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## **MPEP** SEMINAR SERIES

Exploring Frontiers in Inclusive Market Development

# **SCALING FEED THE FUTURE INNOVATIONS THROUGH MARKET SYSTEMS**

**AUDIO TRANSCRIPT**

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**PRESENTER**

Richard Kohl, Center for Large Scale Social Change LLC

## PRESENTATION

*Justin Finnegan:* Hi, thank you. Welcome, Richard. Welcome, everybody. I've been asked to just give an introduction because of my role within the Bureau of Economic Growth, Environment, and Education – excuse me, Education, Environment in USAID. And we're working with the Global Development Lab on new scaling initiatives. So coordinating with the bureau in the different offices throughout the agency, and MPEP, the office, is also in the E3 bureau. I'd like to thank Richard for coming. We're very delighted to have him here. Richard has over ten years of experience working as a thought leader on scaling. He's the founder and principal of the Center for Large Scale Social Change, which advises many partners on policy initiatives, strategic thinking, and thought partnership on how to scale up and have high impact results throughout the world in different issues.

He's speaking today on agriculture, but has experience in many different sectors, and is an economist by trade and has been working with Feed the Future in many of the missions in USAID and the Bureau for Food Security on helping think through how to scale up and create large impact, not just direct beneficiaries, but looking at how they can leverage money and resources, leverage the private sector to create large social change. Richard's approach to scaling is very much aligned with the MPEP's office work on market systems, and also on using markets and scaling through markets. So we encourage everybody here during the question and answer session to please give your thoughts and experiences especially related to market systems and facilitation.

So with that, I'd like to introduce Richard. Thank you.

*Richard Kohl:* So I'm delighted to be here, and thanks for coming out on our rainy June morning. I guess I'll get started, first of all, talking about at least what's different and what's changing in terms of the perspective of scaling, particularly for the Bureau of Food Security and Feed the Future. Well, I think the market system or the value chain approach that E3 and Gene Downing and others in particular have been instrumental in developing and refining over the last few decades has always had a very strong element of scaling. Often, the other incentives and structures in the agency have militated in terms of a different approach to scaling, which is basically we have this much time, this much resources. How many people can we reach?

And which has not really been the intention of the market system or the value chain approach. However, now that Feed the Future is in its third or fourth year, the Bureau of Food Security and the other parts

of the agency that have been involved with it, and actually other agency, too, as some of you probably know, Feed the Future also includes USDA and several other parts of the US government, are now very interested in scaling and have started to think about scaling in a different way, much more aligned with the way that actually has been embedded in the market systems approach. The first thing is it's not so much about what can USAID do with the resources in the time it has, but what can we do to reach population scale.

In most countries and in most cases and in most sectors, the Feed the Future resources are simply insufficient to do that by itself, and so we have a couple different options, and I'll get into that in a minute, but one of the options is certainly to work with other partners to leverage resources, either through the public sector or other donors. Obviously, the second and this is not in the right order, the primary choice is actually to leverage resources from the private sector, and to get the private sector to both drive the chain and make scaling up sustainable. And last, but not least, it's not simply about how many direct beneficiaries as just said that a USAID, BFS, Feed the Future project can reach directly, but how can we choose your word, catalyze, leverage, create a critical mass or a tipping point that allows for scaling up to go viral, to become spontaneous, and to reach population level.

So we start to think about this approach this scaling up, and particularly about this emphasis on population level as a framework that I helped develop at the Brookings Institution, but the primary authors were Johannes Lynn and Arna Hartman. You can find it on the Brookings website, which emphasizes what they call drivers, spaces, and pathways. And this is also very much aligned with a framework that I helped develop when I was at MSI for several years thinking about the various the what, how, who, and where of scaling up. What is the innovation or the technology we're trying to scale, what do we mean by scale and not just in terms of numbers, but impact and context and sustainability, and who is going to do it? Who is going to drive it?

