

AVAILABILITY OF A HEALTHY GLOBAL DIET
Presented by the World Food Center, UC Davis
Panel Moderator: *Josette Lewis*
October 12, 2016 - 4:20 p.m.

Introduction

Ambassador Kenneth M. Quinn
President - World Food Prize Foundation

So we've had up 'til now four different presentations about conflict, the environment, and from ISIS to Boko Haram to climate change to El Niña, all these things to deal with. Now we're going to move and start part two, the nutrition section, and we moved from conflict there. We have a wonderful partnership and collaboration with the University of California at Davis, and they've put together this session on the Availability of a Healthy Global Diet. So at this point to invite here Josette, coming up now, who's had a terrific career in USAID, continues to advise USDA. And so I'm going to turn it over to her and get out of the way.

Panel Members

Pietro Gennari Chief Statistician and Director of the Statistics Division, Food and Agriculture Organization of the United Nations (FAO)

Lawrence Haddad Senior Research Fellow, International Food Policy Research Institute, Co-chair of the Global Nutrition Report

Emily Hogue Division Chief, Monitoring, Evaluation, and Learning, Bureau for Food Security

Marie Chantal Messier Senior Manager, Public Affairs, Nestlé S. A.

Elizabeth Mitcham Director, Horticulture Innovation Lab, University of California, Davis

Panel Moderator

Josette Lewis
Associate Director, World Food Center, University of California, Davis

And I will start out with maybe a call. Lawrence Haddad is in the audience, so please come up and join us. Lawrence, if you're present, please come and join us. Otherwise, we have a great panel for a discussion. All right, we're a whole cloth now.

The theme for this year's Borlaug Dialogue is a great reminder of the important role that food plays in our health. And often when you talk about nutrition, food is not the first thing that we

think about. So in this discussion today we wanted to explore that intersection between agriculture and nutrition through the lens of – how do we measure progress in both food and nutrition security? Because what we measure reflects a number of different factors: The understanding that we have of the key drivers of the development process, our priorities as different institutions that bring a perspective to that development process, as well as the complexities of data collection at a number of different levels, from national-level statistics all the way down to sub-household level information on consumption patterns of different members of the household.

So today we're going to start out with seeing where we're making progress and where there perhaps isn't as much progress in both food and nutrition security. And then we're going to examine in more detail our understanding of that dual path that agriculture plays in poverty reduction – one pathway through income generation and the other pathway through food-based approaches to nutrition.

So with that, I'd like to introduce our panel. All the way at the end is Lawrence Haddad, the newly appointed executive director of GAIN, the Global Alliance for Improved Nutrition, formerly with IFPRI, and co-chair of the Global Nutrition Report.

Next to Lawrence, I have Marie Chantal Messier, who's the senior manager for Public Affairs with Nestlé. And then next to Marie we have Pietro Gennari who is with FAO and the chief statistician and director.

And then another colleague from UC Davis, Elizabeth Mitcham, who is the director of Feed the Future Horticulture Innovation Lab and herself a post-harvest biologist and extension specialist – important role there with research and extension.

And then last but not least, Emily Hogue, who is the team leader for Monitoring, Evaluation and Learning Division of the Bureau of Food Security at USAID.

So a great panel to inform our discussion today. And as I said, I want to start out with looking at the current state of food and nutrition security. Through the multiple activities here this week, we often dig into the specific details of these issues, but we want to start out with kind of a high-level look of – how are we making progress on both food and nutrition security?

Lewis So, Pietro, maybe starting with you, FAO plays such a significant role internationally in collecting statistics and tracking them at national government levels, so what do those numbers tell us about the state of food and nutrition security?

Gennari Yes, FAO has an important role to play at the international level in collecting and submitting data on food security. And we also publish every year a report of food security in the world. This is since 1996, it's a flagship publication of the organization and also it's a reference publication for the experts worldwide.

It contains an update on the progress made in reducing food insecurity and also monitors the achievement of the Millennium Development Goal hunger target, which pledges to halve the proportion of undernourished people between 1990 and 2015. And last year was the last report that we produced. According to this report, we have seen a significant progress in terms of the fight against hunger

over the last 25 years. Overall, in the developing countries the proportion of undernourished people, people that don't have enough food for conducting a healthy and active life have almost halved, and there are around 73 countries out of the 130 that we monitor every year that have managed to achieve this target.

Of course, there is a long way to go, and there are still around 750 million people that are still undernourished. And this situation is particularly serious in certain areas of the world. Progress – it's very diverse in different regions. So we have certain regions like Latin America and Eastern and Southeastern Asia where countries have been able to reduce not only the proportion but also the absolute number of poor in the situation of a growing population. And other regions where progress has been very slow, like of course the Sub-Saharan Africa and other regions because of conflict, or so, like Western Asia where we now have a proportion of undernourished that is even higher than it was in 1990. So this is more or less a brief sketch of the situation in terms of food insecurity.

Of course, in terms of drivers, rapid economic progress is a key element but only when it is inclusive, so provides opportunity for the poor to improve their livelihoods. We have seen that increase – enhancing productivity of smallholder is also another very important factor, along with the access to market and social perfection measures. On the other side, we have seen that conflicts, climate change, extreme weather events bring countries in a state of protracted crisis with high food insecurity.

So these are in a nutshell the key elements that we have seen as drivers of the food security situation in the world.

