Scaling Agricultural Technologies: Bringing Research to Farmers and the Market

Q & A Transcript

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Julie McCartee: Great. Thank you, Steve. We could hear you loud and clear. It was great to have you join us. So now we will move on to a Q&A portion. Our speakers, would you like to move your chairs to the front, just if you'd like to face the audience.

So we will alternate between the in-person audience and the online audience. Please remember to state your name and/or organization. And I would like to go ahead and give Suzanne Pullen the chance to ask the first question.

Audience Member: Thank you, Julie. Thanks, Bob, Steve, and Jerry; that was very, very interesting. I think as you went through all of these presentations a lot of you talked about the challenges and constraints to scaling technologies, and the webinar entitled "Scaling Technologies: Bringing Research to Farmers," it sounds like we're looking at, you know, sort of massive multiplication of technologies or something, kind of the top-down, when we say it that way, bringing research to farmers and markets. And what is really clear from what all of you said and what we really mean is scaling up adoption of technologies, getting the research in to use. And I think all of you talked at different ways about small holder farmers and everything, but I would just like to ask if each of you could maybe comment and elaborate a little further on what you see as the role of the small holder farmer in this agriculture innovation system and how understanding the farmer's role could improve the designs for scaling up technologies?

Jerry Glover: Maybe I'll go first, since I had the first presentation. That's a good question on the role of the farmer in this endeavor. To go back to that example that I showed from Malawi of this doubled-up legume system, I think from the presentation you might've perceived that it was sort of top-down, here's some scientists coming up with a system, sort of trying to get farmers to adopt it. But actually more to Suzanne's point and Bob's point about this very intensive interaction with farmers from the very beginning, this doubled-up legume system that I illustrated is the result of about 15 years of work prior to Africa RISING, in which a range of systems were trialed and tested on farm with farmers, and many of those were eliminated. Maybe the labor requirements were too high. Maybe the outcomes were not enough to really interest farmers. The multiple benefits just weren't there for these other systems.

So the system that I showed is the result of this very intensive prior experience with farmers in determining what would be viable for their situation. So without that you could be chasing all these different technologies or systems that really in the practical experience of farmers just simply aren't worth it. So that's a longwinded way of saying get in there from the beginning with the farmers and really let them illustrate their needs and test these.

Bob Nanes: Yeah. Excuse me. I think I talked in various parts of my presentation about that, but of course that very qualitative interaction with the farmers from the beginning. Maybe the part that's important from our approach, when you take a commercial approach and when you're expecting farmers to buy things, and if you incorporate that from the beginning in terms of doing test marketing or prototyping with farmers you're not distributing things, you're getting people to buy things, and therefore that is a kind of substantive interaction with farmers, because when someone makes a decision to invest money, they're making a – they have made that decision. Of course, before that you have to find out what – you have to have the substantive interaction to find out what it is that will make them purchase that. But then going to that level then enforces that farmers are accepting this, or if they're rejecting it then you have to find out why and _____ them. You know.

And also it's about price. Farmers, you know, they vote with their pocketbook quite often.

Julie McCartee: Do you have anything you'd like to add?

Steve New: I could – this is Steven. Yeah. Okay, I'm not quite sure I understand the question. Certainly what the role is of small-holders, but I mean, like all farmers, I suppose their role is to produce increasingly better products at lower prices for a consumer society. But I think we should remember that these smaller farmers aren't small holders by choice, they're just people with that much land and no water. So maybe, you know, if we're looking at research directed – and none of them want to stay small holders, and no agricultural economy wants to remain dependent on small holders. So, you know, we need a mixture. And there is – the problem for most small holders is their land size is just too small, certainly in East Africa to ever get a reasonable living. So in the end there has to be some change in this.

So we have to be careful when we're looking doing research in technologies to remember that it's really an interim situation. We hope.

Audience Member: Yeah, so there were a number of questions about collaboration. Nomay Sacanni from Harvest Choice IFPRI in D.C. asked that, "I noticed that several players are currently involved in scaling up technologies, and since August 2012 Nomay has been leading a project in Ghana with different players are highly competing in Northern Ghana to work with the communities. Every player claims their own community, and they may have different interests, which could lead to conflicts. How do we ensure that all players are well-organized to work together in a complementary way?"

