

Audio Title: Nourishing Africa's 2.4 Billion: Leapfrogging Through Innovation and Technology

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Transcript

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Bill Clark: OK. Well, [0:00:25] [Indiscernible] have a few more people coming in late who honor World Food Day by not eating the food early. It is World Food Day. We are therefore particularly delighted to have Ndidi Nwuneli here giving us the talk which is advertised on the screen. My name is Bill Clark. I'm a member of the faculty here, sometimes member of the Center for Business and Government where I direct the Sustainability Science Program.

Let me say a few words about Ndidi but she has told me she would rather have the time to speak than for me to tell you everything about her. So I'll just tell you a few things about her. She is highly experienced entrepreneur in the development realm working principally in Africa but with consultancies and experience around the world. That she has been on the boards of a number of large companies.

She is the author of all sorts of pieces of scholarship. But most recently, I think, her book on *Sustainable Innovation in Africa: A Practical Guide for Scaling Impact* which was published – you have the copy? Come on... by Routledge in 2016 but was actually a project that matured here at the Center for Business and Government where did Ndidi was a senior fellow in the 2014, 2015 academic year. That even that however was not her first acquaintance with Harvard, she has an MBA from Harvard Business School which she took to complement her previous education at Wharton.

So, having chatted a little bit with her about the activity she's going to be undertaking this year which is in fact to produce a follow-up book on the topic of the presentation today. I'm thrilled to have her with us. She has promised to keep her remarks to less than 40 minutes in order to benefit from your comments about what you would like to see in her book that she either didn't have time or hadn't yet thought about including in her presentation. So, Ndidi, great to have you here. We look forward to the presentation.

[Applause]

Ndidi Nwuneli: Thank you so much. Well, happy World Food Day! I'm delighted to be here. And thank you to Professor Clark. He's actually my faculty adviser and he said I should speak for 20 minutes and had planned to speak for one hour so, we've agreed on 40 minutes. I want to thank Scott and the team at the Mossavar-Rhamani Center for Business and Government. They've been extremely supportive. When you have – your first coming and then you ask if you can come back, it means you had a great experience and the team has been extremely supportive. So, thank you so much.

So I've been given a little time so I'll walk you through. The overview is really just to introduce the agriculture and food landscape in Africa. Most of you would be familiar with many of these indices, how the ecosystem has evolved and then to get into the meat of my book, which is the role of entrepreneurs and technology and my own personal experiences in the space.

So, agriculture is the bedrock of most African economies. And Africa is actually naturally endowed for cultural excellence. Almost everything you put in the ground in most of our communities grows. We have 60% of the world's arable land and we are the number one producer of many, many, many valued chains cashews, cocoa. So if you have a chocolate bar 70 – 7 out of 10 times the cocoa is from Africa and that's reflected in so many of the valued chains and gets when net importers of food in most of our countries, the only country that's not a net importer food is actually Cote d'Ivoire because of cocoa. And we import cereals and vegetable oils, fish, sugar, et cetera.

And we have a challenge around malnutrition. Right now, one out of every three children is stunted which affects brain development and affects future outcomes. This quote by Akinwumi Adesina captures it quite well that if we don't address the stunting problem and the malnutrition problem in Africa today we have stunted economies tomorrow because outcomes are linked to nutrition. In fact, according to FAO and GAIN, hunger kills more than AIDS, tuberculosis and malaria combined on the African continent.

So how did this become a reality? First, there has been under investment in the sector. And after a conversation with Zoe Marks yesterday who's my other faculty adviser, she said you also have to talk about the impact of colonialism in your book. And I said, "Well, that's taking it a bit too far." But the truth is that most of our value chains and our ecosystems were designed for an export market. So the focus on cash crops versus food crops, the feeder roads primarily being linked to the ports as opposed to processing sites or to markets where really some of the past from the colonial system.

Similarly, we haven't really developed a lot of infrastructure around irrigation, around mechanization because we are supposed to be also importing large amounts of produce from the colonies. So this is part of our heritage. When you look at fertilizer, when you look at feeder roads, when you look at mechanization, you see that we're so behind international standards. There are key gaps limiting the emergence of vibrant ecosystems across the entire value chains and financing remains a huge burden and a huge challenge.

In fact, when we look at Nigeria, in particular and you look at all the different initiatives that have been established by governments to ensure that financing gets to farmers. When we looked at it last year only 4% of commercial bank lending actually go to agriculture and very little of that actually trickle down to small holder farmers. So there are still significant bottlenecks when it comes to financing in terms of exclusion, in terms of bad debts, in terms of institutional coverage, in terms of lending rates and there's ignorance around what's financing mechanisms are most appropriate for what size of business. And there's a lot of fear around agriculture sector and there are lots of heightened awareness around risk associate with agriculture.

We also have very high rates of post harvest losses. And this is primarily because we haven't invested in processing locally. 10% to 60% percent of fruits and vegetables, grains, tubers actually go to waste and you can look at the spectrum across. In Nigeria, 50% of tomato goes to waste. In Kenya, 33% of maize goes to waste. Majority of the packaged foods in our supermarkets are imported and you don't have to – you'll be surprised growing up that was not a reality, but today that's the reality in many, many, many African countries.

And women continue to face challenges in agriculture link to access to land and access to financing and a lot of limitations tied to cultural views and ownership laws. And the same with youth, many young people don't find agriculture as an attractive sector for them. We've been working to change that but it's not easy. They feel that their fathers who were farmers are poor so they don't want to be poor. And that association of poverty and farming is one that we have to break.

And then climate change is very, very real on the African continent. And in fact, I think we are bearing the brunt of some of the mistakes that other countries have made. And you don't have to look too far to understand what happened to Mozambique this year, Nigeria last year, four states were under water and that affected all the investments that farmers had made. We made an investment in a rice company called Coscharis rice and the entire farm was flooded.

And this is also causing challenges around farmer conflicts with herdsman because they are being forced to move down south because of the desertification happening in the north. When you look at most African countries, we spend way too much on food. Nigeria actually leads from behind, 56% of household income is spent on food, the highest in the world. Kenya follows us very closely and this is just shocking, right? Because if we're so naturally endowed for agricultural excellence, why is food so expensive? And that's really because of the broken value chains and the challenges around that.