Lewis So we've seen, as you said, great progress or significant progress in reducing the number and the proportion of food insecure in many parts of the world, and that is definitely something to be celebrated, because those are real lives of people, not just statistics. But, Lawrence, maybe you can take us a little bit through a component of food security that sometimes isn't as closely linked to those statistics when looking at hunger in a broader sense, and that is around nutrition. From the Global Nutrition Report, can you give us a bit of a sense of where we're making progress and perhaps why food security indices and nutrition indices don't always go hand in hand?

Haddad Sure, Josette, and thank you. I'm sorry. I was in the audience. I was trying to figure out how much money to borrow from Gordon Conway.

So this is the Global Nutritional Report that you all have in your packs, and it's been going for three years now. And it was set up from the Nutrition for Growth Summit in 2013, which was a follow up on the Olympic Summit in London in 2012, which has just been followed up in Rio and will be followed up in Japan in 2020.

And it's really inspired by the SDG process and the SDG era. We're in this SDG era, and the SDGs have at least three things that are really good for food security and malnutrition. First of all, malnutrition is higher up; it's got a bigger priority in the SDGs than it did in the MDGs. That's number one. Number two, the SDG2 talks about malnutrition in all its forms, so it's not just about stunting and wasting

and anemia. It's about obesity, overweight, even things like Type 2 diabetes. And the third thing is that the SDGs tell us that our ambitions should be to end malnutrition – not go halfway, like the MDGs said, but really to end it.

So the SDGs give us a really nice space to think broadly about malnutrition but also to think urgently about ending it. So this report really takes data from and uses data that was shared by FAO, WHO, UNICEF and others (and I'm proud to say FAO was a collaborator on this report), to really track eight outcome or impact indicators, if you like, against targets that have been set globally. And there are sort of five undernutrition ones, if you like, and three overnutrition ones.

And they tell a very, as you would expect, a very variable story. There are some indicators that we're actually doing quite well in terms of these, the World Health Assembly indicator 2025 targets that will be updated for the SDG, but they haven't been yet. So for stunting reduction, the progress has been I would say modest, moderate in a good way, medium, better than maybe a lot of people expect. And there were some countries where... I mean, I've studied this stuff for a long time and looked at this stuff for a long time, and I tend to think of stunting rates in Africa in the 30s and the low 40s. But Ghana's stunting rate is 19% now, and that's almost half in an eleven-year period. So that is just fantastic, and that shows you that we are making real progress.

But there are other indicators where we're not making much progress. At women's anemia the target is to get it at a certain level by 2025. At current rate's progress we're only going to get there in 2084, which is outrageous. But at least that's going down. There are some indicators that are not even going down; they're going up – overweight rates, obesity rates, Type 2 diabetes rates going up in every country. So we're in a situation where we have to put the foot on the accelerator to reduce things like stunting, wasting, anemia, to improve exclusive breastfeeding rates. But we have to put the brakes on these other things that are coming over our shoulder and are just going to totally swamp the rest of the nutrition landscape. They're going to swamp the resources available. They're going to swamp political energy. So we really need to deal with both of these things at the same time, and they're both the manifestation of our food system that's not really delivering for half the world's population.

Lewis Thank you. Emily, I think the USAID's Feed the Future has been lauded because it really does bring together agriculture and nutrition in some new ways and really breaks down the components of making progress into a number of different measurable indicators. If you could talk a little bit about from the viewpoint of one donor that has some pretty extensive programs, where do you see encouraging progress, and what are some of the difficult areas we have yet to tackle?

Hogue Sure, thank you, Josette. The Feed the Future results framework defines the U.S. Government's approach to food security in the areas where we work. And then the results framework splits into two sides, one that's focused on agriculture and agricultural-related results, and the other focused on nutrition.

On the ag side, the most positive program results that we are seeing so far are really in the area of agricultural productivity, expanded trade and markets,

increased sales. We're definitely seeing improvements in yields for farmers that are supported by Feed the Future, as well as the margins that they're making on their agricultural commodities and the value chains that we're supporting. And beyond that, since the start of the initiative since 2011, Feed the Future supported farmers have increased their sales by nearly \$1.7 billion, so that's sizable. And those results in agricultural productivity and in sales and trade lead to greater food availability and also greater access for poor farmers so that they can buy more nutritious and safe foods.

On the nutrition side, we're seeing impressive gains in the reach of our programs. This last year we reached nearly 18 million children with vital nutrition interventions. We trained nearly 2.7 million people in child health and nutrition. And we supported nearly 3,000 health facilities to establish capacity to manage acute malnutrition. And so those are the results, outputs and outcomes that are directly attributable to our programs, but we're seeing that those are leading to early impacts in reductions of stunting and poverty in the zones where we work. So that's very encouraging.

However, there are places where we do see that we need to work and we need to up our gains, so to speak, and emphasize our approaches or develop better approaches. On the agriculture side, we're not seeing the gains in employment generation that we were hoping to see, just not... Our programs maybe haven't worked in that area as much, with greater focus on ag productivity to date, but we want to expand our approach for employment generation.

We do know also, though, that we would have some methodological issues with the measurement of that indicator. And so under the new global food security strategy we're looking at new ways that we are measuring job generation and perhaps expanding our definition to get at the informal jobs that are also created as well as the more formal.

On the nutrition side, we're also not yet seeing the improvements in dietary diversity that we wanted to see. Through the interim data point that we just collected, there are a few countries where we're seeing statistically significant improvements in dietary diversity for women and children, but it's just not as pervasive or as extensive as we had hoped to. And we know that change in that area can be slow; we also know that methodologically, sometimes our sample sizes may not be big enough to capture the change yet. But we also know that we need to expand and intensify the reach of our nutrition programs and also the ability of our agriculture programs to generate nutrition impacts and outcomes.

