources; providing incentives for listening, learning, and effective gender inclusion as well as rewarding solutions and adoption

8. Understand, prevent, control or eradicate crop and animal diseases, pests, and threats which—left unchecked and unstudied—threaten the world's and the United States' food supply, by continuing to do what is already done well and by:
 - a. Working with international organizations and partners to improve early warning and—especially—early-investment systems to detect and counter threats earlier—upon detection of the problem whenever possible
 - b. Mobilizing unique U.S. laboratories and expertise to address outbreaks and potential problems internationally, even if they do not seem likely to directly threaten U.S. agriculture. This can help to ensure relationships and access regarding issues that can unexpectedly become problems for the U.S. and for other issues which are of domestic concern

- c. Investing in strengthening the capacity to study diseases and pests outside of the U.S. so that the problems can be studied in situ and mitigate the need for importing or transporting hazardous material across borders in order to conduct credible research
 - d. Learning from and sharing lessons with the human health community (e.g., learning from the experience with Ebola in West Africa)
- 9. Align agriculture and nutrition goals and programs through:
 - a. Prioritizing programs and projects which demonstrate concrete linkages between the sectors, such as research and other activities which:
 - i. Support the production, affordability, and consumption of nutritious plants and animal products
 - ii. Incorporate nutrition education
 - iii. Involve obesity prevention and mitigation measures
 - iv. Promote diet diversity
 - v. Measure nutritional value of lesser-known edible flora and fauna and make the results known to the general public
 - vi. Contribute to public understanding of the nutritional value of locally-available foods
 - vii. Provide tools and expertise to promote nutrition in developing countries and at home
 - viii. Measure nutritional impact
 - ix. Address the root causes of poor nutrition
 - x. Increase understanding of linkages between certain environmental factors (such as mycotoxins) and nutrition
 - xi. Support the life-cycle approach to nutrition, which goes beyond the first 1,000 days, with particular attention to the second and third thousand days and adolescent girls
 - b. Provide incentives for nutrition-sensitive agricultural activities and/or disincentives for activities which do not promote nutrition
 - c. Prioritize food safety initiatives that address problems such as aflatoxins, which have a known relationship to nutritional status
- 10. Protect biodiversity and support the exploration of plants and animals currently unfamiliar to those outside their indigenous communities by:
 - a. Taking urgent steps to halt the loss of plant and animal species
 - b. Supporting seed banks and other efforts to protect and preserve genetic materials
 - c. Exploring the nutritional and commercial value of products currently unfamiliar or unexploited in the Northern & Western worlds, such as those listed in the

“Lost Crops of Africa” Volumes I (Grains), II (Vegetables), and III (Fruit) and “Lost Crops of the Incas” books and initiatives³³

- d. Encouraging small teams of young American and developing country scientists to undertake this adventurous, but significant work, with strong technical and political support and guidance.
- e. Supporting local community understanding and involvement in protecting indigenous crops and animals

11. Encourage agriculturalists and health workers to collaborate in areas of mutual impact related to combating hunger through:

- a. Providing incentives for relevant activities to be jointly planned and implemented
- b. Supporting specific and relevant collaborative research
- c. Requesting reports on joint activities, learning, and progress
- d. Inspiring universities that offer both relevant health and agricultural programs to offer coordinated or integrated health and agriculture curricula and to support a subset of students to pursue double majors
- e. Identify and remove obstacles that deter relevant U.S. Government agencies (i.e., USDA, USAID, HHS/CDC, etc.) from cross-sector collaboration and coordination
- f. Promote humanitarian and development projects that involve on-the-ground inter-sectoral coordination

Final Notes

The United States has both the need and the opportunity to actively engage in sustainable solutions to hunger in developing countries, with American agriculture at the forefront of the effort. This cannot be done through a “business as usual” approach, however. The U.S. is itself encountering major challenges in addressing hunger and maintaining its leadership role in international agriculture.

The challenges and opportunities outlined in this paper signal how innovative approaches can benefit the American economy and address pertinent domestic issues while also re-positioning the United States as the leader in achieving sustainable global solutions to hunger.