And Liz Coselli asked a similar question, asking the panel to speak more about the structure of private sector partnerships in the target market, who takes what role and who has long-term ownership of the technology.

[Laughter]

Bob Nanes: Yeah. I mean to respond to the first question, I think that the critical piece is not competing about different technologies; the critical piece is your, let's say your business model. You know, the conflicts that we come into with people is somebody is in the field and they're giving something away or they're giving a three-quarter subsidy, and we are coming in and trying to sell things. And that – so these things have to be worked out between organizations. That can't – I mean you can't sell something if someone else is giving it away, and you can't build commercial systems if you're not selling something.

And in all the examples, whether it's the pigeon pea or whether it's, you know, pumps, or whether it's micro-sprinklers or all these things, ultimately they have to be sold to farmers. So I think – well, I don't have an answer to it, but I know we run into this all the time in a lot of government programs that want to give things away, there's a lot of NGOs that are more on a relief model, I would say, rather than a development model, and they're asking farmer what their needs are and giving it away. So this is the major kind of conflict that we come into in the field.

What was the second question?

Audience Member: Public-private partnerships.

Bob Nanes: I'm in favor.

[Laughter]

Bob Nanes: I'm not sure what – I don't know what the question was, but.

Julie McCartee: If there are no other comments, I'll throw it open to-

Steve New: Yeah, can I make a comment? This is Steve.

Julie McCartee: Steve, please do.

Steve New: Can you hear me?

Julie McCartee: Yes.

Steve New: Yeah, just to go back to the question of what – how should the private sector be involved; well, I think the private sector, you know, we're in a private sector society. The whole point of development is for people to participate more and become wealthier. And, you know, in some ways we should be doing more agriculture for wealth creation rather than food security all the time. But the way we see it is that for things to – for good technologies to be scared up quickly you need – personally you need an end market. Unless they can be applied in a particular environment where farmers can use the technology really fairly quickly to generate quickly, they cannot see the benefit. So there has to be sort of a triangular arrangement. You've got to have someone – you've got a product that you're going to grow and sell, then there's an opportunity to scale up the technology.

I'm trying to think of a good example. I think a good example that is old hat nearly is that something, an old, old technology, which is evaporative cooling. So if you go in the areas of Kenya where farmers are growing vegetables to sell to the top supermarkets in Europe, these are guys with like half-an-acre of land. Well, you know, a quarter of hectare of land or less even. And they all had – and some of them quite shine of ingenuity; they've rigged up ways of creating small evaporative coolers around their fields using charcoal or brushwood and water, canvas, all kinds of stuff. And they've done it because if you plant French beans, eight weeks later you're getting paid as much as about – perhaps more than $0.60 a kilo for a crop that costs a fraction of that to grow, and you can do it three times a year. Their incentive to use – and of course these same farmers are also using a _____ with the best and safest agrichemicals.

But they have a big incentive to do this, because they're involved with companies that are on their doorsteps all the time, sending them these new technologies, these new products, and on the other end they have got companies buying the product they're growing. So you really have to have that. If you have that, you're going to get scalability.

Julie McCartee: Thank you, Steve. We'll take a question from in person.

Audience Member: Hi. I'm Zachary Arnie with ACDI Boca. I had a quick question for Steve. You had mentioned that buyers who buy from small holder farmers typically have fewer risks, and I wasn't quite sure what risks you were referring to. And if I can also ask-

Steve New: Yeah, that's a good question. I'll be really quick. But the – yeah, put it this way, if you're growing a high-value product, like a fruit or a vegetable in particular, but you can apply to other things, one of the worst things, for example, that can happen is you get a hailstorm. And these are quite common across East Africa, at least I think in many places around the

world in _____ _____. And that wrecks your crop for two or three weeks or more, because the skin is damaged, basically you have to throw 90-percent away. If you've got 500 groups of farmers producing these vegetables scattered across a wide area, the chances of all of them getting hit by hailstones is minimal. You know, you might get 5 or 10-percent affected but the rest is okay, you can still meet your supermarket order. If, on the other hand, you've got 100 hectares of baby carrots – or carrots don't – beans or peas or something in one plantation, then of course you're going to lose the whole crop. So in that sense the risk is mitigated. And this happens all the time.