When you think about the population growth and the 2.4 billion – billion that we're expected to be by 2050, you wonder if we're net importers of food today, what are we going to be in 2050, unless we do something really drastic. A study that was conducted by Washington University says we're going to have to increase by threefold just our maize yields to be able to feed ourselves by 2050.

But I'm an optimist, so I've set out all the challenges and now we're looking at what the future holds. And that's the real bulk of my research over the next one year. This is a quote I have adapted by Nelson Mandela and Ngozi Okonjo-Iweala actually used this quote yesterday I was like, "Oh she saw my slides." Like, "Slavery and apartheid, I changed poverty the hunger, is man-made and it can be overcome and eradicated by the actions of human beings." Sometimes it falls on a generation to be great and I think we can be that great generation. So, transformation is possible and we can lead that transformation.

So we've put out a very bold vision, Sahel Consulting, Nourishing Africa and myself. And this vision is that by 2050 we will have a flourishing sustainable and just food ecosystem which leverages agtech and digital innovations driven by Africa's vibrant entrepreneurs to ensure that

the continent nourishes itself and becomes a net exporter of food. That's our vision and we're going to accomplish it.

Now, why do we think we can accomplish it? Number one is that there's innovation on our continent and it's driving a lot of change. And we're going to be able to leap frog because we're going to leverage that innovation very carefully and wisely. Cell phone penetration in Africa is one of the highest in the world. These statistics actually in Ngozi Okonjo-Iweala's presentation, so there were 800 million subscribers, so I have to update my data with hers. 800 million subscribers which mean that you can have mobile money transactions, you can share data, you can share information and allow some market linkages, it opens up so much. There are sensors now being used. There's by engineering mobile applications.

There's a professor at Stanford who has been very supportive of my work who from his office can actually see farms in different African countries and see farms side by side and which ones are more productive and which ones are not and which ones are going to have high yields and which ones are not. That data is available to us. That technology is available to us. It allows us to plan. It allows us to make decisions and fosters precision agriculture which improves yields and outcomes.

Recently ZTE look at close to 360 digital innovations in Africa and looked at what they're being used for and the impact they're having. Most of them are really around data. But we're starting to see a lot more around market linkages, around supply chain management and around financial inclusion. And these are ongoing interventions on the African continent with varying level of impact and uses. And the truth is that we're seeing a lot of bright spots. Some of them should be scaled. Some of them are so expensive but they're making a difference.

And then young entrepreneurs are showing us what's possible. Across the continent, we see young people who are looking at agriculture from an innovation lens and are starting new initiatives to drive change, not just in the core industries that we're used to but even looking at insects. I mean insects are very, very popular now in Europe as a growth opportunity for protein sources and alternative protein sources. And now in Africa, we're starting to look at insects, starting with animal feed but then expanding.

I've often joked with my friends. We know what we can do with cockroaches in Nigeria, right? People are making money off insects in other parts of the world. And because we're in the tropics it doesn't take a lot to cultivate insects. And a young lady has a company called Ecodudu doing just that in Kenya.

So, even if you're a pessimist about Africa's future, if you look at the numbers, you have to get excited. If every African just spends \$1 a day on food then we have \$876 billion industry already today, right? But if we spend \$10 on food, we have an \$8.8 trillion industry. And somewhere between \$1 a day and \$10 a day, that's what most Africans live. So this is a sizeable market. The question is what will it take for us to really leverage it and unlock it?

So, the focus of my book is really on scaling, creating a million entrepreneurs who have the revenues of over \$1 million to drive this \$1 trillion industry that we can envisage. And perhaps

Sir Clark mentioned that I had spent a year here writing a book previously called *Social Innovation in Africa: A Practical Guide for Scaling Impact*. And the first take away when I was writing that book was that there are certain business models that scale in Africa. And over the last six months as I've been conducting interviews for this next book, it's been the same six variables.

If your business is going to scale in Ag, it needs to be demand driven. It needs to have measurable impact. When I say demand driven, people have to value the service or the products you offer and have to be willing to pay for it so it cannot be subsidized forever. They have to be willing to pay something. It has to be simple enough for them to understand it. It has to engage the community. It has to leverage technology because technology reduces the cost of delivering a service or a product or even measuring your impact. And it has to be low cost enough because in many of our countries there's a price points by which people will not buy something if it's a food product.

In Nigeria right now every new entrants asked me what's the price point? I say 50 Naira. If it's above 50 Naira, you're going to have to innovate to think about how to make it hit that price point. And it's the same thing in the United States. There's a price point which with you – if a product is beyond that price point, it's a fast moving consumer goods company you become a luxury item. This exciting business models are evolving and many of the entrepreneurs we've interviewed have said they came in to solve one problem and quickly realized they had to tweak their model multiple times to get to address the huge challenge leveraging technology.

Twiga is an example that I was really excited about is less than five years old and it was started by a former executive at Coca Cola and a partner. And when they started this company they basically wanted to export bananas to the Middle East from Kenya. And they quickly realize there's a problem here. We can't export bananas if there's no local supply chain that ensure standardization that ensures that the bananas are ripened at the same time, the quality is consistent and we have a regular supply base.

So they quickly had to tweak their models. And let's start building that locally. So let's build a supply chain that can supply the local market. So, using technology they engaged farmers. They know when the bananas are ready to be harvested. They take them to conditioning centers. And then who are their target customers? Not large supermarkets but mom and pop retailers who have open air shops, who use their mobile phones to place orders and within 14 hours of placing an order your bananas and your fruits are delivered.

So the farmer gets paid, the retailer has a tremendous value because they don't have to wake up at 4:00 AM to go to the market to buy fruit and they can take it to their – they get it delivered. And so Twiga doing, I mean now works with 7000 informal retailers in Nairobi and they've been able to raise \$60 million, because their model is efficient, it's effective and it's demonstrating impact.

Cowtribe is another very interesting example. And they basically realize most farmers don't have a way of measuring, of tracking when their cows need to be immunized. So using software as

well, they're able to link farmers and vet doctors in local communities and provide that communication on the linkages to ensure that cows get their immunization when they need it.

So the second piece apart from the business models that we've been hearing over and over again is branding and marketing. And that was not – I did not have a chapter in my first book on branding and marketing but this is so critical in Ag and food especially in Africa. And we have a huge challenge around this because many Africans entrepreneurs don't tell their stories very well so you don't know about that them. They don't know how to package themselves and they don't know how to amplify their voices. And this is something we realize is so critical to the work that we're doing. And so, we're devoting time to this.