³³ <http://www.nap.edu/catalog/2305/lost-crops-of-africa-volume-i-grains> Board on Science and Technology for International Development; Office of International Affairs; Policy and Global Affairs; National Research Council, 1996-2008

DOCUMENTS SUBMITTED FOR THE RECORD

DECEMBER 2, 2015

Statement of Marshall Matz
Agriculture's Role in Combating Global Hunger
Committee on Agriculture, Nutrition and Forestry
United States Senate
December 2, 2015

Chairman Roberts, Senator Stabenow, Members of the Committee, thank you for allowing me to submit a statement for the record on "Agriculture's Role in Combating Hunger." This Committee has had a longstanding interest in the subject and I commend you for holding this hearing.

Pope Francis noted during his recent trip to the United States, "The fight against poverty and hunger must be fought constantly and on many fronts..." The number of hungry people in the world – some 795 million – has dropped by 100 million over the past decade, but the challenge going forward is daunting. According to the State Department, in order to feed a growing world population, global food production will have to increase by 70 percent before 2050. Fully one half of the hungry people in the world are actually farmers who do not produce enough to feed their families, let alone produce a surplus to sell at the market.

Agriculture, therefore, has an enormous role to play in combating hunger. The American farmer, the U.S. Department of Agriculture (USDA), and the Agency for International Development, already does a great deal to combat hunger:

- Our farmers and ranchers produce a safe and ubiquitous food supply for the American consumer, at the lowest cost in history, and then export much of our bounty to help feed the rest of the world.
- Agriculture research conducted by our land grant institutions benefits the American farmer and the entire world.
- Under the leadership of the United States, the G-8 and G-20 have adopted global food security as a high priority, with a special effort aimed at Africa.
- President Eisenhower established the Food for Peace Program in 1954. President Kennedy expanded the program and it has been supported by every president since that time.
- Feed the Future works to increase agriculture development throughout the world.
- Finally, the United States and American agriculture is the leading contributor

to food assistance through the United Nations (UN) World Food Program.

Going forward, however, agriculture must not only stay the course, but also redouble its efforts in order to meet the United Nations' Sustainable Development Goal of eliminating hunger by 2030. It is most certainly a moral imperative, but also a matter of economics and even national security. Mr. Chairman, you, in particular, have been very articulate on the relationship between hunger, terrorism, and national security. It was President Eisenhower who noted, "Food can be a powerful instrument for all the free world in building a durable peace."

So, what would it take to reach the United Nations' goal? In my opinion, there are a number of key pieces to that puzzle.

We must recognize that if the world is going to increase production by 70 percent, America's agriculture expertise and leadership are indispensable across a range of activities. From direct food assistance to agriculture research, regulation reform and synchronization, to keeping food security at the top on the global political agenda, the United States is the leader.

At the same time, we must also recognize that agriculture around the world looks a lot different than it does in Kansas and the states represented by the Members of this Committee.

For example, women make up the majority of the agricultural workforce in many areas of the world. Yet, today, for every investment we make in producing food, we fail to get the best results because many women lack the access they need to land, seeds, water, credit and markets. That is particularly true in Africa, as pointed out recently by Dr. Agnes Kalibata. Dr. Kalibata, who as the Minister of Agriculture in Rwanda was responsible for a dramatic turnaround in the country's food security, is now the president of the Alliance for a Green Revolution in Africa (AGRA). "Africa is the last region of the world to go through an agriculture transformation," she has noted. "Africa has lagged behind for a number of reasons, including lack of access to improved seeds, fertilizers, mechanization and irrigation. The good news is that we are starting to see positive changes. A real African agriculture transition is underway. We are very single-minded about closing the yield gap for smallholder farmers and especially women farmers."

Africa is critical to global food security because the continent contains a majority of the world's unused and underdeveloped agricultural land. Further, yields are so low – just 10% of U.S. yields – that they can be increased dramatically by getting smallholder farmers access to modern seeds, inputs and educational services.

Agriculture: US-Africa Comparison
Mr. Strive Masiyiwa, World Food Prize - October 16, 2014

	US	AFRICA
Percentage of people who farm	~1%	~65%
Cost of food as percent of disposable income	~9%	~70%
Agriculture trade	Export \$140B	Import \$35B
Corn yields bushel/acre	~180	~20

Reproduced from Matz (2014), *Africa Rising*

Africa is making great progress developing new seeds through AGRA's seed program (called PASS), is improving its soils, markets, and public policy. The African Union has urged all countries to devote at least ten percent of their respective budgets to agriculture. But the distribution system in the continent must be improved. Whether through private sector agro-dealers, community groups or government, smallholder farmers in very remote villages must gain access to the tools of modern agriculture, including extension services. AGRA is distributing a simple rope to rural farmers to show how far apart to plant rows, how far apart to plant seeds and how far away from the seeds to apply the fertilizer. That is the technology gap between African smallholder farming and American precision agriculture.

