International Food Security Assessment, 2023–2033

Good afternoon everyone and welcome to our webinar *International Food Security Assessment 2023-2033.* My name is a Valerie Negron, and I will be your host today. As a reminder, this webinar is being recorded and will be posted on the ERS website next week. If you have any questions during the webinar, please enter them into the chat feature at the bottom left-hand corner of the screen for our questions and answers session at the end of today's presentation. Today our presenters are ERS Economists Yacob Abrehe Zereyesus and Lila Cardell, both from our Market and Trade Economics Division.

Yacob's research interests cover a range of topics related to food security, including farm production and income, the dynamics of labor allocations and employment conditions in farm households; the consumption of nutritious and safe food; and more. Prior to joining ERS, Yacob served as a research associate professor at Kansas State University where he led and coordinated the collection of population-based household survey data for tracking the progress, and for the achievement of food and nutrition security programs in northern Ghana.

Lila joined ERS in early 2022 after completing her PhD. in Agricultural and Applied Economics from the University of Illinois. Her research interests include food security and nutrition measurement as well as the impact of price risk on smallholder welfare. Thank you both for joining us today. Yacob, the floor is yours.

Thank you Valerie. Hello and welcome everyone. Again, my name is Yacob Abrehe Zereyesus and I am now going to start the presentation. All right, so let me go through the outline of the first part of the webinar. I will start by providing the overview of this year's International Food Security Assessment also known as the IFSA report. Followed by a discussion of the main factors driving food security trends for the countries covered by the assessment. Then, my colleague Lila will take over and present the main food security results for 2023 and 2033, and finally wrap up the presentation with conclusion and key takeaways.

Starting with the overview of the International Food Security Assessment, this annual report estimates and projects food availability and access for the current year and 10 years out, which follows USDA's Agricultural Projections. The analysis helps USDA and it's stakeholders assess food Security in 83 low- and middle-income countries in five regions that may have a recent or ongoing food deficits. Not all countries experiencing significant food deficits are included in the report which is mainly due to the lack of data on key metrics such as average caloric consumption, prices or macroeconomic figures.

So the report includes 83 low- and middle-income countries, as I mentioned, in five regions, with a total population of 4.3 billion people. 41 countries are located in Sub-Saharan Africa region, 14 countries in Asia, 11 countries in Latin America and the Caribbean, nine countries in the Former Soviet Union region, and eight countries in the Middle East and North Africa. Both Asia and Sub-Saharan Africa region constitute about 85percent of the IFSA population. While India is included in the assessment China is not. The regional and sub regional classifications in this year's IFSA report are reviewed to align with the USDA's Agricultural Baseline designations. Also note that six low and lower middle-income countries are added to the IFSA assessment this year. The six additional countries are Djibouti, South Sudan, Syria, Iran, Lebanon, and Burma.

So, the main findings from the report include the following. Even though things have improved slightly, we are not out of the woods yet. Food insecurity in 2023 remains elevated relative to the pre- pandemic levels in these 83 low- and middle-income countries and that's mainly due to the lingering effects of the Coronavirus pandemic. High food commodity prices and risks associated with the ongoing Russia

military invasion of Ukraine. That means the number of food insecure people in 2023 is estimated at 1.14 billion, which is 26.6 percent of the overall population in the 83 countries included in the IFSA. This represents a reduction of 229 million people from the 2022 estimate. This reduction is due to an average of 3.7 percent growth in per capita income in 2023 relative to 2022, and the easing of international and domestic food commodity prices, and in particular the easing of vegetable oil prices. In 2023, Sub-Saharan Africa region has the highest share of food insecurity and that number stands at 41.2 percent, and nearly half of the food insecure people estimated are in Asia.

In spite the short-term challenge, however, food security is projected to improve by 2033 in all regions mainly due to the expected recovery in per capita income as well as projected lower food commodity prices that will make food accessible. And by 2033 the number of food insecure people is projected to decrease by 66.1 percent to 386 million. And similarly, by 2033 the share of the food insecure population is projected to fall by 70.3 percent to 7.9 percent. However, given that the results presented in this report are based on macroeconomic assumptions that were completed as of August 2022, the reported estimations could likely be affected considering some of the recent developments, including the termination of the Black Sea Grain Initiative and some other trade restrictions imposed by some countries, such as India.

