



AGRILINKS

STRENGTHENING EARLY GENERATION SEED SYSTEMS IN AFRICA AND BEYOND

PRESENTATION AUDIO TRANSCRIPT

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PRESENTERS

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Julie MacCartee:

Welcome everyone, to the final Agrilinks event of 2016. Today, we'll be discussing early generation feed systems, which is a topic of rising importance in the ag development context and we also have potentially a very large number of attendees joining us by webinar from around the world, so that's always exciting to have our online audience as well. The Agrilinks platform is a product of the USAID Bureau for Food Security and is implemented by the Knowledge-Driven Agricultural Development (KDAD) project. So I'd just like to shout out to the KDAD project and thank them for their support on this event today.

Before we get started, just a few reminders and housekeeping issues. For those of you in person, we just ask that you silence your cell phones so as not to interrupt the speakers. We will be starting off with the block of presentations today, so we'll let each of our presenters start off the event today and then at the end, we'll be having a Q&A period. We typically have a mic that we've passed around in the past for the in-person audience, but we weren't able to get that microphone setup today, so we'll just ask that you speak your question loudly from your place and we'll very quickly summarize your question up here, so that the webinar participants can hear what you ask.

This webinar or this event is being recorded and if you signed up or registered or provided your email in any way, you will get an email with the recording and any other associated post event resources that you can share with your colleagues or review the events and review the information. Alright, so with that, give us an introduction to the content and the speakers, I would like to introduce Mark Huisenga, who is BFS lead on early generation seeds, along with David Atwood and he's in the market and partnership innovations at the bureau for food security and the senior program manager for scaling seeds and technology partnership with agro. So Mark will introduce our panel today.

Mark Nelson:

All right, well, thank you very much. It's a great showing and glad to have so many people online as well. We have a lot of ground to cover in a short period of time, even though an hour and a half is set out for this session, we have a lot of material. So it's my pleasure to introduce the presenters. First of all, to the far left, Walter de Boef is a senior program manager with Bill and Melinda Gates Foundation. He's been our partner specifically on this early generation seed work for the last two and a half years now. So this is quite a lot of deep engagement with Walter. He was also coordinating specifically who with Ethiopia, Uganda and Burkina Faso work on behalf of the foundation.

Next to Walter is Mark Nelson. He's a partner at Context Network and is here under the Africa Lead agreement that we have with DAI and I also wanted to make a [audio blip] especially listening on a webinar, he's been very closely involved with us as the Africa Lead point person. And then Latha Nagarajan at the International Fertilizer Development Center and also working with Carl Pray at Rutgers, who I want to call out as well, working on the scaling seeds technology partnership cooperative agreement and is responsible for Tanzania, Mozambique, Malawi, and Ghana. I should have mentioned that Context Network did Nigeria, Kenya, Zambia, Rwanda. Yes.

So this is now the end of the second – what I'd say the second phase of the early generation seed work that we've been doing. In most of these countries, we're now moving to an implementation phase where we – I think we've got a momentum in quite a number of countries and we're really hoping to see that the problems and opportunities you're going to hear about in the next hour and a half really start to get some – start to be addressed at the country level and that we start to see some changes there [audio blip].

Walter de Boef:

Good morning everybody I would like to say good afternoon and good evening. We see an emergence of capacity in production and marketing of quality seed of improved varieties. That kind of progress, if you look 10, 15 years backwards and where we stand now, there is really more capacity in more commercial production and marketing of quality seeds of varieties. At the same time, through the work where USAID and also the foundation and many other donors are working together, we engaged really in building the capacity and public interest, some cases more private. Primarily, public through partnerships with the CGIAR institutes, but also focusing on supplies to really increase the number of domestic releases of improved varieties. If you look at countries, really a big increase.

But these both increases did not result in use across food crops. We have seen increasing use in quality seeds for hybrid plants, but many of the other crops, that is really lagging behind. And in that way, our aim to increase food security, to boost productivity and that way, to escape out of poverty and contribute nowadays what they call transformation, we are still lagging behind. Despite our investments, a lot of work needs to be done. So we started to look at many projects that have been organized and David Atwood called many of them. Many times, we have been sitting around a table at national level, at regional level, at continental level, at anywhere in the world always calling out what are problems? Counterfeiting, quality assurance, foundation seat, intellectual property, food aids influence, all these other issues.

So many as you can see in this slide. So that – we always called out many meetings. Every time we prioritize, every count we setup the priority and basically, we are paralyzed by analysis. No next steps. Also, because many of these issues are not independent, they are all related often with that emergent seat sector, small companies, but not mature enough, political economy dealing with seed, commodities, government systems, which are still moving ahead, public structures, which are vulnerable. It's not easy. We said we have to go beyond that and I think that was really when we started to have the conversations. When I joined in the foundation, 2013, and very soon talking with Mark and David and others in the agency, we have to pull one point out.