Back here in the United States, Congress recently added an agriculture amendment to the African Growth and Opportunity Act, an important step to build upon. The USDA has signed a Memorandum of Understanding with AGRA, but its potential has not yet been maximized. Feed the Future, like the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), should be codified.

We must all learn to trust in sound science as applied to agriculture production. Yes, that means accepting genetic engineering (GE) for agriculture production just as we do for health care. The bottom line is that using GE crops, which raise yields require less water with fewer inputs is more environmentally sustainable than the alternative.

Last month, the United States and China released an important joint cooperation statement to promote a strong global economy. As a part of that process, according to the White House statement, “The United States and China conducted in-depth discussions on the administration of agricultural biotechnology, and committed to further improve approval processes. Both sides reaffirmed the importance of implementing timely, transparent, predictable, and science-based approval processes for products of agricultural biotechnology, which are based on international standards.”

This position taken by the U.S. with regard to China on the importance of regulatory synchronization should now be extended to the fifty States here in the U.S. The federal government cannot allow each State to implement its own GMO labeling system and expect interstate commerce to continue without interruption. It is simply not possible or reasonable. Congress and the Administration must come together to preempt the States and develop one national system that is uniform and science-based. The Committee’s effort in this regard is important to interstate commerce, but also to global food security.

Agricultural biotechnology, by itself, is not the answer to global food security, but it is a part of the solution and it is important that consumers have confidence in the technology. We must also expand research on improved mechanization, irrigation systems that use less water, soil conservation, and crop loss.

Finally, let’s realize that, even if we could wave a magic wand and implement all of the steps outlined above, there would still be hungry people in the world. There will always be natural disasters, droughts and civil wars. Today, some 60 million people are displaced by violence, conflict and/or repression. The World Food Program (WFP) is an extraordinary organization, but is being stretched beyond its capacity. WFP doesn’t have the resources to help refugees, the victims of natural disasters *and* farmers who are not producing enough to sustain their family. Boosting the production of smallholder farmers around the world would allow WFP to focus on emergencies.

In short, global food security is in sight. If it continues to be a priority, the new UN goal to eliminate hunger by 2030 can be achieved. This hearing and the role of this Committee in keeping attention on global hunger is absolutely critical. Thank you, again, for your leadership and allowing me to participate by submitting this testimony.

Marshall Matz is an attorney with OFW Law in Washington, D.C. He served as General Counsel to the Senate Select Committee on Nutrition and Counsel to the Senate Committee on Agriculture. He was the Founding Chairman of the World Food Program—USA. He continues

to serve on the Board of the World Food Program, USA and the Congressional Hunger Center. This testimony represents the opinion of Marshall Matz, not his law firm, clients or any affiliated organization.



Statement for the Record

U.S. Senate Committee on Agriculture, Nutrition & Forestry

Agriculture's Role in Combating Global Hunger

December 2, 2015

Beth Ann Saracco, Policy Advisor, Food Security and Livelihoods, World Vision US

World Vision US is pleased to provide the following statement to the U.S. Senate Committee on Agriculture, Nutrition & Forestry on Agriculture's Role in Combating Global Hunger.

World Vision:

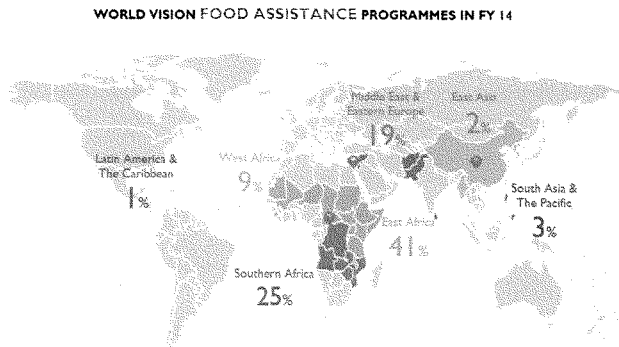
World Vision is a Christian relief, development, and advocacy organization that serves millions of children and families in nearly 100 countries. Our employees are dedicated to working with children, families, and their communities to tackle the root causes of poverty and injustice. More than one million private donors, in every state and congressional district, support World Vision. We partner with over 10,000 U.S. churches, as well as corporations and foundations. We are part of the federation of World Vision International, which last year implemented more than \$2 billion in programming for children and communities.

