Hello, and welcome to our webinar! Our webinar today is entitled, "International Food Security Assessment 2018 to 2028." My name is Kellie Mendonca and I will be your host. Our speaker today is Karen Thome. Karen joined the Economic Research Service in 2014 and is an economist in the international trade and development branch in the market and trade economics division. She earned a PhD in Agricultural and Resource Economics from the University of California Davis. In addition to working on the international food security assessment, Karen's research includes modeling impacts of risk management practices and food, and agricultural policy. I think we're ready to start so, Karen, you may begin your presentation.

Super! Thank you, Kellie. Good afternoon everyone. Thanks for taking the time to be here.

Today I'm going to talk about our new report, the "International Food Security Assessment 2018 to 2028." I'll start with a little bit of overview just about this assessment. This is an annual report and it estimates and projects food availability and access for the current year, so 2018 and 10 years out, 2028. This time stand follows the USDA agricultural projections with model, global, agricultural production prices and trade. We follow 76 low- and middle-income countries in four regions, and these countries were included in the assessment if they currently or previously received food aid. So, this map shows the countries that we cover in this report. I'm going to be talking about the results today by region just because we cover 76 countries, so it's difficult to mention everyone individually. These 76 countries represent a population of 3.7 billion people and it includes almost all of the people, like 99% of the people that are in the lowest income countries, and then a smattering of middle-income countries. So the regions that we're going to cover are: Asia in blue, Latin America and Caribbean in red, North Africa in green and Sub-Saharan Africa in pink. So these countries, these regions don't have the same populations as each other, they're grouped geographically. Asia is the biggest; in population terms is 2.4 billion people this year and it has 22 countries. Sub-Saharan Africa has 39 countries and 980 million people. So those are the two biggest regions in terms of population. Latin America and Caribbean is much smaller, it has about a 169 million people in the 13 countries that we cover. In North Africa, it has about 187 million people in the four countries that we cover.

So before we dive into the results today, I want to talk a little bit about why we do this assessment and what is food security, what are we going to be measuring. So I'll read this definition to you: "Food security is the ability of all people at all times to access sufficient, nutritious food for an active and healthy life." So there's a lot going on in this definition, so let's break this down a little bit. We of10 think about food security as having four different pillars. The first is availability and this means, this asks is there sufficient food in the country. We can think about this kind of like a supply-side aspect of food security. Is there enough production? Is a country able to import food when it's not producing sufficient food? So that's availability. Access, the second pillar, is asking if people can afford and obtain food. So, of10 this is a question of prices and income, which is going to become the focus of our report. It's also a question of whether or not there are functional markets. Are markets well supplied? Are people able to get to the markets? The third pillar is utilization. I like to think of this as a nutrition tiller, but it also talks about food quality. So, it's asking how is food used. Are people eating safe food? Healthy food? Are they able to access proper sanitation for their food? So, this goes beyond whether or not people are able to access enough calories. The final pillar is stability. We can

think about this in terms of risk or sustainability of the food supplies or volatility of the food supply.

So going back to the food security definition, this is addressing the at all times access to food. We want to know do people have a constant supply of food seasonally and in the longer term. So why are we talking about food security? There's an obvious humanitarian reason why we should care that people have enough to eat; that they're able to go about their activities in a safe and healthy way. But beyond that, we can actually ask this question: How is global food demand changing? If the food security situation is improving, global food demand is going to be rising, just as it's rising with population growth. So, it's interesting for us as economists and as USDA to kind of think about, okay, where is this demand going to be in the future? Where is demand for food growing the fastest? Where is the demand for food changing in terms of preferences and the kind of foods that people are eating? Okay, so that's kind of a global implication of studying this kind of phenomenon into the future.

So one of the things that we also want to do with this report is think about how we can address chronic food security and its drivers. So we're going to ask today: How does food access change with income and prices? One nice use of this report is that it can be used for monitoring and modeling food security situations as they change over time.