One man who has done it very well is Jehiel and some of you know him from *Hello Tractor*. And he has made this so pivotal to what he does. And when I was interviewing him for the book he said "Ndidi, I wake up every morning and I listen to podcasts and earnings results of all the CEOs that I want to partner with, so I know what's the John Deere CEO is thinking. So when I meet him I can speak his language."

So he started in Nigeria and now they're Kenya and India. And they branded themselves as the "Uber of tractor". But what are they selling? Their software. They're selling software connecting tractor owners to farmers who need the services. But he's done so well that he gets other companies to advertise for him. And so he's been the Washington Post, The Economist, Fast Company, BBC, name it and he's well-recognized for what he does. But he has made branding and marketing in art.

Now, I ask you "How many of you listen to podcasts of the CEOs of the companies you want to partner with? Or how many of you follow the earning results?" It was actually a something for me to think about. And now, he partners with every single major multinational that's committed to growing their business in Africa including Corteva and Mars and everybody who has a focus on this sector.

The third major issue that's required for scaling is talent. And every entrepreneur that we've interviewed recognizes that first, they themselves have to have that vision, that passion, that commitment and the tenacity to stick it out because it's not easy. It's a tough sector. You don't get rich overnight. But if you're committed to it, you can achieve tremendous success. Beyond yourself, you have to identify a committed board of directors and capable team members who are interested in this sector and will work with you. There has to be a commitment to values and ethics as pretty important parts of what they do. And we've seen some examples of individuals and groups using talent very, very effectively and being able to recruit talent.

NUCAFE is basically an umbrella group for coffee providers in Uganda. And what struck me about them is that when I ask them about how many employees they had they had, they said 369. But they have 65 interns from Makerere University and from interns all over the world. That's a steady source of talent for them. That's their strategy.

And then Good Nature Agro is here. Yeah. So, they're very interesting it in Zambia. They're doing amazing work in the seed sector. But what they've decided to do was basically to create

these private extension agents. They essentially have like a mini university to empower these private extension agents and they incentivize to work with farmers and get their seeds into the – grow the right seeds and then also get them in the right markets. And this is just two – these are just two interesting examples of how people are leveraging talents in innovative ways.

I also love Partners in Food Solutions. Now, they are based in the United States but what's really unique about them is that they form partnerships with all these corporate organizations who have staff who want to give back to Africa. And so these staffs basically volunteer their time to help African Agro processes. AACE Foods has used them many, many times. Whenever we want to buy equipment we called Partners in Food Solution, "We want to buy a sterilizer. We've never bought one before. You guys know what sterilizers are. Can you guide us through the process?" And they've been able to expand across Africa in partnership with local organizations. And more recently, they're actually placing insurance within companies to support the agro processing sector.

Financing is the fourth piece and I put it at the fourth piece because most people say, "I need financing." And I'm like, "No, you don't need financing." In fact, this quote by *Hadija [0:22:13] [Phonetic]*, who interviewed for the book says, "Not all money is good money." Don't – you have to refuse grants sometimes. She – this is her fourth business. Three – the first three failed. And she said, "I've made mistakes because you become a donor Darling, you take grants even for a private company and it sends you down a very, very difficult path." Many times you become agents of what the donors want and forget what your core business was when you started.

Now, there's lots of money in this space but they have – most investors are looking for companies, they can't find the companies that are investment ready, that have transparent financial accounts, audited accounts, good track record, et cetera. But there are lots of funding opportunities and we're already capturing them so that most of you have access to them. Because for me, the biggest challenge is not the funding it's actually being able to know what right type of funding is and how to structure your engagement with the funder.

There are lots of funders in this landscape. Sahel Capital, our sister company, is a private equity fund in that space but we have many, many other examples of both grants and loans available to agripreneurs.

And then fifth piece is around partnerships. There's no way you can succeed in agri and food value chain without partnerships. And partnerships are tricky but you need them to be able to really move forward, partnerships with government, partnership with other nonprofits, other for profits to really expand your scope. There are many examples of entrepreneurs that we've talked to, of good and bad partnerships. And Sahel Consulting recently through our dairy development project understood how complex it is to actually form these partnerships. We were basically linking dairy farmers to milk off takers and partnering with government extension agents, it's tough. It's not easy but you need these partnerships to scale.

And then you need an ecosystem that works. You need policies that create enabling environment. You need – the government needs to create financial incentives. You need market-driven

research institution that can provide relevant data. And there are lots of different interventions that are required in the ecosystem. But I would say that and even when governments are not willing to do the right thing, the private sector can work together to set standards for themselves.

Ethiopia is a worthy example and I'm very excited about Ethiopia. I'm going to Ethiopia next week. They setup that ATA with a 20-year time frame, basically saying this is one-time intervention. We're going to fix this sector after which we disappear. And their goal is to reach productivity levels of Asian and Latin American countries with key commodities. And we've seen how through the commodity exchange, through different interventions, they are making changes because they have a time frame and a very clear work plan. We need this to be emulated by many of the African countries.

So, I'll wrap-up with just insights from my own personal engagement in the sector. So, I'm the Managing Partner of a consulting firm called Sahel Consulting. We work across West Africa. And our vision is to be recognized as the most trusted consulting partner and point of reference in the agriculture and nutrition landscapes. We have a range of partners we work with on many, many projects.

And I mentioned the dairy development project, this is probably one of the toughest projects we've had to work on and we've done three years of it and now we're going to be doing another five years because dairy is such an important value chain in Nigeria. We're net importers of dry milk, 99% percent of the milk we consume in Nigeria is imported and yet we have the fourth largest cattle herd in Africa. So there's a disconnect between our dairy and our cows.

And so, this project really had an infrastructure components where we're building solar-powered boreholes, artificial insemination, creating a feed and fodder industry, literally making a market work that didn't exist before. But it proved to be really, really effective and impactful and now we're expanding it to five states and six new processes where the processes have to commit to sourcing locally and have to match the funding that comes from another international funder.