So there's several of the frameworks that have been developed in the last ten years to look at scaling, whether it's the Brookings Hartman Lynn one or the MSI one that Larry Cooley and I co-developed. Both had this emphasis on the importance of having someone proactively drive and manage the process. And one of the things I'll get into is who does that. The second thing that's really important is aligning incentives or the politics. Once you figure out who is going to do it, well why should they do it?

And in this particular case, one of the things we look at is everything from a direct adopter so it could be a farmer, but in some cases, it's an input supplier, some cases, it's a buyer or another market actor. But even when the primary adopter is a farmer, there's a whole value chain or ecosystem or set of spaces if you prefer of actors who have to be aligned with that in order for this innovation to become to go to scale and to become sustainable.

And for public sector actors, we often talk about it getting the politics right. For the bureaucracy, if it's relevant, it's a different set of incentives, and finally most importantly, if we're using a market systems approach, it's how do we make sure that what I like to call and will be calling today the business case is aligned. So how do we know that farmers are going to make money that agro dealers are going to make money at this? And because otherwise, when we walk away, this is neither going to go to scale nor be sustainable. And last but not least, there are other parts of the ecosystem, many of which we hope will be driven by private sector actors, such as financial support, the policy enabled environment that need to be in place for scaling.

So if you put these pieces together, basically, we're talking about three things. One is that we're scaling up in the context of Feed the Future a series of new technology packages, and I want to emphasize the word packages. One of the things I learned in my many years at MSI was that we often tend when I work with an organization or an NGO or a USAID project and I say, "What are you scaling," they'll say, "High yielding hybrid May seats." And I'll say, "Well, that's great." And you just drop them from helicopters.

I say, "No, no, no, there's this whole package of how we introduce them. There is they have to be used with fertilizer, there's new good agricultural practices such as land loving if it's rice." Things like I'm sure some of you know this stuff, systems of rice intensification, spacing, soil conservation, integrated pest management, et cetera. So it turns out it's not just the technology, but it's often bundled with other things, both intangible things such as how do you motivate farmers to adopt this, and also tangible things as I just alluded to, fertilizer, good agricultural practices together.

So one of the key issues in the scaling work is to identify what is the bundle that's being proposed or implemented, and which parts of that bundle should be or should not be scaled or could be scaled. And often, you scale things or you want to be in that bundle of things not just because they have technology or technological compliments with core technology in this case, seeds, but actually because they create

positive financial incentives in a business case for the actors in the value chain to be able to make a profit. And I'll come back to that in a minute, but I'll just give you a very quick example.

One of the key issues often in scaling is do you have a viable embedded extension service once the project leaves. Who is going to provide advice to farmers? And in many countries have experimented that names change. In a lot of East Africa, they're called Village Based Agricultural Agents or VBAs. In Cambodia, they're called Village Agricultural Health or crop workers, et cetera. They're basically para professionals or informal workers who will often from the village who buy inputs from agro dealer and then sell them in small packets at small prices, and they're also trained to give advice.

Well that's great, but can they are farmers willing to pay for that? Is the margins and the markups they can earn on what they sell enough to cover the cost of training and for them to stay in business? It turns out that the most profitable thing for those people to actually sell and deliver are veterinary services, animal health services. Because if I have a \$500.00 cow, that's probably 75, 90, 99 percent of my assets in addition to land. But many of the Feed the Future projects have focused on other areas, mostly crops.

They focus on staple cereals, horticulture, et cetera. So in this case, it sometimes makes sense to bundle scaling up high yielding hybrid maize with, for example, cows or sheep or pigs or something else. Not so much necessarily because it makes sense from an agricultural or nutrition or a poverty way, although it often does, but because it makes other parts of the value chain viable. Does that make sense? So thinking about what these new technology packages are both contained within themselves, what do I need to get the high yielding hybrid maize to work, and secondly, what things do I need to bundle or unbundle with it to make the whole economics of it make sense for the actors involved.

These technology packages in the context of Feed the Future are supposed to not only have impact on incomes, but also on poverty, nutrition, and stunting. And so as Justin mentioned, I'm an economist by training. When you take macro 101, which I'm sure many of you suffered through, one of the things you first learn is they talk about instruments and goals, which is if the Federal Reserve wants to reduce both inflation and unemployment, but it only can control one instrument, it can achieve it. And so the interesting question for me and I'll get back to this, or you can ask about it in Feed the Future, is are there enough instruments in Feed the Future to achieve multiple and very diverse goals.