Okay, so just a little final bit of background on this report. ERS has been modeling and projecting international food security in some form since the 1990s, so that's a really long time ago. The report has had different names and different iterations and different country coverage, but it's been around for a long time, providing this monitoring and measuring function of these countries that used to or still received food aid. Previously, the approach that ERS took was based on this availability pillar of food security, so we modeled the supply side including production and imports. But recently, emphasis here and in the international community has changed to look at this access pillar and ask specifically how do prices and income affect food security and that kind of came about after the food price crisis in 2008-2009 where we saw how global prices could hurt the food security situation in countries that were not huge producers.

The model that we work with kind of follows this access line. It's a demand oriented framework, and what that means is that this model when we're measuring and projecting food security, it's going to respond to changes in prices and income to capture the food access. And this is possible because, after the food price crisis, there was a lot of concern that we weren't able to get at the effective prices and incomes and people invested a lot of energy into collecting better data, so the data has improved dramatically, making this work possible. This model's nice too because it also captures the contribution of income inequality to food and security. So income inequality can hurt food insecurity just because as income grows, the poorest people's income might not grow as quickly and also when you have a really unequal society, you can see that the overall food consumption actually is lower.

So in the results that I'm going to present today, we define food security using a caloric target of 2,100 calories per capita per day, and that's kind of been an accepted number for the level that is sufficient to sustain an active lifestyle. So this is different than the threshold that other groups may use, it's higher, because we think that active part is an important part of the definition of

food security. It's beyond just sustaining life that allows people enough energy to go out and do their daily activities.

I'm going to be sharing three statistics with you when we talk about whether or not people are food secure. The first is the share of the population that is food secure. So this is a percentage of the population in a given country or a given region that is consuming at least 2,100 or it is consuming less than 2,100 calories per capita per day. So that's the share of food insecure. The population of food insecure is a count, so it's the number of people in a country or in a region that are not able to reach this caloric target of 2,100 calories per capita per day. The final measure is the food gap. This is a measure of the depth of food insecurity or the in10sity of food insecurity. Sometimes we talk about it on a national level as the total tons of food that would be needed to bring all the food insecure people in that country up to the threshold in a given year. Sometimes we talk about this as a per capita basis where it's the number of calories per capita per day that a person that is food insecure would need to consume to get up to 2,100 calories per capita per day. So we can talk about this depth of food insecurity in aggregate or on a person-to-person level. I'm going to report these numbers for this year 2018 and also our projections for 2028.

Okay, so now we're going to move into a results overview, and this is where I'm going to be talking about regional level results. The left-hand pie chart here has the distribution of population in each of these four regions that we cover, and this is useful to have in the back of your head just to remember okay, Asia, going counterclockwise, this is the first one, it's in blue. Asia is the majority of people that we cover in our assessment. It's about 2.4 billion out of the total 3.7 billion people that are covered in this assessment. Sub-Saharan Africa, in pink, is the next biggest in terms of population, it's 980 million.

So now if we move to the pie chart on the right, this is the number of food insecure people in 2018. So this year we found that 21 percent of the total 76-country population is food insecure, and this is about 782 million people. Of those people, 51 percent are in Asia, so this is less than the total share of population, and of those 782 million people, 44 percent are in Sub-Saharan Africa. So Sub-Saharan Africa has a bigger share of the food insecure people than it does of the population. So again these are some levels of some of the food security statistics for 2018. The bar chart, in green and referenced by the left-hand access, is the number of food insecure people. So we see here that Asia has more food insecure people than Sub-Saharan Africa and Latin America and Caribbean and North Africa have relatively few, and remember again that's because they don't have very high regional populations to begin with. The yellow crosses are the percent of the population and you can see that on the right-hand access. So you see here that Sub-Saharan Africa actually has the highest share of food insecure people, it's about 35 percent, whereas in Asia and Latin America it's 17 and 20 percent respectively, and North Africa is much lower, only 5 percent of the population is food insecure. So we're starting out in 2018 with very different levels of food insecurity across the regions.