And basically, we chose really early generation, because often, it was one of the top lists. But also, it basically reflected on the major investments that the agency and the foundation make in corporate improvement and basically if we really want to have a structural adoption of new – every time new regular adoption of improved varieties, we need to put it first. And not putting all the

other topics away, but focus. So we started, and get basically also where we, as the foundation, came in and also the agency said let's try to build a strategy, try to build some evidence, what is the situation in early generation seeds?

We are often involved with both organizations, but many others, indirect interventions. Let's keep doing that, but let's put also a hold on that and see what needs to be done first. And try to seek instead of temporary solutions, systemic solutions to this problem. And also, systemic, try to come with a solution that will last. Because often, we are engaged in the production and distribution of S donors in early generation seed production and marketing. But by doing that, we basically also hamper structural solutions. So what you also realize, if you look at the previous slide with all these issues, all these issues need to be solved more at national level.

That's where a variety of seeds issues is going. Of course, regional economic communities can help and also support some of the aspects, but a key element, policy and regulations are made at national level, so that's also where we started to focus on. And we sort of try as committed development partners to play that role and start to be not afraid to make dirty hands in this kind of systemic institutional process. At the same time, building all those experiences also and the better insights that we see. We started to invest stake in what we call a pluralistic approach to development allowing us to say okay, we acknowledge that there is a formal and informal system. And also, we acknowledge that both public and private sector are playing key roles in the seeds systems. So here in this slide, you see a journey. I see the letters are a little small, but that we made over last years.

We started to engage first as Gates Foundation and agency through Africa Lead in a study commission and was implemented which really set out the basis of looking differently at this problem. We didn't only study it, but we also started to really vet it among development agencies, private sector to see if running that convening in March in 2015. And then we said okay, we need to bring it down to the national level. Then the agricultural transformation agency in Ethiopia to directly apply this and try to implement - this work by into a methodology to better elaborate what is the situation and what could be done? Build some more economic analysis and move beyond original system.

Gradually, also, USAID through Africa Lead starts to bring context on board to develop a methodology that could be easily translated to many other countries and also could be further developed. So then we brought and through the missions, and I really want to acknowledge USAID missions in this place. They really also stuck out their neck, and they really start to engage in this work, so we got involved in another 10 countries in this similar type of studies and several countries also key stakeholders acknowledged the importance of this issue, brought it into an existing platform, or through other mechanisms started to really develop.

Discussed this issue with this particular methodology fine-tuned by Context into the seed platforms to see how they can tackle – how they built evidence

for tackling this issue. We brought all people from this 11 countries, key players in the sector like agriculture institutions into a convening where we discussed in general and also tried to build this consensus. Not consensus, tried to get better insights what needed to be done. And then other countries platforms, connectional consultants, consultants contracted by first the scaling seed and technology partnership through Agra and also through Africa. So at the moment, we are concluding a phase where we synthesize these outcomes of the convening's.

We synthesize the outcomes of these 11 country studies. Today, I think is a kind of turning point moving to what's next steps, which I will put some ideas just to show you the diversity of countries that these studies were done. You can see at the end of the slide they cover quite pretty sell the continent.

Very important, legumes – 90 times legumes as crops were studied showing that in all the countries, stakeholder saw that there is big problem in EGS for legumes. Seven times seven and, of course, some places – soy bean, ____, West Africa, and ____ and several places. Then, also in six countries, Tanzania basically West Africa, you see that the importance of ____ and yam and in Eastern Africa, potato also issues. And in two countries, ____ included. Just to recognize who were implementing those studies. So this is the ____ partnership and the Agra was involved in five countries. Africa Lead with its contact in four countries, West Africa and agriculture ____ program through ____ in Burkina Faso and just from the ____ program in Uganda and ____ teamed up with the others in Ethiopia.

So what was really so critical in doing this work? Is that based on the work of monitor ____ then confirmed in a convening and then further elaborated by Context? We really started to look at the crops – food crops that we are concerned about through an angle of where steps in what you see in these rows, in these columns here. Which steps of the ____ are profitable? And we realize that in only few cases, that is the only ____ a profitable means. Blue, dark blue means private sector. Primarily, [side conversation]. Okay, so if you really look at the left column, it's dark blue meaning all steps except perhaps the first one, all steps in the ____ value chain from breeder seeds, foundation seeds, all ____ are basically profitable or the margins for commercial seed are so high that they can cover all costs.

Basically, hybrid mix. With 40 other food crops, most other food crops, the other configurations of the seeds value chain are relevant where green means public investment. Sometimes, public investments implemented by private operators, so you see that there are different kinds of partnerships required in these two, the second and a third, to make this seed value chain moving. Nothing new we knew, because if you look in the country where we are now, a lot of crops, public involvement in breeding and also interesting public private partnerships exist in the production of sweet potato seeds, ground nuts, wheat, but basically, what is important to realize since ____ we accepted that there is a mixed model required for dealing these food crops forward.

The fourth column you see in these markets – another thing, use basically cotton. So but there are other commodities, props that would fit, for example, being ____ ____ barley might be one where, for example, ____ is involved in Ethiopia in getting some new varieties on the market. That supports ____, so that is the fourth modality. So this is very critical to start at this look. And basically, all the country studies, people went deeper and both Mark and Latha will show you more details on specific countries, how this works further. So we start on the basis of economic analysis and looking at seed systems, we start to distinguish the different seed value chains.

