

# GLOBAL FOOD SECURITY

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## HEARING

BEFORE THE

COMMITTEE ON FOREIGN RELATIONS

UNITED STATES SENATE

ONE HUNDRED EIGHTEENTH CONGRESS

SECOND SESSION

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MARCH 6, 2024  
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# GLOBAL FOOD SECURITY

WEDNESDAY, MARCH 6, 2024

U.S. SENATE,  
COMMITTEE ON FOREIGN RELATIONS,  
*Washington, DC.*

The committee met, pursuant to notice, at 10:04 a.m., in room SD-419, Dirksen Senate Office Building, Hon. Benjamin L. Cardin, chairman of the committee, presiding.

Present: Senators Cardin [presiding], Shaheen, Coons, Murphy, Kaine, Booker, Van Hollen, Risch, Ricketts, and Young.

## OPENING STATEMENT OF HON. BENJAMIN L. CARDIN, U.S. SENATOR FROM MARYLAND

The CHAIRMAN. The Senate Foreign Relations Committee will come to order.

This hearing deals with the conflict and climate change that are driving our global security issues, so I want to thank our witnesses for this food security hearing.

Today more people are desperate to find the next meal. More families are choosing to migrate in search of food. More children are going to sleep hungry.

According to the World Food Programme, 47 million people are living on the edge of famine and 333 million are facing crisis levels of hunger.

In recent years food insecurity has been at its highest level since World War II. This is not isolated to one country or one continent.

From Burma to Ukraine, from Haiti to Syria, conflict and violence keep people from getting enough to eat. The humanitarian crisis in Gaza is dire and getting worse.

I have said this before. We need to be more aid to the innocent Palestinians. We need to deliver it safely and quickly. I welcome the Administration and our allies taking new steps to alleviate suffering through air drops. But air drops alone are simply not enough.

Of course, it is not just war that is creating this global crisis. The effects of climate change are devastating the world's food supply. Fresh water and cultivable lands are scarcer, and they are fewer in recent years.

Extreme weather events like the severe flooding we saw in Pakistan in 2022 have destroyed millions of acres of farmland around the globe. We cannot isolate ourselves from this crisis, and yet last year the World Food Programme faced a 60 percent funding shortfall, the largest in its history.

I want to thank Senator Coons, who is continuously bringing these attentions to all of us, the need for additional resources, and he has an incredibly difficult challenge considering the limits that have been placed on the appropriation bill that he is the chair of, and I thank him again for his advocacy on behalf of these issues.

This shortfall has meant cutting food rations in the most desperate places in the world, and when people go hungry instability often follows. I believe strongly as many of my colleagues and both parties do as well that food security is a human right.

It is important as democratic governance in preserving stability and security. That is why it is in the U.S. national security interest to solve the climate crisis.

I am pleased that the Biden administration has made food security a priority. It is critical we support programs like Feed the Future, the U.S. Government's global hunger and food security initiative, and the vision for adapted crops and soils.

We need to incorporate state of the art forecasting data to understand threats and changes to food security. Our nation must continue to take the leadership role, which is why it is critical we get this supplemental security funding passed, including food assistance for millions of people.

The supplemental includes so many important areas, but one of the most important areas is the humanitarian assistance that was included in the supplemental that passed the Senate.

Across the American political divide you can see an interest in stepping up with critical food aid. But even as we race to get people food before they go hungry we must recognize that solving the global food insecurity means making serious long term investments, strengthening food systems and resilience of growers around the world, getting American generated climate models and forecasts to communities in the Global South so they can plan for the changing environment, helping America's land grant universities and agricultural research centers playing a larger role, and working with the international community to take up innovation and accelerate approaches that we know work.

Thanks to the generosity of American farmers we are saving lives around the world. I believe American action will inspire other nations and the international community to do more. We all must do more.

So I want to thank our witnesses for appearing before us today to give us their valuable help in what we can do to alleviate this crisis. I hope that you can give us the insight on how to best tackle this problem.

It is now my pleasure to recognize the distinguished ranking member, Senator Risch.

**STATEMENT OF HON. JAMES E. RISCH,  
U.S. SENATOR FROM IDAHO**

Senator RISCH. Well, thank you, Mr. Chairman. Thank you for those kind remarks. I, too, would want to recognize the good work that Senator Coons is doing in this area.

Our last hearing on global food security was in July 2022, 5 months after Putin began his brutal war against Ukraine and his attempt to starve the world into submission.

Despite strong efforts to combat this, the overall state of global food insecurity has not improved. Seven hundred and eighty-three million people around the globe suffer from food shortage. Three hundred and thirty-three million people are facing acute food insecurity. An estimated 47 million people are on the brink of famine.

These are not just statistics; these are actual people. Congress appropriates billions of dollars annually to respond to emergencies through life saving programs, including Food for Peace and Emergency Food Security Program.

This money also supports initiatives to help communities grow their own way out of poverty and become more resilient to food shocks like Russia's war in Ukraine, price spikes, COVID, earthquakes, and hurricanes. These are important programs that we are currently operating.

Unfortunately, we spend too much time fighting to resource these programs and too little time on maximizing their impact.

For example, after nearly 70 years of Food for Peace, we still cannot decide its principal purpose. Is it to feed hungry people or to ensure that one U.S. company operating the three bulk carriers available for U.S. food aid deliveries has a big enough subsidy?

The inability or unwillingness to resolve this leads to higher costs and lower impact. It also drives well intentioned advocates to push new legislative ideas or workarounds that only add more layers of bureaucracy and undermine efficiency.

Let us be clear. Congress will never appropriate its way out of this current global food security crisis. We need to do better with what we have got.

First and foremost, countries receiving aid must do more to address the drivers of food insecurity within their own borders. This includes resolving conflicts, governing justly, combating corruption, and removing the barriers that impede economic growth and trade.

Humanitarian groups also need to do their part, and they need to improve targeting and oversight so they can ensure aid is getting where it is needed. They must do more to protect aid from being diverted by armed groups, criminals, governments, or the implementers themselves.

Wide scale adoption of technology that can improve targeting and verification including biometrics is long overdue. On the development side we need to work more closely with the private sector to bring innovations to scale.

I recently saw an Idaho based company, Semilla Nueva, won a USAID grant to enhance the quality and adoption of biofortified maize in Latin America. We should see more of this type of collaboration.

I would like to hear from our witnesses how they intend to make partnering with the U.S. Government easier so we can more effectively leverage the ingenuity of U.S. farmers and agricultural experts.

We have got the best food producers in the world, and we have got the tools. Let us use them to full advantage. The challenges are immense, but the imperative is clear. The United States can and must lead the way in promoting global food security.

I look forward to hearing your thoughts on how we do that more efficiently and effectively.

Thank you, Mr. Chair.

The CHAIRMAN. Senator Risch, I just really want to thank you for those opening comments. I agree we need to look for more efficient ways to deal with the scarce resources that are available. We will never have enough resources to meet all the needs, and we have to figure out how to do that in the most efficient way.

And your point about good governance is absolutely essential as part of the solution to these problems, and this is the Senate Foreign Relations Committee—diplomacy is absolutely critical to avoid conflict—which also deals with these issues. So I appreciate very much the manner of your opening statement.

Well, we have two very distinguished witnesses.

I want to welcome both of you to the committee. Your full statements will be made part of our record, without objection, and you will have 5 minutes to summarize your comments, and we will then get engaged in a question and answer format.

We will start with Ms. Dina Esposito. She is the assistant to the administrator of USAID's Bureau of Resilience, Environment, and Food Security. She also serves as Feed the Future deputy coordinator for development and USAID's global food crisis coordinator.

She has demonstrated a deep commitment to helping those impacted by food insecurity throughout her career. Previously she served as the director of USAID's Office of Food for Peace, which she managed the delivery of life saving food assistance across the globe.

She also worked with Mercy Corps where she guided food security and economic development in over 40 countries. Quite a record.

I also want to welcome Dr. Cary Fowler who is the Department of State special envoy for global food security. Throughout his career Dr. Fowler has been at the forefront in integral achievements in agricultural development.

He has worked extensively with the U.N.'s food and agriculture organization and is the founder of the Svalbard Global Seed Vault, a facility that I had the opportunity to visit, above the Arctic Circle.

That is a landmark achievement for global food security that holds the world's largest collection of agricultural biodiversity.

As special envoy Dr. Fowler has spearheaded the vision for adapted crops and soil, a program that works in partnership with the FAO and the African Union to address food security through the cultivation of healthy soils and diverse climate resilient crops.

We will start with Ms. Esposito.

**STATEMENT OF DINA ESPOSITO, ASSISTANT TO THE ADMINISTRATOR, BUREAU FOR RESILIENCE, ENVIRONMENT, AND FOOD SECURITY, U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT, WASHINGTON, DC**

Ms. ESPOSITO. Thank you, Chairman Cardin, Ranking Member Risch, and the distinguished members of the committee, so many of you longtime champions for the world's hungry and impoverished.

I also want to thank Special Envoy Fowler for his focus on strengthening indigenous food production through his vision for adapted crops and soil.



After more than a decade of progress fighting chronic hunger and malnutrition after the 2009 global food crisis a series of unprecedented shocks have reversed many of our gains including COVID-19, Putin's brutal invasion of Ukraine, ongoing conflicts in Sudan, Ethiopia, Yemen, and now Gaza, and unprecedented consecutive droughts, most notably in the Horn.

This miserable confluence means that today 735 million people are chronically hungry. Every night they go to bed hungry because they cannot afford enough to eat. That is 120 million more than in 2019 pre-COVID.

One hundred and forty million people in the most vulnerable countries are acutely hungry. They are victims of conflict or compound crises that have upended their livelihoods, and they must depend on humanitarian assistance to survive. That number is twice as high as it was in 2019.

Nevertheless, the committee and every American should know their generosity has kept millions of people off the knife's edge.

At the height of the global food crisis in 2022, USAID was able to provide nearly \$20 billion in humanitarian assistance, of which \$6 billion was for emergency food assistance.

Beyond making our dollars stretch further in emergency situations we must continue investments that we know prevent hunger in the first place, investments that have had meaningful success.

In the areas where Feed the Future, the U.S. Government's signature global hunger initiative, has worked poverty, hunger, and child stunting all declined by 20 to 25 percent in its first decade of work.

But we do not rest on these results. When Congress took the extraordinary measure of providing an additional \$1 billion in supplemental funds to Feed the Future in 2022, a doubling of our annual budget and the first increase in funding since 2009, we undertook a massive effort to harness Feed the Future to feed the present.

As food prices hit record highs following Putin's invasion of Ukraine we rushed to get high quality seeds, fertilizer, and financing to the markets and into the hands of some of the world's poorest farmers, helping absorb the worst effects of the food crisis by strengthening local production.

This complement to humanitarian assistance was a critically important decision made by the U.S. Congress. The national security supplemental passed by this chamber last month includes \$50 million to prevent and respond to global food insecurity.

As the House, hopefully, takes up this critical package of assistance for our allies, it is important that humanitarian and development assistance remain a key component alongside security assistance.

To make every dollar stretch farther we are working harder than ever to leverage private sector investment with our limited development dollars, crowding in \$700 million of private capital in 2022.

By tapping into the expertise and supply chains of companies like JR Simplot from Idaho or McCormick's Spices in Maryland we are helping open new markets for American businesses and smallholder farmers at the same time.

We also partner to generate and scale innovation with a special focus on women, who often comprise the majority of farmers where

we work and yet lack access to the same information and services as men.

These efforts connect us to 70 partners in the United States across 42 States and 16 innovation labs, and we are doubling down on Feed the Future's core mandate, which is to concentrate bilateral investments in several countries that we know are most in need and best poised for regional agricultural led economic growth.

Already we have identified a subset of Feed the Future target countries in southern Africa that with adequate investment we feel could give rise to a new regional breadbasket for the continent.

While we are heartened by the progress we have made and optimistic about what our reforms will yield, we should again be clear eyed about the circumstances the world faces.

A strong El Niño weather pattern has fueled weather disruptions that are spiking needs in some parts of the world. Just last week Zambia declared a national emergency following a month without rainfall, and in Gaza the entire population, from some 2.2 million people, is facing at least crisis levels of acute hunger.

Administrator Power just returned from the region where she joined President Biden, Secretary Blinken, and other administration officials in continuing to stress the importance of expanded humanitarian access as part of an overall sustained effort to scale up the amount of lifesaving aid we are getting into Gaza.

After decades of progress the downturn in global food security and nutrition security is, indeed, concerning. But the truth is without American leadership and continued bipartisan support it would be far worse.

Looking forward, bending the hunger curve downward will require us to better anticipate rather than only react to future shocks and continue to make long term agricultural investments, enhancing our own economic well being and fostering a safer and more secure world in the process.

Thank you for your continued partnership, and I look forward to your questions.

[The prepared statement of Ms. Esposito follows:]

**Prepared Statement of Ms. Dina Esposito**

Thank you, Chairman Cardin, Ranking Member Risch, and the distinguished members of the Committee, so many of you long-time champions for the world's hungry and impoverished. I also want to thank Special Envoy Fowler for his focus on strengthening indigenous food production. I've prepared an opening statement, but my full testimony has been shared with the Committee for the record.

We should be honest about the state of global food insecurity today. After more than a decade of progress fighting chronic hunger and malnutrition following the last global food crisis in 2009—progress spurred in meaningful part by Feed the Future, the United States signature global hunger effort—a series of unprecedented shocks have reversed many of our gains. These shocks include: The COVID-19 pandemic; Putin's brutal invasion of Ukraine; ongoing conflicts in Sudan, Ethiopia, Yemen, and now Gaza, among so many other hotspots; and unprecedented consecutive droughts, most notably in the Horn of Africa.

The confluence of these events means that today, 735 million people are chronically hungry—every night before they go to bed because they can't afford enough to eat. That's 120 million more people than in 2019, pre-COVID.

One hundred and forty million people in the most vulnerable countries are acutely hungry—they are victims of conflict or crises that have upended their livelihoods, and now are severely malnourished and must depend on humanitarian assistance to survive. That number is twice as high as it was in 2019.

But even in the face of such stark numbers, all of you on this committee and every American taxpayer should know that American generosity has kept hundreds of millions of people off the knife's edge.

The United States has maintained its role as the world's leader in providing both acute and development food assistance. In fiscal year 2023, we provided over \$14.2 billion in total humanitarian assistance, of which \$3 billion was emergency food assistance to 134 million people in 58 countries. That includes sending American-grown agricultural commodities like wheat, sorghum, and rice overseas—critical in emergencies when crops have failed and markets have gone bare. It also includes market-based assistance which is a more efficient way to help those in places where markets still function, but livelihoods have been destroyed.

This lifesaving work would not have been possible without the continued generosity and foresight of Congress in appropriating emergency supplemental funds. At the height of the global food crisis in fiscal year 2022, USAID was able to provide nearly \$20 billion in humanitarian assistance, of which \$6 billion was for emergency food assistance. Additionally, Congress also supported our decision to draw down the full balance of the Bill Emerson Humanitarian Trust. The Senate's recent passage of the National Security Supplemental appropriations bill which includes \$9.15 billion in humanitarian assistance is critical, and we urge the House to follow your lead. Without these resources, we face a 52 percent shortfall as compared to fiscal year 2022 in appropriated humanitarian resources, at a time when needs are increasing.

I wish I could say that other donors would likely step up in our absence, but globally we are seeing humanitarian budgets contracting, especially as many European nations shift their resources to support incoming Ukrainian refugees. When it comes to the fate of those in the world's most dire conditions, it is America that leads.