This chart shows the total and per capita food gaps again in 2018. The bars, in green, are the total food gap, so this is the annual amount of food that these regions would need for all the people to reach the food security thresholds. So in the last chart we saw that Asia had the most food secure people, but we see here that Sub-Saharan food insecure people has actually the largest total food

gap, so they have the biggest green bar. So the other things shown on this chart is the little cross. This is the per capita food gap and this is the, again, individual level in10sity of food insecurity measured in calories per capita per day, so this is the right-hand side of this axis, and we see that this is higher in Sub-Saharan Africa. So this means that when people are food insecure in Sub-Saharan Africa, on average they're farther below this threshold than they are in the other regions. And just to give a little bit of scale here, the total food gap across all four regions is about 36 million metric tons, so they would need 36 million metric tons of extra food for all these food insecure people to meet this caloric threshold. If we compare this to grain production, not total food production, but just grain production, that's around 618 million metric tons, so it's actually quite small compared to the production that is going on in these regions. Moving back into the in10sity of food insecurity, here we do have a couple of emergent issues that aren't necessarily reflected in these numbers here. It it looks like Asia is doing well relative to Sub-Saharan Africa, but Asia does have a couple countries that do have some food security emergencies, including Yemen and some parts of Afghanistan, and this is also a issue in parts of Sub-Saharan Africa with conflict in Central Africa and Congo, in parts of East Africa and South Sudan which is affecting the region around it and in Somalia, and we'll talk about that more in a little bit.

So one of the drivers of food insecurity and one of the determinants of food access is income. So I'm going to be showing a few different income graphs. We get our macroeconomic numbers, including GDP, from the ERS macroeconomic database. So what this chart shows is a comparison of per capita incomes across the regions in 2018 and this is 1000 dollars per year. We use per capita GDP to proxy income just because this is information that we can easily find and project into the future. So we see here okay Asia, Latin America, North Africa did pretty well when we looked at the initial food security statistics. They have higher incomes in Sub-Saharan Africa, but this isn't necessarily ordered by food security. So there's more going on than just income but income is a big determinant of whether or not people are able to access food.

So we'll talk a little bit more about these factors that contribute to food security. First, income, so when we're looking forward with our projections, we see solid income growth projected for most of the countries we cover. Food prices. If food is too expensive, it will be hard for people to afford food, so we also see projections for continuing low prices for staple foods again in most of the countries that we model. And finally a supportive environment for reducing food insecurity is a really important determinant of the level of food security. So what does this mean, this is kind of broad, but means do you have a stable government? Do you have a peaceful country? Do you have a stable macroeconomic lower inflation? Are you able to import food? Do you have functioning and well supplied markets? Is the government making investment or somebody making investments in markets and value chains? So all these things can contribute to improving food security because they make it easier for people to afford or access food, lead to fewer disruptions and markets and people's livelihoods. So, supportive environment is also important but is a difficult thing to measure.

So as we're looking forward to our 2028 food security projections, let's start by looking at the per capita incomes in all of these regions that we cover. We see that, again per capita GDP or per capita income, is projected to grow in all four regions over the next 10 years. These numbers do hide some variation within the region. So, for example, Asia here grows quite quickly. GDP and Asia on average in the total Asia economy is growing about 6.4 percent per year which is very,

very fast, and population is growing slowly, only about a percent a year. So, this is leading to pretty quick per capita income growth over the next 10 years, and this is driven because some of the larger economies, especially India, and some of the economies in Southeast Asia, are just growing very fast. That's been going on for a while. This growth is projected to continue into the future, and it's driving these gains in Asia. In Latin America and North Africa, we still have pretty quick economic growth, but it's a little bit slower. North Africa has higher population growth, so again GDP growth isn't necessarily going to translate as quickly into economic growth, and also some of the economies there are either recovering because they were hit by low oil prices or they've had some issues with inflation. And same in Latin America, they've got slower population growth, but the GDP growth across these countries has varied. And finally, Sub-Saharan Africa. So on average we do have increase in per capita income and we do see relatively strong GDP growth 3.9 percent per year, so slower than Asia, but still positive. But we also have much faster population growth at about 2.4 percent a year, so that's much higher than the other regions and it means that increases in GDP don't necessarily translate right away into increases in per capita income. And again, there's a lot of variation within these regions. So, for example, in Sub-Saharan Africa countries like Ethiopia and Ghana are growing very, very fast. Much faster than this 3.9 percent a year, but other countries are growing very slowly either because they have conflicts and disruptions in their economy, or because they've had weather shocks, or because they have less diversified exports and have been hit with price shocks for those export, or some other macroeconomic issues. So, again, a lot of diversity, but overall income is rising in all of these regions.