We also work in seed systems and we've been doing a lot of seed system intervention and creating entrepreneurs in yam and cassava, two very important value chains in Nigeria. And I mentioned our sister company, they have invested in rice, dairy, Shea butter, poultry and edible oils. And then I mentioned that we have a problem with youth. We have a huge problem with talent. The biggest barrier to my growth right now in Nigeria is talent, staff. So, if you guys are interested in working come on home.

The point is what we decided to do was to go to our universities and really spend time with these young people. And then we've realized that agriculture was their fifth choice option. They wanted to be doctors. They couldn't get into medicine, pharmacist. They couldn't get in, microbiologist. So they now settled for agriculture and they're trying to get out because they think there's no future in this. And so, we're trying to change their mindsets, we give scholarships, we give internships and then we have these forums where we're educating them on the opportunities in the sector. And it's starting to change but not fast enough.

I am also the Co-Founder of a food company called AACE Foods. We source locally and process for the local market. We have about 14 SKUs in supermarkets around the country. And then we also have mostly B2B sales, Unilever and companies like that. And we're displacing imports gradually and also trying to address malnutrition. We have a soya-maize blend fortified with vitamins and minerals which we also do needs to in internally displaced people around the country.

And the last initiative that we've launched to support this book actually that came out of the book is called Nourishing Africa. And I'm most excited about Nourishing Africa. So, we started Nourishing Africa because of the book but also because of our experience, challenges finding data on the sector and on a daily basis getting emails of people saying, "Ndidi, I want to enter the poultry sector how fast is a growing? Where are the opportunities?" Training and e-learning, access to funding on a daily basis. People are asking, "Where can I get money?" So, this is supposed to be basically a LinkedIn, Facebook and DevX for the Ag and food sector in Africa. That's our vision. And our vision is a million entrepreneurs, a home for a million entrepreneurs driving this \$1 trillion industry.

So it's live, it's not fully developed but it's live, I hope all of you have got flyers on Nourishing Africa. Spread the word because it's going to be as effective as the engagement on the sector. But we're getting so much interest from other people who want to partner with us. We're going to be having weekly webinars, training entrepreneurs, getting them excited about the sector. And I really believe we can drive a lot of change.

So, I'm wrapping up with a quote this is my current mantra this year. A young African speaking to a president said "This generation is no longer asking God to grant us the serenity to accept the things we cannot change. We're asking the almighty to grant us the courage and the wisdom to change the things we cannot accept." So one of the things I cannot accept is that a continent that's naturally *endowed [0:29:18] [Phonetic]* for agricultural excellence as a net importer of food and has one of the highest rates of malnutrition and hunger in the world. I cannot accept that. I think it's a travesty and my generation will not allow this to continue.

So I'm coming back to our vision which is that by 2050 we want a flourishing, sustainable and just food ecosystem which leverages agtech and digital innovation driven by Africa's entrepreneurs to ensure that we can feed ourselves and become a net exporter of food. And yesterday, I met with legend, a living legend, *Coldrey Goldberg [0:29:51][Phonetic]* and he said to me, "Ndidi, you are too narrow in your thinking. It should be Africa nourishing the world not just nourishing itself." And that challenged me because I realize if we have 60% of the world's arable land on the continent, we should be nourishing the world. That's a big task and it can't be accomplished alone.

So there are some practical steps that all of us need to consider. First, we need to change our mindsets about what Africa can achieve and what is possible. Because many of us struggle with what we see every day but we can't see the future. We have to buy proudly African food. And I told Scott that next time we're going to have African food that we're serving today. I'm actually challenging people everywhere I go. I say, "How many Af- what's your favorite African dish? What's your favorite Nigerian dish?" And most people who are not Nigerian can't name one.

And I can't imagine, right, how the rest of the world hasn't benefited from the amazing in Africa. And so, my mantra now is we want to be as synonymous with Japanese, Indian and Thai food, right? Nigerian – just pick three countries. Nigerian food, Senegalese and Ethiopian food will be synonymous with Japanese, Thai... ah? Which country am I missing?

Participant: Ghana.

Ndidi Nwuneli: Ghana. No, no, no, no let's just *polish [0:31:15] [Phonetic]* these three. I understand. Proudly African food, we have to change the paradigm around African food. We have to advocate for a level playing field for farmers and processors. And that's what you guys can do here because it's an uneven playing field. We have to advocate against dumping and food fraud. Africa is often considered the sink of the world. I mean the food that is imported into Africa is substandard. And I know that because I've been doing a lot of research on food fraud. And we have to tell positive stories.

I start off saying how bad it was but I also wanted to show you how great it's becoming because entrepreneurs have refused to sit silent. They have decided to take the future. We must leave a legacy for our children and grandchildren. And this is the picture that I want people to think of when they think of Africa, not the starving child, not the malnourished child but these vibrant children who have a great future ahead of them. And I think together, working hand in hand, we can accomplish this in our lifetime. Thank you very much.

[Applause]

Ndidi Nwuneli: How much time?

Bill Clark: *[0:32:24] [Indiscernible]*

Ndidi Nwuneli: OK. All right. I'll take contributions and questions.

Bill Clark: So, ground rules are as follows. Raise your hands to get in the queue. Questions ought to have question marks after them and they ought to be short enough that they sound like a question rather than your own lecture to the group which you can do by registering and stuff for some future date. If you've got a question that is a really short immediate follow-up to the one that's just been discussed, put up two fingers and I would kind of get in the queue so we can actually have conversations rather than just being *[0:33:03] [Indiscernible]*. So, the floor is open. And please identify yourself.

Alicia Harley: Hi, thank you so much. I'm Alicia Harley. I work with Bill in the Sustainability Science Program, a lot of Agtech. This goes back to sort of about you said at the beginning with Professor Zoe Marks asking you to think about colonialism but what we see so often in Af – or in the agriculture technology and agriculture technology adoption is that the poorest farmers end up not really benefiting from supply chain interventions or new technologies. So what has been your experience on how you actually make it so that you're not just growing African agricultural economies but making sure it's not of the poorest benefit?

Ndidi Nwuneli: OK.

Bill Clark: Stand up. I'm going to ask you to repeat the question, the short route of the question. And we will have our question, we stand up in the future.

Ndidi Nwuneli: OK. All right. So, the question, with all these ag innovations, most small holder farmers can't afford them or don't benefit from them. So what are you doing to address that? So recently, AGRA had this conference called *AGRF in Accra [0:34:15] [Phonetic]* and they released this report called *The Hidden Middle*. And I was in a plenary and I was like, "This middle is not hidden." The SMEs working in the Ag space are actually, for me, the catalyst to addressing that problem.