But our response to greater humanitarian need cannot simply be to call for more resources. We must also take two critical steps.

First, we must make every American taxpayer dollar we spend as efficient and effective as possible. Every 5 years, this country has a chance to strengthen our U.S. food assistance programs through the reauthorization of the Farm Bill. Ten years ago, I helped support the bipartisan effort that gave USAID critical flexibility to make our food assistance dollars stretch further. As Congress negotiates the reauthorization this year, it is critical that we maintain and expand those flexibilities—for instance, granting authorities to make using US commodities in non-emergency programs an option rather than a requirement—without decreasing overall commodity procurement levels for the program. Doing so will allow partners to design activities that most improve livelihoods and agricultural productivity so poor communities can better withstand shocks without the chronic need for emergency food aid.

I want to be very clear: This does not mean cutting the level of US commodities we send, but simply allocating them to emergency response where they are the most appropriate. These may sound like minor, technical adjustments, but they will save lives, save money and benefit American farmers and taxpayers.

Second, beyond making our dollars stretch further in short-term emergency situations, we must continue investments resilience efforts that we know can prevent hunger, before it is dire starvation. If we can help countries and communities better anticipate shocks that drive hunger and enhance their capacity to grow more food and sustain their livelihoods no matter what comes, then we can greatly reduce the need for humanitarian assistance. This is supported by clear evidence, research from Ethiopia, Kenya, and Madagascar found that for every dollar invested in resilience, we save between \$2.50 to \$7 in humanitarian assistance.

This is what the United States has done across decades in places like Korea, Mexico, Brazil, and India—countries that once were our largest recipients of food aid but now count amongst our largest trade partners. When Feed the Future was launched in 2010, its goal was to continue that legacy: To tap into the know-how of America's farmers, crop researchers, and agribusinesses to spur agricultural transformation in the countries with highest potential for growth in Latin America, Asia, and Africa.

And we've had meaningful success. In the areas where Feed the Future worked, poverty, hunger, and child stunting all declined by 20–25 percent in its first decade of work, outpacing results seen in non-Future peer countries. Children's diets improved. Women played a greater, more empowered role in their households and their economies. Agricultural sales doubled every year since the Initiative began. And these results held, even in places beset by disasters, or where populations grew rapidly.

But we did not rest on these results. When Congress took the extraordinary measure of providing an additional \$1 billion in supplemental funds to Feed the Future

efforts in 2022—a doubling of our annual budget and the first and only increase in funding since 2008—we undertook a massive effort to harness Feed the Future to “feed the present.” As food prices hit record highs following Putin’s invasion of Ukraine, we rushed to get high-quality seeds, fertilizer, and financing to the markets and into the hands of some of the world’s poorest farmers. By helping keep these markets open and prices down, we helped absorb the worst effects of the food crisis by strengthening local production.

This complement to humanitarian assistance—providing USAID with supplemental resources to keep farmers planting and the services they rely on running at a time of crisis—was a critically important congressional decision. Using the Feed the Future development platform to respond to future shocks—alongside emergency food assistance—is one of the critical reforms we’re embracing to strengthen and evolve the initiative and advance global food security objectives. The National Security Supplemental passed by this chamber last month included \$50 million in funds to prevent and respond to global food insecurity. As the House hopefully takes up this critical package of assistance for our allies, it is important that humanitarian and development assistance remain key components alongside security assistance.

We’re also doubling down on our partnerships with the private sector, through which we crowded-in almost \$700 million in private dollars in 2022. By tapping into the expertise and supply chains of companies like JR Simplot Company, McCormick Spices, and Walmart, we are helping open new markets for American businesses and global farmers at the same time. And by using public funds to “de-risk” the flow of private capital to small- and medium agribusinesses in Africa, rather than providing just grants, with the support of Congress, our new Financing Agricultural Small-and-Medium Enterprises in Africa (FASA) fund will catalyze up to a fivefold match by private financiers.

We’re harnessing the latest technologies to bring innovation to the field to have more impactful results and help farmers decide how much fertilizer to apply. We are partnering with NASA and others to harness geospatial imaging to automatically trigger needed insurance payments, if weather patterns shift. Through our partnership universities, like with Pennsylvania State University, where we’re harnessing AI to help farmers rapidly identify and addressing crop diseases and new pests; as well as bringing water pumps and drip irrigation systems to areas buffeted by droughts. We’re also using the latest in genomics and lab techniques to develop climate resilient seeds and promote soil health. Today, no less than 15 percent of our budget is dedicated to research, much of it in U.S.-based innovation labs, an effort strengthened by Special Envoy Fowler’s Vision for Adapted Crops and Soils.

We’re also focusing investments on women farmers who we know do most of the work, yet have the least access to quality seeds and inputs, and suffer the most when crisis strikes their fields. Women-managed farms are 24 percent less productive than male-managed farms of the same size, and women earn 82 cents for every dollar that men earn working in agriculture. If we simply close these gaps, global GDP would rise by nearly \$1 trillion, and 45 million fewer people would go hungry. As part of our new Generating Resilience and Opportunities for Women initiative, one-third of every dollar we spend through Feed the Future will go toward women’s economic empowerment, essential targeted programming to yield the results I have been talking about.

We are doubling down on Feed the Future’s core mandate, to concentrate bilateral investments in several countries that we know are most in need and are best poised for regional agricultural-led economic growth. Already, we’ve identified a subset of Feed the Future target countries in Southern Africa that, with adequate investment, we feel could give rise to a new regional breadbasket for the continent.

We welcome of course additional investment and attention to global food security, and are eager to partner with this Committee, and others, on how to best work toward those goals. For example, we welcome the opportunity to engage on the Global Food Security Foundation legislation introduced by Senators Coons, Graham, and Boozman. As Congress thinks through such ideas, USAID can be a valuable partner.

While we are heartened by the progress we’ve made and optimistic about what our reforms will yield impact, we should again be clear-eyed about the circumstances the world faces. The current El Niño weather pattern has involved weather disruptions that spike food needs around the world—just last week, Zambia declared a national emergency following a month without rainfall. As the war in Sudan spills into the country’s breadbasket just as the lean season begins, the threat of catastrophic famine is very real.

And in Gaza, the entire population, some 2.2 million people, is facing crisis levels of acute hunger. Administrator Power just returned from the region, where she joined President Biden, Secretary Blinken, and other Administration officials in continuing to call for expanding humanitarian access and, with international partners,

scaling up the amount of life-saving aid we're getting into Gaza. That includes operating existing border crossings at Kerem Shalom and Rafah at full capacity, streamlining customs delays and easing restrictions on needed humanitarian goods, opening up additional land routes into Gaza, especially in the north, pursuing potential maritime routes, and conducting air drops. The use of air drops, typically a last resort, is a clear indication of how dire the humanitarian situation has become. Humanitarian air drops do not replace the necessity of overland aid delivery. We also need much stronger protections for humanitarian workers who are delivering life-saving aid, and ultimately, we urgently need an immediate and sustained ceasefire during which assistance can flow and Israeli hostages can be reunited with their families.

There's no question that the state of global food security is disheartening after so many years of progress. But, the truth is, without American leadership and continued bipartisan congressional support, it would be far worse. Through the COVID pandemic, through yet another food price crisis, through Putin's attempts to shut down a global breadbasket in Ukraine, we persevered, and hundreds of millions of people benefited. Children starved to skin and bone were revived; parents could feed their children without selling off all they owned; farmers from Kyiv to Kinshasa could sow their fields instead of letting them lie fallow.

After a career spent battling global hunger, I believe with your continued support, we can help to usher in a new era of resilience, agricultural transformation, trade, and global food security, and note that we are stronger economically when our developing country partners are stronger as well.

The CHAIRMAN. Thank you very much for that testimony.  
Dr. Fowler.

**STATEMENT OF DR. CARY FOWLER, SPECIAL ENVOY FOR  
GLOBAL FOOD SECURITY, U.S. DEPARTMENT OF STATE,  
WASHINGTON, DC**

Dr. FOWLER. Chairman Cardin, Ranking Member Risch, distinguished members of the committee, notwithstanding a dramatic decrease in media attention we still face a global food crisis.

Conflict, extreme weather, supply chain disruptions are major factors, and there are others. Food systems are complex. Everything from farm to fork has to operate as it should. Thus, there are many components to address if food insecurity is to become food and nutrition security.

At the food production stage there are conditions that every farmer wants and needs: Good, fertile soils and appropriate fertilizers; seed varieties that are adapted to the environment, the climate, and the market; water; and functioning markets and access to those markets.

Trade is critical. The majority of countries in this world are net food importers. We live in a highly interdependent world.

What happens in one small country, one small corner of the world—a conflict, a drought, a crop pest, a poorly thought out policy—rarely stays there.

Early in my career the failure of the anchovy crop off the western coast of South America was, believe it or not, one of the major triggers of a global food crisis. Everything seems to be connected.

Historically the most successful way of increasing food production was to increase cropland. But in the 1980s for the first time global per capita food supply increased without an increase in cropland. We thus entered into a new era where producing more with less sustainably became the imperative.

There are many challenges to overcome. We have a clear and pressing humanitarian reason for wanting to try. We also have self-interest—we all want to live in a peaceful world.

The problems associated with global food insecurity are beyond what any individual country can solve or be expected to solve, but the way we choose to engage makes a difference.

The United States is in a unique position to lead. This is an area of comparative advantage for us. It is where our strength lies. We can lead with programs such as the Feed the Future program and others that you will hear about today.

We can lead with technology, with research, and good old fashioned know how. We can lead with analysis and strategy. We can lead with diplomacy.

Most of all, perhaps, we can lead with ideas, with our American values, and with our commitment. Thank you.

[The prepared statement of Dr. Fowler follows:]

#### **Prepared Statement of Dr. Cary Fowler**

Chairman Cardin, Ranking Member Risch, and distinguished members of the Committee, thank you for inviting me today to testify on the U.S. response to the global food security crisis. I appreciate the opportunity to discuss this critical issue.

When the world entered the protracted ongoing food crisis, the United States—with Congress' support—led the international response. Since the start of the Biden Administration, the United States has provided more than \$22.3 billion in acute and development food assistance, of which nearly \$14.2 billion of emergency assistance in 2023/2024, and with nearly \$2 billion over the next fiscal year targeted at medium to longer-term agricultural development in addition to the most vulnerable. We provide over one third of the total budget to the World Food Programme.

As the Deputy Coordinator for Diplomacy for the global Feed the Future initiative, I lead the diplomatic agenda for our global food security development efforts. In 2023, the State Department launched the Vision for Adapted Crops and Soils (VACS) with the African Union and the Food and Agriculture Organization. As a part of the Feed the Future initiative and the President's Emergency Plan for Adaptation and Resilience (PREPARE), VACS is our comprehensive response to build sustainable food security around the world, and the approach that we have is two-pronged. We're investing above ground, identifying the indigenous crops that are most nutritious and most resilient to climate change, improving these varieties; at the same time, we're investing below ground, mapping, conserving, building healthy soils. If you get the seeds right, if you get the soil right, then you have your agricultural foundation for the future.

But for as much as we have done to bring relief to those facing the most acute need, there remains more to do. Hunger and poverty around the world are destabilizing conditions that can influence conflict. Conflict is the number one driver of food insecurity. Food insecurity impacts conditions local for our partner countries, regional security, and U.S. national security. Modern conflicts are not confined by political borders, and food insecurity must be addressed not only because it's in our national interest, but addressing global hunger and malnutrition is in the fabric of who we are as Americans. It's part of our DNA.

More than 700 million people are hungry. Child stunting and wasting is far too widespread. Global food demand will increase by more than 50 percent by 2050 as the population approaches 10 billion, while environmental stressors and climate change could reduce yields by as much as 30 percent.

While the impact of COVID on the global food system has largely abated, other challenges continue. The costs of basic inputs for farmers to improve soil conditions and have access to basic seeds and materials continues to be out of reach. Currency devaluation across markets in developing countries have priced basic inputs for agricultural production to be out of reach for small to medium scale farmers. Additionally, Russia, through its attacks on Ukrainian port facilities, continues to raise the cost of doing business for companies to acquire Ukraine's grain exports and destroys its grain silos. We are also in the middle of a strong El Niño weather pattern, with dramatic increases in temperatures and changes to the timing and amount of rainfall, leading to water variability and scarcity or drought. Farmers across the United States, Europe, South America, and Asia are enduring some of the hottest heatwaves on record.

Such shocks will keep coming and we must be ready. Each of these challenges is proof that we need to couple our emergency assistance to help those affected in the moment with bold efforts to build systemic resilience and strengthen produc-

tivity. Resilience and strength are not built overnight; our challenges are enduring, and our solutions must be too.

At the recent World Economic Forum in Davos Switzerland, Secretary Blinken highlighted that the United States is partnering to help adapt and transform agriculture and food systems, because as vital as emergency assistance is, if we don't get at the underlying infrastructure, if we don't get at a way to produce better, stronger, more resilient crops, then we won't help solve the problem.

We need to continue investing in fundamental and transformational change—beyond our much-needed humanitarian assistance, and all inputs along the agricultural value chain, in order to scale agricultural research efforts. Presently, we are addressing the very foundation of agriculture: Crops and soils. Food security depends fundamentally on seeds and soils—specifically crop varieties adapted to withstand extreme weather and soils that are fertile, resilient to drought, and resistant to erosion.

The State Department has committed \$150 million thus far toward VACS. We've also partnered with a broad coalition of governments around the world to advance this work including Japan, Norway, the United Kingdom, the Netherlands, as well as leading nonprofits and corporations. We have successfully integrated VACS goals into the on-going discussions held at the G7 as well as advanced the larger Feed the Future agenda. We are also partnering through implementors to expand access to artificial intelligence technologies and climate modeling to deliver tailored farming and field management recommendations, given soil quality and seeds, directly to small holder farmers worldwide.

We have seen that the world is getting hotter, which have had varying impacts across the agricultural value chain. Extreme weather has reduced agricultural yields in some parts of the world, and a crippling lack of hard currency coupled with high prices of basic agricultural inputs continue to accelerate the growing numbers of globally food insecure populations. Global food insecurity continues to be a growing national security threat to the United States. There is increasing global understanding of this link, as we saw clearly at the most recent Munich Security Conference. We should capitalize on this momentum and political will to secure our economic and national security interests. We must continue to invest and expand our investment in long term sustainable agricultural production of diverse, indigenous, climate resilient food through Feed the Future programs including VACS. Failure to do so, will result in an ever-increasing annual cycle of severe humanitarian needs, acute hunger and malnutrition, and increasing civil unrest.

We must focus more on preparing and preventing—not just responding, and on root causes rather than symptoms. This will require continued bi-partisan commitment to aim high and the endurance to invest in long-term solutions. I welcome being a reliable partner and collaborating with this Committee and the Congress to advance and support these goals.

The CHAIRMAN. Thank you very much for that testimony.

I am going to start the round of questioning with the point, Dr. Fowler, that you concluded, and that is conducting on our values.

Autocratic governments have an asymmetric arsenal to attack our democratic systems of government. We saw in Russia's case the use of oil and gas as a weapon of war to try to intimidate other countries.

We now see that in regards to grain. They have disrupted Ukraine's grain exports. We have made some progress in that regard thanks to the international efforts and the courage of the Ukrainians, but the grain supply from Ukraine has been very much disadvantaged.