We start to restructure – find the evidence how to restructure easiest systems in countries. We saw really and we see that public private partnerships are critical to move forward, but that's no single public private – there's many different ways to organize that. We saw the role of public expenditure and also basically commitments of national governments to invest perhaps in not in quality seeds, but more in early generation seeds. But also, knowing that for breeding the CGIAR plays a very important role. And they are also involved sometimes in moving forward, so we have to review that.

Our focus always has been catalytic, but at the same time, we realize, and every time, if you see a national report, EGS is just one of the problems. Many of the other issues and quality assurance, IP rights coming for what? So but what is created called ____ ____ that through this process, by focusing on evidence, economic analysis, and not to be afraid of diversity and _____. We made some steps forward. Looking through our next steps, very quickly I will share some of my views and later on we will go through. We see three levels of restructuring EGS system, and I will say very high level. Some countries where you have a strong commitment of the government private sector, you have a leading catalytic organization that can – has the power to engage with key stakeholders in basically restructuring or transforming action.

You could, in four or five years, restructure how responsibilities are divided and how financial and technical responsibilities are thrown through a country. For example, in Ethiopia, there is a plan how to move forward. Other countries like Tanzania that is really starting to become a consensus among key stakeholders that they need to tackle this together, so I hope in some countries, there is – there are strategic decision makers that are willing to engage with us to really take a national effort in changing. In many countries, that's not the case. Then, much better is to identify specific commodities, cassava, maize, rice, to develop _____. So that is more restructuring at the crop level.

And thirdly, we need to really look what the role of ____ centers in food supply is and what is their role in pushing varieties, sometimes paying the bill for EGS, so we can see their role more to be a kind of – also, moving to more systemic, then Band-Aid type of solutions. Then, this is really restructuring EGS in countries and across the continent. Again, national level. Sometimes, that's opportunity for a more regional approaches. Then, we have three types of insights we can see. First one, a lot has been done already by many, in many

countries. And we are also – all of us are involved somehow in new kind of pilots moving forward.

These are not isolated. We should look how, what efforts have been done in maize, beans, cassava, soybean, so what can we learn from those and how can they inform those restructuring processes? I mentioned it already. In mature seeds, markups. There are many examples of public, private partnership in North America. Many, but if you go to Brazil, Turkey, or India, there are many examples of entire national systems. We can learn what we need to learn with African farmers. So and then that lessons learned are critical to gift strategic decision in countries the courage to move against interest of some stakeholders and to make a change.

And finally, as easy as it's not single, a lot of influences are there in relief, regulations, others. These are just some first shots at a very high level that we can move forward. So these are – but going forward, I really want to – I talk a lot about next steps. It's critical for everybody in the room, but also listening in to go deeper, what does this mean what we did over the past time and I first want to give the floor to Mark Nelson of Context to elaborate more in detail the work of the development of the methodology implementation in all the countries. Thank you.

Mark Nelson:

Thank you Walter. I have both the privilege and the challenge of sharing the results of a 10-month journey that context led along with DAI, Africa lead, and I see David is in the room here as well. I really do appreciate the opportunity to partner with DAI on this effort. The effort to address challenge that many farmers in Africa, unfortunately, face, it's a limited supply of improved seeds. So to better understand these reasons why, we broke down this really big problem into more bite-sized pieces to try to identify ways to overcome some of these hurdles of seed access.

So first, we formed an outstanding team of seed experts, country consultant nationals, organized a work plan through the management consulting expertise of context in DAI. We developed an expert-led methodology, a research process to engage key stakeholders of the seed sectors in each of the different countries. We met with farmers and seed multipliers, retailers, managers of seed companies and public institutions, as well as government officials and NGO program managers. To execute, we teamed up with country consultant nationals, most of whom are on the webinar today. These are consultants that are champions of their respective seed countries or countries and their seed sectors.

They're deeply insightful on the approaches they have brought to this effort to overcome these obstacles are deeply appreciated. So throughout the course of this presentation, I would just encourage you to engage some of these experts on technical questions through the webinars chat feature. We piloted our approach in Rwanda and Zambia along with our seed experts. We developed a curriculum to train additional country consultants in Ethiopia this past February. We then replicated this approach in Nigeria and in Kenya. I'll be

sharing some select results from the Nigeria study just to provide you with a flavor of the depth of investigation, the analysis that we undertook, and the findings that each of the country studies achieved.

Unfortunately, we only have about a handful of minutes here to work with, so I would please just encourage you to follow the Agrilinks for the detailed study findings that the crop teams have prepared. However, before we jump into the Nigeria study results, I'd like to also mention that towards the end of this work journey, we took a step back and we would – did have this opportunity along with DAI to synthesize these findings into four – the four country studies. It helped us frame up some of the prevailing themes that came out of the research process and the conclusions that we reached.