So we are focusing on that as we move into this new phase under the global food security strategy. We had a moment here with the passing of the Global Food Security Act to look at our results framework, to look within our theory of change and think through the causal pathways. And so we've been reflecting on that. And you'll see in the new global food security strategy that there is revisioning or reshaping of our results framework to emphasize those areas where we know that we need to increase or intensify our efforts and will help us get there in the coming years.

Lewis Great. I think there's an old adage that is something to the effect of – you pay attention to, or you invest in what you can measure, and that is certainly an underlying factor in developing results framework for a big initiative like Feed the Future. There's an accountability to Congress, to the public, to our partners in being able to show that we're investing money, precious resources and having an impact.

At the same time, the world community comes together around things like the Sustainable Development Goals of the U.N., and that reflects the common interests and shared values of us as a global community. So what we measure is very important to – again reflecting what we understand about the development pathway but also what we prioritize and a little bit about what is practical to measure. So we want to talk a little bit more about that.

One of the things that's interesting to me, having stepped out of development for a little while when I left USAID and coming back, is there's some new metrics out there that really get at this improved understanding about the development, about the development process itself and our theories about causal change in poverty reduction. And so I wanted to talk a little bit about some of those that I think are really notable.

So maybe just starting with you again, Emily, to talk about the Women's Empowerment in Agriculture Index and why that's important and how you guys are going about applying that.

Hogue Thank you. Sure. The Women's Empowerment in Agriculture Index is really valuable. It's valuable to the Feed the Future Initiative in a way I'll explain in just a moment, but it's really valuable to many different types of users in a variety of ways. So Feed the Future in USAID, it's definitely exceeded our expectations for its utility as a monitoring tool. And it was developed in 2011 and launched in 2012. It was a partnership between USAID, IFPRI and the Oxford Poverty in Human Development Initiative to develop an index, a measure related to women's empowerment and gender equality that would measure the objective in our results framework inclusive agriculture sector growth under Feed the Future.

What quickly became apparent after we'd collected the baselines, was its utility as a diagnostic tool as well a monitoring tool. The index breaks apart empowerment into five different domains, and it collects a number of indicators under those domains. And so it breaks empowerment apart into its various facets in a way where you can look at – what are the greatest constraints to empowerment and equality in any particular context or country where you're working? And although it is standardized across... for its use. So we've been using the index that way for the last few years, looking at our programs, identifying where are the greatest constraints in every given context. Are our programs focusing on those constraints where we can have the greatest impact, whether it's decision-making on production or it's control and to deliver income, or it's social capital, so across the countries we've been able to look at programs and tailor programs so that we can get at those greatest constraints in that context.

And we just have back now the second data point from our insurance surveys that were done around 2015, and we're able to look at the changes we've been seeing in the indicators under the index and see how dynamic the index is, the changes that are occurring across those constraints that we've targeted. And so for other development organizations, they could use the index in a similar way, and we have a lot of partners, our implementing partners and other organizations working under Feed the Future that are using the index in that way to look at their specific programs, although we use it at a sub-national level, at a population level.

But in addition, for researchers and academic institutions or organizations, there's a real value in that the women's index has created just a really rich and robust dataset across more than 20 countries. We have standardized data on empowerment, and it's also collected typically in surveys with various other variables and indicators related to food security. And so researchers are able to go farther and examine the relationships between empowerment, these various facets of empowerment in food security really in ways we haven't done so before.

And lastly I'd say it's very valuable as a tool for advocacy organizations working on women's issues. We often hear how important women are to agriculture, how women are excluded from agriculture, but that that exclusion is detrimental to food security and nutrition because women are so vital in the decision-making process around good nutrition in the household. But until you have hard evidence to demonstrate to a policymaker that those aren't just pretty sentiments, that those are the hard economic and social facts, you're not going to see the action that you need to see to bring about changes. And so the index is providing data to answer the questions we have around women's engagement in agriculture and what it means for nutrition and food security.

Lewis Right, and maybe just to underscore... I think many people in the room are aware that women comprise the majority of the labor in small-scale agriculture in the developing world. But as we actually heard from the speaker on the last panel, the small farmer from Nigeria, and we know from a lot of other research, that women also play... When you generate income amongst women, they play a particularly important role in addressing nutrition in the family and making sure the youngest and weakest among them have access to a better quality diet. So as you... I'd just underscore, sitting at a university, the importance of the dataset in terms of providing a rich basis of data for better analysis and helping us refine understanding of the development pathways and improving our ability to target the drivers of those pathways.

Pietro, another sort of new indicator that FAO has led the way is around the Food Insecurity Experience Scale, which is one of our first measures to really get at access to food and what that means for food security. Maybe you could talk a little bit about that.

Gennari Yes. As, Lawrence has mentioned before, now we are in the SDG era, and the dietary requirements have changed. So food security and nutrition have an entire goal dedicated to that. And the definition of the targets has changed. So now we have, in order to eliminate hunger, we have to ensure food access to every people at every time. So in a way, the dietary requirements have changed, and this

element of access to food for all families has to be monitored by both developing and developed countries. It is a universal target, because we can have a pocket of food insecurity or poverty even in developed countries; you know this very well.

So in order to respond to this new dietary requirement, also to overcome some of the limitation of the condition indicator that FAO has monitored, which relate to the quality of the data, possibility of desegregating the information that's at a national level and so on, the timeliness of the estimates, we have developed a new indicator which measures the ability of individuals and households to access food.

