

A CONVERSATION ON SUSTAINABILITY

Panel Moderator: *Ismail Serageldin*

October 20, 2017 - 10:30 a.m.

Introduction

Margaret Catley-Carlson

Council of Advisors - World Food Prize

We now move on to talk about something that came up a couple of times during this panel where Ben in particular mentioned sustainability and wondered out loud – what is fertilizer sustainability? And the question comes up – what is sustainability in a great number of areas? So we've got a panel that is going to enlighten us on this subject, the general subject of sustainability, but seen from a particularly interesting angle of vision, which is the substantial private sector where people have... As was said this morning, the first sustainability is that you've got to be economically viable, and then you can start looking at some of the other aspects of sustainability as well.

So our panel is now coming into the room. We have, as I say, very interesting corporate participation. Diane Holdorf, the Chief Sustainability Officer of Kellogg, Claire Starkey, president of Fintrac, Kojo Amoo-Gottfried, who is from Cargill, and Dennis Schaffler, who is the senior manager of Elcano. So you've got really big corporate names.

And they're going to be motivated and chivvied and questioned by Ismail Serageldin, who is the founding librarian of the Library of Alexandria, former World Bank president. So you can say, well, what on earth does he know about either sustainability or the private sector? He knows about everything. It's quite astonishing. He is the renaissance person of the 21st century. He has knowledge about architecture, Shakespeare, agriculture, ancient Arabic script; and there's even a fish in the Coral Reef of the Red Sea named after him because of his knowledge of underwater biology and underwater archeology. So there's nothing he doesn't know about. So I have enormous faith. He took over the Library of Alexandria. Within a couple of years, there was a thousand events per year – that's more than three a day – in this library. So, since you know everything, Ismael, the floor is yours. Thank you very much.

Panel Members

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| Diane Holdorf | Chief Sustainability Officer, Kellogg Company |
| Claire Starkey | President, Fintrac |
| Dennis Schaffler | Senior Director – Global Access Markets – The Americas, Elcano Health |
| Kojo Amoo-Gottfried | Vice President and Commercial Leader – Agriculture Supply Chain North America, Cargill |
| Ismail Serageldin | Founding Director, Bibliotheca Alexandrina |

Panel Moderator

Ismail Serageldin

Thank you, Maggie, thank you. As Maggie said, we have a very distinguished panel. She introduced them, so I'm not going to do this right now. But I do want to do something slightly different. I have noted that there was one thing that had been really missing, if I may say, in our discussions in the last few days, in some way or another, about sustainability.

I'd like to say that how we measure sustainability and how we measure specifically in relation to a secret and public number that everybody holds onto, which is gross national product growth. Every country keeps worrying about its growth rates, but of course we need to amend the growth rates in order to understand better whether what we are doing is on a sustainable path or not.

Among various things I did in my life, I was also chairman of the CGIAR back in the '90s, and I was also vice president of the World Bank, the first vice president of the World Bank to worry about the environmentally sustainable development. So I try very much to get the countries of the world, through the U.N. System of National Accounts, to change the way that they record how their growth rates operate.

You may not know it, but if companies did what countries do, they would be thrown in jail. Countries regularly deplete the assets and consider them income. And of course companies, if they sell assets, it should be reflected in their balance sheet. But countries don't have balance sheets. The GNP or GDP is a flow measure, and it's like having an intimate expenditure statement, and that's a disaster. The disaster that comes out of that is that, under the current system, for example, you have a forest standing up it counts for a zero. If it's cut down, it's a positive contribution to GNP. So the system is flawed, and we need to get it fixed.

And from a perspective of sustainability, we need to look at stocks as well as flows, and therefore we should be thinking of things, like wealth accounting, and looking at four kinds of capital. There is the capital that economists spend their time doing and studying, and that is basically about 16% to 18% of the total capital. My colleagues and I calculated that for 300 times for 200 countries. So that's a very small part, but that's called "produced assets." Then we have natural capital, and natural capital is not just the soil and the water and the petroleum and the

copper and other things. It's also the environmental services that are provided by the ecosystems on which we depend.

And then you have the human dimension, human capital and social capital. Human capital is capital that is embedded in me, my education, my health, my nutrition, and I take it with me when I travel. And on the other hand, social capital is the glue that holds a society together and enables it to cooperate and collaborate and to have laws and have institutions and to function. And you can see what happened in places like Yugoslavia or like Rwanda or like right now in Syria and Iraq, in Libya and elsewhere – when social capital unravels, it's very important.