Russia, on the other hand, has increased their exports over the last 3 years by about 30 percent in its grain, offering it particularly in Africa at low cost, or in some cases, free.

So I just really want to get your view as to how what Russia is doing in Ukraine and the use of its grain diplomacy, how that is affecting the stability of the world's food supplies, and again, making Russia more aggressive in their use of this weapon.

Dr. FOWLER. Thank you, Mr. Chairman.

Obviously, Ukraine was one of the top five exporters of a number of important commodities. Russia is also a top exporter. And you are correct that Russia has seized some of the market that they in fact have destroyed for Ukraine.

The exports in Ukraine are up year over year, but I think it is always a little bit problematic to compare one year to the previous year because of the kinds of differences that occur in production year over year.

What we can see is that production in the land area in Ukraine devoted to agriculture is down from pre-war and pre-COVID levels. I think when I have taken a look at what Russia has done in Ukraine it, of course, has been really hard to fathom the kind of destruction that has been wreaked on that country and the impact that that has had globally.

Yes, markets adjust price wise, but what we cannot adjust to is the decrease in the production coming from that war in Ukraine.

It is a crime against and a war on food security. I will just note that in all of my many years of working in this area I have been privileged to see a number of projects and initiatives that the United States has undertaken in developing countries in recent years through the Feed the Future program, for example.

I have never in all of my years actually seen a Russian agricultural development project in a developing country. Perhaps they exist. I have not seen them.

The CHAIRMAN. Ms. Esposito, I want to call out how other countries in the world are responding to this crisis. U.S. is the largest donor nation. I know other nations are doing incredibly important work in regards to this crisis. Other countries are not.

Can you just give us a report of where we can be more effective in putting a spotlight on those countries that should be doing more in regards to this crisis?

Ms. ESPOSITO. Thanks, Senator Cardin, for that question.

You are right that we see the United States continuing to lead on the humanitarian response covering, roughly, 45 percent of the U.N. World Food Programme's budget.

We continue to call for more support from around the world to support the U.N. World Food Programme. On the development side of the house I think we are seeing some glimmers of new partnerships that are trying to address some of the underlying causes of the food crisis.

Secretary Vilsack and USDA are leading a global call to action to invest urgently in more climate resilient crop research, and they have generated over 500 partner commitments from other governments and from the private sector, some \$17 billion of commitment.

So we want to continue to use those kinds of platforms to drive more support likely in—also in AGRI-Ukraine and in Ukraine we continue at AID to call on partners to join us in supporting the farmers of Ukraine to get seeds, fertilizer, and finance.

And so we can use all forums and our voice and your voice to call on other countries to support these kinds of efforts on the development side as well as the humanitarian side in the hope that we can mitigate some of the overall impact of the crisis.

The CHAIRMAN. That was a very diplomatic answer but not really responsive to my question.



What I am going to ask that you supply to us are the numbers so that we can see what countries are doing. We will make our own judgments based upon that.

But there are certainly countries that should be doing a lot more, and we believe in putting spotlights on those countries.

It is one thing for us to ask our taxpayers to do more, and we do and to get more resources. But it is also important that the global community respond to the food crisis that we have, and we need to have from you the objective information so we know where to put our attention.

Senator Risch.

Senator RISCH. Thank you, Mr. Chairman.

Ms. Esposito, let me ask of you first we have got countries that are facing hunger and food insecurity at a very, very high level but also are accompanied in those same countries with endemic corruption perpetrated at really the highest levels, and a couple of poster children for that are Zimbabwe and South Sudan.

I wonder if you could talk for a few minutes about how USAID ensures that our efforts to improve egg and food security are accomplished without contributing to the corruption.

I mean, look, we are all trying to do the right thing here. But I will tell you, it is tough when you run into these kinds of examples. So can you talk a little bit about that and as specifically as you can?

Ms. ESPOSITO. Thank you for the question.

The Feed the Future portfolio has really tried to prioritize countries that we think have the commitment to invest in their own agriculture as well as the opportunity to drive economic growth. So places like Tanzania, which has tripled its investments for agriculture in the last year, and other countries—Zambia, Malawi, Kenya, which are investing in their own future.

In all cases, whether it be the places like Sudan or Zimbabwe or these other countries, we are relying on international partners. We are not giving money directly to governments, and we are creating, as you know, its very rigorous risk mitigation efforts and safeguards that we are working with our partners to help ensure that the money is used exactly for its intended purposes.

I would also say that one of the priorities of Feed the Future is to work on policy reform and regulatory reform. Often some of the challenges that we see when Special Envoy Fowler and I were going around southern Africa is that we really do have an opportunity to influence governments through our policy agenda to catalyze private sector investment, to accept improved seeds, to open regional trade, and so we are trying to use our influence in a way that would actually improve the overall context without contributing to further corruption.

Senator RISCH. Well, I appreciate that and certainly those efforts are laudable and need to be doubled down because there is nothing more frustrating than trying to do the right thing and then seeing things wind up in the wrong hands.

Dr. Fowler, I want to talk with you for a few minutes about another thing that is very frustrating, and that is the U.S. cargo preference requirements.

I think—we really believe that these make food aid delivery through the Food for Peace and Emerson Trust programs too slow and too expensive. Do you agree or disagree with that?

Dr. FOWLER. I have to apologize—I am sorry.

Senator RISCH. I understand it is a political issue, and so I will give you the leeway you need there to answer the question.

Dr. FOWLER. Yes. Senator, that is an issue that probably is handled a little bit more in detail by my colleagues from AID. I am afraid I have not gotten into that.

Senator RISCH. Ms. Esposito, do you have anything to contribute to that?

Ms. ESPOSITO. Thank you, Senator Risch.

I am familiar with the cargo preference requirements from my time working in the Office of Food for Peace. I can say that at present the USAID is able to comply with cargo preference requirements while meeting its humanitarian mandate.

But you do know that increased costs for ocean transport on U.S. flagged vessels does come at the expense of reaching more people. Today we estimate it is about twice as much to move bulk cargo on U.S. flagged ships than other ships, and they do not always go to the locations that we require.

Senator RISCH. When President Biden ordered an extraordinary draw down of the Emerson Trust in April of 2022 it took 12 months and \$388 million to transport \$282 million worth of food. Then, unfortunately, this is not the exception. It is the rule. This is really frustrating, when you are talking about spending more money than what you are actually delivering to get it there. What can we do about this?

Ms. ESPOSITO. I think that right now we know that there are individuals looking to change the cargo preference one way or another, and we really do want to both support our American farmers where it is appropriate and also meet our humanitarian mandate.

So as the law is currently written we are finding that we can do both of those things but recognizing we could certainly do more if there were further flexibility in this regard.

Senator RISCH. My time is up.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Coons.

Senator COONS. Thank you, Mr. Chairman and Ranking Member, and thank you both for your focus on this at the full committee level and for your partnership, and I could not agree more with the ranking member that we have worked, many of us for many years, on cargo preference to improve efficiency.

Senator Corker and I tried and tried over many years, Senator Johanns previously. So I do think real progress has been made in delivering food assistance directly. The availability of cell phones and individually identifying information makes transparent and efficient transfer of resources to hungry refugees around the world far more easy and far more efficient than it has ever been before.

The folks who are protesting here and who have been outside my house every weekend are focusing, understandably, on the severe humanitarian crisis in Gaza. But I want us to take one moment and focus on the numbers that Ms. Esposito put in front of us in her opening statement.

Seven hundred and thirty-five million people across the world chronically hungry, 140 million acutely hungry, double the number in 2019.

There is, roughly, 2 million people in Gaza, and we need to do more to deliver timely humanitarian aid. I was just in the region in Israel, Jordan, Lebanon, and elsewhere meeting with the U.N. related relief organizations and talking with leaders in Israel about how we do a better job of that. But that is for 2 million people. Around the world there is 140 million people chronically hungry.

And so while we do remain focused on the challenges in Ukraine and Gaza because of conflict, we also have to be mindful of other conflicts around the world like Sudan, like Armenia, like Somalia, like Yemen, which continue to put literally whole nations at risk because of food insecurity.

And I urge members of the House to take up and pass the President's supplemental that includes \$9 billion for humanitarian aid. But to the point both the chair and ranking made at the outset and to the core point, Dr. Fowler, of your whole work, your vision for adapted crops and soils, we have to make investments in being more efficient, in improving food systems, in having seeds and soils and systems that meet this moment.

So even at this moment, this late date, I am fighting in the Appropriations Committee to ensure that \$50 million you referenced, Ms. Esposito, and more efforts at deploying the private sector come into play.

So I have two questions I wanted to make sure we got to. First, Africa has the ability to feed itself if we get food systems aligned. A country like Angola, where I am going soon, imports 80 percent of its food. A country like Zambia, which is going through a drought, could be the breadbasket of the whole region.

The global food security strategy has had a huge impact on small holders and SMEs, but we need to do more to mobilize the private sector, which is the engine of opportunity for post Farmgate for everything that is grown and produced on a farm then leaves and has to be processed and stored and distributed.

Do you agree we need to do more to support emerging investment opportunities as you referenced, Ms. Esposito, for larger scale agribusiness that can complement smallholder farms and to rationalize and modernize the farm systems of the developing world?

Ms. ESPOSITO. Thank you for the question, Senator. Increasing public-private partnerships is actually at the forefront of the new global food security strategy.

It has always been important to us. We generated \$700 million and leveraged private sector money in 2022 and we are aiming for closer to \$900 million in the coming years.

Some of the examples of that work Cary—Special Envoy Fowler and I saw in Zambia where an American company, Pyxus Agriculture, was working with an innovation lab—an American innovation lab—to develop improved seeds, both soybean varieties that were quadrupling yields for some farmers as well as peanut varieties.

In turn, we have invested in helping to derisk their investment, and they, in turn, are using over 150,000 farmers to contract farm. So there you have a really nice linkage between smallholder farm-

ers and the goals and ambitions of commercial agriculture. The same is true—

Senator COONS. I am about to go to Zambia, and I look forward to—

Ms. ESPOSITO. Great.

Senator COONS [continuing]. Talking with you in more detail about that, if I could, with the forbearance of the chairman.

Senator Graham and I have introduced legislation to create an international foundation for food security. The whole point of it is to provide blended financing tools that would catalyze investment—not to compete with Feed the Future but to complement it.

Do you think that blending financing tools—credit, risk insurance, first loss guarantees—could help scale your efforts, and Dr. Fowler, complement your efforts with smallholder farmers to leverage larger agribusiness investments?

Ms. ESPOSITO. Thank you for the question.

We are really grateful to you, Senator Coons, and Senator Graham in the fight against hunger, your vocal protestations on the state of the world and your leadership and constantly looking for new ways of doing business. We are really fortunate to have your passion and engagement on this.

We have provided some general comments, and we in general are very supportive of the vision behind the global food security foundation bill. We really would like to sit down—we have not had a chance to sit down with all of you and go through the details so that we can really work on ensuring that things are mutually reinforcing and complementary.

But certainly, this idea that we can do more to crowd in private sector is absolutely on point, and we think there is a way to connect these two efforts for leverage.

Senator COONS. That would be helpful. We are looking for a vehicle that will survive across several Administrations and put in place long term blended finance opportunities.

Mr. Chairman, would you allow Dr. Fowler to briefly answer?

Doctor.

Dr. FOWLER. Thank you. I will be brief.

The programmatic elements that you mentioned are, indeed, some of the missing pieces that we often see in Africa and other continents for scaling up the kinds of technologies we have and for getting the private sector involved. So those are important things to highlight. Thank you for doing so.

Senator COONS. I look forward to a chance to meet with both of you to hammer out some of the details to make sure we can move forward in a timely way.

Thank you for your forbearance, Mr. Chairman, and thank you to both of our witnesses for your very long, engaged, determined, and effective advocacy on behalf of the world's hungry. It is great to see both of you.

Thank you.

The CHAIRMAN. Senator Shaheen.

[Disturbance in the hearing room.]

Senator SHAHEEN. Thank you, Mr. Chairman.

I think this is probably, first, for Dr. Fowler because in your closing comments you talked about the way we choose to engage makes a difference to the world and that we can lead with diplomacy.

But one of the areas where the United States is not positioned to help is where we do not have Ambassadors on the ground who can advocate, and as Senator Coons just pointed out so eloquently, there are more than 140 million people on the African continent facing acute food insecurity.

Without addressing that we will see the number of displaced people across the African continent increased. It is already 40 million. But we do not have an ambassador to the African Union.

We do not have Ambassadors in eight other countries on the continent where food insecurity—many of them where food insecurity is a real issue.

And by the way, in those countries our adversary, our biggest competitor, the People's Republic of China, do have Ambassadors, who have been on the ground operating.

So can you talk about how the absence of our Ambassadors hinders our ability to respond to the needs of our partners with respect to food security?

Dr. FOWLER. Thank you, Senator.

You are, indeed, correct. We have gotten a tremendous amount of support from our missions in Africa.

They are hampered when the leadership at the top—when an ambassador is not present, and you are correct in saying that China is quite active in Africa. We have seen that.

One of the issues that really troubles me the most is that we—in Africa 80 percent of the people in sub-Sahara Africa cannot afford a nutritious diet.

There are a number of causes behind that, but this is an area where we need leadership both from here in Washington but also on the ground through the missions to make the kind of programs that my colleague, Ms. Esposito, has mentioned actually function properly.

And I would also take the opportunity to mention that in the last 50 years our public sector agricultural R&D budget inflation adjusted is about the same as it was 50 years ago today.

In the interim China has far outpaced us in its public sector R&D funding. I think it went from less than 1 percent in 1980 to now 23 or 24 percent. We are less than 20.

This has historically been our comparative advantage, and so much of the agricultural research and development that we have done, both aimed toward developing countries but also internally in the United States, has inured to the benefit of Africa and other developing countries. We need to keep up that comparative advantage as well.

Senator SHAHEEN. I would certainly agree with that, and I failed to point out as I was talking about the lack of Ambassadors in Africa that, sadly, what is holding up those Ambassadors are our colleagues on the other side of the aisle.

Ms. Esposito, despite women playing a crucial role in feeding their families in the world they often eat last, and they eat least. In fact, last year 84.2 million more women and girls were hungry than men and boys worldwide.

So can you talk about how USAID structures the food security programs to try and address that disparity between men and women, and what we are doing to help ensure that women are engaged in all aspects of food insecurity?

Ms. ESPOSITO. Thank you, Senator. You are right in your concern. There was a very disturbing report by FAO last spring on women and agrifood systems which said that despite our efforts they still produce 24 percent less food on their lands, they still have less access to finance, less access to information and other tools. And one of the things we have done is to increase our commitment significantly within Feed the Future, and we have made a public commitment at the launch of that to reach no less than \$350 million of our portfolio each year focusing on closing that gap.

We have set top line targets to reach parity on finance for men and women in our programs and also to improve women's dietary diversity. Our job is to increase the food supply and get safe, healthy, affordable food on the market.

Our global health colleagues are very focused on exclusive breastfeeding and supplements, and our humanitarian colleagues are focused on the treatment and prevention—the prevention of moderate and acute malnutrition.

It takes all of those things together, not just the Feed the Future program to get—this is really an intractable issue on both unleashing the potential for women and improving nutrition.

Senator SHAHEEN. Well, thank you for that, and thank you both for the work that you are doing.

Did you want to respond, Dr. Fowler?

Dr. FOWLER. Thank you. I would love to respond.

One of the things that really breaks my heart on this subject is the degree of childhood stunting. Stunting is where the height is inappropriate for the age and there are 150 million children under the age of 5 who are stunted.