Food Security and Livelihoods:

In pursuit of a hunger free world, we support people in producing their own food and advancing their livelihoods through increased access to markets. However, when droughts, disasters and conflicts strike, World Vision is there, providing emergency assistance in the hardest to reach places. Food assistance is one of the critical global safety nets that helps hungry, vulnerable people maintain and rebuild their lives and livelihoods. It complements World Vision's ongoing community development work in health, nutrition, education, agriculture, economic development and resilience to natural and human-made disasters.

World Vision uses cash, vouchers, and food commodities to support public works programs, school meals, maternal, child health programs, and assistance for people living with HIV/AIDS. Our Food Programming and Management Group is a team of technical experts who ensure the high quality of World Vision's food assistance

programs in over 30 countries. World Vision operates food assistance programs in partnership with the United Nations World Food Program, USDA, USAID, and other partners.



In 2014 alone, World Vision

provided food assistance to 8 million men, women, and children in 35 countries. Over 60% of these beneficiaries were children. And, in 12 countries, World Vision implemented food and cash for assets public works programs and 18 percent of global food assistance was delivered as cash programs. World Vision is also implementing school feeding programs in 12 countries.

World Vision US McGovern-Dole Food for Education Programs:

School feeding programs are primarily funded by governments and they are present in over 130 countries. They remain one of the most widespread forms of social safety net programming, helping to reduce the impact of food crises on communities, while ensuring people are not pushed further into poverty. World Vision-US has a long history in school feeding programs, and currently implements two US Department of Agriculture school feeding programs through the McGovern-Dole Food for Education program.

Mozambique: In partnership with the Government of Mozambique (GOM) and collaboration with Fundacao para o Desenvolvimento da Comunidade (FDC), the leading Mozambican development agency, The "Educating Children Together" project is working in all primary schools across two districts of the northern province of Nampula: Muecate and Nacaroa. Nearly 70,000 individuals are benefitting from this school feeding program which incentivizes parents to send their children to school, and as a result, helps decrease gender disparities in school enrollment and completion, alleviates short-term hunger and improves students' concentration and ability to learn, and addresses micronutrient deficiencies in areas suffering from food insecurity.

Nicaragua: The lack of strong literacy promotion in rural poor communities compounded with poor dietary and hygiene practices continues to be a catalyst for low education, attendance, and enrollment rates in Nicaraguan schools. To address those issues, World Vision Nicaragua is implementing a school feeding program with supporting activities in literacy, health, and nutrition in 8 municipalities. Project CREAN (Children Reading and Nourished) seeks to improve education, attendance, and enrollment rates, and as a result, over 40,000 children and 4,000 teachers are benefitting across 600 schools in eight

municipalities within the departments of Esteli and Leon.

In noting the initial progress made in both countries against food insecurity and malnutrition, the U.S. must continue and expand its support of the McGovern-Dole Food for Education Programs. Currently, both countries are experiencing prolonged droughts, and acute food insecurity in some regions due to this year's El Nino weather pattern. As countries grapple with its impact, school feeding programs remain an even more vital lifeline to these vulnerable families, particularly in ensuring children have access to nutritious food that not only advance their physical, but cognitive development as well. Lastly, the cross-sectoral nature of these programs and its linkages to other development areas including nutrition, education, and WASH must be further prioritized.

Conclusion:

World Vision provides children and families with the means to fight hunger and achieve food security through programs that increase agricultural productivity, improve access to markets for farmers, advance nutrition and dietary diversity, improve children's access to education, and manage resources in a sustainable way.

World Vision also promotes country ownership by working with governments to develop national plans that address food insecurity and malnutrition. Further, by advancing community-led development through the mobilization of civil society, governments are held accountable and more effective systems and laws are enacted that can provide safety nets and protection for vulnerable populations. Programs like McGovern-Dole have provided vital leverage to NGOs like World Vision and its efforts to promote country ownership and social safety net programs.

In fact, a clear demonstration of country ownership as it relates to school feeding programs is that over the past 45 years, 38 developing country governments have successfully taken over school meal programs that were begun by donor countries, NGOs, and international organizations, highlighting the long-term sustainability of these international investments. As World Vision continues to implement school feeding programs, it will look to further partner with countries themselves, as well as strengthen existing partnerships through donor country programs like the US McGovern-Dole Food for Education.