The other thing, of course, is management of labor. It's much easier to – people working with for small holders, the laborer and the small holders that don't walk off the job if something goes wrong. So I mean there are many ways. And the reason I raise this is because people usually think the opposite; people talk about the risks associated with small holder production. But actually if you really look at it objectively and don't make that sort of cliché assumption, the fact is there are many advantages, also profitable advantages of buying from large numbers of growers; you just have to adapt your business model.

Julie McCartee: We'll take a question from online.

Audience Member: This question comes from Jared Gonsel from MIT. "The speakers highlighted the importance of the value chain, supply chain, and private sector, and we often focus on product and technology innovation, but can the speakers highlight some process and/or business model innovations?

[Laughter]

Steve New: Look, I think it depends what you call innovation. So this is Steve again. The ones that really work, I think, are where you've got – is where companies are able to – yeah, to focus on products where they can – they can buy _____. Coffee I guess is a big advantage. You know, the coffee companies often do buy it and the coffee traders do buy from the small holders, and they've adapted their business model just for that. But the best ones, I think, are where credit is also involved, whereby you have a triangular relationship. And again, I can, you know, since I'm here in Kenya I've got lots of examples in Kenya, but also it applies I think in other countries, whereby, you know, the company has an interest in procuring products, and this can be mango, it can be French beans we've mentioned, because they're big products. It can be maybe coffee or tea.

But in the process of procurement they then actually go into an arrangement with the bank so that the bank gets paid directly by the company. And this isn't necessary if you're buying products from a

plantation from a large-scale grower, but if you're buying from hundreds of growers or even thousands, then that kind of credit model is actually crucial, and there are quite a few of those around, and they are increasing all the time. And I think because the banks have seen a long-term commercial advantage now in actually recruiting new clients through this kind of arrangement, everybody benefits; the banks, you know, the processors, the farmers themselves, and their children actually.

Bob Nanes: So it's interesting that you picked that model, because as I was thinking I came up with a similar model, something we were doing in Northern Ghana which involved small local banks, sellers of irrigation technologies, and farmers groups, and also installers. So there is the bank is loaning money to the group, and the group goes to the retailer, buys it with a kind of voucher, and then the retailer turns in the voucher to the bank and gets the money for that product. So that's a kind of – another triangular relationship which works quite well.

Audience Member: Hi, I'm Peter Boone from Crona Corporation. I have a question for Bob. When your project that you mentioned, working for the Gates Foundation, where you assessed different technologies that were best suitable for scale and the electric pump was one of the ones, the diesel, I guess, powered pump. Did you also look at mechanized like bicycle pumps? I've seen companies like Netafim from Israel on a pilot basis having just, you know, simpler mechanized pumps that, you know, don't use as much, you know, diesel – they don't use diesel, they're lower-cost, probably not as productive per hour, but *[inaudible]* sustainable and easier to repair. Have you looked at those kind of alternatives at all?

Bob Nanes: Well, IDE kind of made its name on those kind of pumps back in the '80s and '90s, so yes, of course. And it's still part of our product mix. But what's happened – what happens over time, and it happened in South Asia, you know, there were 2 million treadle pumps sold in South Asia, but if you go out now you will see there's a tremendous amount of very cheap 3 and 4 horsepower diesel pumps out there and people selling water to their neighbors and so forth. So as the price of the motorized pumps comes down, and in Africa, where the price of human-powered pumps is not so cheap, they start to bump up against one another, and this I think is something that we've encountered in Africa, where the price is close enough so that a lot of farmers will chose a motorized option.

Male: *[Inaudible]*

Bob Nanes: Yeah, it definitely returns to labor. Of course, then you have issues of fuel. We're working on some solar powered options at this point. But that's still a little bit expensive.

But actually solar-powered options by the second or third year are going to be profitable – are going to be competitive, but the investment cost is higher. And again, we come back to, and especially in Africa, where everything's cheap in Asia and everything is expensive in Africa. And Africa, finance, finance, finance, and getting a good rural finance system is so critical. And then once you get – if you have a system like that it opens up all kinds of possibilities for you.

Julie McCartee: A question from online.

Audience Member: Yes. There's a lot of conversation about the issue of gender in these technologies happening in the chat box right now, and they are concerned that the gender component has not been clearly stated or analyzed in this presentation. Brita Hansen of USAID BFS specifically asks, the question is, "Technology for who? Women are often left out of the conversation and implementation of new technologies, especially in terms of labor-saving versus increasing women's time use."