One of the other factors that we talked about was how prices can affect food security. So world prices of grains are projected to fall or remain stable over the next 10 years. So in this chart we have, going from top to bottom, the rice, the wheat, the sorghum, and the corn price. And these are the projections again from the USDA agricultural projections to 2027. So I want to make a couple of comments on this before we move on to the results. We're showing cereal prices here and that's because, for the poorest people in low-income countries, most of the diet is staple crops. Its commodities like these cereals roots and tubers, so these really are a big part of the diet and could be a big driver of how affordable food is for people. So in many markets the world and domestic food prices are integrated through trade. However, some countries in our analysis aren't going to necessarily see these continuing lower or decreasing prices translate into loot low prices domestically. Markets might not be integrated to the world market. They might not do a lot of trade either because of physical or policy barriers or because they have some issues with their currency and their purchasing power on the world market. So there are reasons that these numbers may not translate into gains for the countries in this analysis.

So this first chart shows the share of food and secure people in 2018, which is the blue bar on the left for each of the regions, and in 2028, which is the red bar. So we see in all of these regions, the percent of population that's food and secure is falling, and in aggregate for the 76 countries the share of food insecure people falls from 21 percent in 2018 to 10 percent in 2028. Now the size of these declines in these regions isn't the same. Asia has the biggest decline in percentage terms to both 71 percent. Latin America and the Caribbean and North Africa see decreases in about 50 percent in the percent of fusion that's food insecure. So they have the population food insecure in 2028. Sub-Saharan Africa sees a decrease of about a third in terms of the percent population that's food insecure.

The next statistic is the number of food insecure people or the population that is food insecure. And this is, again, projected to fall in all the regions in the 76 country total. It falls from 782 million people in 2018 to 446 million people in 2028. And that's despite the fact that population grows from 3.7 to 4.3 billion people. So despite population growth, we're still reducing the number of food insecure people. Notice the other trend here. Asia begins this period with the most food insecure people, but in 2028 most of the food insecure people in the world are projected to be in Sub-Saharan Africa. So Asia has made a large reduction again in the number of food insecure people. It's reduced by over two-thirds, and Latin America and Caribbean and North Africa have reduced the number of food insecure people by almost half. So big reductions. Sub-Saharan Africa has seen a reduction but it hasn't been as big. It's only about 13 percent less in 2028 than what was in 2018, and in part, this is because population is growing faster in Sub-Saharan Africa than it is in the rest of the world.

So the final statistic here is the total food gap. This is again projected to decrease in all the regions and in total for the 76 countries. It's going to reduce from about 36 million metric tons to 24 million metric tons in 2028. So that's a reduction of about of about one third, and again this is the measure of the depth of food insecurity. So I haven't shown the per capita measure here and that's in part because we project in 10 years that many countries are going to see significantly fewer food insecure people, and this is a great thing, but what it also means is that there's going to be a few poor performers that are going to remain significantly food insecure. That this food insecurity is going to be concentrated in fewer and fewer countries, and so if we look at this per capita number, it can be a little weird to think about does it increase over time. Well it increases over time, but what that really is capturing is the fact that some of these countries that were doing really poorly are now going to be the majority of food insecure people, where a lot of these countries, where they had food insecurity in 2018, they've been able to reduce it, and so they're not contributing to this global food insecurity number in 10 years. So we see this in10sity of food insecurity decreasing over time.