**Statement of President Dwight D. Eisenhower
To the Fifth International Congress on Nutrition**

September 1, 1960

Dr. King, and ladies and gentlemen:

I am delighted to open this fifth International Congress on Nutrition, a Congress attended by representatives from 59 countries, including every continent on the globe. Since you have previously met in London, Basel, Amsterdam, and Paris, but this is your first visit to Washington, I bid you a hearty welcome to this side of the Atlantic and to this city.

May I remark, President King, that I envy you in your association with this Congress. You will not need to veto any of its actions. Now this, of course, is because each of you is selflessly and wholeheartedly dedicated to the advancement of a science that underlies human health. You have come with a vision to build a better world, now and for years to come.

The twentieth century is unique in many ways--not the least of which is the fact that ours is the first generation which has dared to think in terms of food enough for all. And our age is the first to be deeply concerned about the quality as well as the quantity of the food supply. For the first time in history, man's ancient enemies--hunger and malnutrition--are on the defensive. They are not whipped. But ours is the first generation to catch the scent of victory.

Let me turn for a moment to one phase of the free world's campaign against hunger, a program to send crop surpluses to needy areas. I take as an example the case with which I am most familiar, that of my own country. But first a word of caution. Any transaction involving the transfer of commodities from one nation to another is of more than bilateral interest. Thus, in moving our abundant surplus of food products overseas, we must be diligent to avoid disrupting the markets of others. Irresponsible handling of our huge stocks of wheat, for example, could unjustifiably harm a nation which is heavily dependent on foreign exchange earnings from wheat and other cereal exports. My concern regarding this problem is one of the reasons for recommending increased use of the United Nations so as to distribute surplus crops under methods that will benefit all.

During the past 6 years, the United States Government has sent more than four thousand shiploads of food abroad in exchange for foreign currencies.

In similar transactions, we have done or engaged to do things like the following--to one country 16 million tons of wheat and 1 million of rice; for disaster relief, in earthquakes and hurricanes, 300 shiploads of food have gone abroad--through voluntary charitable agencies 400 shiploads of food to help 60 million stricken peoples.

Twelve hundred United States agricultural technicians are now working overseas, translating agricultural science into better living for the world's millions. Last year we received more than three thousand agricultural visitors from other countries, who came here to study food production, agricultural research, and education, and to meet our farmers and to see how they work.

We have loaned over \$265 million abroad to build irrigation projects, fertilizer plants, and to improve transportation facilities. Now these activities of my own country are only a part of the total free world program to lift the scourge of hunger. Great efforts are being made by the developing countries themselves. Much help has come from other industrialized nations. The special agencies of the United Nations--the World Health Organization, the United Children's fund, and the food and Agriculture Organization--have all made outstanding contributions in our common effort to eliminate hunger from this planet.

And the combined effort has been effective. There have been no major famines in the free world during the past decade, and to my knowledge this cannot be said of any previous decade. Nutritional levels in most of the developing countries, while still distressingly low, have nevertheless crept up slightly. World agriculture has generally kept abreast or ahead of the population increase.

While we have thus helped lift production capabilities abroad, the stream of agricultural and industrial exports from the more industrialized nations has increased, not diminished. The reason is a simple one: a better-fed neighbor is a better customer.

This is as it should be, and reflects the wisdom of programs which meet current needs while building long-term self-reliance. To make the recipient countries indefinitely dependent upon our assistance would be disadvantageous to them and to us. Compassion and prudence are equally important in this undertaking; our food-for-peace program partakes of both.

There is a Danish proverb which says: "You may light another's candle at your own without loss." Indeed there is gain in the lighting of many candles; in the brighter light we can all see better.

There are risks, indeed, in our undertaking. But the risks of failing to face up to our opportunities are greater than those involved in considered action. Political explosions can result, in a shrinking world, from a widening gap between the wealthy and the underdeveloped nations.

And science has given us a set of tools designed for human betterment. Farm people, in the United States and elsewhere, have translated these tools into a capability for constructive action. Though the task is gigantic, we seek opportunity to move ahead rather than becoming preoccupied with despair.

The world cups its ear to hear the rattling of rockets. It listens less closely to the sounds of peace and well-being which emanate from the slow but steady improvement in world health and nutrition.