So, I use AACE Foods, for example. Because AACE Foods sources from 10,000 farmers, we can't change that behavior because we're buying from them. If we didn't have – if you don't have AACE Foods as that intermediary, who has been buying from them consistently they wouldn't change their behavior, they wouldn't adjust. Many times you have programs that come in and say "We're going to introduce technology" but then sort yourself out. And the farmer says, "Why should I pay for it?" As opposed to saying, "AACE Foods needs this data. AACE Foods needs this quality. AACE Foods will pay for it or subsidize it in the short term."

And so, I think we need a lot more SMEs. We can – and what struck me about the report which they actually identified is that many people focus on small holder farmers and then they focus on big companies like Dangote or Nestle. They don't realize that the SMEs are actually going to be the catalyst. And in America, this country is built on the back of SMEs. The same in Africa, so I think we need to start seeing them as catalysts. If they are – if you partner with them and they can source locally, then farmers will change behavior.

And I'm saying that the dairy project is another example. You imagine that you're asking Fulanis historically they travel around with their cows, that's their culture and you want them to settle. The only way they're going to settle is there's water, you can buy feed every day and they'll actually buy feed and will buy your milk. Those three things, they'll settle. Why do they need to travel and walk around the country from the dawn to dusk if they have those three things? So that's – we're saying that they will change their behaviors, they're the catalyst. So I think we need to start thinking creatively about who those catalysts and the intermediaries who can subsidize or offer or take on those costs in the short term.

Bill Clark: Thank you. Yeah.

Participant: Hello, I'm Pamela [0:36:25] [Inaudible]. So I have kind of a two part question. The first part being about the dairy farm initiative you're working on in Nigeria, if you could speak more to what exactly that looks like. I think you were saying that Nigeria has like the sixth largest...

Ndidi Nwuneli: Fourth.

Participant: Fourth largest and yet we're still importing so much. And so, I'm just wondering how do you guys sort of like leverage the [0:36:48] *[Indiscernible]* like fresh milk versus powdered milk and [0:36:49] *[Indiscernible]*. And also, how do you guys work with governments or inspite government to ensure that locally produced things are actually being like put into this supply chain versus like substandard goods being sent into different African countries?

Ndidi Nwuneli: Yeah. So, I have to tell you it's no easy. The largest company right now in Nigeria, the largest multinational that works in this value chain is FrieslandCampina. FrieslandCampina is a Dutch company that's owned by Dutch cooperative of milk farmers. And so, we work with them for two and a half years on this project. They've committed to sourcing locally so they were very interested in this and they've been doing this for a while. But truly they're Dutch company owned by Dutch farmers. They need to buy from their farmers. And so, they are conflicted. So I've decided to take on a lot of these companies because I would change the name from Nigeria Dairy Development to Advancing Local Dairy Development in Nigeria. It's a very different feeling. So we've already started advocacy.

So the first article we've written is what is milk? Defining what is milk. What is milk? You know, in America, when you say "I want some milk" what do you normally think of? Fresh milk, right? You think it's from a cow. But in Nigeria, a lot of what is sold as milk is not milk. It's actually – in fact, they say it's vegetable fat. But I actually think many of these guys are selling you know corn starch with milk flavoring with some vitamins and minerals. And why it's a tragedy is because mothers, we have – only 23% of Nigerian women breastfeed exclusively. In fact, they think it's like "cool" to say you're buying milk. This powdered milk that has no protein. So, we are taking them on by defining what milk is and say, "You can't call this stuff milk. Call it something else."

So, setting standards is the first battle. The second is that the CBN has recently said that it's going to put dairy on its list of difficult to obtain – it's going to be difficult to obtain foreign exchange if you're going to be importing dairy. And all of a sudden every single provider who were begging to work with us is now calling us. I've got some visits from the New Zealand government, the Irish government. I mean these governments are like "Oh my God! You're going to stop importing our milk?" Some of these policy changes have to happen for them to realize. And then every time they come and they say, "Ndidi, the market is not ready. We need at least 10 years." And I'm like. "You want to say this so that 10 years from now you're telling me the market is not ready we need another 10 years. And forever we will continue to say we're not ready."

And that's why I admire a lot of the Asian countries in terms of their development. They've developed on their own terms. They haven't cowered to this pressure. So, it's very interesting you know, you don't realize how much money some of these companies are making in Africa and they don't want you to know. Some of them are multibillion dollar industries in countries not even the entire continent. And why would the government of New Zealand take off – fly all the way to come and see what's going on in the country? Because one of the biggest companies is from New Zealand. So, anyway there's a policy dimension.

And the third is that we need to become more competitive. Our local companies have to step up and compete. There is fresh milk. There's fresh yogurt. And Nigerians will buy it. Don't tell me Nigerians don't have taste bud for fresh milk and fresh yogurt. They want reconstituted milk? No. But it's a very complex issue, very, very complex and there are lots of vested interests as we know. In fact, I think agriculture is like the oil industry. The more I learned about this sector, I'm like, "Wow! This stuff is difficult to address because you have strongholds really fighting for the sector. You see that in rice. You see that in many, many value chains."

Bill Clark: So what I should have said at the beginning is not only your questions end with a question mark, once you get one question mark you stop. And you can put your hand up for a second call but no two question marks. [0:41:02] [Indiscernible]

Participant: Hi, my name is *Nadir* [0:41:03] [Phonetic].

Bill Clark: Can you stand up so we can hear you?

Participant: Yeah. I'm a second year MPA student. So, you mentioned the potential that the African continent has for development in the next 10 years. What role – could you elaborate a little bit more on what role you feel political constitutions within Africa can play in trying to maximize that potential?

Ndidi Nwuneli: So, as I alluded in my response to her, the enabling environment is so critical. And I know that even at the Kennedy School, there's a whole debate about protectionism versus free trade. And so, I went to the business school, I always believed in free trade, right? But now, I'm becoming a little more conservative in my approach. I think some policies have to protect our local markets.