Again, all these numbers from the last three charts cover up a lot of heterogeneity within these regions. For example, in Asia, like we said this before, India and Southeast Asia have really fast-growing economies, and they are generally able to make really big improvements in the food security situation over the next 10 years. And also the Commonwealth of Independent States, which is a lot of the former Soviet republics, they're generally doing well and we're not going to see significant levels of food insecurity in those countries in 2028. But some other countries, in particular Yemen, North Korea, and Afghanistan, are projected to still have significant food insecurity in 2028, and Yemen is projected to be 78 percent of the population. So this is still a big issue, and a lot of these projections are due to conflict. So in Yemen we've got conflict going on through head ports that are opening and closing, meaning that trade is disrupted, markets are disrupted. And that's also kind of been the case in Afghanistan, there's conflict in the country. Markets have just been disrupted. Livelihoods have been disrupted. So those countries are not performing as well as the rest of the region. In North Africa, the food and security numbers are pretty low to begin with. The governments have supported consumption policies, and so people in general are able to access efficient food in fact have issues with obesity. In Latin America and the Caribbean, the improvement is less uniform. In particular, Haiti has had to deal with a lot of natural disasters recently, and so they've had high levels of food insecurity that are going to

improve, but will still be relatively high in 10 years. And then, in aggregate, Sub-Saharan Africa is just behind as far as making improvements to the food security situation. So just to summarize these regional results really quickly.

Asia has got strong income growth in some really populous countries, but we still have some countries that are facing challenges. Latin America and Caribbean, most countries significantly reduce food insecurities, but countries such as Haiti and also some parts of Central America, will still have relatively high levels of food insecurity in 10 years. North Africa has low levels of food insecurity. They need to deal more with obesity and nutrition. Sub-Saharan Africa, we've seen this overall improvement, but many countries are lagging behind and that's what I want to talk about a little bit more in depth.

So we covered 39 countries in Sub-Saharan Africa, and they say it's really different situations, different levels of Economic Development, different climatic conditions, different social and political conditions, and so we see different levels of improvement in food security in this model.

So I'm going to kind of approach Sub-Saharan Africa in the same way that we've approached the whole food assessment world with the 76 countries. I'm going to divide this into some regions and then talk about the regions. So we've got four regions here. In Sub-Saharan Africa, Central Africa, which is the blue, is four countries. It's 122 million people. Of that, 77 million are in the Democratic Republic of Congo, which is the biggest blue one there. East Africa is in the red. It's got 10 countries and about 345 million people. Of that, Ethiopia is the biggest with 108 million people, so biggest in population. Southern Africa is 9 countries and 140 million people, and that's in the green. And then in the pink we have West Africa, and its 16 countries, 374 million people. Of that, Nigeria is 195 million people, and of that, Nigeria is over 50 percent of the regional economy. So West Africa, we have to talk about Nigeria because Nigeria dominates in terms of population and in terms of GDP. So these are the four Sub-Saharan Africa regions that I'm going to discuss.

Okay, so on the left here we've got the distribution of the population within Sub-Saharan Africa. Starting at the top going around clockwise we've got Central Africa and blue, East Africa in red, Southern Africa in green, and West Africa in pink. So again, in terms of population, East and West Africa are the biggest. On the right hand side we have the distribution of the food insecure people, so of the 980 million people that live in Sub-Saharan Africa in our 39 countries, 346 million are food insecure in 2018. And that's what is illustrated on the right-hand side of this chart. So we notice right away, going around clockwise, we've got central Africa with 23 percent of the food insecure people and, oh this is more than its share of population. East Africa we have 43 percent of the food insecure people, again more than its population. Southern Africa, same thing, 18 percent of the food insecure people, which is slightly more than its share of population. And then West Africa has 16 percent of the food insecure people in Sub-Saharan Africa, which is much less than its share of the population. So there's a bit in variation in the levels of food insecurity across the continent. So part of this level, I guess difference in levels in food and security is due to the difference in income across the region. The average per-capita GDP or per capita income in 2018 was about, well slightly less than $1,300 per year, and this is in 2010. So Southern Africa and West Africa have higher incomes in the average. East and Central have lower incomes, in the average of course.