Because the goals are reducing poverty, improving incomes, improving nutrition, reducing stunting, and also there – as I'm sure you're all aware of, cross cutting roles about gender and climate change as well. So there's a lot of objectives here. How do we hit all those objectives with one technology package, et cetera? Just want to be clear, I already alluded to this that when we're talking about scaling in the context of Feed the Future, we are not talking about this USAID Feed the Future project currently has 10,000 people. We're going to go to 20,000 or 30,000 or 50,000. It's there's potentially 500,000 farmers in an appropriate agro ecological zone who could grow this crop or adopt this technology.

How do we get something going that can drive towards population scale? What does that mean? What is the critical mass or tipping point, and how can USAID the USAID project or working with partners create, again, choose your language, critical mass, tipping point, whatever that will allow us to be on track to drive towards population scale, not necessarily and in most cases, not desirably by ourselves. So we are talking about not just the numerator here, but denominator because we're interested in population scale in the zone of influence. For those of you who are not familiar, all the Feed the Future projects usually I don't know of one country, actually, where the zone of influence is designed as national.

It's usually one or two regions in which the projects are working. So that's the denominator we're talking about. And last but not least, sustainability. What I mean by sustainability is not simply financial, which is usually the way we think about it, which is who is going to do this in the future if more implementation is needed. But also, is this sustainable financially for the private sector actors, for the public sector actors in terms of the enabling environment or the politics aligned, and organizationally. Do those even if people have the financial resources, can those organizations actually deliver? Whether they're public sector or private sector. So I think you can see that this is not business as usual in terms of we're going to go from 10,000 to 20,000, but it really is an approach that emphasizes sustainability and scaling up as going to population level.

So if you think about this, what we're really doing or trying to do, in a sense, is do two things simultaneously in the context of scaling Feed the Future projects, and particularly the technology packages that are embedded in them. One is we're trying to get a sufficient number of adopters to adopt. And that's what we mean about population scale. Those are normally farmers, but not always, and what we're trying to achieve is, as I said, this target number or critical mass so that scaling

will go up spontaneously. In much of the literature, there's an emphasis on if you look at the literature on diffusion of innovation, especially in the private sector, they have what's called the rule of six, which is if you can get one roughly for every one adopter, you'll get six indirect beneficiaries. That works out to roughly 16 percent.

In the experience I've seen, and I'll come back to this in a minute, the Feed the Future projects unfortunately have not been collecting data on this because historically, we're that's not what is being measured. What's being measured is direct beneficiaries, but the anecdotal or the data that they're collecting anywhere are showing multipliers of three to five, which I think is actually pretty good. Maybe it's not six, but it's hard to tell because that hasn't been done very systematically yet.

Simultaneously to getting farmers to adopt and achieving that critical mass, we're also building the ecosystem. Is there access to input supply? Are the input suppliers making money? Where can the input suppliers get the seeds and the fertilizer or the other thing? Are there input producers, especially seeds, which is a whole issue in and of itself? Downstream, where are the farmers who are they going to sell to? Can they make more money? Can we shift output prices in terms of trade? Is the policy-enabling environment supporting, for example, the development of a private seed sector?

Because currently, in many countries, the public system is not producing enough certified seed to meet farmers' needs, especially if we go to scale. So most of the projects are scaling by simultaneously building ecosystems on the one hand, or what we would call in the Brookings framework the spaces for scaling up, and at the same time, trying to drive and persuade enough farmers to adopt this, preferably in both cases by working with private sector actors and facilitating their activities. Okay? And of course, the question is in the middle of the slide here is who those organizations for going to scale are?