That is a physical stunting. It is a mental stunting. It lasts for the rest of the life. It is impossible for me to imagine how countries with very high stunting rates—20, 30 percent of the children under 5—are going to develop economically and otherwise with that kind of situation.

One, that has driven our program called VACS, the Vision for Adapted Crops and Soils, where we are focusing on traditional and indigenous crops in Africa. We have identified the ones that have the most potential for nutrition.

Most of those crops have historically been tended by women, and they are nutrition dense. So if we want to get at the problems that you raised and if we want to address really directly the problem of childhood stunting we empower women by empowering and increasing the productivity of the crops that they grow to address those macro and micronutrient problems.

Senator SHAHEEN. Thank you.

Thank you both very much for your work.

The CHAIRMAN. Senator Booker.

Senator BOOKER. Mr. Chairman, Ranking Member, I want to thank you for having what I think is an urgently important committee hearing, and I want to thank our witnesses who have such extraordinary careers of serving this country, and frankly, making

a difference in the lives of millions of human beings across the planet, and I am just deeply grateful.

I want to reiterate your question, Mr. Cardin, that you did not quite get an answer to—maybe we can write—just about how opportunistic it is for us or there are opportunities that are presented to us to engage with leaders from other countries from the Middle East to Europe to be able to know which countries to really target in our conversation about raising their burden.

We had extraordinary meetings—Senator Coons was there with Ambassadors from the European Union—and really a frank conversation about the resources that they can do, and a shift of millions of dollars one way or the other. We know it makes a difference on the ground. So any—in writing any kind of help you can give us with that.

I want to reiterate what Senator Shaheen said, perhaps, not for you all but having just come back from West Africa—East Africa, excuse me—and seeing the difference that leadership makes not having Ambassadors in Djibouti, not having Ambassadors in Somalia. I mean, it is powerful how much an ambassador makes a difference in the details of negotiating with countries who find it a sign of disrespect when we have these positions vacant, and for us not to have a leader in the African Union is absolutely absurd at this point.

And then, finally, for some of my questions, I just want to get back to where Senator Coons was leading with his questions because I think it is so important.

The U.N. Food and Agricultural Organization is—to me, I have learned over the last years how critical it is. It works with the World Food Programme but FAO typically focuses on longer term activities, detailed by my friend Senator Coons.

It provides technical expertise on agricultural sustainability, market access, and really the returns on that in the long run are profoundly staggering to me when it comes to longer term solutions of problems that we can empower countries to deal with.

Every dollar spent to protect rural livelihoods can save around \$10 in food related assistance for displaced families, and by doing that you are not only supporting agricultural resiliency and strength in the future, you are undermining what often becomes economic conditions that lead to instability and to extremism.

So I do not even think that \$1 invested to \$10 return is anywhere near the truth of what it does, and despite the evidence that investing in long term food resiliency programs pays these incredible dividends, saves U.S. taxpayers money, we do not prioritize it in the way that I think, given the results.

So this is just an example. In fiscal year 2023 the United States contributed about \$5.9 billion to the World Food Programme thanks to the efforts of my colleagues, the leadership of this committee. But in the same fiscal year we only contributed \$110 million to the Food and Agricultural Organization.

And so that, to me, is very stunning, and I was wondering, Dr. Fowler, how do you view this policy imbalance toward long term food insecurity?

Dr. FOWLER. Thank you, Senator. This is a difficult question that perhaps philosophers should engage in as well as people like us.

I think we have to realize that food aid is not the same thing as food security, and one of the difficult realities that we have to face is that the gap between what we can and are willing to supply in terms of humanitarian assistance and what is needed on the ground is growing, and one need only look at the WFP budget for this year versus previous years and the need that they are trying to address to understand that.

You are certainly correct that an ounce of prevention is worth a lot of cure and part of the thing that I think we need to be mindful of is that the type of long term investments that are necessary for driving productivity not just in the United States but abroad are investments that we really need to make.

There was a report that was done for BIFAD, the Board for International Food and Agricultural Development, for USAID just a few years ago that pointed out that the agricultural R&D budget of ours that is focused on foreign agricultural research and development actually pays net benefits to U.S. farmers. And sometimes the cost-benefit ratio of this—or overall the cost-benefit ratio of R&D domestic and foreign is tremendous—10 to 1, 30 to 1.

So these are the types of investments that pay off both abroad, lower the incidence of the tensions, and contribute to having peace and stability. But they are also the kinds of investments that pay off for U.S. farmers.

Senator BOOKER. This is a conversation I want to have more. My time has expired. There are folks waiting.

But I just want to say for the—a question for the record.

Ms. Esposito, last November myself and multiple Senators on this committee wrote a letter to Administrator Power where we asked for common sense efficiency reforms to reach more kids with acute malnutrition. I am hoping that I can get your commitment to work with the staff to get actually an update on where we stand.

I want to just say as forcefully as I can the supplemental that is coming up, it is staggering to me that there are people suggesting in the House of Representatives to strip out the \$9 billion+ in humanitarian aid.

From Afghanistan to Lebanon to Jordan, having just returned from Jordan now, if we do not put humanitarian aid there, these nations that are critical for stability in the Middle East region could plunge into instability, causing us a greater need for military intervention and more.

I also want to emphasize, having just come back from the continent and going again in 2 weeks, that if we do not get resources into countries—humanitarian resources—in the midst of this great power competition with China, we are so undermining our future interest on the continent, and given that we, from Sudan to the Horn to the DRC, we—the urgency of those resources as investments now to save us necessary military investments or losing ground to the Chinese, it is just unconscionable.

So I just want to make that point that the food and humanitarian assistance resources are utterly critical, going forward.

And I thank you for your indulgence, Mr. Chairman.

The CHAIRMAN. Senator Booker, I agree with your point.

The numbers that we have gotten so far with other countries—as you point out the United States is the largest contributor to the



World Food Programme, giving multi-billions of dollars every year—PRC is at \$13.7 billion. Million.

We are in the billions. Russia at \$71 billion. Madagascar and Burundi give more money than the PRC to the World Food Programme.

So there is a real attention here that we need to know. We will get the specific numbers from all countries. The Europeans are doing better, but they could do more. So I thank you for raising those issues.

We are up to Senator Ricketts.

Senator RICKETTS. Thank you, Mr. Chairman.

Thank you, Ranking Member Risch, and thank you for our witnesses here to testify and taking your time today.

Water and food security are two of the most pressing issues facing the world today. With a growing population, growing demand for resources, and increasing disruptions to water and food systems it is vital to find sustainable and practical ways to overcome these challenges.

The University of Nebraska's Daugherty Water for Food Global Institute is uniquely positioned to advance water management for greater food security.

By leveraging the world class research at the University of Nebraska, the State's expertise in agriculture and water resource management, and private sector partnerships, the institute is making progress on a more water and food secure future.

In October 2023 the institute received a \$19 million grant from USAID to lead a global collaboration aimed at developing irrigation mechanization for small farmers in developing countries.

This partnership focuses on technical aspects of irrigation and issues crucial to long term successes such as work force development, installation, maintenance, and more.

Ms. Esposito, how can USAID continue to address the global challenges of water availability and drought resilience through investments in partnerships with innovative organizations like the Daugherty Water for Food Global Institute at the University of Nebraska?

Ms. ESPOSITO. Thank you, Senator, for the question, and I am just delighted that Nebraska is now part of the innovation labs. We are very much looking forward to them joining the 16 innovation labs around the world.

The focus on irrigation mechanization is absolutely vital as we try to boost agricultural production in a changing climate. And we know in fact that in extremely low income countries women and youth in particular and other marginalized groups, many of them who are on the forefront of producing more food, are not getting the benefits of that small scale irrigation and mechanization.

So we really are looking forward to the research and the advice of the university in terms of how we can scale that to many, many more women and young people who are going to be the future of agriculture.

Senator RICKETTS. So and as you are aware, farmers in developing nations oftentimes have difficulty adopting irrigation technology. That is due to a number of factors including a lack of technological expertise, quality work force, cultural barriers.

How is USAID working to create a buy in with local communities and producers to ensure irrigation infrastructure is not only utilized but maintained throughout its lifecycle?

Ms. ESPOSITO. You are right, Senator. It is one thing to introduce a new technology; it is another thing to scale and maintain it. I would have to get back to you on the details on how AID is working on that.

Senator RICKETTS. Well, Nebraska is the home to some of the world's largest irrigation companies which deliver innovative solutions for food production around the world. So, perhaps, some of those companies can do it.

It is critical to support the development of irrigation infrastructure to allow developing countries' food systems to sustain themselves. About 80 percent of all the world's center pivot irrigation equipment is actually manufactured in Nebraska.

Has USAID got something similar to the Water and Energy for Food program that allows U.S. irrigation companies to engage in the innovation ecosystem with USDA programs?

Ms. ESPOSITO. We have a very strong team of people working on public-private partnerships, and we would be delighted to meet with or speak with those irrigation companies and see how we can sync up their innovations with our global footprint.

Senator RICKETTS. Yes, that would be great. Again, there is a lot of innovation going on in the State of Nebraska. We are the largest irrigated State in the country.

We actually have more irrigated acres than even California, and even while doing—having large irrigation because of our system of water management, which also goes into the regulatory side—actually, I think USAID should be paying attention to as well—we have managed to keep the Ogallala Aquifer within one foot of where it was in the 1950s.

So even while we are irrigating more we are also finding ways to innovate to be able to produce more food with less water and keep the groundwater at a stable level.

So I think there would be a lot of benefit if you all looked at working with our irrigation companies on some of these technologies and to see how it might be adapted to different countries that are not going to be able to have the big center pivots, but other sorts of irrigation technologies that would be able to be taken advantage of in those developing nations.

Ms. ESPOSITO. We welcome that offer, and we look forward to speaking with you more.

Senator RICKETTS. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Van Hollen.

Senator VAN HOLLEN. Thank you, Mr. Chairman. I thank both of you for your service and for your testimony.

As this hearing has highlighted we have desperate hunger around the world. Over 300 million people are facing acute levels of food insecurity this year. The conditions are particularly dire in Sudan, South Sudan, Burkina Faso, and Mali also. Situation only slightly better in Syria, Afghanistan, Yemen, Somalia, and other countries.

But today I do want to focus on the situation in Gaza, because according to all reports four out of five of the hungriest people in the world today live in Gaza and this is, clearly, a manmade crisis.

There was no real food insecurity in Gaza until the last 4 months. We also have recently passed the grim threshold where people are not just on the verge of starvation but over 15 kids have now died of starvation in Gaza.

The U.N.'s humanitarian coordinator put out an update on February 21st of this year finding that the decline in the population's nutrition status is happening at a globally unprecedented rate and that children in Gaza are being starved at the fastest rate that the world has ever seen, according to the U.N. humanitarian coordinator.

I am very pleased to see both the President and the Vice President and the AID administrator more recently make forceful comments about the need for the Netanyahu government to allow more aid into Gaza.

Twenty-five Senators wrote to the President in early February laying out five specific steps that could be taken to do that. None of those steps have been implemented as of now.

So, Ms. Esposito, if you could just make one thing really clear. The issue is not the lack of the U.S. or the World Food Programme making food available to go into Gaza. Is that right?

It is not a question of not enough being made available that is ready to go in. It is a question of it getting in and getting to people in need.

Ms. ESPOSITO. Thank you, Senator.

I want to start by saying up front that my remit is on the development side, and all of the programs we had in Gaza have been suspended, of course, because of the conflict.

But I do know that we do have great concern about the imminence of a famine and that our team is really working on getting more food in, especially for women and children and that there is opportunity and available food to move in.

I would also say, though, I think it is important to recall that the humanitarian food budgets because of the supplemental were up at \$12 billion in 2022. They went down 35 percent in 2023. This year without a supplemental it will be 50 percent of what we had in 2022, and while there is food to be moved, medicine and supplies to be moved, when that ceasefire comes into place and we can really flood the zone with food it is going to be really, really important to get additional resources.

Right now our bureau for humanitarian assistance is estimating that in some of the most difficult places in the world, from Ukraine to Sudan to South Sudan, 40 to 60 percent reduction in the amount of humanitarian and food assistance the U.S. Government can provide in the absence of additional resources.

Senator VAN HOLLEN. Well, I second the comments that Senator Coons made and I am sure the chairman probably emphasized and others that we absolutely have to get the humanitarian assistance from the supplemental to address these issues worldwide.

Dr. Fowler, you are an expert on food security and nutrition, and I would like for you just to talk a little bit about the long term impacts of malnutrition and going without food for kids.

UNICEF's Ted Chaiban, who is the deputy executive director for humanitarian action at UNICEF, pointed out, and I quote that—well, that the international community has, quote, “been warning for weeks that the Gaza Strip is on the brink of a nutrition crisis. If the conflict does not end now, children’s nutrition will continue to plummet, leading to preventable deaths or health issues which will affect the children of Gaza for the rest of their lives and have potential intergenerational consequences.”

Do you agree that that can be a consequence of kids being deprived of nutrition?

Dr. FOWLER. Yes, I do. As you know, the U.N. has estimated that 90 percent of the population in Gaza continues to face acute food insecurity, and this has an impact, first and foremost, on children, and of course, women as well.

We know that early interventions for childhood nutrition pay benefits for the entire life of the person. On the flip side of that we know that long periods without sufficient food, without the necessary calories, micronutrients, macronutrients, this also can have lifelong consequences. I spoke earlier to this committee about the problem of stunting.

So we believe that Israel must facilitate the delivery of assistance through crossings, improve deconfliction procedures to ensure that that aid can move safely and securely and that restrictions that prevent the flow of life saving food into Gaza are not acceptable.

Senator VAN HOLLEN. Thank you. Thank you both.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Young.

Senator YOUNG. I thank our witnesses for being here today.

I would like to explore how artificial intelligence technologies and their continued advancement intersect with this topic.

Predicting food insecurity so that we can obtain and pre-position supplies has been a life saving advancement in the field of humanitarian aid made during our lifetimes.

The ability to build diverse supply chains for food stocks not only means on time delivery of critical supplies but also a widening humanitarian donor and supplier base, which itself helps to mitigate insecurity.

Artificial intelligence enables humanity to fight food insecurity at every stage of development—automating R&D to design more resilient high yield seeds, optimizing and mapping yields throughout each growing season with autonomous tractors and drones, and predicting disruptions to enable a resilient supply chain that meets demand and saves lives.

But AI use as a predictive tool is only as good as the data it is trained on. An unprecedented disruption of global supply routes, be it through the Red Sea, Black Sea, or over land, has direct consequences on food and ag availability.

So to both of our witnesses please give us a state of play, or in the absence maybe of tangible examples, your assessment of how AI can and should be deployed to better predict both ag shortages due to issues like water scarcity, natural disasters, or quality of cropland, and global supply route disruptions and the cascading ef-

fect of logistical and transportation disruptions to food supplies for countries who heavily rely on imports.

Dr. FOWLER. I will begin. Senator, thank you for that most interesting question.

I think I am too old to be an expert on AI, but we have recently had the occasion to use AI in some of our work with some interesting results.

In the VACS program—the Vision for Adapted Crops and Soils—we focused on 60 traditional and indigenous crops in Africa that had a lot of potential for adding nutrition. There was not a lot known about those crops.

We used AI and found, I think, an astonishing 180,000 pieces of information that otherwise could not have been found and that could now be assembled and used to map out where those crops can be grown, what kind of nutrition they can add.