Now, this is based on the assumption that in reality [inaudible] food insecurity per se is related to characteristics that cannot be measured, what you cannot observe. What you can observe is the responses, the behavior of families or individuals responding to the facing constraints in accessing food. And so on the basis of different food insecurity situations, we have established this scale, and it's possible then to measure the severity of food insecurity even for different members of the same family. So this is an important innovation, which brings a number of advantages with respect to the traditional, ongoing current household food insecurity measures.

First of all, first we had an indirect measure, a very complex methodology to measure food insecurity. Now we ask to the people if they have problems to access foods, so it's a direct measurement. It can be measured, as I said, both at the individual and household level, and so allows to analyze gender disparities in food insecurity, which is a very important element. It allows to measure the severity of food insecurity. So you can have a kind of scale of severity that goes from mild to moderate to severe, so it's a measure that can be used both in developing and in developed countries, so complying with one of the key requirements of the SDG agenda that is, the universality of the agenda. It has very strong methodological background foundations, which has been developed in other statistical domains like they've been using other statistical domains for many years, like in the education statistics and allows not only to estimate food insecurity but also to evaluate the accuracy and reliability of the estimates. And especially the most attractive future is the fact it is based on a very simple questionnaire that has a very low cost of implementation and has the ability to provide the information almost real time, so very timely for allowing timely intervention, both at global and country levels, national level. So in this respect it is an ideal instrument for monitoring Target 2.1 that is on food access, but also targeted policies on reducing food insecurity at country level.

And we are working on a two-prong strategy to implement this indicator. On one way, we are helping countries to introduce it in their national household surveys. This has a very low cost, we have estimated an additional cost of \$12 per person interviewed. And we are providing the technical support, the technical assistance for countries to adapt their national household surveys with this instrument, and a number of countries are already implementing the... Last week we had a mission to Indonesia and the agreement for a big country like Indonesia included in their SUSENAS—that is the main household surveys in their countries.

This instrument is not a new instrument. There are some countries that have already been using it for many years. And, for example, in the USA, U.S. is the key instrument since 1995 to assess food insecurity.

But a number of countries have also recently adopted it: Brazil, and it's the basis of their program of reducing hunger and eradicating hunger; Canada, Mexico, Guatemala and other countries. So there is already enough experience in different contexts, both developing and developed country contexts, that tells us that this instrument can be used and can produce meaningful results.

The key problem so far was the fact that the measures were not comparable across countries, and this is what FAO has done. So it has ensured that all the measures at certainty level can refer to a global standard, so measures can be compared across countries.

Lewis Thank you. Marie, maybe turning to you? Nestlé has a very substantial supply chain, a value chain with a global footprint. And in the development community, there has been a great embracing of the important role that private sector investment makes in the development process. And Nestlé has definitely focused on measuring components in nutrition in your value chain. Maybe you could tell us a little bit about how the company is using metrics in its business model.

Messier Yes, thank you, thank you, Josette. Yes, let me first explain why we do this. We do this because at Nestlé we have an approach of creating shared value. So while we recognize we have a responsibility to create value for our shareholders, we also recognize, being a company that is 150 years old this year and that wants to be in the business for the next 150 years, that we also have to create value for the communities where we work. So that's basically the principal under which we operate.

And so how do we do this? How do we measure? And we use the value chain approach, like you said, and we do that using the full spectrum of malnutrition, going from undernutrition to overnutrition and prevention of non-communicable diseases.

So what do we do? I'll give you three examples. So, for example, for agricultural inputs, we have developed a Sustainable Nutrition Index. And how does that index work? It's measuring how can we maximize the nutrient capacity, how can we maximize the nutrient density of the crops and the food produced on a specific land or plot, while minimizing the environmental impact of that food.

A second example is looking also in the supply chain. So Nestlé is very much at the forefront of the movement in reducing food waste. And why do we do that? Why are we interested in reducing food waste? Well, first of all, by reducing food waste, you actually increase the supply of food available. And then the second one is that by doing that is you actually reduce the cost or maintain the cost of food low; and for us this is very important for a consumer, particular the low-income consumer and the vulnerable consumer so that they can access to nutritious and transform food.

And then the third one would be really on the other side, the other side of the value chain and the consumers. And looking at the evolution of needs and expectations of consumers regarding food. So if we look at a few years back, probably a few decades back, it was more food supply, food security, and consumers asking themselves – Do I like this food? Yes or no, and then they say their consumption patterns on that. To, what we’re seeing today much more as – Is this food good for me? And I’ll give you two examples of how consumers react and how we respond to that need, particularly with millennials.

The millennials today are looking at – Is this food good for me? Is this good for me in terms of what I eat? Is this optimizing my health? Is it sourced responsibly? Is it sourced in a sustainable manner? Does that fit with my value? Does the company I buy the food from actually correspond to my value? And this is something that we measure.

And then on the far end of the scale, what I would call almost the “ultimate frontier in food,” and it goes very well with the theme of the conference of food as a medicine. Doing the research in measuring how can personalized nutrition address the specific nutritional needs of an individual? And so, for example, one thing that we’re doing is developing foods that can reduce the onset or retard the onset of Alzheimer's disease, as well as review the effects and the burden of Alzheimer's disease. So I think we’re looking at it from the basic sourcing to, what is the impact and measuring the impact on the individual in the future?

Lewis Thank you, Elizabeth. I talked a little bit about the dual role of agriculture in poverty reduction. It increases incomes and also makes available the basic nutrients of a healthy diet. And nowhere is that intersection more clear than in horticultural products – in fruits and vegetables. Could you talk a little bit about the work of the Hort Innovation Lab? And really, do we need some new metrics on the agriculture side to start paying attention to whether we actually have available the diverse diet that some of the new indicators like the Women’s Dietary Diversity Index need to measure?