So I'll highlight some select synthesized findings in the bottom third of this presentation to illustrate. We capped off our work journey through producing a guide to assist in country stakeholders that are seeking to appropriate public sector funds to support EGS in their country's national agricultural and food security investment plans. It provided a framework, it's got resources and tools and useful advocacy approaches, as well as a sample of investment plan components. Every journey starts with a single step and then our journey took nine more. Africa Lead through Deloitte developed a 10-step methodology. We're realizing recommendations that address the breakdowns and opportunities of prop specific supply chains.

A close mentor and friend of mine. Dr. Steve Sonka at the University of Illinois puts it this way. Economically sustainable development crop value chains are best realized through a focused improvement on their input technologies supply chains. These technology supply chains are like tributaries feeding into a river of crop commodities. Improving the production of crop commodities requires overcoming these barriers that limit these input technology supply chains that feed it. So first, the country teams define the current situations. What are the country's dominant seed systems, their prioritized crops for value chain development, and what are the current EGS systems within these crops?

Next, the economics of the feed systems were analyzed to identify potential EGS demand. Cost of production and to match that demand with the system's revenue and cost. Along with this research then came the really fun part. How do we shape these findings into thoughtful operational strategies? Subject to the optimal market architects, to do this, solutions and recommendations were developed to overcome key challenges. Many of which resulted in well-crafted public, private partnership recommendations.

To kick off, the regional stakeholder meetings were held to align on prioritized crops. They organized three of them around the country. To build a list of context to interview and then the team performed over 250 stakeholder interviews. Our team then worked together to synthesize this into the key findings that we produced, but then facilitated a stakeholder feedback session

of these preliminary findings before we finalize these results through the additional reviews with DAI and USAID.

From the direction that we reached in the stakeholder workshop in Nigeria, our team then focused on unraveling the current situation of these early generation feed systems for the prioritized crops of yam, maize, rice, and soy beans. Along with cassava, maize, and rice, yam is a key food security in small holder crop in Nigeria. It's a crop that possess considerable nutritional value and high income generating opportunities for small holder farmers. However, the crops production is constrained by an underdeveloped EGS system that limits the yield potential. In Nigeria, maize is a strong and growing demand from the country seed and food processors.

However, the nation's yields are amongst the lowest in the region, which in large part is due to a low adoption of maize hybrids. Nigeria is the second largest global importer of rice. Again, insufficient EGS is a major cause of low yields and production quality. The need to address productivity improvement is immense, almost a six-fold increase in production is needed by 2050 to go from six million metric tons of grain demand today to 36 million metric tons or about a five percent annual rate of growth over the next 35 years. The mothers of Nigeria have a keen sense for this importance, as women today play a major role in the crops production.

Like rice and maize, soy beans is a crop where the government in Nigeria has also made the crops development a national priority. Growing feed and industrial sectors will require a doubling of production to meet future demand. Fast forwarding through the steps of the journey from the crops prioritized, the team's recommendations, you'll see that the crops selected are quite diverse in the market archetypes that they represent. The specific recommendations that flow out of them. For some of you, this may be the first time that you've been exposed to this matrix that contrasts the level of improved demand for improved varieties and the marginal economic value of high quality seeds.

So for a crop like rice, which we profiled in the upper left hand quadrant, the demand for high quality rice seed is hot and can grow even further, as the growing number of rice processors begin to rely on an increased reliable supply of local rice production. There's also a relatively high marginal economic value since the cost of rice seed production is low and the seed pricing opportunity is relatively high. These fundamentals support an establishment of a processor oriented rice seed system. To free up the private sector for development, legal and policy barriers such as inconsistent import policies, as well as a simple and effective quality assurance system needs to be addressed to help stimulate the demand.

Yam, on the other hand, presents a crop that's characterized in the bottom right hand quadrant with the potential, though, to shift up. The demand for improved varieties is currently low, but can increase with the development of a formal feed system. That combines the production of clean, improved seed

with farm demonstrations on the benefits of improved varieties. The marginal economic value of yam seed is currently low. However, emerging multiple case and technologies developed by IITA hold the potential to significantly reduce seed production cost. So through strong public support, including the establishment of a national yam value chain association, farm demonstrations have improved seeds. The potential exists to scale up seed providers with innovative multiplication techniques.

However, maize and soy bean are already well situated in the upper right hand quadrant. Both crops have high demand for improved varieties to address this need for rust resistant varieties in soy bean, as well as to develop maize hybrids that are more suitable for the human rainforest ecology of Nigeria's maize belt. For both crops, marginal economic value of improved varieties is relatively high. Driven by a low cost of production and the potential for price premiums of soy bean seeds, as well as the price premiums that are possible with more productive maize hybrids. So long as the cost of the technical field activities that accompany maize seed production can be held in check.

This assessment builds up to an EGS PPP that focuses on ramping up foundation seed supply, enhancing profitable EGS production capabilities, developing cost effective quality assurance systems and increasing farmer demand for improved, high quality feed. Across all four crops, Nigeria's seed sector is in need of a national seed fund. To support investments in private company ventures, additionally, quality assurance programs need to be improved through the improvement of or implementation of clear and strong IP policies. And the suppression of counterfeit seed through enacting a new seed law. The rationale for public, private partnerships is common across almost all of the early generation seed systems that we profile. A key takeaway from the 12 different crop specific EGS systems in Nigeria, Kenya, Rwanda, and Zambia.