For centuries orators and writers have developed the habit of warning about the crossroads that the world was facing at the very moment of the particular speaking or writing. Many of these crossroads have existed only in a lively imagination. Yet if history, which will one day view the events of this period in perspective, could only say that it was at this moment the world began truly to take the high road of health, and plenty, leading toward peace, leaving forever the path of strife and anxiety, then indeed would our great-grandchildren call this the brightest era of all time.

To each of you, my best wishes for a successful Congress. To the degree that you succeed, the human family in the nations here represented will step from under the shadow of want. This is the purpose that has brought you half-way around the world. The earth's nearly three billion people join me, I am sure, in my good wishes for your success. And may God ever be your helper.

Thank you very much.

Note: The President spoke at 11:05 a.m. at the Sheraton-Park Hotel in Washington. His opening words "Dr. King" referred to Dr. Charles Glen King, Scientific Director of the Nutrition foundation, Inc., of New York City, and President of the fifth International Congress on Nutrition.

Arlene Mitchell addendum to her written testimony:

In response to a question regarding USDA in my oral testimony, I made a statement that was based on hearsay. I would like to correct the record: I have no direct evidence that Deputy Secretary Harden had to get special permission to do as much international work and travel as she is currently doing. I nonetheless stand by the rest of my statement, including the assertion that USDA staff "are not used to working overseas, and they often have leaders who discourage international work. So an action item in this area would be to tweak the law and encourage the leadership to allow USDA to do more international work."

QUESTIONS AND ANSWERS

DECEMBER 2, 2015

**Senate Committee on Agriculture, Nutrition, & Forestry
Agriculture's Role in Combating Global Hunger
Wednesday, December 2, 2015
Questions for the Record
Deputy Secretary Krysta Harden**

Chairman Pat Roberts

- 1. Does the Department function under federal rules or regulations that prohibit or reduce your ability to effectively deliver food aid or strengthen agricultural development under programs such as McGovern-Dole and Food for Progress? If so, can you identify the rules or regulations and how they potentially reduce program effectiveness?**

Response:

Based on USDA's experience operating the McGovern-Dole International Food for Education and Child Nutrition (McGovern-Dole) Program and the Food for Progress Program, the regulations for both programs were updated in 2009 to ensure the effective delivery of food aid and support of agricultural development. Updates reflected input from program participants and the revisions provided greater clarity with respect to all aspects of the programs, with specific emphasis on eligibility requirements that participants must meet and actions that must be undertaken by participants in order to receive assistance under these programs. The regulations are found at 7 CFR part 1499 (Food for Progress Program) and 7 CFR part 1599 (McGovern-Dole Program).

Further, the Administration's FY 2016 Budget request proposed changes to make U.S. food aid programs more effective and better able to meet the nutritional needs of more people.

The President's Budget included a request for funding for the Local and Regional Food Aid Procurement (LRP) Program, authorized in the 2014 Farm Bill. This would allow USDA to implement this complementary tool to support and increase the impact and sustainability of existing food aid programs, especially the McGovern-Dole Program.

The FY16 Budget requested anew authority to use up to 25 percent (\$350 million) of the Food for Peace Title II appropriation in emergencies for interventions such as local or regional procurement of agricultural commodities near crises, food vouchers or cash transfers. The additional flexibility would make emergency food aid more timely and cost effective, improving program efficiencies and performance and increasing the number of people assisted by about two million annually with the same level of resources.

- 2. Trade is a critical part of growing developing economies and expanding opportunities, particularly in places like Africa and Asia where we expect to see significant population growth. Your Sub-Saharan Africa Trade Initiative reflects this shared belief. Can you give examples of efforts to expand commercial ties to the region? How are any efforts through U.S. companies and commodity groups being leveraged to develop a nexus towards sustainable international relationships and markets?**

Response:

The USDA Foreign Agricultural Service (FAS) is broadly engaged in Africa to support the Doing Business in Africa (DBIA) campaign, which was launched by President Obama in November 2012. FAS initiatives support the four primary objectives of DBIA: connecting American businesses with African partners; supporting existing and new American investment in Africa; expanding access for American business to finance exports to Africa; and reducing barriers to trade and investment in Africa. Since the inception of the DBIA, FAS has worked to strengthen long-term commercial agricultural ties to Sub-Saharan Africa.