In the Nigerian example, we were less importers of frozen chicken until our president who was a farmer, in his own best interest, decided to ban the importation of chicken into Nigeria. And many of us used to buy frozen chicken because it was much cheaper. It was like one-third the price of locally grown chicken. In the last 20 years, we've seen the Nigerian poultry industry become extremely competitive and vibrant. And now, the prices are on par but it took a very strong stance for that to happen. And so, you know I think there's a role for policy. I think there's a role for data-driven policy making that's in the best interest of the people, not in the best interest of a few very influential stakeholders. And I think that an enabling environment would support the private sector to really thrive.

Bill Clark: OK.

Participant: I'm the [0:42:45] [Indiscernible] so I am a dual Wharton MBA, Harvard MPA. So, you mentioned toward the end of your speech about the dichotomy between African feeding Africa versus Africa feeding the world. And I don't believe these two things are mutually exclusive but how do you keep as the demand for you know food around the world grows, how do you keep outside interest, multinational sub coming in and just extracting agricultural resources from Africa as they double up with other resources?

Ndidi Nwuneli: So, I'll throw the question back at you, I need some answers too. What do you think? Because, for me, I mean this is what I grapple with every day. So, you know this whole story of quinoa. Many of you have heard of the story of quinoa, how you know these farmers who used to consume it, don't consume it anymore because they get more money from selling it. And now, we're starting to say, "Oh, we have fonio. Fonio is better than quinoa, buy fonio." And then we could have the same fallout effect.

So, I'm struggling with how we do that but I also think that the truth is there's unlimited growth potential on the continent. You saw the waste numbers, 10% to 60% go to wastes. So, even if we just address— start doing a lot more processing locally, I would love – I'm challenging Mars and Hershey start to – I need to see a factory in Cote d'Ivoire. Even if it's a small factory, don't tell me Africans don't eat chocolates. That's the line "Africans don't eat chocolates." Have you heard that line? That – have you ever bought chocolates for Africans and they said they won't eat it? It has to be the right price point. People buy it. They like sweet things too. You know what I mean?

The point is if you put – it's so – I mean that can be so catalytic. By setting about factory in Cote d'Ivoire, Ghana, you see that a year later there will be 10 other factories. When we set up AACE Foods, we're one of the few companies doing what we did. Today, there are like 50. We've been catalytic, right? It's good for the environment to have competition. But unless we make those investments then we're not going to see the processing happening, we're not going to see the ecosystems being mature and then the government will not get strong enough to say "I'm putting a stand."

But some of our governments are very corrupt. They are. I always – I don't know how many of you have listened to some of my talks. When I lived in Senegal, I was shocked to find out that the Senegalese eat broken rice. I don't know how many of you have eaten Thieboudienne, its broken rice. So, instead investigating, broken rice is chaff, it's like feed and yet it's more expensive in Senegal than whole grain rice. And the Senegalese have to break their rice after they grow it so that it can be broken rice.

In the year I lived there I was like, what's going on? Why do these people eat broken rice? My friend was at the Thai embassy and I'm mentioning this to – please don't repeat this. That same week, 10, he set up – he spent whole week clearing 10 cars. Then I saw in the newspaper "Senegalese Ministers gets 10 new Mercedes Benz." So the Thai government was giving Mercedes Benz to the Senegalese ministers? I thought, OK, it makes sense why Senegal import so much broken rice and pays more for it than whole grain rice. I mean it doesn't make any sense. So these are some of the issues we have in our sector. So, there's definitely a role for large scale policy changes but a role for people like you who have the right education to come in and inform some of the decision making that's being made.

Bill Clark: OK, I'm going to use my own finger roll and follow-up on this question. Almost everywhere I know that agriculture has moved from relatively local and not participating in a highly competitive pricing environment. What has immediately happened is the development of more or less big market-driven, externally sourced agriculture that has resulted in radical degradation of the environment to eventually undermining the livelihoods of farmers until the

investors move on. Why is that not a concern in your presentation? If I just look at Brazil, you could have given this talk 10 years ago in Brazil and you would have succeeded. And Brazil is now torching its environment with commercially successful agriculture. What do we do about this?

Ndidi Nwuneli: We have a response.

Kellan Hays: I do. I'll tell you why I'm actually here.

Ndidi Nwuneli: Yes.

Participant: About somebody who's grappling with this because we're [0:47:20] [Inaudible].

Ndidi Nwuneli: Maybe you should stand up.

Kellan Hays: Sorry, I'm Kellan Hays. I'm a Co-Founder of Good Nature Agro which [0:47:25] [Indiscernible] about talent. But just in your response so, our north star is really around product replacement produced in Zambia, right? That people [0:47:35] [Indiscernible] but we recognize that in order to get the right funding and for our revenues are going to have to take advantage of exporting to grow our business and create what you're talking about which is bring another competition. You know, we'll get better if there's more [0:47:51] [Indiscernible] companies in Zambia but they're really not.

And so, I think we're – I think it's a little bit a valid mindset, right? Like why would you start a business and what do you want to accomplish? If it's just money then you're going to sell your stuff to whoever will buy it the best price. But if it's really driven to what you're trying to say which is like make your country better then you're going to leverage up those resources, work your north star and that's what we're trying to do. [0:48:20] [Indiscernible]

Bill Clark: How does the market do that?

Kellan Hays: What do you mean?

Bill Clark: Market will set one competitor versus another and it's cheaper on the short run to drive down the natural capital and environment and so on, rather than build it up.

Kellan Hays: Sure. Well, for us, just one sentence is that you know right now we're pretty I would say nascent but also in a nascent industry player and what we're trying to do in our sales is actually just sell – which actually look above the *Japanese* [0:48:53] [Phonetic] value chain and come back to our seed companies, the seed customers to use your buyers in country so they're selling to [0:49:02] [Indiscernible] in country and we're trying to build the whole industry from the perspective of a seed company and realizing we can't just sell seed and we just sell from the whole, whole package. So...

Ndidi Nwuneli: Yeah.

Kellan Hays: I...

Ndidi Nwuneli: No, that's very valuable. Thank you.

Kellan Hays: *[0:49:18] [Crosstalk]* any trouble of the two but...

Ndidi Nwuneli: Thank you. Just to address your question. I think it's a very important question and I think what I believe is that we have to set standards for industries and for their engagement. So, we don't have enough countries and enough communities thinking about what are the minimum standards of engagement. And if you are going to come into this community and you're going to grow this is what we expect. This is how you're going to re-invest in the environment. This is how you're going to manage your waste. This is how you're going to treat people. And that's why anything goes in many of our countries.