Jerry Glover: Well, uh-

Steve New: Can I answer that? Oh, sorry.

Jerry Glover: Go ahead, Steve.

Steve New: Here's a quick one. I think that most technologies favor – I mean the most important technologies that we need right now, certainly in Africa, are labor-saving technologies, and these are going to benefit women. You know, there is a myth, of course, that somehow labor is cheap in Africa or labor is cheap in developing countries. Of course it's not; it's not available, it's not that productive, and nobody wants to go out and farm in the hot sun without – and weed in the sun or apply difficult irrigation systems. So I think that the labor-saving technologies and new technologies enable smaller farmers to save on labor will benefit women _____ more than anybody else, since they do most of the work.

Jerry Glover: And I was just going to add that of course gender is a very important part of USAID's research efforts and, you know, there are many examples across our research portfolio that indicate that. But just talking about that example that I provided with the doubled-up legume system, that's particularly of interest to women because of the nutritional value and the labor savings. They're harvesting more crops with fewer planting operations; the field preparation and planting is a major labor requirement and it's often done by women. So to get more harvest with fewer plantings is a big boon, particularly for women. I think in the case of the pigeon pea that might – the benefits to women in particular may be a constraint – I think this needs more analysis – may be a constraint to

increasing the availability of pigeon pea seed more widely. In other words, if it's not seen as a top tier crop for commercial production, it may limit its availability, thus limit its scalability. But we're looking more into that.

Julie McCartee: We'll take an in-person question. Let's see, I know you've had your hand up for a while, so.

Audience Member: Hi, Tim Sashow from the Office of Science and Technology at USAID. I have two questions. The first one is actually for Steve. You mentioned about the lesser risk of buying supply from small farmers, but I wonder, because small farmers also did not possess the scale of economy benefit compared to a large scale farmer. Do you imagine it would be more sort of the supermarket channel management managers would prefer actually midsized farmer and harvesting from different locations to mitigate the risk of the natural disaster, or do you think they will prefer to go to small farmers? Because I imagine the number of small farmers will be a lot more and that's a much higher transaction cost for a larger company to deal with that many vendors. That's my first question regarding the risk and whether they'll prefer a mid-sized farmer in different locations or a small farmer.

And the second question is for IDE actually, regarding the water management, 'cause both of the activities that I've heard from this presentation are about increasing the exposed – about increasing exposure of water to a larger surface and also to drag water from underneath the ground to the surface. And I imagine that in Africa and many places with higher evaporation rate, are we actually eating on the reserve for the water in Africa? 'Cause those kind of issues has been observed in other parts of the country, where when they tapped into the underground water actually it damaged the geological structure of the land for the long-term. And I imagine as the motorized pump gets cheaper and the water user demand will go higher, and I wonder is there any other complementary technology that would help to preserve the water while boosting the productivity of the farmers? Thank you.

Steve New: Thanks. Should I answer first, since I was the first question? Yeah, I think when it comes to who would the supermarkets rather buy from, I don't think they care really. It's almost like getting a product which is as cheap as it can be and the quality is reliable, so it comes down to traceability.

As far as the protection is concerned, yeah, there are various reasons why small scale growers, certainly in horticulture, just can be or ought to be just as productive. The real – the two disadvantages for the small-scale growers are basically the cost of consolidation _____, you know, I think

that's what you're calling a transaction costs, and also quality variability and traceability. Actually we've got some great technology coming out now that where we can trace product all the way back to, even as a small grower, relatively cheaper. Again, this is coming up from private sector companies, companies who've got a long-term sort of strategic interest in being in the business. So companies that are using IT in their sort of day to day business are starting to develop these great IT systems to trace – see traceability in small holder farmers.

I think that – yeah. But as far as the supermarkets – I guess if the supermarkets have any preference at all from a market end then they would like to project themselves as, you know, socially responsible organizations that don't stock their shelves, you know, with food full of preservatives and that kind of stuff. They buy from poor African farmers. They probably would marginally prefer that.

Bob Nanes: Let me just also answer that before I answer the other question. That's why the – and he's sort of alluding to this, but the critical thing is aggregation. If you can get farmers to aggregate their produce then it can be the same transaction cost buying from 100 farmers as it is buying from 5 farmers, if they're aggregating.