Mitcham Thank you, Josette. Yeah, it’s a great question. And I appreciate the opportunity to be here and speak a little bit about fruits and vegetables, which I think all of us recognize are an important part of a healthy diet, providing important vitamins and minerals as well as vital nutrients. And we’ve come, I think, a long way in terms of how we measure nutritional outcomes.

You know, we’re talking now much more about dietary diversity, but I think it’s really important in terms of what we measure that we break that down a little more and not just look at a number of food groups that are consumed but actually what are those food groups.

Recent studies have shown that the food groups that are consumed can have an important effect on nutrition and also health. There was a recent study published in 2015 in BMJ Open by a group of researchers from London and also from Tufts University in Boston. And they showed that... Well, they looked at a number of different food groups; and what they showed was that consumption of vegetables and also fruit were associated with reduction in stunting, as were many other food

groups. But only fruits and vegetables were also negatively associated with heart disease mortality. And this sort of relates to the point that Lawrence made earlier, that we have these... As communities become a bit more secure in their food, you know, they're less hungry, maybe little bit less malnourished, then we have to deal with the issue of overnutrition, obesity and diabetes. And so the foods that we eat, not just the number of food groups, will be important going forward.

Lewis So we're making some good progress, both in terms of the absolute numbers of food insecure and undernourished people in the world, and that is something to celebrate, gets us up in the morning to have some success as we continue to address the challenge. We've also started to refine some of our measures as we understand and dig a little bit deeper in this intersection between ag and nutrition.

Maybe now for the whole panel to talk about the challenge of measuring the components of nutrition in particular. A lot of still issues on the table defining a quality diet in a way that can be done internationally and allow comparison of progress in different parts of the world, seasonal availability and the perishability of some of the important nutrient-rich foods in our diet. We talked a little bit about the need to differentiate consumption within the household with infants and young children having a much more substantial consequence of poor quality diets than adults will. And clearly the institutional capacity for data collection is always an underlying factor.

So maybe for each of you to speak to maybe one issue that you think is a really important challenge that we need to come together and bring some innovative solutions. And maybe just start with you, Emily, and work down the panel.

Hogue I think the one issue we'd emphasize in this area right now that we're grappling with is the issue of environmental enteropathy where the body's physical ability to absorb nutrients, caused by poor water quality or an unhygienic living environment. There really aren't good measures for that and particularly inexpensive and easy to collect measures for that. And it is an area... We didn't have intermediate results or anything in the Feed the Future results framework, like from the first phase of the initiative. And that's something that we have emphasized in the new results framework. There is a new intermediate result related to more hygienic household and community environments, because we realize that, if we don't have data, if we're not tracking that, our ability to see that dietary diversities leading to improvements in undernutrition or malnutrition are really confounded, and we're not able to make that link.

So we're looking at developing measures, but they only measure facets or the proxies for it, so that's something that we're working on right now, is we're developing a new indicator set for the global food security strategy.

Mitcham Yes, I think in terms of more nutritious perishable products, which would include fruits and vegetables but also meat and dairy and fish – don't want to leave out fish, yes, very important – we need to consider the losses after harvest as well as the production of these commodities in order to get at how much of these nutritious foods is really available for people.

So I think having more information on the amount of product available in the market throughout the season, so it's going to fluctuate as the rainy season comes and goes. So throughout the season, what's available and then what are the prices of those products, I think is important information to have to understand availability.

And then I think looking at adoption of improved post-harvest practices, post-harvest technologies from safer storage strategies, ways to extend this seasonal availability of products in a safe manner so that they don't deteriorate, they're still safe to eat—and this could be through drying or effective storage, potentially cold storage—to have these healthy options available throughout the season or throughout the year if possible.

Lewis I think as sort of a unique challenge around fruits, vegetables, dairy, meat, fish, that perishability component and then the seasonality kind of linked to that is perhaps a huge area where we haven't made investments and also will be critical to getting the nutritional outcomes. It's much different than looking at the basic staples, which are much more durable.

Pietro, do you have an issue you'd like to..., a challenge we need to take on.

Gennari Well, in an ideal world, actual consumption at the individual level would be the ideal instruments to assess the quality of the diet from all the members of the family. Unfortunately, this is quite the challenging task. It is quite difficult to collect this type of information, and it's very costly. So the key point is this, can this be a feasible proposal for regular global monitoring, or can this be a long-term that needs to be, of course, pursued. But we need at the same time some other more simple indicator, maybe less demanding from a source point of view that can give us an idea of what is the situation in terms of quality of the diet.

And I tend to see this challenge as an international statistician, as an organization that has the responsibility to provide every year new numbers to the world. And so I think that we need in a way [inaudible] combined effort in different areas.

One is, as I mentioned, the fact that there are dietary diversity indicator at individual level that look at only the food groups that are quite simple to calculate and to produce. And, for example, FAO has supported the production of this indicator for women and children. And, as it has been said before, this is of course an important element in looking at..., as important factor in determining hidden hunger and micronutrients and deficiencies.

Another important database that is not used to the full extent that it could be used is the fact that almost every country in the world on a regular basis collect consumption data and for other purposes, for national account purposes, for price statistics purposes. But there is a possibility, if this data are repurposed, countries are provided with clear guidance on how to measure well this information that this information can be used also for food security or nutritional assessment at the household level, not at the individual level. But it's already, I think, an important element of knowledge that is lacking at the moment.