So sustainability requires all of that. And we need, I think, to go beyond this total obsession with GNP and GDP growth rates, because they're not very meaningful. In fact, almost exactly half a century ago there was a beautiful statement by Robert Kennedy. He said, *If the gross national product does not allow for the health of our children, the quality of their education or the joy of their play, it does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate, or the integrity of our public officials, it measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country. It measures everything, in short, except that which makes life worthwhile.*

And so in many ways, what we want to talk about in sustainability are all those things in the human capital, social capital and environmental capital that make life worthwhile. And I'm happy to see that we have with us a group of champions from the private sector who have to abide by proper accounting procedures for what they do but also are profoundly engaged with the outreach to the people both as producers and consumers and to integrate the activities of society into their own and as such are making major contributions in implementing our vision of a sustainable society that goes towards the future.

So I would like to ask our panelists what practices implemented by their organizations have been effective in promoting sustainable development. And agriculture being a very central part... Agriculture and nutrition and food are a very central part of the interaction between humans and the environment; and therefore it's important to recognize that it is in the Sustainable Development Goals of the United Nations.

And then I would ask them to take that by order, and we will hear first from Kojo Amoo-Gottfried of Cargill, and then Diane Holdorf, whom I have to say one more thing about her. She is not just a Chief Sustainability Officer of the Kellogg Company, but she has also been declared the "Wheat and Maize Superwoman," an award granted to her by CIMMYT who had already a superman in Norm Borlaug. So as you can see, the connections are there. And then we'll hear from Dennis Schaffler, who is the Senior Director for the Global Access Markets for Elcano Animal Health; and Claire Starkey, who's the President of Fintrac, each have their own take on these questions. So without further ado, let me introduce Kojo Amoo-Gottfried. Please go ahead.

Kojo Thank you. Very, very interesting time, the last, this whole week has been, basically building knowledge and seeing how we can work together. If I look at kind of the world that we are in today, climate change is shifting where we grow and how we grow food. Billions of diets are evolving just by incomes increasing and people moving to urban areas. And when we look at the global food picture, we all rely on this value chain to eat every day. Agriculture supports hundreds of millions of farmers and agricultural workers. It also has to be that when we talk about sustainability, it is

economical, it is social and it is also environmentally sustainable. That is absolutely critical in order to make sure that we sustain this for the years to come.

If I look at Cargill, we've been 152 years sustaining this supply chain or strengthening this supply chain. We started right here in Iowa. The first elevator was in Iowa. We are in 70 countries connecting farmers, connecting crops to consumers. We work in Iowa. We work with farmers in Iowa corn. We work with farmers in cocoa in Ghana. We work with farmers in Vietnam in poultry. So really grabbing the whole supply chain.

As we look to your point as to how we continue to..., it's all about strong partnership. It's all about how we work with government institutions, how we work with universities, how we work with our consumers, how we work with customers to really help us address this complex picture. We can't do it alone. We don't say we can. And we have to learn from each other to be able to achieve where we want to go.

If we look at some of the things we've done, whether working with cocoa farmers and strengthening capacity building, whether it's education, working with governments to enable them to understand that trade is critical, moving across boundaries. Yesterday we had President Adesina really talk about, really toyed with the idea of agro-boundaries versus national boundaries. And I think if you look at this space, it's really critical that we look at boundaries and how they at times inhibit trade and really making sure that we are fighting with our policymakers to ensure that we have no trade barriers and we can trade across. Being a Ghanaian and working in West Africa for Cargill numerous years ago, just being a neighbor to sell from Ghana to Nigeria or being a neighbor to move to the next country on Ivory Coast due to non-tariff barriers, are all critical things that we really need to break away so we can actually feed Africa. Thank you.

Ismail Thank you very much, Kojo, and now...

Diane Thank you so much, Ismail. Thank you so much for having us here. It's wonderful to be on this panel with this esteemed group of colleagues and partners.