To answer your other question, it's kind of a two-part question. One is about, you know, the sustainability of attracting water. Of course, it varies from place to place, but in this research project they did quite an extensive study of the renewable water resource all over Africa, and they came out with quite high numbers of potentially renewable extraction of water. And quite often you really have to break it down between shallow water and deep water. So the places where we've really gotten into trouble, like in Western India, they're extracting deep water, which is like water mining, okay? And that water is probably 10,000 years old, okay? And then once you extract it it doesn't get replenished very easily. But shallow water, where you have a reasonable monsoon climate is renewed every year, so you're basically – you're drawing down a shallow aquifer that is renewed during the monsoon season.

If you take Northern Ghana, which if you go there now – or if you went there a month ago it would look like a desert, but they get about 800 millimeters of rain in three months, which is a tremendous amount of rain; it's as much as you have in Washington, I think, you know, or maybe a little bit west of here.

The other thing is about technologies that can help you reduce the use of water, and IDE has been quite involved in introducing low-cost drip irrigation systems and sprinkler systems, micro-sprinkler systems as FinTrac talked about. And that reduces the amount of water. The

problem there is the cost and also, you know, in places where water is quite cheap to extract, farmers don't have quite the incentive to save water. But especially in our _____ _____ program, our _____ variation is quite moving along there. So those are the _____.

Julie McCartee: We have time for one last online question.

Audience Member: Yes, there's a lot of them that we didn't get to, but this one comes from Vincent Johnson at Biodiversity International in Montpellier, France. The question is, "Bob highlighted the need for funding support for M&E and post-project promotion, but many donors don't provide the longer-term funding necessary for this. How can we access support for longer-term work?"

Bob Nanes: Maybe that's a question for you guys.

[Laughter]

Suzanne Pullen: ____ _____ funding.

Bob Nanes: Yeah, Suzanne Pullen just offered up the suggestion to align funding streams so that we're combining efforts on the technology side with other goals, and particularly aligning them with national government priorities so that it's not just the development community, but there's that element of program sustainability on the support side of the government.

Julie McCartee: I wanted to pass the microphone over to Rob Bertram for some very quick closing comments, but right before I do that, ask if you wouldn't mind filling out the surveys that are on your chairs or in the chat box online. Those will help us this August help review our processes and improve things for next year. So, Rob.

Rob Bertram: Thank you very much, Julie, and good morning, everybody. It's wonderful to see a standing-room-only, and I guess if we had rafters people would be hanging from the rafters.

I want to start by thanking the newest team in the Agricultural Research and Policy Office. That's the Scaling Technology team, it's headed by Andy Levin, and special thanks for today's program to Elizabeth Scugar, who I think worked with all of the speakers to put together what has been a tremendous program, and the discussion it has prompted I think has shown how it resonated.

I want to just make a few comments, starting with Jerry and his discussion. I think one of the messages, Jerry, that was inherent in your comments is this issue of biomass, and it cuts across our interests, whether

we're interested in biodiversity, climate change, sustainable intensification of agriculture. And one of the other examples I think that didn't come up that the biomass is very related to is the integration of livestock. And there's another farmer in Malawi that we've talked about before named Rhoda, who has used the fertilizer trees, the nitrogen-fixing trees to greatly increase the productivity of her land, which had been very degraded. And also she's now – I don't know how many pigs she has now, but a lot more than she used to. And she's built a house. I mean they're really great stories.

So the livestock piece of this is another thing. And then together with the legumes that Jerry discussed and the livestock, I think brings us back to the nutrition piece. And we have initial data coming out of that work in Malawi that Sig Snap at Michigan State University has been involved in, that shows that we are starting to see improvements in child nutrition in the households that are adopting these doubled-up legume systems. So some of that's an income effect, no doubt, but some of that may be a food effect in terms of direct consumption. So we're going to be studying that more, but it's an exciting time, and thank you, Jerry, for those great comments.

Bob, I think you really did us all a treat by talking about water. This is, I think, a big piece of what is a much larger problem in African agriculture, and that is under-capitalization and how do we get capitalization into the system. I know it came up towards the end of the discussion about hydrology, but I was glad you mentioned that also, because we've had some recent studies out of the U.K. and elsewhere that suggested Africa has a very substantial potential to use groundwater sustainably.