Similarly, on the soil side I will say that there is a huge challenge in Africa to map and model the soils of Africa. If you are going to have a productive and sustainable system of agriculture you have to know as a government where your good soils are, where to promote agriculture, where not to, and what kinds of crops to promote, and as a farmer what kind of practices to promote as well.

We take that for granted in the United States. We have GPS linked tractors and combines, for instance. That does not exist in developing countries.

But using AI and other technologies we can begin to model what satellite data we do have, model the soils without the necessity of going to each individual sometimes one and two acre farm to take soil samples and begin to give the farmers the kind of information that we take for granted here.

And to your point about the quality of the data going into such a system through cell phone use, through apps, you can get now even in Africa recommendations at the farm level of how you could—best practice agriculture and use the soil information. But you can also feed back information into the system to improve it.

Senator YOUNG. Thank you for your thoughtfulness. It was a long sort of lead in to the question. You unpacked it, I thought, quite elegantly.

So let me just ask you since my time is somewhat limited, what, if any, resources from Congress could assist you in adopting AI technologies or integrating AI supported predictions into your analysis of what may be the next food insecurity crisis? What should we do to help you?

Dr. FOWLER. Yes.

Senator YOUNG. And if you would like to sort of take that question under advisement and get back with me that is acceptable as well because I think you will soon see Members of Congress attentive to and poised to act as it relates to artificial intelligence across every area of policymaking. And the sooner we can incorporate some of the functionality of AI into decisionmaking and other facets of alleviating food insecurity, I think probably the better.

Dr. FOWLER. Thank you. We would be pleased to have a little time to think about that and get back to you on the question.

Senator YOUNG. Great. Thank you.

The CHAIRMAN. Let me just acknowledge Senator Young's leadership on the AI issue and really challenging all of us, particularly every committee, to look within our jurisdiction as to how we can advance America's leadership on AI applications.

And I must tell you I never thought about AI in regards to dealing with world hunger, but clearly there is a major role it can play, and if there is impediments by law in our international efforts that is in our committee's jurisdiction, and we want to make sure when there is an opportunity to move an AI bill, which the leadership is very committed to doing, and Senator Young is playing a key role in that, that we address those issues.

So, Dr. Fowler, if you will get back to us, not only to Senator Young but our committee, if there is legislative issues that could be made more friendly toward the application of AI, and of course, the resource issues are also very much within our committee's jurisdiction.

So we would appreciate getting back, and Dr. Fowler, Senator Risch and I took a little bit of umbrage with your use of the age as affecting AI. I just want you to know that.

[Laughter.]

The CHAIRMAN. Senator Kaine.

Senator KAINE. Thank you.

I am going to ask most of my questions about Haiti but I did want to ask one question about Gaza.

My memory is not what it used to be. I do not recall during my time in the Senate the U.S. doing significant air drops of food. Is this unusual? When was the last time we did air drops of food like this?

Ms. ESPOSITO. Having spent a good portion of my career on the humanitarian side—

Senator KAINE. At Mercy Corps.

Ms. ESPOSITO. At Mercy Corps, but also as a member of the Office of Foreign Disaster Assistance, one of the places where air drops, unfortunately, became sort of a mainstream part of the agenda was in South Sudan.

Operation Lifeline Sudan during those war years was a regular, unfortunately, and expensive way to address communities that were completely cut off—no roads, heavy rains—and so it became a seasonal activity.

But it is always one of last resort. I do recall one in Syria as well when I was working on that, the start of the war there.

Senator KAINE. It is last resort and when there is no access, no roads, et cetera, I mean, sometimes it is all you can do. Here is a space where there are roads, there are border crossings, there are access points, and I am glad we are doing the food air drops, but I think much more should be done through traditional means, delivery of food across the border.

About Haiti the situation in Haiti is just very, very grim and I think there are some things that I hope we might do in this committee and in the Senate. We have not had a confirmed Ambassador to Haiti since 2021. Dennis Hankins was nominated in May 2023 and we still have not acted on that nomination.

Second, we have approved funding for the multinational security force in Haiti that will be led by the Kenyans, but those dollars

have not yet been released by the Senate, and I would just ask to the chair and ranking I would love to work with you on this issue because it was extremely difficult to get the Kenyans to stand up and say they would lead a multinational security effort.

And yet, they did stand up because of the U.S. indication that we would be providing funding for it, and that funding is withheld right now, and that really threatens whether the Kenyans will be able to do what they have agreed to do in tandem with the Haitian government.

So I hope we can work on the committee both on the—getting an ambassador but also on getting the multinational security support mission up and funded, because this is not just about hunger and instability in Haiti.

It is 700 miles from the United States, and we have seen some of the challenges around migration and immigration are driven by instability in Haiti.

But turning to the food security issue, the World Food Programme says that food insecurity impacts about half the population in Haiti, making it one of the most food insecure countries in the world, certainly in the hemisphere. Rainfall deficit, flooding, have damaged crops, and gang violence disrupts agriculture, trade, commerce, distribution of food.

Can you share how the U.S. is working to counter these negative impacts and promote more food security in Haiti? And I would direct that question either to Dr. Fowler or Ms. Esposito.

Ms. ESPOSITO. Thanks.

That is really sort of a two part question in the sense that we have life saving humanitarian aid going on through the Bureau for Humanitarian Assistance working with the U.N. World Food Programme to get food parcels out through pre-positioned sites as well as nutrition interventions to help stave off acute malnutrition.

On the development side this is what we call a resilience focus country, trying to work in places where you have high fragility, high risk of urgent humanitarian need, and we are trying to develop local markets and local food production to help Haitians grow their own food, and we are also working on water management commissions.

So connecting the food security objectives and the water security objectives, and also working on fortified foods, wheat flour substitutions that have nutritional value.

All of these programs tend to be taking place well outside the urban areas where most of the challenges right now are ongoing, although we know that area is spreading.

It is a very dynamic situation. I would need to check to see if those programs are continuing at this point or whether—because of insecurity. I know the humanitarian piece is going on. The development portfolio is something I would have to get back to you on.

Senator KAINE. Dr. Fowler, could you comment on Haiti at all?

Dr. FOWLER. Sure. I will just mention that Haiti is, in a sense, a poster child for the confluence of conflict and climate and the kinds of problems that that combination can cause, both of which lead to national security issues for them, and obviously, for us.

This is a sign of the kind of issues that we are going to be facing, I think, more and more in other parts of the world.

Senator Kaine. Even as I am walking to the hearing today there is news out about Haiti, about the instability of the current government and requests that the current kind of acting prime minister step down and what is the next step.

This is a situation that has devolved—if it is possible for it to devolve it is evolving pretty quickly even right now, and I hope that this is something that the committee might be able to turn our attention to.

The CHAIRMAN. Thank you.

Senator Risch.

Senator Risch. Senator Kaine, the request for that funding the Four Corners have signed off on, and I have to tell you I had reluctance, and let me tell you my reluctance.

Nobody told me what this is for. I mean, there needs to be a plan going forward. Your description of the situation—apparently the two prisons they have got attacked this weekend, and they let thousands of prisoners out.

So I do not know. I mean, we all want to do something about it, but somebody needs to tell us what the money is going to go for, what a path forward is there for, and you have described the situation as bleak. I think that is probably an understatement of what is going on there.

The CHAIRMAN. The signoff was for, I believe, \$10 million, which was a partial amount. There is still additional resources they are needing—needed for the Kenyans to be able to go into Haiti, but there are some legal issues in regards to their going in. So this is an issue that we need to pay attention to.

In regards to the Ambassador that has been approved by our committee. That is on the floor. So we have floor issues when bringing up nominations, something that we have talked about.

Senator Kaine. My hope would be—I was aware that some of the funding had been released and there had been signoff for it.

Senator Risch, your question about how will the additional funding be used, obviously, a very fair question. I mean, we are seeing this horrible devolution there. There are dollars available. The Kenyans have agreed to step up to provide some security that should be helpful.

I just would hope the Administration could work with us to provide answers to the questions you have because if the Kenyans do not stand up this security force, nobody else has yet shown a willingness to take lead.

So while we have somebody who is willing, and they have their legal issues to work through, I hope we can get answers to your questions so that we cannot lose the opportunity.

Senator Risch. And your point is well taken about the fact that our interests—the United States national interest—is concern for our own security because they are so close, and with that kind of instability we all know what they are going to do. If you live there you would want to come to the United States.

And so I think probably whoever is—the Administration, if they are going to come up with a request they need to really tie it in to how it helps our security here.

So thank you.



The CHAIRMAN. Ms. Esposito, I understand that you wanted to give some additional response in regards to Senator Young's question on AI.

Ms. ESPOSITO. I think that we  
[off mic].

The CHAIRMAN. Your mic is not on.

Ms. ESPOSITO. There is a lot of work and room for growth on the AI side, and we do have analytics teams that are working on a whole range of modeling, and I would be happy to provide further details to him in writing.

I do know that one of our innovation labs at Pennsylvania State is using AI now as part of our agenda to really help farmers cope with the changing climate. As it gets warmer and hotter we see evermore pests and diseases emerging in farmers' fields, and we have AI tools that are being used.

People can access them on their mobile phone to very rapidly identify what that pest or disease is and get immediate advice on how to treat it. That is a very practical kind of field level example of the kind of, I think, really powerful transformation that AI can have.

When people have the power of that information right in their phone and do not have to wait for an extension worker to show up in some really remote place, you are going to have—I think it is a really important area that we need to be looking more at.

The CHAIRMAN. The committee will keep the record open until close of business tomorrow for questions for the record that may be asked by members of the committee. We would ask that you respond promptly to those questions.

And we thank you very much, not only for your being here today but what do you do every day to deal with this human rights challenge that we have globally.

Clearly, U.S. leadership is indispensable. We need to do more and we need to get others to do more, and we have to find more efficient ways to do our work, and technology can certainly help us solve some of these challenges.

With that, the hearing will be adjourned. Thank you all very much.

[Whereupon, at 11:36 a.m., the hearing was adjourned.]

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#### ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

##### RESPONSES OF Ms. DINA ESPOSITO TO QUESTIONS SUBMITTED BY SENATOR BENJAMIN L. CARDIN

*Question.* Forecasting: As environmental shifts due to climate change are increasingly affecting millions across the world, it is crucial to utilize forecasting in order to adapt programming to address the shocks and stresses affecting food security.

How is forecasting data and predictive science utilized to determine programming priorities when it comes to building food security capacities?

*Answer.* USAID's Famine Early Warning Systems Network (FEWS NET) Program develops climate forecasts every six to 12 months, allowing USAID to project the number of people who will be acutely food insecure 8 months in advance. These forecasts help decisionmakers prioritize limited humanitarian resources to support the most vulnerable communities as well as take action early to respond to growing humanitarian needs before they further devolve into humanitarian and security crises. FEWS NET forecasts are also used to inform USAID Missions' Country Development Cooperation Strategies, particularly in terms of managing climate shocks.

Additionally, to build the capacity of host countries to generate accurate forecasts, USAID's FEWS NET program also leverages 3-D printed automated weather systems (3D-PAWS) through the "Enhancing Meteorological Networks Partnership" activity. Through this activity, USAID is partnering with 10 African countries to strengthen their capacity to report weather station data and integrate it with satellite observations to improve climate, weather, and acute food insecurity forecasts. This data helps governments make strategic decisions about their resources and also contributes to FEWS NET's early warning efforts.

USAID Bureau for Resilience, Environment, and Food Security (REFS) is also implementing a range of forward-looking analyses which aim to inform programmatic decisionmaking. First, REFS is supporting a series of investment prioritization analyses that will highlight the most effective interventions for reducing poverty and hunger between now and 2030. Second, REFS is developing a series of crop suitability maps to illustrate how the best locations for cropped agriculture may change between now and 2040 as a result of a changing climate. Finally, REFS has built the capacity of key partners to conduct forward-looking scenario analysis when global shocks occur. In previous iterations of this work, modeling COVID-19 and Ukraine invasion impacts has helped REFS determine program priorities.

For example, the USAID-National Aeronautics and Space Administration (NASA) SERVIR program is working together with partner organizations and governments around the world to unlock and demonstrate the potential for using earth observations in support of food security. The SERVIR partnership harnesses the unique vantage point from space to monitor and manage carbon across diverse landscapes so that countries are better able to manage natural resources and reduce land-based greenhouse gas emissions. SERVIR also works to strengthen climate adaptation, including support to micro insurance products for women farmers, improved drought and flood early warning systems, and air quality monitoring and alerts. In turn, these investments, collaborations, and technology transfers support food and water security, and ultimately improve lives and secure livelihoods. SERVIR's collaborative approach helps individuals, organizations, and governments to develop and sustain decision support solutions for improved climate mitigation and climate adaptation. USAID's climate strategy will help push SERVIR and other interventions to lead on the promise of applied technology to advance the transformational changes needed to mitigate and adapt to the climate crisis.

USAID missions around the world are also investing in AI-related efforts in three broad categories: (1) data provision, including data capture and building data providers' capacity; (2) decision-focused support to support improved decisionmaking and planning; and (3) learning, aimed at synthesizing lessons, good practices, barriers, and opportunities related to USAID programming. Climate information services have played a significant role in informing sound, evidence-based decision-making across many USAID activities. Expanding access to Information services, including providing farmers with advanced notice of weather patterns are already making a difference. Farmers in Rwanda, for example, who had access to weather information and took related action, increased yields by 47 percent and their income rose by 56 percent.

*Question.* How are relief and development institutions accounting for the effects of climate change on food production, and natural resource scarcity?

*Answer.* USAID's FEWS NET Program monitors the effects of climate change on crop productivity and resource scarcity globally. The effects of climate change on crop production are highlighted in FEWS NET's monthly Seasonal Forecast reviews. For example, anthropogenic warming of the western Pacific Ocean has been demonstrated to amplify the drought impacts of La Niña events in the Horn of Africa, which drove the recent historic five failed rainy seasons in the eastern Horn, nearly resulting in Famine in Somalia. FEWS NET has been instrumental in supporting the US government and vulnerable countries around the world to understand the El Niño phenomenon and the impacts it has on agriculture, whether by flooding or drought.

USAID also supports early warning systems, including those that address drought risks, which may translate to natural resource scarcity, namely via water resource issues. In support of the U.N. Secretary-General's Early Warning For All (EW4ALL) initiative, USAID made an initial investment of \$67 million to support early warning systems beginning in 2022 and plans to invest over \$78 million providing communities at risk of climate disasters with access to effective early warning systems by 2027. Many of these climate disasters may contribute to increased pressures on critical natural resources such as water, and actionable early warnings help decrease the loss of human lives and livelihoods due to hazardous climate events.

USAID accounts for the effects of climate change on natural resource scarcity through climate risk management during natural resource management activity design and implementation. These processes assess and address the climate risks to natural resources through risk management options such as integrating climate information and considerations into fisheries management and forest management plans. In addition, USAID is developing climate-resilient biodiversity programming guidance specific to the biodiversity conservation portfolio.

Helping farmers adapt to a changing climate is a central component of the Global Food Security Strategy. This includes investing heavily in a wide range of research to help farmers adapt to a changing environment, such as development of more weather tolerant and nutritious crops, improved animal genetics and new technologies. Investments also include improving access to better soil maps and improved on-farm cropping practices to grow more food despite a changing climate. The Vision for Adapted Crops and Soils, led by the State Department as part of Feed the Future, specifically shines a spotlight on the importance of improving seeds for nutrient dense crops and soil health under changing weather conditions and is attracting more donors to this space. We also work to scale access to information to inform smallholder farmers on weather conditions, improve access to insurance and other risk reducing financial products, and support access to small-scale irrigation where appropriate. In addition, we partner with private sector companies supporting their engagement with smallholder farmers in order to build sustainable supply chains and increase farmer access to improved technologies and improve incomes. These are just a few examples of how the Feed the Future portfolio is responding.