But, you know, the global food company, the Kellogg Company recognizes that we have a really important role to play in helping to adjust these issues of food security and healthy and robust food systems in the face of challenges such as climate change, civil unrest, across boundary, conservation issues. So we really view our work as being aligned and completely connected to the Sustainable Development Goals, for us particularly, Sustainable Development Goal #2, which is really around eradication of hunger through climate-smart agricultural practices, through addressing food security, and through addressing hunger.

And through that we touch on so much other work. We touch on the role of women and farmers and education and health and nutrition and water and climate. And for us that's a really good way of thinking about these critical intersection points of sustainability. We know that in the face of the types of risks that we have from climate change and other challenges, food systems can fail fast, and that is often what drives migration and civil unrest, huge challenges around water. These are things that we need to be thinking about very closely as a business. These are business-critical issues for us – how we source our ingredients, how we ensure the right quality and quantity,

where we source them from, as Kojo said, as crops shift due to weather pattern changes.

But just looking after it for our own business is not sufficient, because we know that we've got an accountability within the communities where we operate globally and within the communities from which we source. So we've really worked to set commitments that extend back through the transparency and traceability of our value chain to the farm fields. We have commitments to be able to help enable climate-smart agricultural practices with improved yields and livelihoods for over half a million farmers around the world. And we achieved some of the goals that we had set within that to support smallholders and women, three to four years early.

We can only do this kind of work to address social and environmental and economic sustainability through our value chain, though, together with partners. And, Kojo, you spoke to it beautifully just now. None of us can do any of this work in a vacuum. It requires policy engagement like we have here in Iowa in partnership with Walmart and Cargill and others in the Midwest Row Crop Collaborative, which leverages across state boundary capabilities that the USDA has put into place, like the Regional Conservation Partnership Programs, as well as partners in Ghana, in Cote d'Ivoire, in Congo together again with Cargill and CARE and others. It's through that kind of work where we can really bring sustainable solutions to adjust the sustainability challenges that exist within our food system.

So looking forward to sharing more examples, but with that I will pass on to our next speaker.

Ismail Thank you very much, Diane. Claire.

Claire Okay. Fintrac actually provides services to smallholder farmers. We work with actually a lot of you in this room. We work with a lot of NGOs. We work with a lot of private companies. Our job is to transfer good agricultural practices to smallholder farmers and also to help them access technology, so whether it's seeds, whether it's drip irrigation kits, whether it's hermetic storage such as the hermetic storage bags for maize that Purdue has developed. Yesterday the USAID administrator, Mark Green, discussed Cold Store, CoolBot and Store It Cold that are in a partnership in Central America. Fintrac was instrumental in facilitating that. We typically are funded by USAID. We work on USAID programs, but we also are able to attract and leverage a lot of private sector investments.

And our focus is making sure that smallholders are integrated into local, regional and export supply chains sustainably, which means they need to be more knowledgeable. Technologies are wonderful, and we've spoken so much about them this week, and they're ramping up and scaling for smallholder affordability and accessibility in ways that have never happened before. And it's really exciting, but we can't forget that extension is critical, because knowledge is powerful. And the way that you have choices isn't only by being able to access technology; it's being able to integrate them, it's being able to use them, and it's being able to recognize that income generation is critical to sustainability. And we focus on inclusion, so we work a lot with women farmers.

We work a lot with youth. And each different group in each different country and each different region of each different country have different needs. Youth tend to be very interested, as many of you know, in technologies, in new and modern practices. That doesn't necessarily mean that you're going to be taking poor youth and integrating them into large companies right away. They may be working with seedling nurseries. They might be leasing machinery. There are different kinds of soil testing applications that they can be working with. There's a lot of work for youth in sort of this new age of agriculture and some of these new basic technologies. For women, a lot of it is simply decreasing the drudgery that they currently are engaged in so that they can free up more time for more income-generating activities.

We work in Africa, we work in Southeast Asia, we work in Latin America, and we work across multiple value chains. So we're working with horticulture, we're working with maize, we're working with rice, and we're also working with dairy, fisheries, poultry. It doesn't mean that we're experts in all of that. We only have 300 people around the world working for us, but we work again in partnership with local NGOs, with international NGOs, with international and local companies.

And we also measure what we do, because it's one thing to talk about it; it's another thing to be able to say this is what's working, and sometimes this is what's not working. So we always measure our impact, and we try to always report online via networks like Farming First, via forums like this, and through all sorts of different methods of communicate within the countries we work with. We're always trying to share what we've learned, the lessons that we've learned and the technologies. We don't invent technologies. We promote technologies that other people are inventing.