Structural and demand issues that impact the quality, quantity, and use of early generation seed and certified seed can be addressed and resolved. But only if adequate investments and financial and human resources are made. Where possible, seed production operations should be scaled up through complimentary multi-crop strategy within a shared geographic and/or market focus to help build organizational breadth for these foundation seed operations. In Nigeria, for example, the hybrid maize and soy bean PPP has similar end use segments, animal feed, and similar stakeholders across the crops value chain. Our Zambia field research team recommends that similarities between ground nut and common bean justify just one PPP. Both crops are legumes and are very similar in terms of production practices and problems.

The crops are both grown in the north and the east regions of Zambia by small holder farmers in their crop rotations. They also have very similar actors along their crop value chains. Furthermore, combining the two crops creates a scale necessary to generate interest for supplemental private sector investment. Similarly, our Rwanda field research team through assessing several factors

justified just one PPP for a potato and for common beans, even though the crop types are quite different. Potato is clearly the more attractive crop for the private sector and for this reason, it's considered to be the anchor crop of the PPP. Common bean would likely not warrant private sector interest as a standalone crop. So combining common bean with potato could create private sector interest without adding undue operational complexity.

Our Kenya field research team identified an exception to this multi crop strategy recommending instead for separate PPPs that were needed maize, potato, and for common bean. This is due to country specific requirements stemming from the geographic differences where the crops are grown and the ____ involved in each of the crops value chains. By now, you're hearing a central theme across each of these crop specific studies. That seed system upgrading is possible and the opportunities largely center around the improvement of seed provider profitability. Maize is significant opportunity exists to increase economic seed value through hybridization. The yield differential realized between hybrids and open pollinative varieties creates this.

Since hybrid seed also promotes an annualized seed replacement practice, the demand for EGS seed is also stabilized. However, technical experience and expertise and hybrid seed production is quite specialized. So EGS operations are best managed through centralized or centrally coordinated production locations by private sector seed providers. Potato, yam, and rice are crops where improvement and marginal economic value also exist through improved varieties that strengthen the quality of production and increase prices can be supported. Agronomic trades within improved varieties can address both a-biotic and biotic pressures. A key factor to close the supply and demand imbalance is to develop more locally appropriate feed supply chains to balance production costs amid some of the transportation limitations.

Common bean and ground that are crops were economic viability is probably the most greatly challenged. Abiotic pressures and difficulty and transportation limits the economic opportunity to make localized seed production even more critical. In addition to improving the profitability of seed producers, more is needed in policy improvements as well. While we have a number of country specific policy recommendation in each of the studies, I'd like to feature a select set of set of cross country policy recommendations, which we categorized into legal and regulatory resource allocation and market development.

In the dimension of legal and regulatory, there is a need for implementing clear and strong IP policies. Improvements here will enable licensing agreements and support royalty sharing. Just as improvements are needed within contract enforced mechanisms between seed companies. Quality declared systems frankly just need to be operationalized. Breeder incentives need to better align with market impacts and regarding crop production marketing, establishing grades and standards will enable premiums for improved varieties that deliver on quality traits.

Within resource allocation, our team recommends additional public support through an increase in funding for breeding and feed production, as well as national and local extension. More trained quality personnel and storage capacity are also needed. There are numerous market development and market development related policy reforms that will help streamline the functions and improve operational profitability from better information systems to tailored products of credit, input, and packaging that recognized the difference between small holder farmers and seed entrepreneurs. More training is needed on business, agronomy, and quality practices, as well as stronger marketing communication strategies to promote improved seeds.

So the structural and demand issues that we identify to the course of our studies that are limiting the development of these tributaries of seed technology, that are needed to meet the demands of Africa's crop value chains can be addressed. But this will only be accomplished through some focused attention on policy improvements and better and more profitable seed business models. So now, I'd like to introduce Latha to share additional study results and to feature some of the Tanzania findings.

Latha:

Thank you Mark for the introduction. To continue the discussion on EGF – can you hear me now? To continue the discussion on EGF, I will be concentrating on the synthesis of EGS studies conducted by – conducted in four of the countries, Ghana, Mozambique, and Tanzania. These studies were supported by the USAID seeds and technologies partnership. [Side Conversation] These studies were conducted by – well, supported by the USAID funded seeds and technology partnership. And we conducted these studies in four of these countries. We followed the data analysis, data collection, and the methodology provided by the context network. All of our in country researchers were trained by the context network, trained in the context network methodology during the beginning of our meeting in February.

So, first I'll discuss about the Tanzania case briefly and summarize the proposed action plan, but all the ___ countries regarding the EGS implementation. So we basically followed the four simple steps ___ with an initial stakeholder consultation for the selection of the crops. The stakeholder consultation involved the presentation from private and public sector including university, national systems, and international ___ centers. And also, the key government agency. And we also utilized this opportunity to consult with the stakeholders in selecting seed crops for each of these countries. The methodology that we followed in Tanzania holds true for all that the four countries also.