This is not the whole story, but it's part of it, so Central Africa has very low income. Recently this region has been kind of characterized by conflict and unrest and by displacement, so Democratic Republic of Congo has the most internally displaced persons in the world. And there's also displaced persons in the rest of the region, and there's refugees, so that's a challenge to economies, because when people are away from their home they can't maintain their livelihoods. East Africa, that we see relatively low income here as a whole, the region is more politically stable, and they have inter-regional trade. And they've seen improvements recently in these weather conditions for the last couple of years that have really hurt people in a lot of the region, and the economies are generally diverse. So despite the relatively low level of income, they're actually doing okay. There's been some exceptions. There are still some conflicts since this, in Sudan, which we cover, Sub-Sudan, which we don't cover but does affect the region, and in Somalia. And again, when you have conflict, you have displacement, so displaced people within the countries and also refugees that flow into the region from Central Africa and from the Sudans and from Somalia, so that's a challenge. But East Africa because the other countries are politically stable and have relatively high incomes compared to, I guess the countries that are sending the refugees. They've been able to handle it. Southern Africa has faced some challenges recently with weather and pests, including salt armyworm outbreaks in a few countries, so they have this higher income. They also have some challenges going into the future. And then West Africa has been relatively stable. Many of the countries are part of the West African monetary union and that's helped them control inflation which has been a problem in many other regions. Nigeria, also again, this is the biggest economy by far. It's emerging from a recession as oil prices recover and as their production actually increases. So that's going to be a big driver in the improvement in West Africa going forward. They also haven't had challenges like some of the countries with weather, though there is some drought in some of the pastoral regions. It hasn't been as severe as it was in East Africa and southern Africa the last couple of years.

So moving forward on this, this chart shows the population and the share of population that is food insecure in 2018. So the population again is in the green bars, and that's the number of food insecure people. You can see that those numbers on the left-hand side axis, so East Africa has the most food insecure people in the region and West Africa has the fewest, and these are the two most populous regions. If we look at the share of the population that is food insecure, and this is a little cross in yellow, this is a percent of population on the right-hand side. And we see that Central Africa actually has a much higher share of population as food insecure than the rest of the continent. And overall, the average for Sub-Saharan Africa is about 35 percent food insecure. Okay, so Central Africa has a much higher share of its population that's food insecure. Moving forward in 2018, this is a total and per capita food gap. So the total food gap, this is the million tons of food necessary to bring all these people up to the caloric threshold. It is highest in Central Africa, and Central Africa is the least populous region. Okay, so this says something about the intensity. Both on a national level, the total tons of food needed, and on a per capita level. So we see the little yellow crosses. This is the per capita food gap and calories per day. It's very high in Central Africa, and the total food gap here is about 21 million metric tons, so this is for all of Sub-Saharan Africa cereal production. So this is not all food production. Roots and tubers are very important. In some of these countries, cereal production is about 122 million metric tons, so this gap is less than 20 percent of cereal production, so it's enough. It's a significant number, but

not an overwhelming number. If people were able to consume enough food it's not an overwhelming number in terms of the supply of food.

So what do we what do we project is going to happen in 2028? Well, we see average per capita incomes growing in all the regions, so they're growing at very different rates. The average for Sub-Saharan Africa again this year is just under 1,300 dollars and it's going to rise to just over 1,500 dollars per capita per year. So again, West Africa and Southern Africa above the average; East and Central Africa are below the average.

Now in these regions GDP--gross domestic product--is growing from between 3.1 percent per year in southern Africa to 4.7 percent per year in East Africa. But this is GDP this is not per capita, so we're going to see a little bit slower per capita GDP growth just because the population growth in Africa is so fast. So in terms of per capita income growth, we're seeing the biggest strides in East and West Africa, and this is based on diversified growth and diversified exports, especially in the largest economies. And these in these regions, again West Africa is healthy, because a lot of the countries have very stable currencies and also because Nigeria is emerging from a recession, East Africa, again have stability in these large countries. It makes it easier for them to absorb refugees, they've had diversified growth, and also regional trade has helped during this drought period, especially for cereal crops, because it's been able to come in and plug the gap.