But again I would underscore that for us the whole concept of good agricultural practices is critical, because good agricultural practices also incorporate environmental practices. We've integrating nutrition into everything that we do. It's very easy to integrate components of nutrition into the technology transfer and the training that we provide to smallholders in conjunction with all these partners.

And we have... Just it can sort of sound a little self-promotional, and that's what I'm meaning to do. And in conjunction with all these partners and in all these countries that we've worked, in the last three years, we've worked with 1.3 million smallholder farmers and have leveraged 1... -- Did I say 1.3 or 1.6? -- 1.6 million farmers and leveraged \$1.3 billion in new sales. So it's not by doing anything other than working in conjunction with everybody else but doing it in a systemized way and making sure that smallholders are going to be able to avail themselves of what is currently going on in the world in terms of sustainable agriculture.

Ismail Thank you. Dennis, please.

Dennis Thank you very much. So Elcano Animal Health is an innovation-driven, global animal health company, been in existence for more than 60 years, and we operate in more than 70 affiliates around the globe. We are affiliated to Eli Lilly and Company, which is a multinational pharmaceutical company, been in existence for 142 years.

Our vision is food and companionship enriching life. The innovation we provide applies to both livestock, meat, milk and eggs, as well as the human companion

animal bond which is dogs and cats. So if we look at sustainability, I think a key piece here is animal care and the impact that animal care has on sustainability. This is something that's very important to our primary producers, the farmers, but it's very important to consumers, because there's a lot of inquiries from consumers around how animals are raised, how is food produced. So from consumer-facing brands as well as stakeholders are asking about – how is food produced?

If you look at our organization, in 2009 internally across more than 6,000 employees we focused on enough safe, affordable and wholesome food. Our cause is ENOUGH. If you go to ENOUGHmovement.com, you can find out more information about it. So it was around food security initially that it was launched. And then as the United Nations Food and Agricultural Organization launched their 17 Sustainable Development Goals, we saw that there were common goals around 6 of the SDGs. And we have a One Health platform that covers those six goals, and that platform obviously starts with animal welfare and wellbeing, a healthy animal and then transitions into dietary meat, milk and eggs for a healthy human, and then obviously planetary health.

So I think a lot of times people don't realize when you think about food waste, a lot of food waste is not that wilting salad that you see in the refrigerator at home. But it's about how many of those baby chicks become adults and become chicken? How many of those young bull calves and how many of those young heifer calves become adult animals and able to produce? How many of these animals succumb to disease and we lose. And that's our cause – the ENOUGH Movement, plus One Health. That's what we do in our business every single day.

I think the challenges we face, though, is that we are seeing with certain affluent consumers in insulated developed countries that the demands are different to what conventional production looks like. I'll give an example. Chickens raised without antibiotics versus conventional chickens. When chickens are raised without antibiotics, those chickens, there's unintended consequences and costs that they suffer because of the fact that they have higher clinical disease. As a result of that, important antibiotics critically important in human medicine are used to try to minimize the disease. That can have unintended consequences like increased antimicrobial resistance. Plus, let's look at the welfare issue that these animals suffer. They suffer higher clinical mortality, and they therefore consume more feed, more water. They produce litter, but they might not reach marketing age. And I can give you numerous examples of this where labeling around a clean label or an absence label produced without antibiotics has a significant effect on animal welfare and therefore on sustainability.

If you look at a dairy farmer, he starts with a heifer calf, and when she produces her first milk two and a half years later, it's a tremendous pain if he loses that animal. Imagine if there was a 15% to 20% death loss. It's not that, but imagine the feed and the water that that animal has consumed, those animals have consumed and that impact. That is why we believe it starts off with animal welfare, making sure that we have the right vaccination programs, preventative programs, judicious and appropriate use of antibiotics; because consumers tell us they want animals not to suffer, to ensure that we can produce healthy meat, milk and eggs for a healthy human population, and it will have the consequences of improved planetary health.

Ismail Well, thank you very much. You've all spoken about the wonderful things that you are doing. I would like to perhaps pose a different question, and we may or may not take it in the same order. What are the primary obstacles that you are meeting in the field when you're trying to reach out to the farmers and transform what they do? Where are the primary obstacles that you feel prevent you or at least obstruct your ability to get the job done? Diane, you want to start? Go ahead.