Is it a large buyer downstream? Is it a fertilizer producer? Who is it that is going to run the demonstration projects if they're needed to be subsequently after the USAID project finishes? Who is it that's going to continue to provide extension services? Who is it that's going to produce seeds, et cetera? So when you think about scaling up from this framework, instead of the dotted line or it isn't usually a dotted line because often, Feed the Future projects, as many USAID projects do have pressures for quick wins and early results, okay, but basically, scaling is sort of every year, we do another 5,000 or 10,000 farmers, and we get to 50. In this framework, there is a shift to thinking about this more of in the first few years, we start thinking about what works, we identify partnerships, and particularly these leading organizations

that we can facilitate, preferably private organizations that are going to pull or push the chain.

When I use the word pull, I mean it's a downstream actor, a large buyer. Let's say it's in horticulture. In Kenya, it would be some organization that's exporting to Europe and is buying literally tens of thousands of metric tons of green beans. So they could pull the growth of a green bean sector to smallholder farmers in Kenya. If it's push, it might be a seed provider. For example, somebody who has developed drought tolerant maize seeds, hybrid maize seeds who has an interest in selling millions of tons of maize seeds to farmers, so they are going to be interested and have an economic incentive to figure out how to get lots of farmers to adopt their seeds.

So whether it's push or pull, and obviously, that's a case by case basis, we want a partner, as you can see in the second column, with those organizations, figure out why haven't they been doing this before, what can we do as a donor and with other donors to mitigate the risk to get them to initially invest and co-invest with us, and then do some demonstration projects and figure out how we can get early adopters to adopt and develop a viable business strategy. With any luck, by the fourth frame here, we have achieved some critical mass and enough of an ecosystem that to some extent or a large extent, the donor project, whether it's Feed the Future or others, can step back, and basically, this goes by itself and we've done our job.

We have facilitated both enough adoption by farmers achieving a critical mass, and enough of an ownership and intervention by a private sector or actor, be it pull or push, that both the ecosystem has sufficient space to go to scale, or it can continue to expand to go to scale without our support, without co-investment, without risk mitigation, and enough farmers are now doing this that their neighbors, their neighbor's neighbors, et cetera, will simultaneously scale.

So that's the approach that we're now moving to. Now obviously, when you have projects that are two or three or four years old and they're already doing things a different way, it's a little bit different to change some things in midstream. And so some of the older projects were only able to implement some of this, but the newer projects, we're moving towards more and more trying to design this in. Though as I'll get to, there's still some challenges in doing that. So that's the framework for what we're trying to do, and let me talk about how things are going.

First of all, there has been really tremendous success in most countries in getting a large number of farmers exposed to new technology packages. The adoption rates are really pretty good, at least within the direct beneficiaries, and in most cases, the yields and incomes are going up quite well. What's interesting about this, however, is one of the things we're learning about is that it seems to be a lot of variance underneath that big picture. In some cases, some farmers as I mentioned, this is a package. They're adopting seeds but not fertilizer, or they're adopting the fertilizer but not the seeds. They're adopting the land leveling or the spacing or the deep placement fertilizer with the seeds but not this. So there seems to be a real mix and match in terms of which parts of the package are being adopted, and in what sequence.

Like maybe they do two the first year, four the second year, and the whole thing the third year. And in some cases, maybe they drop them. Similarly, even though the overall numbers are showing fairly significant increases in yields, there seems to be fairly high variants. And when you're thinking about scaling, remember, one of the key questions we want to ask is on the one hand, do farmers have an incentive to adopt, and what are the barriers to adopting, and on the other hand, who can we scale up to? Well, if it turns out that this variation that we're getting in what's being adopted and who is adopting is not random, but actually, there are patterns, and we currently don't have the data to answer that question.

But having been to five countries, my suspicion is there are patterns. There are reasons why certain farmers are adopting. Probably the whole package is often related, I think, to resources, whether it's size of land, access to credit, financial resources, education levels, literacy, often age. Younger farmers tend to be early adopters, et cetera, et cetera. But that leads to the obvious inference if we're thinking about scale, maybe scale isn't necessarily all rice farmers in Tanzania, but only certain ones that fit certain demographic characteristics either are able to adopt or willing to adopt, and we'd need to know the answers to that.