Southern Africa has the fastest population growth of all the regions in Africa, and recently it's also faced some weather and pest conditions, so that's hindered its growth a little bit. It also has some extractive economies, and prices for those commodities have not been high recently, so that has also hampered growth in many of the countries in Southern Africa. In Central Africa, again we've got conflict and displacement, especially in the Democratic Republic of Congo, but also some Central African Republic. And this makes it hard for these countries to grow quickly. So what do we see in terms of the share of population that's food insecure? Well, we see this falling in all regions. So 2018 is in the blue bar, and 2028 is in the red bar. Across all of Sub-Saharan Africa the share of the population that is food insecure falls from 35 to 24%. So that's about a third reduction. West Africa and East Africa are reducing the share of population that's food insecure by about 45 percent. East and West Africa is going to fall under 10 percent food insecure, which is a nice target to fall under. Central Africa is improving the slowest, so it's about an 11 percent improvement moving into the future. So again, we see how the countries that are having slow economic growth are projected to have slower improvements in the share of population that's food insecure.

This next chart shows the number of people that are food insecure. So again the blue bars on the left are 2018, and the red bars on the right are 2028. In all of Sub-Saharan Africa, the number of people who are food insecure is projected to fall from about 345 million people this year 299 million people in 2028, and that's with the population growing from about 980 million to 1.2 billion people. And again, we're seeing significant reductions in the number of food insecure people in East and West Africa. However, we do not see reductions in the number of food insecure people in Central and Southern Africa. Okay, so in part this is because southern Africa has faster population or population growth and, so even as they're reducing the percent or the share of food insecure people, the total number of people is growing and more people are going

to be food insecure in 2028. In Southern Africa some countries actually are projected in local currency to have falling GDP per capita rate, which is going to lead to a deterioration of this situation. And there's also been some issues with inflation and depreciation of currencies that does not does not help their situation. And again in Central Africa the biggest countries in population terms, which is Democratic Republic of Congo, started off with a very high share of food insecure people and is not projected to improve much. And sure both Democratic Republic of Congo and Central African Republic are still projected to have over 75 percent of their population food insecure in 2028. And that's just based on the fact that there is conflict and there's displacement going on, and that does not lead to very positive prospects for economic growth.

So again these numbers do cover up some heterogeneity within the regions in West Africa. We see this very significant reduction in the number of people who are food insecure, but there's still a couple countries--small countries--and population terms that are projected to have over 20 percent of their populations food insecure in 2028. So that's Guinea Bissau and Sierra Leone. And then Liberia is still projected to have over 50 percent of its population food insecure. East Africa, likewise. There's some really strong performers: Ethiopia economy is growing very fast. They're a very populous country and they're projected to reduce the number of food insecure people significantly in the next 10 years. But some countries like Chad Somalia and Sudan have had more challenges and still are projected to hover around 50 percent, which makes up a big number of these food and secure people in 2028. And these countries are dealing with economies that have been disrupted by conflict or by weather conditions. And also countries like Eritrea and Burundi have been consistently poor performers in terms of food and security. They have few resources. They've had, I guess, a lack of economic and political integration with the rest of the region, and so they've had much higher levels of food insecurity and are projected to continue to experience high levels of food insecurity in 2028. So even in these regions that we're seeing these positive improvements, there are still some countries that are poor performers.

So this last statistic again is a total food gap. We see it falling in in most of the regions, but not Southern Africa. It does fall in total across Africa, so this is kind of positive. We think about Central Africa--we saw that Central Africa is projected to have more food insecure people in 2028 than it did in 2018, but we do see this total food gap falling slightly in the next 10 years. And this means that the intensity of food and security in Central Africa, even though the number of people is improving, the intensity of food and security for those people is expected to be less lower. This is not the case in Southern Africa. And again, in Southern Africa, this is partially because countries are kind of diverging. There's a couple countries that are improving, like Mozambique, but there's other countries that are just expected to remain with high levels of food insecurity. For example, Zambia and Malawi. And so, as these countries have larger and larger shares, or the regional food insecure people, we're going to see the intensity of food insecurity at in a region increase so that's kind of what's going on in Africa we've got a lot of diversity across the four regions West Africa has made big strides in improving food security and it's projected to continue those strides and actually reach a relatively low level of food insecurity, less than 10% of the total West Africa population in 2028. Likewise, East Africa improving very quickly based on the quick economic growth and some of the bigger economies, and the fact that the political stability and the economic integration among some of those countries has helped to kind of fill food need. One production has failed due to weather, but some countries in those regions are

lagging behind. In some regions--Central Africa in particular--are lagging behind due to slow economic growth and challenges with conflict and displaced persons and disrupted livelihood.