Diane I'm happy to start. One of the biggest challenges that I think we all face is how we build scale into the impact that we're working on. You know, farmers have one, maybe two chances at their big profits each year, and it's a big risk for them to make changes in the practices and the technology. So they have to really build up a level of trust with their advisors, their agronomic partners, the other stakeholders, to understand that changes that might be being proposed that might really be beneficial from a yield standpoint and a seed standpoint, a storage standpoint, will truly pay out for them. Once we've tested that out with a group of farmers in partnership with great folks like CIMMYT, who I know is here, Borlaug's group. We work as many of us do in partners to bring those kinds of training and practices and technologies to bear. How we then scale that with speed across not just a mill shed but a global value chain is hugely challenging, because the issues are different between corn here in Iowa, maize in India, maize in Mexico or in Australia even. So identifying where those opportunities and needs are, understanding what are the right kinds of changes that will be financially beneficial, environmentally beneficial, and socially beneficial for those communities requires a bit of flex in input that then we need to bring speed to. So how we get to scale in impact is something I still think we've got a big opportunity to work together on.

Ismail Indeed, and let me turn to Kojo now, because a lot, as Akin Adesina pointed out, that he thought political boundaries were lines that cross the ecological zones, but I think you and I know working in parts of West Africa that you can have trucks held up for days on end in time to cross the fictitious line and other such obstacles. So in your experience, where do you see the primary obstacles to your ability to take to scale the best practices that you have been able to identify?

Kojo So I'll see an example, kind of based on the U.S., I think. There is the fear that we get complacent in the food production. We look at the last five years have been very, very good in terms of global production. So there's a piece where we need to really be sure that as a group that we're not getting complacent, because demand is still growing, and once we have a... If there's a shortfall in global production, we just go back to really bad places. So I think that's one on the scale. If I look at the farmer or the small scale farmer, working with them in Africa and India, it's all about giving them market access. It's all about a farmer waking up with all their hard toil to make sure that they're going to be paid when they deliver their grain or the cocoa, and it's not going to be three weeks, it's not going to be four weeks or never.

So I think that's one – building trust with the farmer and really making sure they are paid on time is really critical. It's one of the things we do in cocoa is once the cocoa sack hits the weigh bridge – and technologies enhance all that – hits the weigh bridge, the farmer quickly gets paid and he sees it, or she sees it on her phone. And that builds trust. They can go back and continue to work and make sure that that part of the supply chain is strengthened. Then you can come with all your best practices, growing

and then supply chain, vessels, dealing with government. But I think to your point it's a holistic approach, making sure the farmer trusts, making sure the governments also understand what the big picture is.

Ismail Indeed, indeed. Claire, have you had, I mean, everything from packaging? Because there's also in that whole supply chain, we know about post-harvest losses for farmers throughout parts of Africa can be very significant.

Claire Well, I think part of the thing is really understanding your consumer. In the case of smallholders, they're very risk-adverse. So what we found in Kenya, for example, is where they were most interested in trying new technologies were post-harvest, because then at least they had their crop in hand. They weren't as interested in trying new seeds. That doesn't mean that they won't be interested in trying new seeds, but it does mean that we need to start at a place that's more comfortable for them. And so if we start with demonstrating on a lead farm – it can be a very small farm but a lead farm, a farmer in a community – and they can demonstrate that a post-harvest technology has actually saved them from loss, then other farmers will in fact straight replicating that.

Once that credibility is built up and there is a sustainable supply chain that's working, they're more than willing to try other things, but they need to be affordable, they need to be accessible, and everything needs to really be tailored to the consumers in that particular country, that particular region of that country, which also means needing to work very closely with local agribusinesses and local investors who again tend to know their consumers better than sort of the international companies without that connection.

I don't think any more that anybody is really working in that kind of a siloed vacuum. I mean, I think everybody, again, we've been talking this whole week about technology, we've been talking about partnerships, and I do think that is what's happening. And as long as you can measure where that's working, it's much easier to replicate. And we're doing a lot, I think, in terms of scaling affordable, accessible technologies for smallholders as a group. We're doing a better job than we used to do.