Let's put some definitions first before we begin discussing the details. So, when we talk about food Security in the IFSA reports it refers to the ability of all people, at all times, to access sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. This is a definition that was developed at the World Food Summit back in 1996, although there have been some variations of it over time. In this regard, the four pillars that define food security are the following. The availability pillar, as you can see from the figure, implies having sufficient quantity of appropriate food available which includes domestic production, import capacity, food stocks, and food aid. The access pillar refers to physical and economic access to food and is mainly determined by income and purchasing power of household. It's insured when individuals and households have adequate resource to obtain appropriate foods. The utilization pillar includes adequate dietary intake and ability to use nutrients in a body. And finally, the stability pillar refers to stability of supply and access, and is ensured when there is consistent access to food, and it depends on the maintenance of the three pillars over time.

So why does USDA focus on food security? In general, the United States leads efforts to improve global food security including through the provision of the bulk of global food aid and therefore alleviating global food insecurity is among the greatest challenge and opportunities of our time. But even beyond the humanitarian response, and for USDA in particular, it's important to assess where and how global food demand is changing to identify potential emerging markets for U.S. Farmers as well as understanding what are the potential drivers for such Trends. In addition, it's important to assess the root causes of chronic food insecurity and the occurrence of potential hot spots and more specifically, being able to evaluate how income and prices affect access to food. Before I move to the next slide, I want to mention that our report focuses on the availability and access dimensions of food security.

All right, International Food Security Assessment model, the IFSA, is based on a demand-oriented modeling framework used to evaluate food security at a country level. In so doing, the following points are worth mentioning. The model responds to changes in both price and income to capture access to food, and it also captures the contribution of income inequality to food and security, and this is particularly important in that lower income consumers spend a greater share of their expenditure on food and that price sensitivity and income responsiveness do decline with income levels.

Moving on to how food security is assessed in the IFSA report. Food security is defined by using a caloric threshold of 2,100 calories per capita per day, and based on that caloric threshold, we developed three indicators of food insecurity. First one is the prevalence of food insecurity, which is the share of the population that consumes less than the caloric threshold of 2,100 calories per capita per day. The second indicator is population food insecure, which refers to the number of food insecure people, often measured in millions. And the third is food gap, which measures the food needed to raise consumption at every income level to the caloric threshold. Although it is estimated and included in the report, we do not reporting here in the presentation. We report estimates for 2023 and project to 2033 based on trends observed through the last three years which is 2020 to 2022 period.

I'm now going to cover the main drivers of food security trends for 2023 and 2033, one after the other.

So, starting with income, which is one of the key variables in the IFSA model. On average as shown in the table across the IFSA countries, per capita GDP, which is a measure of income, is estimated to be higher in 2023 relative to last year, with an average per capita GDP grows of 3.7 percent across all the IFSA countries. Regionally, as you can see from the table, between 2022 and 2023 the former Soviet Union region and Asia region are estimated to have the highest per capita GDP growth rates of 7.9 percent and 4.7 percent respectively, while Sub-Saharan Africa on the other hand is estimated to have the lowest growth rate of 1.2 percent during the same period.

Let me now talk about the other main variable in the model which is the international price of key grains. So, when International commodity prices are transmitted to domestic markets to through trade, access to food by vulnerable households can be constrained when such commodity price are high. Since 2020, as shown in the graph, USDA International agricultural commodity price projections have followed an upward trend driven by the COVID-19 lockdown, rising global demand for feed and food grains, as well as tighter global supplies. And this commodity prices persisted through 2022 due to rising international energy and fertilizer prices and Russia's military invasion of Ukraine. Although fertilizer prices subsided towards the second half of 2022, the risks associated with the conflict still remain. In general, the combined impacts of supply side factors, including for example, high input and fertilizer prices poor weather conditions in several key grain producing countries, and low stock-to-use ratios for some of the commodities) are expected to further drive commodity prices in 2023 in these IFSA countries. More specifically, based on USDA's long-term agricultural projections, the international price of rice, wheat, sorghum, and corn are estimated to remain higher in 2023 relative to last year, as you can see from the figure. However, the price of vegetable oil is estimated to be lower in 2023 relative to 2022. Lastly, long term, beginning in 2024, international price of these key grains are projected to trend downward and will remain relatively stable for the majority of the next 10 years, and that's due to the projected food supply that will outweigh global demand. Now, these International price projections were completed in October 2022 and domestic prices were updated by the end of 2022. Recent policy and microeconomic development and some weather-related shocks are expected to shape the trajectory of this prices, and likely influence food security trends as well. An example is India's ban on export of all non-basmati rice and non-parboiled rice in July of this year.