*Question.* How are climate science and climate forecasting and modeling being used to modify and keep assistance ahead of the curve in terms of preparedness and adaptive capacities to the effects of climate change?

Answer. Climate science and forecasting are at the heart of the agro-climatological working assumptions. Through a variety of partnerships, including with NASA, the National Oceanic and Atmospheric Administration (NOAA), the United States Geological Survey (USGS), the Climate Hazards Center at UC Santa Barbara, and the University of Maryland, USAID is able to use long- and short-term forecasts to plan and adapt. For example, USAID considers major climate models like the El Niño-Southern Oscillation (ENSO) first, since these models can signal significant shifts in precipitation patterns months in advance. FEWS NET is a regular consumer of 8-month ENSO forecasts from the NOAA Climate Prediction Center, as well as experimental 24-month ENSO forecasts from the NOAA Physical Sciences Laboratory.

As a country's growing season nears within three-to-four months, FEWS NET begins regularly reviewing seasonal climate forecasts that are produced each month by major climate science centers around the world. These forecasts can be used to indicate the relative probabilities of above- and below-average precipitation and temperatures in the coming months and can contribute to multi-month forecasts of variables like soil moisture, snowpack, and streamflow. Additionally, once the season is underway, FEWS NET uses Seasonal-to-Subseasonal (S2S) forecasts, which go weeks beyond the 14-day outlooks of conventional weather forecasts.

USAID also works with host country National Meteorological and Hydrological Services, along with NOAA and World Meteorological Organizations to support climate monitoring and enable the use of climate forecasts in planning and early action. These interventions enable host countries to advance or establish delivery of climate services to aid in planning and preparing for and reducing impact of climate related hazards.

*Question.* Private Sector: The U.S. has worked multilaterally with institutions such as the United Nations, World Food Program and the World Bank to combat food insecurity.

How are you working with the private sector to improve food security and assist in the development of climate management strategies, aimed at improving developing countries' resilience?

Answer. USAID is working with private sector actors in many ways. For example, through the President's Emergency Plan for Adaptation and Resilience (PREPARE), the USAID Administrator and the State Department issued a Call to Action to the Private Sector to make commitments supporting climate adaptation in 2022 at COP27. To date, 31 companies have joined this call and their collective commitments are anticipated to mobilize an estimated \$2.3 billion in additional adaptation finance. The founding companies of the PREPARE Call to Action from COP27 are Google, Gro Intelligence, Mastercard, Marsh McLennan, Meta, Microsoft, Pegasus

Capital Advisors, PepsiCo., SAP, and WTW (formerly Willis Towers Watson). The 26 additional commitments made in 2023 came from Aon, Arup, Boston Consulting Group, Blue Marble, Danone, Howden Group, IBM, Jupiter Intelligence, Milliman, Miyamoto International, Synoptic Data, Tomorrow.io, Visa, Xylem, as well as McCormick and Pula who joined during Vice President Harris' visit to Africa in 2023. Additionally, ClimateWorks Foundation, Global Adaptation and Resilience Investment (GARI) Working Group, Lightsmith Group, MSCI Sustainability Institute, and Bezos Earth Fund are now part of the call to action.

To advise USAID on how to steer agricultural development toward lower emissions pathways, the Agency commissioned a report by the Board for International Food and Agricultural Development (BIFAD) on how to "Achieve Transformative Adaptation and Mitigation in Agricultural and Food Systems." The Bureau for Resilience, Environment and Food Security is currently reviewing the recommendations for possible adoption by USAID. A number of the report's recommendations and suggested monitoring and evaluation targets touch on the private sector, including identifying and working with private sector partners to crowd in investment, solicit complementary expertise, and set up interventions to scale. Private sector finance is also anticipated to account for 30 percent of the report's recommended climate finance target.

*Question.* How is the U.S. working with agriculture and food production supply chains to reduce their greenhouse gas footprints?

*Answer.* USAID is currently addressing methane emissions in the agri-food sector through three main pathways: dairy productivity improvement, rice productivity improvement, and food loss and waste reduction.

For example, (1) USAID's dairy productivity improvement program in Kenya contributed to reducing methane emission intensity of cows by 28 percent while increasing milk productivity by 43 percent. This was achieved by simply improving the diet of the cows. (2) USAID is partnering with Bayer Crop Science and the International Rice Research Institute to introduce climate-smart rice varieties and promote the adoption of low-emission rice cultivation practices. This partnership is expected to achieve 20 percent of water savings and a 30 to 50 percent reduction of methane emissions. (3) USAID recently awarded a Climate Resilient Agriculture program in Vietnam that will also support the reduction of methane emissions in the rice sector while increasing rice productivity. (4) USAID is partnering with Regen Organics, a Kenyan private firm, to transform food waste into value-added products such as protein-rich animal feed and organic fertilizers. Through this partnership, USAID is preventing the emission of 760 tons of methane that would have occurred had the food waste been sent to landfills.

USAID has also made significant investments in supporting bilateral partners and their private sectors in transitioning toward low-emission agricultural value chains. For example:

Amazonia Connect is led by Solidaridad in collaboration with Earth Innovation Institute, National Wildlife Federation, and the University of Wisconsin Madison. It works in Brazil, Colombia, and Peru to reduce emissions and conserve biodiversity in cattle, dairy, coffee, and palm oil supply chains. Approaches include providing large-scale technical assistance to farmers for deforestation-free production; supply chain traceability and transparency, including to meet EU Deforestation Regulation requirements; providing information to private sector companies using machine-learning and AI tools to improve sustainable sourcing decisions; unlocking blended finance and incentives for conservation that reach farmers; and supporting regional-level governments to advance their low-emissions rural development strategies.

The Forest Data Partnership, led by World Resources Institute and in collaboration with Google, Unilever, the Food and Agriculture Organization of the United Nations, and National Aeronautics and Space Administration (NASA) strengthens application and collaboration around global monitoring of commodity-driven deforestation, forest degradation and restoration efforts across the globe. The partnership focuses on key geographies, including the Amazon Basin, Southeast Asia and West Africa. It aims to halt and reverse forest loss from commodity production by collaboratively improving global monitoring and supply chain tracking and accelerating restoration. The partnership helps to align partners around global forest monitoring data and ensures stakeholder access to consistent, validated open-source geospatial forest-risk commodity data. The result is credible, systematic monitoring, verification and accountability toward reducing commodity-driven deforestation and restoring degraded lands.

The Business Case for Collective Landscape Action, led by The Rainforest Alliance and including partners Conservation International, CDP (formerly the Carbon Dis-

closure Project), and Clarmondial aims to support sustainable agricultural commodity production through a three part approach: (1) promoting landscape-scale sustainable production and planning; (2) connecting this to international disclosure platforms; and (3) using this to leverage financing for high performing and low-emissions landscapes. The activity is being piloted across Amazonia and Southeast Asia, including pilots in Peru, Ecuador, Colombia, Brazil, and Indonesia. The ultimate goals of the activity are to unlock international finance for sustainable production, channel it to well-planned landscapes, and stabilize critically deforestation frontiers globally.

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RESPONSES OF MS. DINA ESPOSITO TO QUESTIONS  
SUBMITTED BY SENATOR JAMES E. RISCH

FOOD AID REFORM

*Question.* U.S. cargo preference requirements make food aid delivered through the Food for Peace and Emerson Trust programs too slow and too expensive. The requirements were put in place under the Eisenhower administration to protect U.S. maritime security. Now, 70 years later, they serve as unjustified subsidy for a single U.S. commercial operator.

Does the Biden Administration support exempting emergency food aid from U.S. cargo preference rules, which could save USAID an estimated \$80 million in transport costs and enable the agency to reach more people, more quickly, at less expense? If not, why not?

*Answer.* At present, USAID is able to meet our humanitarian mandate while complying with requirements within the Cargo Preference Act. However, over the past year, the number of people in need of humanitarian assistance has increased by more than a third, and the Agency welcomes congressional engagement to ensure that USAID is able to continue to deliver lifesaving assistance efficiently.

*Question.* Understanding that the three remaining bulk carriers in the U.S. commercial fleet that carry food aid are not militarily useful, how can this single-beneficiary subsidy continue to be justified?

*Answer.* USAID is limited by the number of bulk vessels that are able to carry our food aid cargoes overseas. Today, there are only four bulk vessels owned by two corporations operating under the U.S. flag. Because of the limited number of bulk vessels available, USAID did not receive U.S. flag offers for 33 percent of our bulk cargoes in fiscal year 2023. USAID continues to be supportive of efforts to increase the size of the U.S. flag fleet; however, it is our understanding that the dry bulk carriers are not considered militarily useful to the Department of Defense. Increasing the number of U.S. flag ships could lead to increased market competition, more choices, and lower prices for transporting life-saving assistance.

FOOD AID DIVERSION

*Question.* The diversion of food aid to benefit malign governments, warlords, terrorists, and criminals in places like Ethiopia, Somalia, Sudan, and Yemen is wholly unacceptable.

What specific efforts has the U.S. Government taken to improve oversight and accountability of food assistance, so we can make sure it reaches those in need and is not diverted?

*Answer.* USAID takes diversion issues very seriously and places the highest priority on ensuring that our assistance is safely reaching those most in need and that funds are used wisely, effectively, and for their intended purpose.

In 2023, USAID's Bureau for Humanitarian Assistance (BHA) established a Program Oversight Working Group to address diversion risks globally, building on current risk mitigation practices. This group oversees the following lines of effort for humanitarian assistance programs implemented globally, including:

- Developing a list of countries at high risk of significant diversions and identifying patterns and trends from major aid diversion;
- Improving staff capability to mitigate diversion risk. For example, in coordination with our Office of Inspector General (OIG), USAID implemented a mandatory annual fraud awareness briefing for all Bureau for Humanitarian Assistance staff;
- Improving the effectiveness of third party monitoring (TPM) to detect different types of diversion schemes; and,

- Improving partner risk mitigation efforts by expanding program-specific requirements for risk assessment and management plans, as well as reviewing and updating partner guidance. For countries that are at high-risk of diversion, USAID expanded the requirements for partners—both NGO’s and U.N. agencies—to assess a broader set of risks, including diversion, and to strengthen mitigation measures across all programs.

As part of USAID’s effort to combat diversion, USAID also supported the development of the World Food Program’s (WFP) Reassurance Action Plan, which strengthens WFP’s oversight practices to mitigate the risks of fraud and diversion and to identify and address wrongdoing when it occurs. We remain committed to working with our colleagues to facilitate the successful implementation of this plan.

USAID continues to engage our partners on how we can support their efforts to improve program oversight and accountability and mitigate the risk of diversions.

*Question.* What specifically are you demanding of U.N. agencies and other U.S. implementers to prevent diversion?

*Answer.* As part of their applications for funding, USAID requires that humanitarian partners submit a Risk Assessment and Management Plan (RAMP). Through these plans, all applicants must demonstrate that they have assessed the risks of fraud (including diversion), waste, abuse, and other misuses of U.S. Government resources and have sufficient measures in place to mitigate those risks. Following the establishment of BHA’s Program Oversight Working Group in 2023, USAID established a list of countries that are at high risk of significant diversion. For these countries, USAID has expanded the risk mitigation requirements for both NGO and U.N. partners to assess a broader set of risks, including diversion, and strengthen mitigation measures across all programs. Further, USAID humanitarian staff are required to assess country-level risks and related risk mitigation measures at least annually for countries that are designated at high risk of diversion.

BHA includes requirements in all awards for partners to report any instances of program irregularities such as suspected fraud, waste, or abuse, including allegations of diversion. Partners fulfill their award requirements by reporting these allegations to Agreement Officers, Agreement Officer Representatives, and the USAID OIG. These reporting channels are critical because they allow the OIG to investigate allegations and USAID to take swift action to safeguard resources.

Additionally, given that the World Food Program is USAID’s largest food assistance partner, USAID is closely monitoring the World Food Program (WFP) implementation of the Global Assurance Framework and Reassurance Action Plan (RAP), an agency-wide reform effort that describes specific actions that WFP will take in high-risk operations in 2024 to strengthen its global accountability and oversight. USAID will use its position on the WFP Executive Board to closely follow WFP’s implementation of the RAP in order to encourage strong uptake of the reforms at the country level, ensure prioritization of the reforms at the corporate level, and facilitate real-time feedback from USAID to WFP headquarters on both progress and challenges to implementation.

#### LEGISLATIVE PROPOSALS—FOOD SECURITY

*Question.* A bill has been introduced to create a private foundation, funded by the U.S. Government, to leverage private investment and close gaps in food security. Several U.S. agencies and international organizations have the capacity to partner with the private sector, but too many agribusinesses have found them to be wholly inaccessible.

Given current budget realities, creating a new U.S.-government funded entity absent buy-in from other public donors inevitably will reduce the amount of U.S. foreign assistance available to support existing international food security programs. It could also increase bureaucratic burdens, duplication, and waste.

Do the benefits of creating a new entity to leverage private sector finance for food security outweigh the risks? How could those risks be mitigated?

*Answer.* USAID is supportive of efforts to leverage the private sector to invest more in agriculture. We know that we cannot address global hunger and malnutrition with public dollars alone. Additional long-term funding for global food security through the establishment of this foundation could be an impressive new tool. We have appreciated the opportunity to engage with Senators on this bill so we can ensure that it complements ongoing USAID efforts.

If established we want to work with this new foundation to ensure that USG efforts are aligned for maximum impact. This includes in Feed the Future target countries where we are doubling down on Feed the Future’s core mandate by concentrating bilateral investments in several countries that we know are most in need

and are best poised for regional agricultural-led economic growth. Already, we've identified a subset of Feed the Future target countries in Southern Africa that, with adequate investment, could give rise to a new regional breadbasket for the continent.

By coupling our investments with a focused, trade-centric policy reform agenda and increased investment from other donors and the private sector, we can drive equitable, regional growth with an emphasis on women and marginalized communities.

As much as we would be excited about a new institution and additional funding going toward solving hunger, we would want to work with the Congress to maintain critical funding for Feed the Future, in order to avoid the reduction or elimination of critical food security activities around the world.

*Question.* What would be the impact of cutting USAID's budget for food security by \$100 million annually in order to make room for this new investment?

*Answer.* A \$100 million reduction to the budget for Feed the Future, an initiative with a strong evidence base demonstrating significant impact over the last decade, could constrain USAID's ability to concentrate bilateral investments in several countries that we know are most in need and are best poised for regional agricultural-led economic growth. It could also result in reducing up to 18 bilateral FTF programs, including Egypt, Lebanon, Colombia, Sri Lanka, and Peru, among others, and some programs could need to be closed out.

*Question.* Would opening more funding opportunities for new or expanded public-private partnerships with existing foundations be a reasonable alternative to building a new entity from the ground up?

*Answer.* The U.S. cannot solve hunger alone. USAID welcomes any new opportunity to bring in additional funding, resources, and attention to solving this important issue. That is why partnering with the private sector—and strengthening the capacity of the enabling environment in which it operates—is a critically important part of USAID's and Feed the Future's (FTF) approach.