Ismail And, Dennis, you spoke to me earlier about free trade, and now that really is not the immediate concern of the smallholders or the local communities. That is very frequently government policies, not only to add that, but I was mentioning with Kojo the non-tariff barriers that sometimes can screw up, at least I can think of a number of problems in West Africa where just moving from one country to the other, those few kilometers is extremely difficult. So from your perspective, what would you like to see done differently by governments or local communities in order to enable you to really achieve the objectives that you want?

Dennis Well, I think what's impeding a sustainable food supply varies depending on the region of the world. Like in developing countries, poor people are frequently the ones producing the food, and they have little resources, little time. We saw a great presentation today from the CEO of John Deere and the Jiva project. Elcano partners with the Gates Foundation and Heifer International in an East African dairy project in Uganda and Kenya, and it's about producing quality milk, and then the scale. You mentioned scale, making sure that we have milk cooling which is suitable for a 20-cow

operation, not a 2,000 cow operation like in the U.S., making sure that product doesn't spoil from the farm via the road to the actual creamery.

And I think if you look at the other challenge in the developed countries, less than 2% of the population is involved in agriculture. In the dairy industry, for example, one million people in the U.S. are responsible for dairy production, and about another million indirectly in the processing. So if you look at a population of 330-plus million people, how many people really know about what happens on the farm, the animal care side? And so we all want safe and nutritious food, but today if you look at... If we had the abolishment of free trade agreements in the U.S., \$8.5 billion of revenue in the U.S. dairy industry would be lost. So what does that mean? It means one day out of every seven days that the cows are being milked, that milk, we've got to do something else with. It goes to exports today, but if we don't have free trade agreements, this is a significant loss for the dairy producers, 45,000 farmers who depend on this livelihood here in the U.S.

I think the other challenge in the developed countries is around consumers—71% say that in terms of health they look at labels. Let me ask this question here. What does the label "Gluten free water" mean? I thought water was natural. What does gluten free mean? Can you see how you can confuse and create fearful public responses by using inappropriate labeling? And this is what we face. This is the impediment in my opinion in the developed areas what's going to impact a sustainable food chain. The consumers want real information, and we've got to make sure that that information does not differentiate against the category, for example, milk, and degenerates the rest of milk sales if they differentiate in the category. That is a really important thing to do.

So and as I say, I think the most important thing is—In developing countries, how do we help people, give them more resources, educate them. And in the developed countries, how do we provide more data around why milk is all the same, irrespective of whether it comes from organic, irrespective of whether it's from GMO-free crop, irrespective if it's from rBST free cows, it's all the same. It's still one of the most nutritious products, one of the best buy availability in terms of protein, saturated fats—the benefits of saturated fats - phospholipids. Have we told this the story? Do the physicians know this story? Are they telling their patients who are consumers why meat, milk and eggs is important in the diet? I think that's the part that's lacking.

Ismail Indeed, thank you. I would just observe also that one of our very early Food Prize winners, Dr. Verghese Kurien, third, fourth laureate; he actually organized the dairy industry in India and had said that India would out-produce the United States in ten years. And I remember at the time I was involved with him and with others in India, and a lot of people were very suspicious—can you really organize all these little operations into one big... He did. And, well, he won the World Food Prize, appropriate recognition. So there's a lot to be done, and certainly animal husbandry and dairy should be taken into account and not just the cereals—as much as I love my morning cereals—the cereal crops and so on, that a more holistic view involving all the partners is very much supported by everybody.

I think we have time to take one or two questions from the floor. But, Claire, you want say something first.

Claire If I could add one thing, I think the focus on enabling environment within developing countries is important, obviously fighting bureaucracies and corruption, but also the trade barriers that are set up with unnecessary, sometimes, phytosanitary regulations by developed markets. So I mean again there's a balance that we need to strike that I don't necessarily think we always underscore.

Ismail I think that's a very good point, because the phytosanitary barriers are not sufficiently recognized. So let me see. I can't see very well down here. Okay, there, please. Oh, on that side you already have two, so please go on that side, and we'll come back. Go ahead. Introduce yourself, please, and ask your question.

Q&A Session

Q Yes, I'm Peter Matlin, formally of the Rockefeller Foundation, currently at Cornell University. And I would be very interested in understanding how broadly integrated reporting frameworks are being used by companies in the agricultural sector. These IR, Integrated Reporting frameworks, of course, account for the kinds of stocks and flows of the four types of capital that Ismail mentioned in his introduction. And I'd like to know to what extent do the nonfinancial elements in the IR frameworks, when they are used – do they truly influence decision-making at the company level? And are the nonfinancial elements a difficult sell and difficult for shareholders to understand? Thank you.