Okay for some reason I'm not able to click through so we'll try this. There we go, yeah, so just to kind of bring this back to the global 76-country picture, we do project food and security to improve between 2018 and 2020. In these countries that we cover, the share of population over the 76-country is projected to fall from 21 percent to 10 percent. The number of food insecure people is projected to fall from 782 million to 446 million. And the total food gap or the intensity of need is projected to fall from 36 million metric tons to 24 million metric tons. Okay, so big decreases in in food insecurity, but the caveat is that some large economies are improving very quickly, and they're driving these aggregate numbers. And well this is really great, because this is a lot of people that, due to economic growth, are facing more positive food security outlook. Some of the worst performance are not improving very quickly or are regressing as they face challenges with conflict, economic growth, and bad weather. So it's important to keep that in mind, even with these nice rosy numbers here.

So this is all I have for you guys today. I'm excited to take questions and I believe these slides are going to be posted, so you can access the report here. Or if you've got any questions that you think of later you can email me, and I think I can write back to you.

Thank you very much. We do have a few questions for you at this time. Does the forecast anticipate natural disasters that are likely to occur over the next decade in the 2028 predictions?

The forecast. Thank you. So the forecast cannot anticipate natural disasters. Right, it's very hard to predict. We get a lot of questions of about climate change and I will say, so we use the USDA agricultural projections as one of the data projections for our model, and they do project globally. That is, food production, and that commodity production is going to increase slightly over the next 10 years. And that's just due to this global increase in demand. One of the nice things about this framework, though, is that we can, if we do anticipate a disaster occurring, we can use this framework to kind of run some scenarios and see how it will affect the individual countries. But it's difficult to anticipate these disasters that might happen in 10 years.

Okay, and here's another question: Where do you get the data for food consumption and how is that measured?

So data is always tricky when you're dealing with so many countries. So our food consumption data, when we calibrate or when we kind of initialize our model, a lot of it comes from the food and egg organization serial balances. But some of the non-serial data comes from FA or from file stat. We also make reference to the USDA production supply and disappearance data which you can get from the foreign Ag service website. So there's a lot of sources and, depending on the country, we might believe one source more than another. We try to get pretty recent data for the consumption numbers and then build our projections from there.

Alright, and here's another question: How would the analysis need to change to look at nutrition access and not just calorie intake?

Okay, thank you for asking the nutrition question. So we've been thinking about nutrition kind of a lot, so making a caloric threshold is well, relatively straightforward, because you can say, okay, we can count the number of calories that our people are consuming, and we can draw a line and figure out the number of people that are below that nutrition. It's harder because what targets you defined, we want to talk about macronutrients. Micronutrients. What do we want to talk about? Last year's report, we had a special article where we looked back on macronutrient consumption, and that I think is something that we could do in this framework. We could look at carbohydrates, protein, and we could look at fat. It's easy to kind of break that down, given the food groups that we already analyzed. We're looking a lot of grains, roots, and tubers, and the other food, but, yeah, it is, I don't know that is the best framework to address it in. Because for some of the other commodities, when you think about nutrition, you want to think about, you know, produce commodities. Or you want to think about animal products. It's really hard to get data on consumption just now, and it's even harder to get data on prices in a lot of these countries. So I think it would be really difficult to at least look at those commodities in this framework.

All right, and I think we have time for one more question: Are your reports and analysis used by USAID and other aid donor countries to help develop programs to support countries or regions with the greatest food insecurity?

Yes, so one of the reasons that we do this report is that USDA and USAID are the U.S., like US government agencies that are tasked with supplying food aid to our international partners. So this is kind of a way that people can monitor what's going on and can look forward to see where the need is going to be in the future. So we have meetings with people from USAID just about the results of this report and other projects, but I'm sure they refer to this and other documents when they're doing their monitoring and their decision-making.

All right, thank you Karen, and I think that's all the questions that we have time for today. Thank you, everyone, for joining us, and have a great day!