So during the consultation workshop, the initial consultation workshop in Tanzania, the stakeholders selected these four crops mainly maize, sorghum, common beans, and cassava. The key priority of the stakeholders in selecting all these crop food security and as you see that after Nigeria, Tanzania has the highest acreage under maize, more than four million hectares of maize are being cultivated. But, you know, very low ___ and also the poor modern

varieties adoption. And sorghum was another key crop selected by the stakeholders, because of the resilient nature of the crop, as well as the food security, opportunities, a group in dry land area, and growing market demand, especially in grow-rate the industrial demand.

Cassava is another crop, which is a great priority crop. In terms of the resilience in dry land areas and high potential for processing, and there is an unmet EGS demand, especially for the disease-free cuttings in Tanzania. So followed by the initial selection of the crops, we mapped out the seed value chain on the seed production chain for each crop selected. As you can easily see that, except for maize, in all of the crops private – you know, public sector dominates, especially the early seed generation feed production system in private sector, but not at the seed production stage, but it's more in terms of indexing and cleaning the material. So the dominance of public sector is very apparent in the current seed system.

Based on the information collected in the – from the different actors in the existing seed system, and especially on the demand aspects of each and every crop and also the cost of production involved in the different stages of the seed production, we could do detailed economic analysis based on the demand and also the supply side of ___ of each ___ and also, based on certain policy implications arise from these crops, we could categorize, we could ___ categorize each crop into an optimal market type. As you can clearly see that I didn't want to – I don't want to explain more on the economic methodology. We follow the economic methodology as explained by Mark in his previous presentation.

So we categorize – you could see that most of the crops are categorized on the most – most of the crops could be categorized under the public private partnership arrangement where the marginal economic value of the ___ improved variety ___ quite high through this partnership. But in order to operationalize this optimal market type, there are certain challenges in the Tanzanian system or any national system per se. It ranges from regulations to technical and management capabilities of the system, and also the incentive available to take up the EGS production of the EGS production system. For example, in the case of Tanzania, licensing of public varieties is there since 2011. The government of Tanzania allows licensing of public varieties for private sector.

But the procedures involved in it so far, you could see that only 4 out of 27 companies are – have taken up this kind of option. In terms of demand creation and market linkages, you know, there is a poor estimation of ___ and there is now estimation on how much market information available for how much of seed is needed to cover the area or how much is ___ on any of those information. The programs for crops like beans, cassava, and sorghum also and most of them, right, either coming from international agriculture ___ centers through national systems. The variety is excellent for maize. The variety is released by the national agriculture system less than 20 per each of these crops.

So after a preparation of the EGS report, we took – we again went back to the stakeholders to have the validation. So the validation workshop also was attended by the same stakeholders who participated during the initial workshop or the inception workshop in selection of the crop and also in extensive consultation to provide information on various EGS related mechanisms. So we presented the plans to the workshop participants during September 29, and in other countries also, [audio blip] validation workshops have been carried out during the month of September and October.

In the case of Tanzania, there was a consensus on the type of the market type, market selected for improving the EGS systems in the case of beans, cassava, and sorghum. There was a slight modification. The stakeholders came up with an idea that why don't you modify the interesting, like, why don't you modify the market type, optimal market type for sorghum. Why don't you categorize under niche, because of the demand – the specific demand for white sorghum and also, they suggested to include sesame, which is another important crop, export crop, especially from the processing sector. There is a huge demand rising.

So the Tanzanian group agreed that they will function through a seed working group, an EGS seed working group, equal into the seed platform, as explained by Walter, and this seed working group will have representation from public and private sector and it'll be supported by the SSTP [Scaling Seeds and Technologies Partnership]. So the state working group will be organized by the seed unit division of department of agriculture in Tanzania. They will closely work with the Tanzania association of seed traders association members in preparing the financial plan and taking to the next level. So there is a consensus among the Tanzanian stakeholders taking the action to the next level.

Just to give you a quick idea, there is a clear consensus along – stakeholders in Tanzania. It's basically, you know, the private sector in the EGS process and there was a clear picture emerged on this. If you see the – across the different crops and then also the market types selected on the recommended for the SSTP countries, public private partnership is a dominant partnership or the collaborative mechanism for promotional EGS systems, especially in legumes and roots and crops. So I just wanted to end that these are the concrete proposed actions that are being planned to take the EGS implementation to the next level in the SSTP countries. SSTP, the scaling seeds and technology partnership of Agra will select from key pilot – EGS pilot projects in four of these countries where there is an unmet demand for EGS and they developed business plans for selected crops and implement these plans through an existing service provider or select through a process.

These service providers will be also given financial and technical support to insure the quality. In addition to that, SSTP also plans to hold a web-based seed platform, especially towards the exchange of market information on EGS ____ and these pilot ____ studies will act like a good learning mechanism,

practices, and ____ from these studies would help us for adaptability and further scale up in other countries and that's the idea behind this. I just wanted to thank all of our national coordinators of SSTP in all these four countries and then the research support offered from the consortium. And also, like to thanks our BFS colleagues, Mark and David. Thank you.