Ismail Next, please.

Q Good morning. Thank you for the panel. My name is Lia Lucas. I've just completed a master's degree in African Development at the London School of Economics and Political Science. I'm going to make a comment today, and I would like you to respond to it. I've heard three main themes throughout this conference and this panel.

The first is a need for locally based, innovative solutions. The second are sustainable forms of animal production. And the third are low-cost solutions to protein deficiencies for the world's poor. And I see a potential solution that I have not heard yet in this conference, and that is the role of insects in the food system. So insects serve as both consumption for humans and also consumption for animals. Two billion people currently consume insects; many of them are found in Africa. With climatic changes, the naturally found insects in the climate are becoming fewer, so insect farming is becoming one of these new markets that can be used to both feed livestock such as chickens, hogs, fish and also used to feed human populations through supplements and through local markets. So could you please perhaps respond to the area of insects? How can we get people excited about insects? How can we get big donors to fund insects, because in the West insects are seen with a squeamish stomach? So everyone let's support some innovative solutions to change. Thank you.

Ismail Well, thank you. That's a very good question, and we have now two questions. And while the panel thinks, I'll just tell you a true story happened to me in the '70s when I was traveling in Saudi Arabia and in the gulf, the eastern part of Saudi Arabia. In the gulf, of course, they eat shrimp. And I was there first in the East, and they said to me,

"You're going to go to [inaudible city] later on?" I said, "Yes." "It's terrible people." And I said, "Why?" Said, "They eat locusts." These are locusts, which is like the grasshopper. "It's disgusting, it's terrible." Okay, the next day I travel, I'm in [inaudible city]. I'm eating my locusts with them, and they say, "You came from the Gulf. It's terrible people there. They eat shrimp." And I said, "Well, what's wrong with shrimp. You're eating locusts," I said. "Not locusts." "Of course, we eat locusts. But shrimp, yuck." So it seems to me that there is a lot of that resistance has to do with how we were brought up rather than any intrinsic problem with the insect.

Now I've given you time to think, so who will take on the two questions? You go ahead, Diane. Go ahead.

Diane I'm happy to start once again. I will say for the record, I had both ant eggs and crickets earlier this week while I was in Mexico City as part of the luncheons that were served, and they're delicious, and they are part of the alternative proteins that we're looking into, among many other things, because proteins are critical.

But let me take on the integrated reporting question. As a publicly traded company who does financial reporting and corporate responsibility reporting, we have a long heritage of transparency in both. We publish annually against our progress. We publish within the corporate responsibility arena against the GRI industries, specifically for food and really ensure that as much as what we can share is not just credible, fact-based and quantified but also transparent and publicly available. We have a significant amount of information on our website, and we actually have consumer-facing engaging website, such as openforbreakfast.com, where we touch on so many of these issues.

But we have begun to do more is integrate this into our financial reporting. So we do not yet have integrated financial reporting full stop. We started several years ago. In fact, when we made our first science-based commitments to address climate change and greenhouse gas emissions at COP 21, out through 2050, with our commitments to reduce our own Scope 1 and Scope 2 greenhouse gas emissions, 65%, and our Scope 3 emissions to 50% aligned to the NRGs that were being issued there, that we would begin to integrate more of that into our financial reporting. And just this year, in fact, we went beyond just our annual report and began incorporating quantitative progress in our 10Ks and 10Qs.

So I think we're seeing increasing numbers of companies move this direction. We're certainly paying attention to it. It is frequently on the agenda with our shareholders, and I'm often in shareholder conversations with others on these issues. And the qualitative pieces are also part of performance appraisals and end-of-year assessments for leaders across the scale of the company, integrated into how they're delivering for the business.

So I'll stop there. I could talk on for much longer, but we'll give some space to others.

Ismail We have limited time. Kojo, you want to add something?