And so what we are doing at the moment with the World Bank is to develop guidelines for countries to measure in a better way food consumption. The problems are the fact that all too often consumption has meant what is measured is only expenditure, not the quantity that are collected, that there are different methods for asking questions on what has been consumed, the reference period, if there is a predefined list of products. And especially one key problem that we have seen is the fact that most countries don't take into account the food consumed away from home that is a growing component of the diet of people living in developing countries.

So at the moment, food consumption at the household level is not measured well. And I think that providing countries with clear guidance on how this could be measured better could provide a very important insight at least at household level. And this could be complemented with information on the dietary diversity at the individual level regarding the fact that people are consuming different food groups or not.

Lewis Very good. Marie, would you like to offer up an idea around some of the challenges that still exist in trying to better understand our progress?

Messier I think the challenges that we have are framed on one principal that we have, which is – A happy, healthy farmer is key to a sustainable food system. And so then it becomes – so how do we measure that.

And I'll give you an anecdote that happened. I was in the room when that happened. Every year we conduct listening exercise with stakeholders, and we had a nutrition stakeholder who addressed our chairman, and he said, "Would you be willing to commit to eradicate stunting in the rural communities where you work?" and the chairman thought – sure, why not? And so, of course, the chairman turned to us, and he said, "Okay, then do it." And I said, "Sure. We're a food company. How do we do that?" And so we started looking at, how can we do that, how can we eradicate stunting in the supply chain. And so the first challenge we face is the capacity to measure. And I would like to echo what Pietro said is – How do we find a simple, reliable, replicable tool that doesn't need a PhD to actually implement in the field and to interpret so, that can be used by people who don't need extensive training to be able to use that tool. And so that's the first challenge that we have.

Then addressing the right population, eradicating stunting – that needs a focus on the first thousand days. So Nestlé has conducted a range of assessment of food security in the rural communities where it works, notably with the coffee farmers as well as the cocoa farmers. But when we do that, we get a snapshot of the whole household, and we don't get a snapshot of what really pregnant and lactating women and children under two are eating. And so how can we determine inter-household food diversity in the household in the communities? And that's a challenge that we face.

And then the third one is, then how can the diet be changed to address the missing nutrients or address what's needed in the diet? And what we find is that we need some precise and rapid recommendation. When we go to a household, too often –

and I used to work in international development – we would go, we would do a study, and then two years later we would come back with the project. And then often the community would be frustrated and say, “Well, you’ve left us all alone. You’ve asked us 45 minutes of my time or an hour of my time, and then you left us alone.” And so what we think is that we need a rapid tool, whether it’s an application that would give some precise recommendations.

So, for example, what is needed by the household, that family? Is it a kitchen garden? And so if it’s a kitchen garden, what are the barriers and the gaps that need to be filled by this family to be able to implement that. So I think those are the challenges. How do we keep our farmers happy so that they stay in rural communities, so that they continue to produce the food that we need, so that we can have a sustainable food supply.

Lewis Great. Lawrence, over to you. What do you think are one of the big challenges, with a better understanding, particularly of the nutrition component.

Haddad Yeah, thanks, Josette. I kind of agree with Pietro here. To me the elephant in the room is food consumption data. Any of you... I like to cook, so any of you ever do this thing where you look in your refrigerator and you haven’t done a shop for a while, you haven’t been to the market for a while and there’s bits and pieces lying around your refrigerator, and you think, hmm, could I make a meal out of those without my kids laughing too much. And every now and then it might work, but when I do it anyway, it doesn’t really work very well as a coherent meal.

And that’s kind of the situation we’re in right now with data that tries to measure food consumptions. We have... And this is not a critique of FAO. I think they’re really moving in the right direction in many ways, but they need help and support and resources. We’ve got the food availability data and the food balance sheets, but that’s not really intake data; we pretend it is, a lot of the time, but it’s really availability data.

We’ve got the new Voices of the Hungry, the experiential stuff, which is really a valuable addition, but I don't think it substitutes for the actual measurement of what people are eating. We’ve got diversity scores for certain age groups and the DHS data, which is with USAID – it’s a wonderful resource. Thank you for doing it please. We’ve got some dietary diversity data there just for that group. We have dietary diversity data for women but in very few countries, for very few years. We’ve got food purchase data from things like Euro Monitor, the retail sales, but that’s really just for high-income and middle-income countries; it’s not really for low-income countries, and it misses out whole chunks of stuff.

So when you try and pull that stuff together, it’s not very satisfying, and it’s not very wholesome, I think. We do have the Tufts dietary database, the global dietary database at Tufts University, and that’s quite good. But we don't really know how they’ve used the... They’ve scoured the world for food consumption and food intake data, and they’ve kind of mashed it up and made it somehow comparable; but I don't know how they’ve done it, and the data aren’t available in household level form, it’s just aggregate form. FAO, and WHO are trying to put together

something called GIF, which is individual food intake. The last time I looked, which was about three or four months ago, there were very few countries in it.

So we're in this really extraordinary situation where, if any of you were at my presentation this morning on the foresight report, we're in this extraordinary situation where the biggest risk factors for the global burden of disease are all diet related – all of them, six of the top 11 – and they far outweigh unsafe sex, tobacco consumption, alcohol consumption, drug consumption. Even, of course, poor sanitation and poor water.

And yet we can't actually measure. We can't measure diets very well. So it is expensive, and it is difficult, but if we can measure household income and individual income to construct household income – I'm an economist. Economists do this all the time – we can surely measure food consumption. If we can measure women's empowerment, one of the most conceptually difficult things ever to measure, for 20 countries, we can surely do that for food consumption.