Mark: Now, we're going to have some wrap up remarks given to us by Rob Bertram, the chief scientist of the Bureau for Food Security. Rob's been engaged with us in a lot of this process and has kept, I think, pretty close tabs on the work we're doing. So look forward to hearing what his observations are.

Rob: Thanks, Mark, and good morning everyone. I heard from Dave and Mark yesterday that we had over 300 people signed up for the webinar, which I think is an indication of how important the topic is this morning. I want to start with a few things. I was lucky enough to be at the launch in _____. When was that, a year and a half ago or so? Walter, somewhere there. And I want to especially thank Walter. This is one of I think our most exciting partnerships with the Gates Foundation and there are many of them, and he's just had the vision from day one and been a real driver here. So congratulations.

By the way, I have the report, I just got it. I've just flipped through it. It looks fantastic, so I really commend it all to you. It's worth looking at. There's a lot of easy to understand graphs and pictorial representations, some of which Mark used in his talk and a lot Latha used. So please do take a deeper dive when your time permits. And thanks also to Mark and to Context. Terrific partner to us in this endeavor and to Latha and I'm excited, Latha, to have IFDC still engaged and I'll say a little bit more about that. So both for your work, but also for your institution. So I'd like to step back for a minute and make a few comments on why this is an important topic. Walter, I think you touched on some of these, but in doing this, I also want to speak with a certain humility, because there's a lot of people both in the room and also, I'm sure, on our – in our webinar audience who have far more engagement in this than I.

But I think seeds are such a crucial piece of overall agricultural productivity and resilience, both factors. And they're a beautiful technology and as much as their scale neutral in most cases. Now, not always the marketing issue around them and the decision-making issues that drive the investment in them does not necessarily scale neutral, but the beauty is that it's scale neutral and it's easy to use. Most farmers know how to plant seeds, so there's a lot of beauty there that make it especially attractive. Of course, what we also have is a huge investment, both by the foundation, in the CGIAR system, and our feed the future innovation labs in genetic improvement, much of which hinges in terms of achieving any of its promise on the effective operation of seed systems. So that's why I think this is – if you look at how much is being invested globally in genetic improvement.

And folks, we're at a time when our tools for crop improvement are better than ever before. We can make progress at two and three times the rate that

we used to be able to do using techniques like genomic selection. But if we don't solve the seed bottleneck, it's not going to make a difference. It'll be beautiful in Europe and the United States and parts of Asia, but we've got to make sure that it's beautiful in sub-Saharan Africa, too. And another point that I like to make that I want to say here is to me, this is the most important pillar of climate smart agriculture in Africa. If we know anything about climate change, it is that pest and diseases faced by farmers including small holder farmers are going to be changing more rapidly than ever before, not to mention abiotic stresses like heat and drought and storm, flood, all of the changes that we associate with climate change.

There is also a whole set of pest and disease changes that will accompany us. So again, being able to both develop, but then deploy in a nimble way new genetic solutions to help combat these problems, one piece of it only, of course – there's a lot of others – is critical. Now, I think a couple of other points to make is that although farmers know how to plant seeds and seeds are scaled neutral and so forth, seed production is very different from crop production and I think that came through this morning. The – their diverse needs, it's not all one size fits all. We heard that come through clearly when we think of hybrids and maize. But also vegetables. I mean, and of course, that bears looking at the high value vegetable mostly imported seed system in Africa, which may actually work in some cases. And I'm going to be, you know, I'll say more on this, but I think part of the reason it works is that it's not – nobody interferes with it.

It doesn't have a strong regulatory over life frankly. So people can buy F1 tomato seeds or F1 cucumber seeds that are produced in Thailand and Taiwan and exploit that value proposition in their production. Then, we have our row crops, our vegetatively propagated crops. I appreciate the fact that oil seeds were mentioned in particular. We invest in the feed the future innovation lab on soy improvement and soy value chains and seed is an absolute critical obstacle to overcome, if small holders are going to be part of the soy revolution that's coming to Africa. And that revolution is coming, whether we do anything in AID or not, it's coming.

The question is what will it look like and how will small holders be able to be participating in those high value, value chains around quality foods, around feeds, around oil, and the whole value linked to poultry, swine, and other product fish – also production. And let's see, I have a note here saying consumers vary. Oh yeah, I meant to say that just in terms of the risk profile, which I referred to earlier. That's one of the main challenges we have when we're thinking about small holders, poverty, and nutrition enhancement focus. A lot of the people were trying to help naturally and logically have a strong risk aversion. So seed is one more expense where we want to try to change that – the level of that playing field, so that they are better able to take that risk and benefit from that investment.

So you know, one of the things that underlies our work here in Africa especially is that we have this informal and formal system, this continuum

between the two. I think today was mostly about trying to grow the formal system although I think there's a lot of opportunities and what our speakers talked about for leakage into the informal system and that might be something that could be very usefully thought about and I invite people like Louise Sperling and others to think about how do we get genetic improvements into those systems. I know she has thought about that. Maybe we'll hear from her in the discussion.