Kojo We address it in our annual reports, and we just released our cocoa report, look at indeed kind of the milestones. Because with all this to ensure transparency and to

ensure that the consumers, to your point, consumers understand what the growers are doing and all the work that's happening in the field; showing that indeed cocoa yields have gone up 40% is very critical, farmer productivity, really showcasing all these. We're a private company, but indeed in our annual reports we also talk about what we are doing with climate change. And we are tracking that, because we as a company do believe that it's being responsible. Our purpose is to globally nourish the world in a safe, responsible and sustainable way, and we really believe that, and the family members really believes that this needs to happen. So for our benefits and just for our customers, we do track this. We track it to make sure we can showcase our work, and it also helps getting partners on board to leverage what you've already done.

Ismail Okay. Let's take one last question from here, because we are very pressed for time, but please, from this side, somebody.

Q Hello. Thanks very much. I'm John Magnay from Opportunity International. We're a financing institution across Africa. We finance smallholder farmers. I think there's three things that worry us about the farmers that we're financing. The first thing is that we do recognize, and I think we all recognize, that their productivity is in this low band area, maybe 20 or 40% of potential.

The other bad thing that we identify is that the incomes going to these households – and they're sort of sitting in this \$1.50, \$2.50 range – they are losing more than 50% of their annualized income to income-smoothing strategies that they adopt, which means that, even when they have the potential of earning, they actually lose that money because they resort to forward-selling, side-selling, money lending, etc. So this is a very big challenge.

And the third thing, of course, that we've been talking about this week is to do with the post-harvest losses that are going on. So we have three things which are pulling it down. But by the way, they can give us the opportunity for some level of sustainability. Obviously, we can increase yields. I think we need to focus more on household cash flow in rural households. You know, in a country like Malawi where you're getting one income a year, one opportunity to get income, to survive for 12 months is the real hardship for those households. So I see a lot of finance going into increase in productivity. I think we need to be looking at household cash flow, because by the way, we can save rural households' money.

The third thing is, when we look at labor and the return on labor, the majority of smallholder farmers in Africa are hardly making a return to labor. And if they don't make profit over and above a return to labor, they have nothing to reinvest in their businesses. So I think what we need to be doing is actually looking down at the household and actually seeing what level of return we are delivering back to a household to actually get some sustainability in some change.

Sorry, I've got one more thing to say. Productivity... By the way, I have seen fantastic increases in productivity in the cocoa value chains in West Africa. The challenge is – the global price of cocoa has collapsed, so the 40% increase in yields has not actually driven it down to a 40% increase in household income because of the lower price that farmers are receiving at the farm gate.

Ismail Yes, that's true. That's a set of policy that has to be looked at. I'm sorry, but we are really running out of time, and I will give a brief word to Claire on this question of going down to the household finance. So we're looking at how the household finance flows, like we do in macro-finance projects and the impacts of micro-loans, etc.

Claire Well, I'd say that it's actually more about diversification so that you're not mono-cropping. I mean, agriculture is dynamic, the markets are dynamic. What's up one day is not necessarily going to be up the next day, and so you want to be able to have a certain element of self-financing as well as access to credit – which would mean that what you'd want to be doing is being more productive. For example, if you're a maize farmer, you want to be more productive in your maize so that you can free up more of your area for horticulture, and you want to be able to have some surplus. You want to be able to do your post-harvest storage so that you're not always selling at the lowest time of the year when everybody else is. And you want to be able to combine those things so that actually it makes more sense. And you're going to have to have dairy, you're going to have to have livestock. I mean, we shouldn't have one thing going on for any farmer.

Ismail This is going to be in the complex agro-economy and the ecology of the smallholder farm. I wish we could have more time, but we have heard from four distinguished representatives of how the private sector works and tries to include the excluded and make sure that we approach the task of production and feeding and nutrition of the world in a way that would promote sustainability. There are obstacles, of course, but that's just to get us more involved, I think, not less. And to the young people who are here, I would quote a great lady, Eleanor Roosevelt, who said, "The future belongs to those who believe in the beauty of their dreams." And Norm Borlaug really showed us this. So I ask you all to join me in thanking the panel, and we can move on.

Margaret Catley-Carlson

Ismail, thank you so much. I knew you would conduct an extraordinary discussion, and indeed you have, flanked by your extraordinary panel, so thank you very much. And we've all got answers now when people say, "I won't meat that's been immunized." You know, you say, "Oh, so you prefer the suffering of animals." I like it, I like it, I like it. Okay, thank you very much indeed.