Or conversely, if there are the obstacles that are preventing certain demographics from adopting, what can we do to relieve those constraints? And by sorting that out, well, these are the problems. These are the ones we can hopefully fix, and these are the ones we can't. It actually may cause us to redefine what is population scale – realistic population scale mean in terms of what's possible. So I'm probably preempting a future slide, but one of the things we're now working on in many countries is taking a deeper dive on our monitoring and evaluation to actually disaggregate the data on

adoption to get a sense of not just how many, how many, but which parts and why, and by whom to help refine our targeting for our scaling strategies as well as to highlight those issues that need to be addressed.

Secondly, as I mentioned a few minutes ago, we are getting a large multiplier effect on adoption, but largely, that's only in countries that happen to be collecting that data, but they aren't required to collect that data, so it's not very systematic. Since in this new approach, actually, I tend to be a little hyperbolic, so please excuse me, but we don't really care so much about the direct beneficiaries. It's the indirect beneficiaries that are really that's where the juice is. Right? That's the gold. That's the pot of gold at the end of the rainbow. I know that if I spend enough money, I can get five or ten people to do it. It's the other 50 people that know the first five or ten that shows me that this is really working. So again, because we don't have very good data on that, we don't really know does this guy down the road adopt because it's my neighbor, because it's my relative, because he actually attended a one-day field school, because the public sector agricultural extension agent happened to be in that town and mention it?

In other words, you could think about half a dozen mechanisms for why that would have happened. We also don't really know much about whether they're making money because remember, they're getting they're playing telephone. They're not getting direct access to the extension. So maybe they're not doing the new technology as well. So you might expect are they getting 100 percent of the same yields, 90, 80, 70, 60, 50, and how does that make the business case for them, whether it's profitable or not profitable, given that they're not getting access to the pure extension and demonstration project?

So just as I mentioned that we're now starting to do monitoring and research on who is adopting, why, and what sequence with indirect beneficiaries, we're doing the same starting the same kind of research in indirect beneficiaries, and particularly the question of how do they learn about it in the first place and what is that, and things like social network mapping are areas where we're starting to talk about in investing. And it's not just a question of understanding why this is happening, but the same reason. To figure out what can projects do to facilitate that. Our farmer-to-farmer visit is a way to go.

Or if we're selecting lead farmers or demonstration farmers, well actually, it turns out that these types of farmers are having more multiplier effects on indirect beneficiaries than those. We think we know the answer to these questions. We've tended to pick the wealthier, larger, more well respected farmers, but there actually isn't

a lot of empirical research to support that. And in my experience, it tends to be case by case. So what may be sort of a standard practice in Ag about larger, better off, more knowledgeable, respected farmers may be true, actually, in Cambodia, but not true in rice in Tanzania.

So again, one of the things that's clear, and I should have said this at the beginning, is that scaling up is never one size fits all, and it depends upon the country, it depends upon the ecosystem, it depends on the technology, et cetera. And so understanding these adoption patterns is something that needs to be studied in the context of the project. And in fact, I've in the last few days been working with BFS on figuring out how do we put in an annual not really evaluation process, but sort of getting a learning process of how is this going, and do we need to make mid-course corrections not just in the structure of a normal mid-term review or final evaluation, but an ongoing almost annual basis, who is adopting, who is not. Why are they adopting, what are they adopting? Who is the indirect beneficiaries, how is it working, and how do we need to change our tactics to keep on track for the numbers that we're trying to achieve and the population scale we're trying to achieve?

The other thing that's working is input supply in most places is pretty good. The projects are investing heavily and successfully in developing agro dealers, even in more remote areas, so most farmers can get access to the technology. And last but not least, they're investing in a very good and very solid set of extension agents, which are usually not the public sector, although they usually partner with the public sector, but they're these lead farmers, they're these village based agricultural agents or VBAs that I alluded to earlier, and to a lesser extent, agro dealers. So this is what's working.