So we have to look at the value add as well as the cost. And I'd be really interested if USAID ever does an evaluation of the value add of having those data on women's empowerment for 20 countries. It'd be absolutely fascinating to see, even in one country, if it helped you target and prioritize action and resources in a certain way, my guess is, even in that one country without weighing the cost of collecting data in all the other 20.

Lewis Maybe to elaborate more on this issue of understanding consumption more, to me it really could be extremely valuable in helping us understand what drives demand and choices around food. Having been part of a number of different forum where we talk about the intersection between ag and nutrition and people will say we need nutrition-sensitive agriculture, and I will hear nutritionists say it's the job of agriculture to produce the components of a healthy diet.

The reality is, agriculture is primarily an economic enterprise, and it's responding to markets. And, yes, we lose some of that production of some of the perishable products in our system, but I think we know very little about how to influence demand in the public sector and most importantly in developing countries in the low-income populations. And really teasing apart consumption patterns may help us better start to understand demand, because, if we create demand for more fruits and vegetables, that's a problem globally. That is something that we want to do in developing countries, and it's clearly something we want to do in our industrialized countries as well, where that global burden of disease from the other side of malnutrition is equally important.

And it's interesting to me that that's an area where the private sector probably has a lot more experience than the public sector, since ultimately the food business is about marketing food. And we can all critique that and point fingers, but by the same token, they have a better understanding of what we're trying to influence. As incomes rise, we want them to purchase more fruits, vegetables, healthy food products.

So I wanted to underscore the importance of understanding consumption from that perspective, because I think that's really..., even if we improve all the other components of access availability and utilization, we're still, I think, going to have a huge looming challenge around understanding how we create demand for the best quality diets. So underscore that.

Sort of wrapping up now and taking this up to the higher level, because I think it's important that we don't think of metrics in a wonky, counting things and statistics, even that is what makes some people very excited and it's a good thing, because we need that. But looking forward to the future in terms of opportunities to work together. We have a platform like the U.N. Sustainable Development Goals that are opening up a conversation about how do we measure progress, what do we really put our finger on the scale, so to speak in terms of priorities.

So I don't know if there are comments that you all have about, what are those opportunities to work together across a variety of different platforms to really improve how we prioritize our investments in food security but also catalyze nutrition security progress.

Hogue

I would point to the one area we've been focusing on since the SDG indicators came out. And it's really not related to a healthy diet per se, but it's related to sustainability, which ultimately is needed to ensure that we have healthy diets over time. So the opportunity to collaborate around measures for climate-smart agriculture and environmental sustainability – we've been grappling with that for the last few years under Feed the Future, and it's a big and an ever-growing issue. And we haven't gotten to the outcome measures, particularly, that we want to see in that area. And we know that other donors, other partners have been looking into that, but it seems to be an area where we're all stymied still. So the adoption of climate-smart practices changes in productivity related to the adoption of those practices and ultimately the environment, the conditions of the environment because of them. And we're interested in engaging in that area again as our new strategy is moving forward, we have the time to rethink how we're working on things and develop new indicators.

Particularly, we're interested in the opportunity to work on the SDG indicator around the proportion of agricultural area under productive and sustainable agriculture, which is out there, but I think that there's a lot of methodological work and development that can still be done on that and that will need to be done. And so we'd like to support that work both in the methodological development but also in supporting national data systems to be able to collect data on that, because it is a very important topic and indicator. And to the degree possible, we'd seek to use it in our own monitoring framework, whether it's as a contextual indicator or something that we're directly contributing to. We think it's a very important part of the pathway ahead.

Mitcham

Yeah, I'd like to speak to the opportunity to really move the dial on reducing the amount of aflatoxin in certain food products by focusing on drying and storage technologies. If you do an assessment of dried products in the market, you can very quickly find that many products are insufficiently dried. We know the moisture content that we need to have to prevent the growth of molds and fungi,

which would then prevent development after harvest of aflatoxins in the products like, maize, for example, very heavily infected, ground nuts. So we know the moisture content we need, and yet in many places it's very common to find product that is not dried sufficiently. This may be due to weather conditions at harvest, really rudimentary drying practices – you know, they dry rice in Bangladesh on the roads, and the relative humidity is well beyond what would be needed to dry to a sufficient moisture level. So it's not a surprise that we don't have the right moisture levels. But the impacts of that high moisture content, which then generally goes into storage, which could be a very rudimentary storage in sacks that aren't even protected from the rain; or maybe it's a good storage facility, but the product's not dry.

So I think first of all as a measurement we need to start to measure the moisture content of these products so we understand how big of a problem we have. And then we need to work on promoting the adoption of improved drying technologies. We've been working on some of these things at the Horticulture Innovation Lab, the measurement, simple, inexpensive measurement techniques for moisture content. And I know other groups are doing this as well, as well as improvements in storage. So I think this is an area that we really should put some attention to in the near future, because aflatoxins, not only are they class 3 carcinogens, but they are anti-nutrients, and so they prevent the gut from absorbing nutrients from the food that you consume. So it's very important.

Lewis Yes, Pietro.

Gennari Well, I believe that the main priority is to increase the corroboration among the main stakeholders in data production at the international level and national level. And this is through many different areas, in food security, nutrition, in sustainable agriculture and so on. Because what we have seen so far is the fact that multiple metrics have been used for measuring this aspect, and this has created sometimes different assessment by different stakeholders, conflicting results, confusion in the users and the international community at large.