For the long term, going back to the table shown below. Here, on average across the IFSA countries, per capita GDP is projected to grow at an annual rate of 3.4 percent until 2023. In the Former Soviet Union region and Asia region, GDP per capita is projected to grow at an annual rate of 4.7 and 4.6 percent, respectively, in the next 10 years. Much of the anticipated increase in per capita income in Asia reflects the robust per capita GDP growth in South Asia and Southeast Asia sub regions which includes India, Pakistan, and Indonesia.

And with that I'm going to pass it over to my colleague Lila. Lila take it away.

Thank you Yacob for covering the IFSA model and highlighting the main drivers of food security trends globally. So, now I'm going to present the food security results for 2023 and 2033.

So, in 2023, 26.6 percent of the population of the 83 countries covered by the IFSA report are estimated to be unable to consume 2,100 calories per day. The number of food insecure people in 2023 is estimated at 1.14 billion, which is a reduction of 229 million people from the 2022 estimate. As we can see in this graph, the Sub-Saharan Africa region has the highest prevalence of food insecurity in 2023 with 41.2 percent of the population estimated to be food insecure.

So, where do the food insecure people live? While the Sub-Saharan Africa region has the highest rate of food insecurity among the five regions, almost half of the food insecure people in the IFSA report live in Asia. This is because Asia accounts for 58 percent of the population of the 83 cover countries that IFSA covers.

In terms of the tenure outlook, by 2033 the number of food insecure people is projected to decrease by 66 percent globally, from over 1.14 billion people in 2023 to 386 million. Regionally, Asia is projected to make the most progress due to income gains. However, food insecurity is projected to remain high in Sub-Saharan Africa due to population growth outpacing income growth.

Turning now to some regional summaries. In the Sub-Saharan Africa region 41.2 percent of the population is estimated to be food insecure in 2023. Some of the key drivers of this high food insecurity include high fertilizer prices which are associated with reduced agricultural yields. This both decreases the incomes of small holder farmers and domestic food supplies. High global food prices also constrain import-reliant countries. Ongoing conflicts in the Democratic Republic of the Congo and the Sahel increase acute food insecurity by limiting access to food aid and displacing residents. Macroeconomic instability including high inflation reduces purchasing power, such as in Zimbabwe. The region is also vulnerable to climate shocks such as flooding or prolonged droughts, such as in the Horn of Africa. Over the next decade, population growth is projected to outpace income growth, leading to Sub-Saharan Africa increasing its share of the world's food secure insecure population. However, the East Africa sub-region is expected to see the largest Improvement within Sub-Saharan Africa due to income growth driven by large trading economies such as Kenya, Tanzania, and Ethiopia.

Turning to the Middle East and North Africa region. In 2023, 17.4 percent of the population is estimated to be food insecure. Some drivers include a high reliance on food imports which exposes the region to global price shocks, especially in Egypt which is the world's largest importer of wheat. Protracted conflicts in Yemen and Syria have disrupted livelihoods and the economy. Additionally, high inflation in Lebanon and large refugee population migrating there constrain food access and availability. By 2023, low population growth and higher per capita income are expected to reduce food insecurity in the region.

In the former Soviet Union region, 15.4 percent of the population is estimated to be food and secure in 2023. The ongoing Russian military invasion of Ukraine which began in 2022 reduced food supplies due to the destruction of farmland and difficulty exporting commodities from the Black Sea region. In Tajikistan, extreme weather events and high-import reliance constrain food production and access. By 2023, higher per capita income and food supplies are projected to improve food security for the region.

In the Asia region, 21.8 percent of the population is estimated to be food insecure in 2023. Some factors include persistently high food prices which affect access to food in Afghanistan and Sri Lanka. In India, government policies such as export bands and price controls have reduced the impact of high global food

and fuel prices. In the South Asia sub-region, extreme weather events have occurred in Pakistan and Sri Lanka which have reduced agricultural yields and led to higher food prices. By 2033, per capita income growth in the South Asia and Southeast Asia sub-regions are projected to drive improved food security rates for the Asia region.

And finally, in the Latin America and Caribbean (LAC) region, 22.6percent of the population is estimated to be food insecure in 2023. Some countries in the region have benefited from post-pandemic tourism, investment, and diversified agricultural exports such as the Dominican Republic, Colombia and Peru. However, extreme weather events in the Central American subregion have led to the loss of some agricultural harvests and interruptions in supply chains, which have then led to reduced exports and depressed incomes. In Haiti, macroeconomic instability such as conflict and fuel and food shortages have led to widespread food insecurity. And high food prices, especially in Bolivia and Jamaica have reduced purchasing power. By 2033, per capita income is projected to improve in the largest economies in the LAC region leading to improved food security.