The challenges that I've seen are the following. First of all, I think one of the logic the logic of the market system and value chain approach is to get farmers to be engaged in commercial value chains that can then be pulled or pushed by the private sector. In many countries, particularly in staple cereals, these farmers are currently subsistence farmers, and there's a lot of time and effort that needs to be made to get them from subsistence farmers who are actually food and secure they're not even producing enough for them to eat themselves and their family for 12 months, to food secure to a commercial surplus, to potentially meeting a commercial surplus that they probably sell on a local market, to a commercial surplus that's actually large enough to sell to a large buyer or commercial buyer meeting quality standards.

Now in some cases, there's a 5 or 10 or 15 or 20-year history of ag projects in the country, in which case, that process is already far

along, and the Feed the Future projects are having a fair bit of success moving into viable commercial production. But in other cases, they're still very much at the shifting from subsistence to food secure, or if you're lucky, a small surplus. And in those cases, it makes it very difficult to find a driver, a large private sector organization to pull or push because they're simply not there yet. And so one of the constraints we come up again is that that process I'd hate to put a number on it because I think it varies by crop and by country, but it's definitely in most cases more than a five-year process unless the groundwork has been laid. Often 10 or 15.

So one of the tensions which persists in scaling Feed the Future is that we think in five-year projects, but scaling often takes place in 10 or 15-year increments or time frames. How do we do both simultaneously? How do we get some movement towards scale on the one hand and continue to build towards real scale and sustainability through a market systems approach on the other? As I mentioned earlier, the second challenge is that most of these things are not just high yielding seeds, but they're packages with fertilizer, et cetera, and they're characterized by a much more significant investment in both capital and labor. Actually, one of the big surprises for me in my visits to the half a dozen countries I've been to – and I should mention I've worked with Feed the Future projects in Cambodia and Nepal, Bangladesh, Kenya, and Tanzania, and there's about another four or five on the docket for – I'm going to Mozambique at the end of the month, is that it's not simply that it's a lot more expensive to do this, but also it takes a lot more skilled labor.

And in particular, if you have more than a half a hectare or hectare of land, most farmers can't do this by themselves. And getting access to affordable skilled labor, you know, you usually think of third world countries or developing countries as labor surplus. In many cases, that's no longer the case, especially in rural areas. As I mentioned, I worked in Cambodia, Bangladesh, and Nepal. All three of those countries in Cambodia have huge migration to the cities. There's almost in Nepal and Bangladesh, people are either working in the gulf or India, or they're working in Bangladesh in the cities, and it's actually very hard to find skilled labor in the rural areas.

So you could see this as a problem, which it is, but it's also an opportunity because in the sense traditionally in places like the US and elsewhere, this is what drove mechanization. So we're at a wonderful sort of, I think, turning point, but I won't get into that, but I just wanted to flag that. The point being, however, that if you need more capital and labor and you have to pay for the labor, you have access to credit, and most of the projects are not doing, so far, a very

good job at providing that. There's been a lot of experiment with MFIs or DCAs. Everybody know what a DCA is? What does it stand for, actually? Development Credit Authority.

One of the major problems is they tend to be a completely separate silo project, and so I'll often talk to the DCA people or the MFI project people and they say, "Yeah, we're doing great stuff." I say, "How do you know the people who are getting loans from you are the beneficiaries of the Feed the Future project?" They said, "Oh, we don't have any coordination or collaboration whatsoever." Okay, I'm exaggerating, but not much. Okay? In Cambodia, for example, they have a \$1.7 million DCA. Guess what – with one MFI. Guess what the losses of the MFI have been? And they're very proud of. They have a loss rate of 0.1 percent, which given the loan volume that they're doing is \$70,000.00. \$1.7 million DCA to mitigate risk, guarantee risk, of which we've used \$70,000.00.

I think you can draw your own conclusions about how much additional risk they've taken on given the presence of the guarantee, but when you talk to the farmers, what you find out is farmers who have resources have not only adopted the technology –in this case it was horticulture under the project? No, yeah. But they've actually invested in additional land by taking microfinance loans because they have enough money and enough land to guarantee that.