FAS Market Access Program (MAP) funds have been used to expand U.S. product familiarity and interest in Africa through FAS industry partners. For example, the USA Poultry and Egg Export Council (USAPEEC) in collaboration with the U.S. Meat Export Federation used MAP to address sanitary issues with government regulators in Nigeria and Ghana. In this effort, they held U.S. Trade Policy Roundtables with Government Officials from Ghana and Nigeria and led “farm to fork” trade teams to increase potential buyers’ confidence by providing first-hand experience with U.S. production, product quality, and food safety practices. Another market development program, the Emerging Markets Program (EMP), funded a trade mission for approximately 30 South African retail regional buyers to attend the 2014 America’s Food and Beverage Show in Miami, Florida. The buyers met with 125 U.S. companies participating in the USA Pavilion and toured the Miami Port and three local retail facilities including Wal-Mart, Whole Foods, and Publix.

Through the GSM-102 program, FAS has provided credit guarantees to encourage financing of commercial exports of U.S. agricultural products to Africa. By reducing financial risk to lenders, credit guarantees encourage exports to buyers in developing countries. For fiscal years 2014 through 2015, USDA’s Commodity Credit Corporation made available a total of \$1.075 billion in financing guarantees for agricultural exports to Africa. During this period, GSM credit guarantees benefited a variety of exports to the region, including U.S. wheat to Nigeria and U.S. poultry meat to Angola, Benin, and Ghana. Additionally, FAS plans to make available another \$1 billion in guarantees for exports to Africa through FY 2017. In FY 2015, FAS conducted GSM-102 outreach activities with banks, importers, and government officials in Kenya and Angola to increase U.S. agricultural exports to the countries.

This year, FAS led African delegations to key trade shows, such as Gulfood in Dubai and the Americas Food and Beverage Show in Miami, to meet directly with U.S. companies and industry organizations. At Gulfood, FAS led an eight-member USDA Buyers Mission from South Africa and Angola to the show to engage in networking opportunities and to establish business relationships with 152 U.S. companies exhibiting at the show’s USA Pavilion. This team was part of a bigger USDA Buyers Mission of over 100 buyers from Angola, Burkina Faso, Ghana, Kenya, Nigeria, Portugal, Senegal, South Africa, and Uganda. . The African buyers reported more than \$2.8 million in potential purchases from U.S. companies as a result of the show.

USDA’s most recent effort to expand commercial ties in the region was in November of this year, when I led an Agricultural Trade Mission (ATM) to Ghana, Africa. The ATM included leaders from five state departments of agriculture, 19 U.S. agribusiness companies and four U.S. agricultural commodity trade associations representing a variety of agricultural products, including grains and feeds, peanuts, soybeans, meat and poultry products, and agricultural machinery. As part of the ATM, USDA facilitated a total of 526 business-to-business meetings

in Accra with the U.S. participants and African companies representing importers and agribusinesses from Cote d'Ivoire, Ghana, Kenya, Nigeria, Senegal, South Africa, and Sudan.

3. **The Agricultural Act of 2014 directed USAID to assess types and quality of agricultural commodities used under Section 202(h) of the Food for Peace Act. Has the Department of Agriculture shared information, or been requested to share information with USAID related to the assessment under this authority?**

Response:

USDA routinely shares information with USAID on commodities under Section 202(h) of the Food for Peace Act in order to provide specifications on all commodities available for use during each program year. For example, on a quarterly basis, USDA provides USAID with the latest list of available commodities and the most updated price per metric ton for those commodities. In addition, USDA alerts USAID in a separate notification of any new commodities that are added to the list.

Senator Debbie Stabenow

1. **The 2014 Farm Bill made historic reforms to U.S. emergency food aid programs. One specific reform is the permanent authorization of the Local and Regional Procurement Program that was created to allow USDA to purchase food locally, which can result in assistance being delivered more quickly. Can you discuss the progress that USDA has made in implementing the LRP program, what impact it is having currently, and how much more of an impact there would be if the program was fully funded? Do you know the regions that would benefit from increased LRP funding and how many more people could be reached by this increased funding?**

Response:

USAID is the lead agency for responding to emergency food aid needs globally. The Local and Regional Procurement program authorized in the 2014 Farm Bill is intended to complement existing emergency food aid efforts in consultation with USAID. USDA is in the rulemaking process for the Local and Regional Food Aid Procurement (LRP) Program authorized in the 2014 Farm Bill, with the expectation of operating the program in 2016. The Administration's 2016 Budget proposed \$20 million to support the program. Congress provided that, of the fiscal year 2016 appropriations for the McGovern-Dole International Food for Education and Child Nutrition (McGovern-Dole) Program, \$5 million would be available to carry out the new LRP Program.