Now, with the SDG framework, it's not perfect, and it can be improved because the idea is that in five years' time there will be an opportunity to revise the indicators on the basis of their performance so far and taking into account if new methods would be developed in the lead to 2020.

But as I said, it's a unique opportunity to coalesce all the international players, around these indicators, and support them in order to have an harmonized system for measuring common targets and goals. And I think that these, as I mentioned before, are the main priority for me.

On the other side, it's important that also the cooperation with countries... that this harmonization happens not only at the international level but also at national level. And there are some, say, concerns on that respect that are linked to the stronger appeal to country ownership in the SDG agenda. So everybody agrees on the fact that differently from what happened with the MDGs, the SDG agenda is completely country owned and countries have the possibility to choose and pick targets and indicators that are more relevant for their country's situation. But this

is in contradiction with the fact that we have chosen that the international community and countries, first of all, because they have been in the lead in deciding this global indicator framework, have agreed on a global indicator framework. And if countries don't commit to produce this core set of data, we will never have a global monitoring opportunity.

So there is an important role of advocacy and support that the international organizations like FAO are playing in trying to convince countries to align as much as possible their national, indicator framework to the global one, in order not to multiply the burden of the collection, because already the indicator framework is huge. And developing additional national indicator on top of the global indicator is, of course, very costly. And making them aware that, if they are not producing global indicators, they will not be on the map, so it will not be possible to benchmark their performance against their neighboring countries and for international donors to understand what is the performance of that country as compared to others and allocate well the donor funding.

Messier I see two priorities. The first one is, it's very important to measure progress, as you said, but I think it's also very important to measure impact and to measure impact through a set of widely agreed tools and say... I will illustrate that. And Pietro has already talked about it, but I will illustrate that for us. So this year Nestlé will deliver, will produce, will sell 200 billion servings of fortified foods, with these foods mostly focusing on women of reproductive age, young children and the lower income population. And so the question becomes what's our contribution to improving nutrition, to improving food security? And when we looked at that, there were some tools for the staple crops. There were some tools where you really had more of... And the impact intervention study. But how do you measure the contribution of a bouillon cube that is consumed every day in reducing anemia, for example?

And so we have developed some health economics models that will be actually presented in Milan at the end of the year. But what we need is a standardized set of tools to actually measure impacts of different contribution of different foods that are consumed by the different households.

So that would be the first priority. Second priority, again, I'd like to echo Pietro – working together. We must work a lot more together. And if I look at... It's interesting because I used to work in international development for almost 20 years, and now being with the private sector for the past three and a half years, I see that the food companies are the nexus between agriculture and nutrition. We are a key component of that, of transforming food to reduce the food waste and making food more available to the people who need it.

And so what I see in working together, we're talking about we have access to farmers. Nestlé has access to almost four million farmers. We also have about 10,000 agricultural workers that help develop the capacity of the farmers. But what we don't have and what we need from the public sector is the know-how, the know-how on measuring, and the know-how on behavior change. This is not our core capacity or ability is to actually change the behavior of a pregnant woman, of taking her iron pills and going every day or going every month or going every

month for her maternal checkup. This is the know-how of the public sector to do that.

So how do we work together to actually increase food security, increase nutrition. And you were talking about demand creation; indeed, this is something that the private sector, the food companies know exactly how to do that. So by sharing our specific capacities, our specific know-how, I think we can really make significant progress.

Lewis Thank you, and, Lawrence before we wrap up.

Haddad This is the hardest question, I think of all of them. I think the question was say what are the opportunities to focus and to build collectively or work collectively? So I'm going to reflect a little bit on this thing, this Global Nutrition Report thing that I've been doing for the last three years before I joined GAIN.

And I'm continually surprised at how... This sounds like I'm blowing my own trumpet – of course, it's not just me; it's loads of people work at this – but I've been consistently surprised at how much traction this gets at a country level. So we spent half our time producing this report and the other half of our time communicating it and working it with different audiences.

And so in Thailand, we have the minister of health in Thailand. We were sitting with him, talking about the report. Thailand got a very bad rating, and we think of them as one of the success stories, but actually they've really slipped back in the last five years, so they got a really bad rating. And he was on the phone, his mobile phone to his staff saying, "Why do we have a bad rating?"

Kenya, on the other hand, has a very good rating. They are all on track for all of their targets. And the first lady of Kenya, the one that made the Kenyan launch. It was a big thing. It was in the newspaper a lot.

Same in Zambia. Zambia is not doing very well. None of the ministers came to the launch in Zambia, but the MPs, the caucus of MPs came, who care about this issue. And they were saying, "We're going to go and put pressure on."

But a global report only has so much traction in a country because it's easily dismissed, really – "Oh, we didn't produce it. It's not our data. Who are these people that produced it?"

So what I'd like to see is some kind of national report that's produced in country by stakeholders in the country, including the business sector, who would have to work with them, find ways of working with them. I'd like to see that, because I think then it's not a report. It's a process. It's a process of pulling together data. How are we doing on outcomes? What's happening on spending? What's happening on legislation? What's happening on target setting? What's happening on implementation, on coverage of programs? You bring all that stuff together, and you just begin a dialogue and you promote transparency.

So that's what I would like to see. I don't know if it'll happen, but I'd like to see that.

Lewis Great challenge. Well, maybe I just sum up, because we're between you and your food, that how we measure progress on food and nutrition security really reflects a shared value among a lot of different stakeholders and what the goals are that are the most important to be going after. And then also a shared understanding of the pathway to achieving progress. So with that, I'd like to thank our panelists and for those of you who stuck around to the end.