And so, I think setting those standards – and we can't wait for the government. We've seen that in the oil sector. We have to have industry association, set those standards and self police. We're doing that now with fortification in Nigeria with mandatory fortification. And we're saying the government is not going to hold us accountable so let's hold each other accountable. And I think we have to do that more effectively.

Bill Clark: Yeah, it would be lovely to see a couple of your positive stories about such industry internally set standards including where they have come down on bad actors and driven them to either reform around the market.

Ndidi Nwuneli: So, the NUCAFE in Uganda said they are doing that around coffee I haven't visited to verify but that's what they said they are doing.

Participant: Yeah. Thank you. Hi, Ndidi.

Ndidi Nwuneli: Hi.

Participant: I'm curious to know what you think about...

Bill Clark: Can you identify yourself?

Participant: My name is *[0:50:51] [Indiscernible]* I'm the President of Nigeria *[0:50:54] [Indiscernible]*. I'm curious, Ndidi, to know what you think about the preservation part of the business. I remember sometime *[0:51:06] [Indiscernible]* intensify the policy production of cassava. And so farmers in those states actually went into work and tell you they have big harvest but the time it took between the harvest time and whatever we call in terms of who we need to – who needs it resulted in the most of those production *[0:51:31] [Inaudible]*.

And so the following year, a lot of them were discouraged *[0:51:36] [Inaudible]*. And so, particularly, in the rural areas where all these small farmers exist but one of the big challenge they faced is actually how to preserve their produce from the time it is harvested to when they potentially could sell it. So, at most, how that industry had evolved? I remember during

Nkrumah's time in Ghana. He actually did a law in terms [0:52:04] [Indiscernible] preservation in places in [0:52:07] [Indiscernible] so as production were happening they were also being [0:52:11] [Indiscernible] so losses were minimal. Because it's one thing to encourage young farmers, so when the farmers another thing to you know, most of them go there to do that and either produce and it's all wasted. And when you're getting [0:52:25] [Indiscernible].

Ndidi Nwuneli: Yeah, No, I definitely believe in processing is very, very key. And I talked about the Twiga example of even market linkages using technology. For me, especially in cassava, what we're seeing tremendous promise in Nigeria is seeing people find all sorts of derivatives for cassava. So today, cassava starch is being used to use Heineken beer. It's being used by Nestle. It's being used by Unilever. They're making sorbitol. So, if you find 10 other uses of cassava then the farmer will always have demand for there. And then linking them up through AGRA programs with these off takers transforms their lives.

And so, Psaltry is one example, Yemisi Iranloye and she is the number one supplier of cassava starch on sorbitol now in Nigeria. And she has outgrowers scheme. She has a relationship with farmers all over the communities within radius – within 50 kilometer radius to her factory. Having those factories all over our country will transform the landscape. And in those state now, we don't have one big cassava processor. So, even last year, the same thing you just described happened. And they wouldn't harvest because the price went from 70,000 Naira per ton to 10,000 naira per ton. It fell that drastically. So they wouldn't harvest. That's too expensive. It will cost more to have this than to sell it.

Unless you have those primary process – the processes in close proximity in every state where there is a large output, you wouldn't make profit. So, I really believe there's a need for comparative advantage and for working with state governments to think creatively about what industries they need to support to emerge in their states.

Bill Clark: Do you have anyone?

Scott Leland: Scott Leland for Center for Business and Government. First, thank you very much Ndidi for giving us a vision for what African agriculture can be. My question is actually very similar to the one that was just asked where one of the sides that really strikes me the most is the 10% to 60% wastage that occurs. And I know that's not unique to Africa. That happens in many – all over the world. And it is an incredible business opportunity for the right entrepreneurs. So I guess my question is what other stories, success stories can you relate to us that sort of addresses the spoilage issue?

Ndidi Nwuneli: Well, that's why we started AACE Foods, the food company we have. The main reason we started it was because of this high rates of post harvest losses. And so, we started with processing spices and cereals and it's been amazing because so many people didn't realize – I mean the other day I got an email from Nestle and they said, "You know, we didn't realize that turmeric was growing in Nigeria." And I'm like, "We're one of the best producers of turmeric." The average Nigerian doesn't know that turmeric is actually growing in Nigeria. Meanwhile, farmers are growing it and people are exporting it to India. Maybe it's being re-imported into

Nigeria as powdered turmeric. So, the awareness is not there. And I also think there's a need for data because most people can't find these farmers when they do want to process.

So one of the things we're doing with Nourish – and now, there are so many people coming in. There's another lady called Afie. She's doing dried fruits. I don't know if – it's called Real Fruits, dried mangoes, dried pineapples, coconut. So now, they have all these – and there are food fairs that are emerging where you see all these creative granola bar this and that where a movement has emerged but they are not at scale. So, all these small players need to go to scale. And this is one of the reasons we are looking at it. But in every country I would say you have probably 20,000 innovative processors that are emerging but they are tiny. And we – they can't compete.

It was interesting. Somebody just wrote an article in the cover of Business Day in Godwin. Cover of Business Day and they listed like all the major spice companies in Nigeria: Unilever, Mag– Nestle. And they said, a major disruptor AACE Foods. All of us were celebrating. You mean we're being listed in the same line as this. We are viewed as a disruptor? You know what I mean? Because we have come in to source locally and do it in an innovative way, so I think for me – and if you go in Nourishing Africa, now, we have so many entrepreneurs who are uploading this company in Zambia and she makes breakfast cereals from corn and soya in Zambia. She's done extremely well. She's gotten international investors now. So, they're all uploading their profiles and their company information so that the rest of the world will know about them.

So, I have one question for the group which is this question around food. What would it take – in Boston, how many African restaurants are there? Who knows?

Bill Clark: Include Ethiopian. There are lots.

Ndidi: How many? How many Ethiopian restaurants are there in Boston?

Participant: Three?

Ndidi: Three. So, how many Thai restaurants are there in Boston? Huh?

Bill Clark: Too many.