So in conclusion, food insecurity in 2023 remains elevated relative to pre-pandemic levels in the 83 low- and middle-income countries covered. Key factors include high commodity prices, and risks associated with the ongoing military invasion of Ukraine. The number of food insecure people in 2023 is estimated at 1.14 billion, which is 26.6 percent of the overall population in the 83 countries. This reduction in the prevalence of food insecurity relative to 2022 is due to an average of 3.7 percent growth in per capita income, and the easing of international domestic commodity prices in particular the easing of vegetable oil prices. Food security is projected to improve by 2033 mainly due to expected recovery in per capita income as well as lower commodity prices that will make food accessible.

So, thank you for attending the webinar and you can find the publication at the link provided and please reach out to us with any questions. Back to you Valerie.

Thank you, Lila, and thank you Yacob. We'll go ahead and open the floor for questions now. As a reminder question can be submitted through the chat feature located at the bottom lefthand corner of your screen.

So now, for our first question, why are only low- and middle-income countries considered in the assessment and not countries like the United States or the European Union?

I can answer that, thank you Valerie. So, the United States leads efforts to improve global food security including provision of the bulk of global food aid. And for the USDA, it's important to assess where and how global food demand is changing, to identify potential emerging markets for U.S. farmers, as well as understanding the potential drivers for such trends. And it's important to assess the occurrence of chronic food insecurity, and the occurrence of potential hotspots, and specifically see how income and prices affect access to food. So, that's why we aim to include all low- and middle-income countries that have experienced recent or ongoing food deficits.

Thank you, Lila. For your next question, how does this assessment on international food security differ from our research on food Security in the United States?

All right, this is Yacob, as discussed in the presentation, ERS' research on international food security is based on measurable components of food access at the national level of each country studied, and hence, insufficient incomes or high food prices can be the cause of food insecurity. ERS research uses available income and food price data to assess food access across the entire spectrum of each country. Whereas ERS research on food Security in the United States, is based on household surveys that capture household

subjective evaluations of their food security, and again, so, in wealthier countries, such as the United States, where total food supplies can be more than sufficient to feed the entire population, famine or starvation may not be a threat. However, even in the United States, many people are poor and may suffer from hunger due to inadequate incomes. And research on food security tries to understand the true extent of the problem, as well as the underlying causes. In the United States, and increasingly in fact in many countries of the world, food availability at the national level is sufficient. The focus then becomes on access to food and food utilization.

Thank you Yacob, now for our next question. What did the IFSA report show, if anything, about Cuba?

So, Cuba is not currently covered within the IFSA reports. We…you know…unfortunately, due to limited data on prices or consumption behavior, we cannot cover every country.

Thank you Lila. For our next question, how does this assessment on international food security differ from other estimates of global food insecurity?

Okay, this is Yacob. So, the results from the IFSA model to begin with are not directly comparable with other analyses. For example, FAO's modeling work for its report on the State of Food Insecurity (SOFI) which has a broader country coverage and different methodology. Because IFSA also uses aggregate data, it may not be compared directly with evaluations using household-level surveys. However, the implications and insights that we draw from the IFSA results can be comparable with other global food insecurity works. And I would like to add, maybe if you if you want to look at a more in-depth discussion and comparison of USDA's IFSA model with other modeling approach, you can see ERS publication, Tandon et al. 2017, which is available in the ERS website.

Perfect, thank you Yacob. For our next question, do you look at potential impacts of climate change in your forecast?

So, what we try to consider, so again, for the estimations, microeconomic assumptions, and everything else, which was completed the summer of last year, that's based on what we have, we have a supply side projections that also consider the prevailing production conditions, and hence, even though the supply side of the IFSA model considers such factors as climate change as one of the main drivers, on the demand side, we don't specifically consider the impact of that climate change.

Here's another similar question, do our statistics show anything in terms of food security of refugees due to climate change or other reasons all right?

So, as we mentioned in the presentation, we focus on the two important factors, the per capita income, and prices of commodities at a country level. So, the analysis is restricted to a country level, and overtime, particularly for this year 2023 and 2033, and that's how the assessment is done. But again, all the implications that are drawn from the assessment are indicative of the still high level of food insecurity, despite some of the progress we've seen in 2023 relative to last year.