Speaking about motorized pumps, I was in Nigeria just last week, and there's a Chinese pump that's being used there and promoted by one of our USAID partners that attaches to a small motorcycle. So if you can imagine a service provider who has a motorcycle, who can go to his client farmers, many of them women, who can pump surface water, or even in some cases maybe hand-dug wells, 'cause it'll pump 12 meters, uses a lot less fuel than a regular diesel pump. So not that there's anything wrong with diesel pumps, but it's a step, you know, in the right direction. And we can envision that service provider providing small holder farmers, as I said, many women, of the women who can then have a part of their land in year-round horticultural production, for example, where there's going to be both income impacts and nutrition impacts.

Just more broadly on that, I think that's part of a larger discussion on mechanism. And I think on the water side this is an area that we are taking steps now, we're soon – Sahara Moon's team is going to soon be announcing a new small-scale irrigation program for sub-Saharan Africa.

But I think the next thing on our agenda will be mechanization as we go forward, thinking about how to help small holder farmers make this transition.

Steve I think did us a great service by talking about the whole issue of finance and the private sector linkages, as did Bob. But we're seeing some innovative approaches used by our missions, where they're basically using outgrower schemes and staple crops to try to provide the inputs and the marketing opportunities, the aggregation that you mentioned, Bob.

Also, Steve, you mentioned the interest in the legumes, which are higher value and of course higher nutrition. Great opportunity for the research community to bring in new technologies. The tissue culture banana, another – the reason they're so good is because they're not filled with viruses; it's clean material, so that gives you a big boost in your productivity. So again, building these linkages where farmers come to think of and all the partners think of, "Where can we get the best technology that's going to give us the productive outputs that we're looking for?"

Finally or almost finally, a couple of really good issues came out, depth versus breadth, the impact and the targeting, and the impact metrics. I think we're going to be wrestling with those. How does – what does scalability mean versus our traditional value chain approaches? Are we trying in some of the scalability to actually let go of things so that they ripple out, and how do we then measure that? So we're going to be working with people like Ann Swindale and others in the SPPM, our program office in the Bureau for Food Security, and with our M&E leads and our missions to really think through how do we – what's the best way to look at this; is it by measuring the number of adopters, is it by measuring the number – the area of land that's being covered, or do we need deeper information, as we often do have in our value chain projects?

Also then Steve raised the issue of small holders. That's a really challenging one, and there were some comments in the discussion about this. You know, we in the Bureau for Food Security have taken a small holder approach and we know that large holders and medium holders are out there. But if we're going to achieve our poverty reduction and our nutrition impacts it's very hard to see how that can happen absent a small holder approach. And I also want to remind people that small holders are still very active in Asia, in areas where people – where small holder farmers are no longer poor, there are still a lot of small holders. So, you know, we're going to – Africa's going to be its own case, but there's a lot of south-south learning. You talked about the water; that's a great example of south-south learning. But I think we can learn through this transition that we're all seeking, where people go from poverty and under-

nutrition to a much better life. And can we do that in a small holder way? The issue of finance critical; we're going to do our best to put all this together and make that happen.

So in sum, a lot of what we're doing in our R&D programs is about risk reduction to try to potentiate this transition for small holders. And I think part of that is that it's risk reduction in staples that's going to help us diversify. In other words, people in Malawi are not going to stop growing maize unless they're sure they can either grow enough maize or buy enough maize in order to shift to higher value crops. So we're not looking at either/or; it's both, it's legumes, it's livestock, it's horticulture, it's also maize, wheat, rice, sorghum and the others.

Water is a huge thing for us. I mentioned we'll soon have a new program. We have Dr. Binyan Mayub, who has just joined our staff to lead that effort. Mechanism, I said we'll have a new push there. And then finally I think the other take-home message from all of this is that we need to figure out how to link our partners, CGIR, the innovation labs and the U.S. universities, our private sector partners in R&D, with the missions and their partners that are doing the value chains. And we need to not think of a dichotomy between value chains and technology, 'cause technology to work has got to be in a value context.

So working with our mission partners and their partners, as we just did, Sahara Moon was at – her group convened a meeting in Ghana just last week between these kinds of partners, and there's great potential there. So we're very excited about this, and thanks to all the speakers and to all of you who participated, for making this such a rich discussion.

[Applause]

Julie McCartee: We'll send out the post-event resources next week. Thank you.

[End of Audio]