Ndidi: In Harvard Square, how many Thai restaurants are there? There are more than three in Harvard Square. What would it take to get the same number of Thai restaurants as Ethiopian restaurants? I need suggestions from the non-Africans. What would it take? What do we need to do? Because I think our food is just as tasty as Thai food. And we have lots of variety but most people don't even know.

Bill Clark: There's been a very experiment in the last couple of years in Boston called Italy which was ever backed by the Italian government but largely funded by Italian food producers to put under one roof and one branding then. Essentially, a bunch of – well, if you were in Italy, it would be a set of stalls of people providing high quality versions of Italian food and cooking.

And you can wander in to an Italy establishment and sample a wide range of different products. You can see the back stories behind them and it seems to be remarkably successful because instead of you having to pick out finally find the restaurant here, decide whether it was good or not and then you walk in and you're either going to eat at that restaurant and like it or not, the ability to go around and sample and then say, "Ah, this is the one I'm going to stay at." It turned out to be stunning. So you could build up whatever the table would be that you really could create it for Nigerian food, for a cross section of African food. I suspect given the food scene in Boston right now, if you set that up down in the Boston market or in Kings Square or someplace, people would come.

Ndidi Nwuneli: OK. Somebody has to take that idea up in this room. Yes.

Participant: It's very – some people who are working on establishing a food hall for chefs of color and have also have more diverse foods [0:59:30] [Crosstalk] in Boston.

Ndidi Nwuneli: Hmmm. Fantastic.

Participant: And also trying to get at those adventurous eaters and trying to simulate that in the product category and also we'll start [0:59:38] [Indiscernible] half a million dollars for the next grant.

Ndidi Nwuneli: Wonderful! That's another great idea. Someone suggested we start an African chef prize. What do you guys think of that idea? Or we can't call them chefs. Another name, what other name can we call them? I will include the [1:00:00] [Indiscernible] yeah? The street food. This is – two very good ideas.

Participant: I know. African kitchen.

Ndidi Nwuneli: African kitchen. OK. Any other suggestions?

Participant: Just in food trucks.

Ndidi Nwuneli: Food trucks? Do we have some food trucks already here? African food trucks?

Participant: We've got Nigerian.

Ndidi Nwuneli: No, not Nigerian. Ethiopian food trucks? Huh?

Participant: Asian.

Ndidi Nwuneli: Asian. So, why can't we start an African food truck? Is there African food in the menu at Harvard in any of the cafeterias? Why can't you guys ask for that? You don't think they'll do justice?

Participant: I tried, you know, things [1:00:50] [Inaudible] but they didn't do it.

Ndidi Nwuneli: They didn't do it. Don't give up. Because then they'll have to order our spices. If they have – not just us, they have to order something from authentic African suya [1:01:03] [Indiscernible] or something. Right? Yes.

Participant: So, Ndidi, I will just introduce myself as a *Godwin's wife* [1:01:10] [Indiscernible] make it short. So, here I'm speaking as a parent now, because there were really different traditions I'm just – it just occurred to me that my kids would go to school sometimes if they have – they compare their school opportunities, I think they're so used to it that when they come back home my African food they don't eat it. So, as we are talking and I'm thinking about is we keep on connecting the – I know that's a different topic all together but I'm raising a concern here that how can we even make – is there any way – you ask the question, is there an African menu in – African food menu in... how are the African kids in school, how are they fed? And also, even our African food here sometimes buying it is so expensive that I really don't have any choice for sending for what I can afford to buy. So, it's a big challenge.

Ndidi Nwuneli: Yeah. No, those are two very important issues. And I was telling someone yesterday that Dominos Pizza is now popular in Lagos. We have Dominos Pizza, we have KFC, we even have Krispy Kreme. And it's amazing, right? We have Cold Stone Ice Cream. I mean these chains are doing extremely well and so these kids were aspirational who want to be Western would be prefer to eat Dominos Pizza than Egusi soup. And so, that's why we have to start celebrating African food.

We can address the cost issue once we are able to increase volumes. Because this economy is upscale, right? The prices will come down if we can increase the – reduce the post harvest losses, do more processing locally, the cost will come down. I have no doubts about that. We are starting to see that in some of the value chain. But the challenge for us is really around the branding of African food and we need to – I need a team that think we're going to work on the branding of African food. Rebranding African food as the – because it's healthy. It's natural. You know all the things that you want today in America. That's what we have. Yeah?

Bill Clark: And perhaps get out of the gate faster along the lines of Mexico is now doing on taxing unhealthy sugar and salt rich basically mass produced Dominos food which is as you say driving out because they cater to sweet tooth, to salt tooth and so on. And finally, a few countries are beginning to say, this is not. These are making our own indigenous food production impossible So, rather than banning them outright they're putting progressively higher taxes on those and some of the Mexico City right now is using those to subsidize essentially domestic indigenous food supplies.

And it would seem to me that is an easier thing to do early on as the food shelve stock up way you're doing rather than only in the crisis of obesity epidemic which is you mentioned in your discussions yesterday is beginning to happen but is nowhere near as advanced as it is in many of the other countries that have bought into Dominos and Kentucky Fried Chicken and all these junk.

Participant: And one, just quickly to defend America.

Bill Clark: Who are you?

Participant: My name is [1:04:37] *[Indiscernible]* I work with startups in Ghana. I have a marketing a brand and [1:04:42] *[Indiscernible]*.

Ndidi Nwuneli: Yes. Oh good.

Participant: Quickly, to defend America, Dominos Pizza is technically an Australian company.

Ndidi Nwuneli: Oh sorry.

Participant: And Krispy Kreme is owned by a German multinational.

Ndidi Nwuneli: Thank you.

Participant: You're welcome.

Ndidi Nwuneli: Thank you.

Participant: For African food, we need to address this branding issue.

Ndidi Nwuneli: Yes.

Participant: There's no celebrity chef, top chef that's in [1:05:04] *[Indiscernible]* and it wasn't trendy enough. And yet the Paleolithic era happened in Africa. So, you are the original purveyors of Paleo food.

Ndidi Nwuneli: Yeah.

Participant: There needs to be [1:05:18] *[Indiscernible]*.

Ndidi Nwuneli: I like that. I like that. So are you joining the team?

Participant: I would happily join the team.

Bill Clark: I think that since we have to end eventually, that's probably who can top that as an ending note.

Ndidi Nwuneli: That comment.

Bill Clark: Thanks...

[End of transcript]