Thank you Yacob. For our next question, what do you think the impact of export restrictions imposed by some countries will have on global food security, for example the ban placed by India on exports of all non-basmati rice and non-milled rice in July of this year?

Thank you Valerie. So, as Yacob mentioned, the results presented in this report are based on macroeconomic assumptions completed as of August 2022, therefore any events after that are not included in our estimation. However, ERS publishes monthly Outlook reports for many commodities such as rice, wheat, and oil seeds. The Outlook reports cover recent developments and provide the latest data

on U.S. and international supplies, use, and price estimates and projections from USDA's WASDE report. These Outlook reports um can be found on the ERS website.

Thank you Lila. Also available for our listeners or viewers, these Outlook reports are available on the left-hand side of your screen under event resources. So, feel free to check those out. Next question, do you look at the per capita food production in these countries over time?

So, that's a good question. We do look at both sides, the per capita income and per capita consumption as well. Just to give you a picture of the different sorts of data we use, for example, in the model that I discussed in the presentation, for the average per capita food consumption we use data from the United Nation's Food and Agriculture Organization Food Balance Sheet, and FAO's Global Information Early Warning Systems Country Cereal balance sheet. Then we get domestic prices from FAO's Food Price Monitoring Analysis Tool, and hence we do combine both the income side and the production or consumption side for modeling the demand.

Thank you Yacob. For your next question, how was the study conducted?

So, again, this is Yacob. So, the model as mentioned, the IFSA model, is a demand driven model which projects food demand and food caps for this 83 low- and middle-income countries. As I mentioned, it's evaluated for each country by estimating the share of the population that's unable to reach the caloric pressure of 2,100 kilo calories per person per day. The intensity of food insecurity for those falling below the minimum caloric target is measured by the gap between the projected food demand and calorie threshold.

Thank you Yacob. You mentioned number of food insecure, what's the difference in the term 'number of food insecure' versus the 'prevalence' of food insecurity?

All right, so, the 'number of food insecure' refers to the number of people who cannot meet the caloric threshold, which is 2,100 calories per capita per day, whereas the 'prevalence' of food insecurity refers to the share or the proportion of the population who cannot meet the caloric threshold. And hence, the former is measured in millions for example, the latter is measured in proportion or percentage terms.

Thank you. For our next question, why are only low- and middle-income countries considered in the assessment and not countries like the United States or the European Union?

Hi Valerie, I think we talked about this already, but we aim to include all low- and middle-income countries that have experienced recent or ongoing food deficits, and so we focus on those countries within this report.

Thank you Lila, why were additional countries added? Why aren't some low-income countries covered?

Thanks Valerie, as I said, we aim to include all low- and middle-income countries, however, due to limited data on prices or consumption behavior, we are unable to cover every country. But through a recent review of the world bank's income classification system, we did identify six low- and lower-middle income countries that we did have sufficient data for to include them in our analysis.

For our next question, do you look at how population size changes for the countries in the forecast?

So, yes. Part of the… our the macroeconomic information which includes population estimates are based on um U.S. Census projections. You can find out more information on the U.S. Census International Database on their website. So they do include those projections in their forecast, so that does get included

as part of our estimation. And with respect to…there was a question on refugees or migration, those that international database also has information on how those populations are covered.

Thank you. How will the suspension, and I know you covered this Lila, but just as a reminder, how will the suspension of the Black Sea Grain Initiative affect food security?

No problem. So, as we mentioned, the results presented are based on assumptions that were completed as of August 2022, and the Black Sea Grain Initiative suspension occurred after that. So, it is not included in our assessment. However, if you look at the recent monthly Outlook reports for wheat and oil seeds, you can find more information about that. Those can be found on the ERS website, or on the bottom left hand of this webinar.

Thank you Lila and thank you Yacob. That seems like that's all we have for today and thank you both for a great presentation and to our listeners for taking time out of your day to join us. We hope this has been helpful. If you enjoyed this webinar or are interested in learning more about our research related to food security, don't miss our Household Food Security in the U.S. annual report. This year's report is scheduled for October 25th, 2023. Again, thats household food Security in the U.S. And lastly, before closing, I'd like to share a few ways that you can stay up to date on ERS Research. In addition to our website, we have our Chart of Note mobile app which delivers snapshots of ERS research straight to your mobile device. ERS is also on social media, and you can follow our account on LinkedIn and X – formerly known as Twitter. Thank you, and this concludes our webinar.