Through Feed the Future, USAID has expanded its partnerships with private companies, and in fiscal year 2022 USAID leveraged almost \$700 million in financial commitments from the private sector. FTF has set ambitious future targets for financial leveraging that signals our commitment to doing even more. We are committed to partnering with both private sector and foundation partners because we know it will be essential to improve agricultural productivity, build food systems, help alleviate poverty, reduce malnutrition, and drive economic growth in developing countries.

Additionally, there are other avenues through which the U.S. Government works to partner with the private sector. The Global Agriculture and Food Security Program (GAFSP) is an important part of the multilateral food security financing architecture and remains an agile, effective, and relevant mechanism to channel donor resources to the International Financial Institutions (IFIs) as demonstrated by its swift response to the COVID-19 pandemic and to the impacts stemming from Russia's invasion of Ukraine.

GAFSP's private sector window uses blended finance solutions to invest in projects that may not attract commercial funding due to perceived high risks in the agricultural sector. GAFSP's private sector window uniquely combines concessional financial products, in-demand advisory services, and high commercial and governance standards. The Private Sector Window provides affordable funding with less demanding terms allowing investment in early stage or riskier projects in some of the world's lowest income countries and fragile and conflict-affected states. On average, GAFSP private sector window projects leverage 1.9 times funding from IFC and 6.5 times in total financing.

*Question.* How do you propose making existing U.S. and U.N. mechanisms for public-private partnerships and development finance more accessible to the private sector, so we can better harness innovation and leverage private sector investment in resilient food systems?

*Answer.* Broadly, USAID is taking on some core reforms to make it easier for the private sector to work with USAID and vice versa. We recently launched a new network of relationship managers and industry leads to deepen our relationship with key corporate partners and industry associations. In May, we plan on unveiling the Agency's first relationship management platform, Compass, that will for the first time allow us to track all of our partnerships around the world through a single integrated system.

We are also looking at core H.R. systems to make it easier to attract talent from the private sector and to better incentivize current staff to lean into partnerships.

We have in the past year developed new tools that make it easier to engage the private sector faster and earlier in program design. We are also about to unveil a new searchable website with all of our partnership data available to the public for the first time. These and other operational changes are all intended to make it possible for the Agency to really begin scaling its engagement with the private sector across all sectors by improving the partner experience.

Finally, USAID launched the new Enterprises for Development, Growth, and Empowerment (EDGE) Fund last year. The EDGE Fund is a flexible fund that lowers bureaucratic barriers and enables USAID to move at the speed of the private sector. There is a co-investment component, where the ratio of private sector resources to USAID's should be at least 1:1. It's been exciting to see the flurry of ideas and private sector passion ignited within the Agency. A number of projects are projected to leverage 10 private dollars for every 1 government dollar.

In general, U.S. and U.N. mechanisms should engage the private sector early and often, particularly in the design and implementation of strategies and projects of shared interests and values to advance resilient food systems. Identifying areas of overlap with the private sector is essential to incentivizing private sector actors to engage in public-private partnerships.

In our partnerships with U.N. and other multilateral mechanisms to advance food security globally—such as the Consultative Group on International Agricultural Research (CGIAR), Global Agriculture and Food Security Program (GAFSP), International Fund for Agricultural Development (IFAD), U.N. Food and Agriculture Organization, and Agriculture Market Information System (AMIS)—we will continue to push these organizations to take steps to expand public-private partnerships and harness private sector innovation and investment in resilient food systems, as relevant to their respective mandates.

A comprehensive mapping of the existing food security financing landscape may also support more public-private partnerships and streamline areas of duplication.

For example, under its G20 Presidency this year, the Government of Brazil has commissioned a report on funding and resource mobilization to fight hunger and poverty, which aims to map all existing funding sources, funds, institutions, and instruments at global and regional levels that could be leveraged and galvanized to support the implementation of trusted, impactful, and evidence-based country-level policies. This report is expected to be released to G20 countries in spring/summer 2024. While we have not seen the content of the report yet, it could help identify new opportunities ripe for public-private partnerships within existing multilateral mechanisms.

*Question.* Another introduced bill proposes to shift management of Food for Peace to USDA, further reduce funds available for enabling/complementary activities and program management, and eliminate support for local and regional procurement of food.

How would enactment of these changes impact USAID's Food for Peace development food aid programs?

*Answer.* Legislative proposals to reduce Food for Peace funds available for enabling/complementary activities and program management, authorized under Section 202(e) of the Food for Peace Act, as well as proposals to eliminate support for local and regional procurement of food would make food assistance programs exceedingly difficult to implement. Non-emergency food assistance programs funded through the Food for Peace Act are critical to help mitigate and prevent food crises and reduce the future need for emergency aid.

Without sufficient program implementation funds from 202(e), USAID and its partners would have to fund Food for Peace non-emergency programs through monetization. Monetization is the process by which implementing partners must sell U.S. commodities in local markets and use sale proceeds to fund program implementation costs. The Government Accountability Office (GAO) has found that monetization is highly inefficient and leads to losses of nearly 25 cents on the dollar, reducing the number of people reached with aid. Further, USAID relies on 202(e) funding to implement programs to prevent and treat malnutrition. For example, USAID provides U.S.-produced ready-to-use therapeutic food (RUTF) to treat children suffering from wasting, the deadliest form of malnutrition. However, because treatment using RUTF must be done in a clinical setting with trained health workers, program implementation costs are higher than general food distributions. Limiting 202(e) funding limits USAID's ability to fund these lifesaving programs, putting children's lives at risk.

While U.S. commodities have an important role in U.S. food aid programs, particularly in places where markets are non-functional or there is insufficient food supply to meet food needs, local and regional procurement can also provide critical



flexibility when USAID faces unforeseen circumstances. For example, in fiscal year 2022, while USAID purchased 99.9 percent Title II food assistance commodities in the United States, a single local procurement in Madagascar was able to keep food assistance programs running temporarily when U.S. commodities were impacted by shipping delays.

Finally, by requiring the consent of the Secretary of Agriculture for emergency food assistance programs, budgeting decisions would be split across two Federal agencies. As the President's Special Coordinator for International Disaster Assistance, USAID has the experience, global presence, and connections to analyze needs and deliver food assistance effectively when disasters strike. Adding more bureaucratic hurdles would only delay the delivery of urgently needed food assistance.

#### FOOD SECURITY AND WASH

*Question.* This year marks the 8-year anniversary of the Global Food Security Act and the 10-year anniversary of the Water for the World Act. The most recent reauthorization of the Global Food Security Act recognizes that achieving food and nutrition security objectives is highly dependent upon access to safe drinking water and improved sanitation and hygiene.

How is the Bureau for Resilience, Environment, and Food Security (REFS) working to align the Global Food Security Strategy with the U.S. Global Water Strategy, including by incorporating WASH into its food security programming?

*Answer.* Guided by REFS strategies and technical assistance, USAID Missions are implementing programs, co-funded by water and food security resources, that aim to advance both strategies with a single approach. For example, in arid Northern Kenya, water security—and therefore food security—has decreased rapidly over the past decade. This has resulted in livestock death and conflict between pastoralists and farmers. To address this growing water insecurity, USAID, the Swiss Government, and civil society partners launched the Kenya Resilient Arid Lands Partnership for Integrated Development (RAPID) program, co-funded by the water directive and Feed the Future funds. RAPID worked closely with the public sector, private sector, and communities in drought prone areas to improve access to reliable and clean water for people, crops, and livestock. By working with local water departments to upgrade water systems, more than 460,000 people gained improved access to drinking water; the partnership also worked with pastoral communities to improve management of water resources and rangelands, mitigating current local conflicts and preventing future ones.

Additionally, USAID recently launched the “Feed the Future Water and Food Systems for Resilient Communities Activity” in the Karamoja region of Uganda, one of the poorest regions in sub-Saharan Africa. Karamoja suffers from recurrent drought and conflict that contributes to food emergencies. After years of humanitarian response, this program is bridging into longer-term development to reduce future humanitarian burden and improve water and food security over the long term. The activity will strengthen local capacity to manage watersheds, water utilities, and water and sanitation markets; and invest in water infrastructure like agricultural water storage and piped water systems that will lead to more efficient use of limited water for people and food production. This combined approach aims to improve local capacity to manage expected weather-related shocks and stressors through improved governance.

The Global Food Security Act recognizes the importance of water resources management (WRM) to agricultural outcomes, and the role safe drinking water, sanitation, and hygiene (WASH) play in nutrition. The 2022 Global Food Security Strategy (GFSS) reinforces these directives from Congress through a Cross-Cutting Intermediate Result on water resources management; and Intermediate Result 9, which aims to create more hygienic environments through WASH. These priorities echo approaches promoted in the U.S. Global Water Strategy and its supporting technical guidance. To support USAID Missions and partners to further scale up these investments in the countries that implement the majority of funding for food and water security, REFS has developed technical guidance on the intersection of water and agriculture, to drive improved collaboration to protect watersheds; strengthen national and local level cooperation over water; and ensure strong governance is in place to protect water resources for multiple users, including for drinking and farming. Further, multiple Centers within REFS are supporting research, innovative tools, and modeling and forecasting, such as with hydro-meteorological data, which provide a comprehensive package of data for decisionmaking to USAID Missions and partner governments, and enable USAID to continue improving investments in food and water systems. InterAgency collaborations, such as with the U.S. Geological Survey, the U.S. Department of Agriculture, and NASA, increase the collective re-

sources available to better integrate water and sanitation into food security programs.

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RESPONSES OF MS. DINA ESPOSITO TO QUESTIONS  
SUBMITTED BY SENATOR TODD YOUNG

*Question.* Please provide your assessment of how AI can and should be deployed to better predict both:

- Agricultural shortages, due to issues like water scarcity, natural disasters, or quality of cropland AND
- Global supply route disruptions and the cascading effect of logistical and transportation disruptions to food supplies for countries who heavily rely on imports?

*Answer.* USAID leverages Artificial Intelligence (AI) methods such as Natural Language Processing (NLP) and Machine Learning (ML) to further our work around food security.

As an example, ML and NLP AI contribute significantly to the early warning systems predicting emergency food insecurity produced by USAID's Famine Early Warning Systems Network (FEWS NET). By processing complex environmental conditions and agricultural data from satellites, AI helps analysts forecast how many people will be at risk of emergency food insecurity due to environmental variability, conflict, and economic crisis. This analysis provides evidence to support decisions about allocation of humanitarian assistance, preventing food crises in regions most affected by climate change.

With sufficient data inputs, robustly tested generative AI (GenAI) models have the potential to support prediction of agricultural shortages and global supply route disruptions. We have begun to assess the abilities of GenAI models to support our work and enable USAID to make more data-driven, targeted, and timely responses to shifts in the global landscape. This will require dedicated investments to develop, test, and refine GenAI models and source relevant datasets. With the right investments we could leverage GenAI to build upon or enhance our existing work with AI, or where necessary, develop new approaches.

USAID missions around the world are also investing in AI-related efforts in three broad categories: (1) data provision, including data capture and building data providers' capacity; (2) decision-focused support to support improved decisionmaking and planning; and (3) learning, aimed at synthesizing lessons, good practices, barriers, and opportunities related to USAID programming. Information services focused on shifting environmental conditions to provide advanced notice of weather patterns have played a significant role in informing sound, evidence-based decision-making across many USAID activities. In Rwanda, for example, farmers increased yields by 47 percent and their income from crops by 56 percent.

*Question.* What, if any, resources from Congress could assist your respective department and agency to more rapidly integrate AI-supported predictions into your analysis of the next food insecurity crisis?

*Answer.* USAID's Bureau for Resilience, Environment, and Food Security has already begun making investments to understand and test the potential of GenAI in our analyses. While the Bureau recognizes the potential of GenAI, and the proven value of NLP and ML, for this purpose, in order for USAID to fully benefit from the potential of AI, we will need to develop or acquire technical expertise both in Washington and in our Missions. As this is a fast growing industry, USAID would need time and resources to build the necessary team of AI experts, data scientists and dedicated staff required to successfully integrate AI into our analyses and operations at both the Agency and country level.

We also would benefit from support for the development and deployment of AI models and tools for this type of analysis in future year funding. As one example of what is possible, USAID has recently had conversations with the Defense Advanced Research Projects Agency (DARPA) and the team that they supported to develop the World Modelers program. Tools such as this one have the potential to enable USAID to leverage AI to enable predictive modeling. However, they require sufficient and dedicated financial resources for upkeep and refinement.

USAID's FEWS NET currently uses ML AI for its routine operations; however, due to funding constraints amid historic global needs, FEWS NET is focusing on maintaining current programming. If given the opportunity, FEWS NET could continue to build on existing, longstanding investments and expertise, particularly in the environment, weather and agricultural sectors, as well as scaling up FEWS NET's newer work in the area of fragility, instability, climate security and conflict—currently the top driver of acute food insecurity globally.

*Question.* How have disruptions to global supply chains impacted your efforts to fight food insecurity? What steps are you taking to ensure today's data on such disruptions will be incorporated into developing and training future AI models to improve prediction capabilities?

*Answer.* Russia's invasion of Ukraine and the lingering effects of the COVID-19 pandemic have had significant impacts on global commodity prices, including food prices and input commodities such as fertilizer which are important for achieving USAID's agricultural development objectives. Recently, supply chain disruptions in the Red Sea and the Panama Canal have required shipments to be rerouted, delaying assistance and leading to increased transportation costs—though these disruptions have yet to translate into higher prices for global commodities.

We continue to monitor global supply chains and have invested in research and modeling efforts with the International Food Policy Research Institute (IFPRI) to understand the long-term impacts of rising transportation costs and their impact on global commodity prices. In addition, we continue to invest in the creation, curation, and integration of datasets and indicators relevant for understanding and documenting the complex relationships between global trade and food security. These datasets are fundamental to developing and training future AI models to ensure quality predictions.

For example, USAID's FEWS NET is partnering with IFPRI and NASA Harvest at the University of Maryland to develop data-driven modeling of the supply chain for selected agricultural commodities, from agricultural production of wheat, maize, and rice; to these commodities' market, trade and price dynamics; to logistics for both commercial and humanitarian shipments of these commodities. The result of this investment will be to improve FEWS NET's forecasting of acute food insecurity in terms of the number of people forecast to be in need of humanitarian food assistance, their location, the timing of need, and the severity of need. USAID/FEWS NET has made an initial financial and technical investment in this approach.

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RESPONSES OF MS. DINA ESPOSITO TO QUESTIONS  
SUBMITTED BY SENATOR JOHN BARRASSO

*Question.* The United States is the largest humanitarian donor to Ethiopia through the United States Agency for International Development (USAID) and the World Food Program (WFP). In June 2023, USAID and WFP paused all food assistance in Ethiopia. These actions were taken following allegations of “widespread and coordinated” diversion of humanitarian aid by Ethiopian officials and military elements. According to U.N. human rights experts, the Ethiopian government intentionally targeted food aid intended for individuals experiencing famine-like conditions. This is a serious issue given the current humanitarian situation which includes hundreds of hunger-related deaths reported in 2023 and malnutrition rates above emergency thresholds in certain regions.

What steps did USAID take to investigate the allegations that the Ethiopian government intentionally denied and obstructed humanitarian assistance to civilians? What were the results of your investigation?

*Answer.* USAID's independent Office of Inspector General (OIG) opened an investigation into the allegations following the discovery of diversion in 2023. We understand that the investigation remains ongoing. We would refer you to the USAID OIG for any additional questions on the results of the investigation.