The 2014 Farm Bill provides that, in carrying out the LRP Program, USDA may give preference to organizations that are involved in projects under the McGovern-Dole Program. The conference report states that the program is intended to serve as a complementary tool to support existing food aid programs, especially the McGovern-Dole Program. Given the complementary nature of the LRP Program, USDA expects that it will be implemented in countries where USDA funds projects under McGovern-Dole Program agreements. Fiscal Year 2016 McGovern-Dole Program agreements are presently being negotiated. The countries in which projects are expected to be implemented under these agreements include: Bangladesh, Benin, Burkina Faso, Cambodia, Cameroon, Cote D'Ivoire, Ethiopia, Guatemala, Guinea Bissau, Haiti, Honduras,

Kenya, Kyrgyzstan, Laos, Liberia, Malawi, Mali, Mozambique, Nepal, Nicaragua, Republic of Congo (Brazzaville), Senegal, Rwanda, Sierra Leone, and Tanzania. We look forward to sharing the results of activities under the LRP Program as it progresses.

2. **America's land-grant institutions have always played a critical role in conducting agricultural research, providing technical assistance through cooperative extension, and developing new technologies to help farmers around the world. In light of the new Feed the Future Innovation Labs, how do you see the contribution of these universities evolving to play an even larger role in achieving global food security? Do you see areas, domestic or international, where the valuable expertise of these institutions could be better utilized, and if so, what are they?**

Response:

Feed the Future Innovations Labs (formerly known as Collaborative Research Support Programs) include the work of several land-grant universities, which enhances their ability to address some of the most challenging food security issues in the developing world. For example, the Innovation Lab for Applied Wheat Genomics led by Kansas State University is developing heat-tolerant, high-yielding, and farmer-accepted wheat varieties for South Asia, while simultaneously increasing the research for development capacity of the global wheat improvement system. Michigan State University is leading the Legume Innovation Lab to promote economic growth and food and nutrition security by strengthening value chains and enhancing the capacity and sustainability of research institutions in Sub-Saharan Africa and Latin America. Utilizing the unique strengths of our land-grant institutions also brings significant benefits back to this country, as our scientists utilize data and research to address a whole range of food security issues (such as disease control or mitigation or natural resource management techniques).

3. **During the hearing an amendment to the African Growth and Opportunity Act (AGOA) that expands USDA's role in trade capacity building was discussed. Can you discuss the progress that has been made in implementing this new authority and what actions and results you expect to see from USDA, both in the short and long term?**

Response:

USDA is expanding our role in providing assistance with trade capacity building to a number of African nations. Many of our projects are directed toward women entrepreneurs. USDA's primary source for expertise is through our embassy presence with eight American attachés and 23 locally employed staff located in five sub-Saharan African capitals (Addis Ababa, Ethiopia; Accra, Ghana; Nairobi, Kenya; Dakar, Senegal; and Pretoria, South Africa). USDA also has regional sanitary and phytosanitary (SPS) advisors in Africa (Accra, Nairobi and Pretoria) that are funded by the U.S. Agency for International Development.

USDA programs that support trade capacity building in sub-Saharan Africa include the Cochran and Borlaug Fellowship Programs, and Food for Progress. Training or technical assistance activities focus on developing African government institutions so they can meet international and U.S. standards for trade, as many countries are still at a stage where they first need to develop the capacities for local and regional trade before they can export agricultural products to the highly-competitive U.S. market.

Following the U.S.-Africa Leaders Summit in August, 2014, the National Security Council convened a Steering Group on Africa Trade and Investment Capacity Building (TICB) to prioritize U.S. government assistance for TICB. USDA was a leading participant in TICB. The United States is currently working to expand the Trade Africa Initiative to involve new partners, including Cote d'Ivoire, Ghana, Mozambique, Senegal, and Zambia to identify activities that will improve compliance with WTO rules on trade facilitation, sanitary and phytosanitary measures, and technical barriers to trade; foster an improved business climate; and, address capacity issues that have constrained trade. The U.S. Government is also working to support the Economic Community of West African States (ECOWAS) to improve regional trade. Working with the U.S. Agency for International Development, USDA will implement the AGOA legislation, specifically by implementing activities in AGOA member countries that encourage the implementation of science-based international standards, which will then allow the AGOA countries to obtain the full benefits of multilateral trade agreements.