Foundation seed, well, no, before I leave the formal informal, I want to say that while we have those two system to deal with now, my feeling is that the formal seed sector is the future – 20, 30 years from now. I think the informal system will still exist, but it will exist the way it exists in other parts of the world. But most farmers will be purchasing quality seed or at least taking advantage of even if they're not getting commercial seed in a – from a private company, at least getting quality seed from some sort of initiative that we have many examples of that were referred to where you really have sort of a public private partnership in how seed reaches farmers.

So I'm – we don't have that slide up, Mark. Was somebody going to put that up? Before that slide goes up and I have to say I feel a little bit intimidated trying to talk about lessons learned, because this is really their lessons learned. But I do want to kind of try to be a little bit provocative in looking forward. We're turning a corner in Africa, I think. Malabo is a great thing to have this commitment from Africa's leaders. I always say it's not going to happen without changes in the fertilizer system. I don't think it's going to happen without changes in the seed system either, so if we're going to double productivity and agriculture by 2025, these are two critical inputs.

Just thinking about some of the points that were made this morning, what we did – we saw that original analysis from Deloitte. Maize looked like it could run on its own, in terms of the private sector. And yet, Mark, you also indicated a role at least in, I think, Nigeria that – where the public sector might have a role. So I was curious about that. I'm wondering, you know, what happens if we just step back and let the private sector do it. Can that happen if we free them up to do it and maybe hybrid maize is the place to experiment with that. The national seed fund idea – maybe. I don't know. I have to say a lot of times what I ended up thinking about this morning is how do we get government out of the business even though I know we were talking about public investment. So I don't know if that seed fund – maybe that's one way to do it.

I was worried about the calls for enforcement. It scares me, frankly, because I think the unintended consequences of trying to have an overlay, and I would be much more excited at the concept of building brand and brand identity and providing systems through the private sector that farmers trust. And that can – it happens in other parts of the world, it can happen in Africa. Let's see, very interesting about the CGIAR taking on a systemic role, I think that begs a lot of other questions as to what the CGIAR itself looks like in terms of specialization, because those are very different roles, you know, between

moving through a development chain into the seed system and doing the actual breeding and – but the knowledge – there is a lot of knowledge connections and other connections between them. So that's – and I represent the US and the CGIAR. So I was quite interested and be interesting to hear more about that.

So I hope you provoke a lot of thinking in making that recommendation. And then the operationalizing quality declared seed, I really liked that. Again, it kind of takes – lessens the government role, maybe, I don't know. Maybe it'd be interesting to hear what people who work on the informal systems think about that. But even in the formal setting, and in terms of these various policy constraints that seemed all the speakers alluded to, we have a great opportunity at the head of the African Development Bank. You know, when he was in Nigeria as minister, he tried to move certification into the private sector. I don't know how that has worked to frankly. I mean, but it was a very, very well intentioned attempt to try to free up the private sector in Africa.

So I wonder if there isn't an opportunity with him at the helm and with, you know, Gates and USAID and all the other partners, the Syngenta Foundation that have labored in this space. If we could have some sort of high level dialogue with him to really figure out and maybe even if it gets some countries that are willing to lead. I love the fact that they took a country led approach on this and I love the fact that you all have developed a set of consultants. These are the people on the ground who are going to be really critical advocates going forward. I think we kind of have to marry that bottom up approach, maybe with some high level leadership. So I'd love to see that happen and I think there might be somebody who could play a really pivotal role in that. So these are these lessons learned and I think it's probably just as well you read them. I think I don't need to read them for you, I hope you can see them in the back of the room.

But I do – I do want to – I really want to give a shout out to the whole idea of quality seed. It's not just genetics. Genetics is a big part of it, but it's the actual quality seed. The germination, the reliability, the disease free. Also, the needs for the different types of crops. I was really glad to hear the examples on vegetatively propagated crops. The value of clean seed alone without the genetics even, it's huge. But those are really challenging systems and the 3G potato work that's gone on in East Africa, I think, is a good example of how this can work with minimal government involvement. It's really a private sector led effort, because you need that capacity in terms of getting the clean material. And then you need a system to multiply closer to the customers.

Let's see, particular tailor training programs, anyway, I think I won't try to read all through this. Some of these things aren't new. I looked at number five. That's – you know, I believe that's – it's good to be reminded. That's not a criticism that they're not new. We need to keep these in view, but let's figure out how to underscore the urgency of this. The science tells us it's urgent, the climate and the challenges farmers face tell us its urgent and the fact that, you know, millions of children are still stunted and many die from causes linked to

under nutrition tell us its urgent. This is a huge contribution. I want to thank everybody involved. I want to also again thank Mark and David. It's such an honor and pleasure to work with committed visionary colleagues like them here in the bureau for food security. So I hope there's – I didn't take too much time, but over to you, Mark, I think. No, Julie, sorry.

[End of Audio]