*Question.* How is the US holding those individuals found responsible for the diversion of humanitarian assistance accountable?

*Answer.* When responsible individuals are identified, USAID is committed to working with the interagency to hold these individuals accountable. USAID is cooperating fully with the independent USAID OIG investigation; we understand that their investigation remains ongoing.

*Question.* What specific reforms did USAID implement to ensure accountability of humanitarian aid in Ethiopia?

*Answer.* USAID takes diversion issues very seriously and places the highest priority on ensuring that our assistance is safely reaching those most in need and that we and our partners use funds wisely, effectively, and for their intended purpose. This is evidenced by the immediate action taken by USAID in 2023 to pause food assistance and push for immediate, widespread, and substantial reforms of the food assistance system in Ethiopia. USAID demanded changes from both the Government of Ethiopia (GoE) and our humanitarian implementing partners:

## GOE REFORMS

The GoE:

- handed over responsibility for the management of warehouses, commodities, and distributions to humanitarian partners in all settings in which they were implementing USAID-funded food aid;
- agreed to accept vulnerability-based targeting (VBT) as the means to identify and approve beneficiaries throughout the country;
- agreed to joint approval of master beneficiary lists with humanitarian partners (instead of this being solely approved by the GoE as had been done in the past);
- committed to providing support and access to partners conducting audits and spot-checks of grain markets, brokerages, warehouses, and grinding mills; and
- committed to investigating diversion and holding perpetrators accountable.

## PARTNER REFORMS

Both USAID humanitarian food aid implementers:

- committed to targeting beneficiaries via the process of VBT, which helps ensure humanitarian assistance reaches those most in need given limited resources;
- improved commodity tracking by setting up real-time tracking with GPS technology;
- agreed to conduct digital beneficiary registration, such as through ration cards with pictures that contain biographical details; and
- strengthened monitoring and oversight, such as by increasing the number of roving monitoring and compliance staff, requiring new training on diversion, improved reporting, and better whistleblower protections.

As part of this reform effort, we supported the development of the World Food Program's (WFP) Reassurance Action Plan, which strengthens WFP's oversight practices to mitigate the risks of fraud and diversion and to catch and address wrongdoing when it occurs. We remain committed to working with our colleagues to facilitate the successful implementation of this plan.

USAID has made changes to its own operating systems as well. For example, USAID put in place a new third-party monitoring (TPM) contract that ensures on-the-ground presence throughout Ethiopia. The TPM contractor monitors markets and mills, looks for potential pre- and post-distribution diversion, and evaluates supply chain management systems. USAID has also recalibrated humanitarian food assistance to align with needs reflected in VBT exercises so that limited humanitarian resources only reach those most vulnerable.

*Question.* Are you confident that US humanitarian assistance is currently going to those who need it most in Ethiopia?

*Answer.* We are confident that our strengthened risk mitigation systems and the reformed food aid system in Ethiopia are less vulnerable to manipulation. The Government of Ethiopia has handed over responsibility for distribution and warehousing; our partners have enhanced risk mitigation measures and are using VBT; and we are conducting frequent site visits, as is the implementer of our new TPM contract. The VBT process ensures that only those most in need are on the final master beneficiary list and helps partners ensure aid is going to those who need it most.

*Question.* Beyond immediate relief efforts, what is the strategy to resolve the longer-term problem of food insecurity and malnutrition in Ethiopia?

*Answer.* The United States remains the largest humanitarian donor to Ethiopia. In 2023, the United States contributed more than \$897 million in humanitarian assistance, but the needs are staggering, and USAID continues to call on other donors to scale up contributions in Ethiopia, both for humanitarian and resilience programming.

In close coordination with emergency response programs, USAID is implementing three Resilience Food Security Activities (RFSAs) in Ethiopia, which are multi-year, multi-sectoral awards aimed toward addressing the root causes of chronic food insecurity, reducing poverty, building communities' resilience to shocks, and reducing the need for reliance on emergency assistance in the long term. These activities include livelihood diversification and income-generating activities to reduce poverty, promote sustainable agriculture, and access improved seeds to build food security and have been successful in building lasting resilience among rural food-insecure populations. These activities also strengthen community resilience through capacity building and social protection mechanisms. USAID's work in Ethiopia shows the im-

portance of integrating short-term emergency responses with broader development goals. Strategic assistance linking relief, market-based assistance, private sector engagement, and livestock support address the impact of drought and conflict while advancing development and peace objectives.

Building on the above, USAID's economic growth activities in Ethiopia layer with resilience activities to link market development to enterprise development services in and beyond agriculture. This improves access and availability of nutritious, safe, diverse foods year-round. In addition to increasing market reach, activities also support markets to become more resilient so that they continue to function in the face of shocks and stressors. We are also focusing on increasing capacity for smallholders and linking them to both domestic and international markets.

The Ethiopian economy, however, cannot rely on agriculture alone for increased incomes, poverty reduction, and private sector expansion. To sustainably bolster food security, we must also address the challenges that come with a rapidly growing youth population, macroeconomic instability, and unemployment. This is why USAID programming also focuses on building stable employment opportunities for people under age 30, who make up more than two-thirds of the population. For example, USAID activities aim to build on private sector investments and experience in agriculture and water, sanitation, and hygiene sectors, and promote entrepreneurial opportunities, expanding job creation in sectors which demonstrate greater potential for sustainable income and employment, such as light manufacturing. These investments beyond agriculture work to further strengthen USAID's food security interventions, especially in urban and peri-urban areas.

Through this combination of humanitarian response and resilience activities, USAID works to help resolve food insecurity and malnutrition in both the short and medium term.

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RESPONSES OF DR. CARY FOWLER TO QUESTIONS  
SUBMITTED BY SENATOR BENJAMIN L. CARDIN

*Question.* How is forecasting data and predictive science utilized to determine programming priorities when it comes to building food security capacities?

*Answer.* Core to the first pillar of the President's Emergency Plan for Adaptation and Resilience (PREPARE) is a focus on deepening global understanding of climate risks, vulnerabilities, and adaptation solutions and applying those insights to food systems. Forecasting data and predictive science, powered by AI, allow decision-makers to promptly analyze high resolution and high frequency data, enabling for the identification of specific regions and communities at the highest risk of food insecurity. This information helps prioritize resource allocation and enact tailored intervention strategies including investments in agricultural infrastructure, research, development, and implementation of climate resilient seed varieties, and the distribution of aid.

AI models can accurately predict natural disasters' impacts, food security crises, and map supply chains prompting stakeholder responses.

*Question.* How are relief and development institutions accounting for the effects of climate change on food production, and natural resource scarcity?

*Answer.* When launched in 2021, the President's Emergency Plan for Adaptation and Resilience (PREPARE) included a specific focus on food security in light of the importance of building climate resilience into our development and diplomatic programs to enhance effectiveness and maintain development gains. In February 2023, the U.S. State Department's Office of Global Food Security (OGFS) launched its Vision for Adapted Crops and Soils (VACS) Initiative, in partnership with the African Union (AU) and the Food and Agriculture Organization of the U.N. (FAO). With an initial focus on African countries, VACS advances agricultural productivity and nutrition by developing diverse, climate-resilient crop varieties and building healthy soils. Since its implementation, the OGFS has directed one-hundred million dollars toward USAID crop and soil activities and undertaken a public-private partnership to develop an initial research agenda focused on African food crops. VACS also contributes to the food security work under PREPARE.

The Food and Agriculture Organization (FAO) of the United Nations has prioritized investments in climate-resilient agriculture practices. This includes promoting drought-resistant crops, improving water management techniques, and implementing agroforestry systems to mitigate the effects of climate change on food production.

The International Fund for Agricultural Development (IFAD) is providing access to climate-smart technologies, training in sustainable agricultural practices, and fa-

ilitating access to financial services to help farmers adapt to changing environmental conditions.

*Question.* How are climate science and climate forecasting and modeling being used to modify and keep assistance ahead of the curve in terms of preparedness and adaptive capacities to the effects of climate change?

*Answer.* Accurate predictions of future climate patterns and climate extremes enable stakeholders to anticipate and mitigate potential impacts, fostering the development of tailored adaptation strategies. For instance, collaborations like AgMIP and HavosAI with the Vision for Adapted Crops and Soils (VACS) movement integrated climate predictions for 2050 and crop models to identify suitable areas for opportunity crops in Africa. This is currently driving regionally tailored crop diversification initiatives and guiding investments for food security amid changing climates. This, and other, proactive approaches ensure that assistance efforts are optimized and responsive to evolving environmental conditions.

*Question.* How are you working with the private sector to improve food security and assist in the development of climate management strategies, aimed at improving developing countries' resilience?

*Answer.* The private sector is a critical actor in improving developing countries' resilience through the Vision for Adapted Crops and Soils (VACS) movement. The VACS Champions Program, a self-certification initiative, recognizes private companies for undertaking projects committed to developing climate-adapted nutritious crop varieties and building, healthy fertile soils. The private sector also participates in the VACS Community of Practice, a forum for entities interested in VACS to discuss relevant issues and to identify crosscutting innovative solutions. Additionally, Cargill and Archer Daniels Midland (ADM), two of the largest agricultural companies in the world, have made financial commitments to supporting the work of VACS. The Department of State is also working to build the capacity of small and medium sized enterprises that are providing climate resilient food security solutions like modular cold chain storage in Africa through the AU-endorsed Africa Adaptation Initiative Food Security Accelerator.

*Question.* How is the U.S. working with agriculture and food production supply chains to reduce their greenhouse gas footprints?

*Answer.* USDA's Economic Research Service (ERS) is actively working on this issue domestically. Internationally, we focus on addressing a few key sources of emissions from agriculture and food production supply chains. We are working with 14 of the largest agricultural commodity trading companies to eliminate deforestation from their supply chains, with a focus on the beef, soy, and palm oil sectors. Agriculture continues to be the largest source of deforestation, particularly in the tropics, and is responsible for around 2.5 gigatonnes of CO<sub>2</sub>, or slightly more than the annual emissions of India. We're also working to tackle methane emissions from rice and cattle, as well as nitrogen dioxide associated with overuse of fertilizer. Internationally, through the Vision for Adapted Crops and Soils (VACS) program, we are working with our partners to institute the best practices for sequestering carbon on farms through our programming in both providing adaptive seeds and improving soil health in Africa and in planned activities in Central America.

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RESPONSES OF DR. CARY FOWLER TO QUESTIONS  
SUBMITTED BY SENATOR TODD YOUNG

*Question.* Please provide your assessment of how AI can and should be deployed to better predict both:

- Agricultural shortages, due to issues like water scarcity, natural disasters, or quality of cropland AND
- Global supply route disruptions and the cascading effect of logistical and transportation disruptions to food supplies for countries who heavily rely on imports?

*Answer.* In an era flooded with high-frequency and high-resolution data from satellites, social media, and news outlets, AI has revolutionized the synthesis of diverse data formats, enabling real-time analysis of food system/security issues. Previously reliant on costly and time-consuming on-the-ground data collection, the development community now leverages AI to process vast amounts of data swiftly. AI not only enhances analysis in well-covered areas but also fills data gaps in regions where information was once scarce or unavailable. By integrating remotely sensed climate data with historical production data, AI can forecast localized agricultural production levels and prices. These predictions are instrumental in modeling global trade

flows and anticipating potential disruptions in supply chains. Furthermore, AI has been used to forecast climate events and patterns, with a great degree of certainty, in areas where station data is scarce. AI is one of the most powerful tools in our arsenal of statistical analysis to identify and inform early warning systems of food insecurity crises.

*Question.* What, if any, resources from Congress could assist your respective department and agency to more rapidly integrate AI-supported predictions into your analysis of the next food insecurity crisis?

*Answer.* Predictive analysis utilizing the latest technologies derived from AI, could be an important tool in strategic planning for the United States. We have just begun exploration of integrating new technologies that combined with other data estimates will provide better forecasting abilities to identify areas of food insecurity and provide critical time for proactive strategic planning and interventions. The Congress can assist the State Department by supporting our requests for Vision for Adapted Crops and Soils (VACS) funding in Administration's budget requests.

*Question.* The countries that will be able to unlock the full potential of AI are likely not going to be the ones that are experiencing food insecurity. Can you describe the work being done to ensure that these countries are able to contribute to the development and deployment of AI to combat food insecurity, or in the absence of ongoing projects, how you would ensure their contribution?

*Answer.* We are currently addressing this challenge in several ways. First, some of the funding recently provided to FAO to improve soil information systems in Ghana and Kenya will support the development of AI-supported systems that can be applied globally to determine crop suitability and support land use planning at the field scale.

Second, separate funding is being used to support the development of fertilizer decision support tools through USAID's "Space-to-Place" initiative. While these tools are country specific, they are being developed in a way that will allow them to be made available to countries with similar soils and climates.

Third, global predictions of the potential production of a wide variety of crops under changing climates have been developed with input from Havos.ai and the results of these analyses are available for all countries in Africa.

In the future, AI-driven systems will provide even greater access to crop- and field-specific information, supporting decisions including where and what to plant, and how to sustainably manage the land.

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RESPONSES OF DR. CARY FOWLER TO QUESTIONS  
SUBMITTED BY SENATOR JOHN BARRASSO

*Question.* Given the risks and instability in the region, what changes are being made by the World Food Program (WFP) and other humanitarian organizations in order to address the famine in Yemen?

*Answer.* While there is a high level of food insecurity in Yemen, at present, food security experts do not assess that famine is ongoing. Humanitarian organizations working in Yemen have not had to substantially change their postures or ways of working in Yemen as a result of insecurity related to the Red Sea, to date. However, organizations are engaging in contingency planning for alternative transportation routes.

In northern Yemen, the World Food Program (WFP) continues to negotiate an agreement with Houthi authorities to restart general food assistance, which has been officially paused since December 5, 2023. Ensuring food reaches the people who need it most is critical, and these efforts are designed to help WFP prioritize the most food insecure households for food assistance, allowing food assistance dollars to be most impactful given ongoing humanitarian funding constraints. The Administration is committed to assisting the people of Yemen and will continue to support critical lifesaving activities and services, such as the provision of essential nutrition, healthcare, and water, sanitation, and hygiene assistance. USAID is increasing funding to life-saving nutrition programs to mitigate any negative impact of the pause in the north. USAID also continues to provide food, nutrition, and other humanitarian assistance in southern Yemen.

*Question.* How have the Houthi attacks in the Red Sea impacted global emergency food assistance?

*Answer.* As a result of Houthi maritime attacks, most major ocean carriers have stopped transiting through the Red Sea and have opted to pass around the southern tip of Africa. This rerouting adds about 20 to 25 days to the previously estimated

arrival time and can increase costs by 20 to 25 percent. As of March 6, 2024, USAID's Bureau for Humanitarian Assistance (BHA) has diverted 9,070 metric tons (MT) of Title II food commodities for South Sudan, Ethiopia, Democratic Republic of the Congo (DRC), and the Djibouti Prepositioning (PREPO) Warehouse around the Cape of Good Hope. An additional 49,183 MTs of food is scheduled for DRC, Somalia, Kenya, and Djibouti PREPO, which will likely be diverted later in March.

*Question.* Which countries have been most effected by the disruption in the delivery of humanitarian assistance?

*Answer.* The delivery of humanitarian assistance to Sudan, South Sudan, Ethiopia, Democratic Republic of the Congo (DRC), Somalia, and Kenya have been most affected by the Houthis' maritime attacks.