But this is a good point where the access to resources determines adoption rates. The poorer farmers who don't have much land and can't put up much as a collateral guarantee aren't getting access, and this is a persistent problem. And I could tell you the same similar versions of the same story in most of the other countries. We haven't yet done a very good job of working with microfinance institutions to design appropriate loan mechanisms that meet the needs of smallholder farmers in the timeframe with the interest rates, et cetera, and particularly what they're often concerned about is the problems or collateral or guarantee.

For many farmers, even if they have access to land and they have title, betting the farm is not a viable strategy for a subsistence farmer. Okay? So this is problematic. Third, despite the extremely impressive progress that most projects have made on creating access to inputs, I mentioned the VBAs, the agro dealers, et cetera, it tends to be geographically uneven, and that the farther away you get from a town or a road, the less access there are and the more expensive. So this is really important because I as the fifth point in this slide points out, if remember I said in the beginning that we're seeing variance on yields?

Okay. Well if you're far from a road, it's not only variance on yields, but it's also variance on prices.

The price to sell rice in town may be 20,000 well, not 20,000. Let's \$20.00 a 50 a 50 kilo bag, but if you have to pay 10 percent or 20 percent of that to get it to the road, that changes your calculation. And if you have to pay the same kind of margin to bring a 50 kg bag of fertilizer out into the rural areas, that changes their calculation. So one of the really exciting as an economist things that the Feed the Future projects are doing is they're using cost benefit analysis to make sure that these things are financially viable and profitable for the farmers. What hasn't been happening to date is to update those CBAs, cost benefit analysis, annually to see whether they actually what the calculation is done before the project started or actually holding up in practice now that we're at the implementation level.

And if there's variance by type of farmer, size of farmer, and particularly in my opinion by location. Because those relative input output prices are shifting as you move further and further away from markets, not to mention potentially quality of land, yields, access to extension, et cetera. So again, very much work in progress. We're now talking about putting in place a system where this business case is updated, recalculated, and analyzed to see do we need to make changes in our scaling strategy given what we're learning about the profit not only what's profitable, but who is it profitable for and where.

And how do we need to influence, for example, transportation infrastructure or access to inputs and outputs may be affecting the viability of scaling in certain things, and change our strategy to be more geographically targeted. So if you start to put these pictures together, we're starting to think about, well, yeah, there are all these farmers growing rice, but which farmers can make a profit at the new rice? Does it depend on access to resources? Does it depend on how close they are to market? Which farmers influence indirect beneficiaries? So we start to think about layering who makes money, who doesn't, how does that relate to the geographic the economic geography of where access to outputs and inputs are available and how the cost prices change, and who influences indirect beneficiaries tends to lead, I think, to a very different scaling strategy than simply, "I want to go from 50,000 to 100,000."

Okay? Is that making sense? Yeah? Okay. And last but not least, even though as I alluded to, the extension system that's being put in place is very good, there's still an issue of its sustainability. When I mean good, in other words, it's a lot of lead farmers, a lot of agro dealers,

and a lot of these VBAs are being very well trained and providing really good information, but what happens after the project ends? What happens if there's a new pest, a new crop, a new technology that could be introduced? Do you have to have another Feed the Future project for that to happen?

What's the ongoing linkage to extension services or information that could flow down? And again, there are different options. One is the public sector. That's problematic for reasons that many of you are familiar with. And the other is the private sector, whether it's buyers or input producers. The problem you get with input producers is they tend to be biased towards their own products. And again, they tend to favor a larger, more commercially oriented farmers closer to roads because is it really profitable for them to send somebody on a motorcycle, you know, 30, 40, 50 miles into the interior to talk to a small village where people have a half a hectare of land. In fact, one of the Feed the Future workshops that was organized in January in Bangkok, there was a woman there who has her own business. She develops and sells hybrid seeds, cereal seeds to farmers in India.

She says 46 million farmers could benefit from her seeds. She has her own extension system and extension workers, but they only reach 20 million because it's not profitable for her to go to the small villages in the remote areas where it would be realistic to reach the other 26 million. So this is not just particular to this woman in India, but this is ubiquitous in most of the other countries. So how do we change the financial dynamics of that to reach deeper and deeper? And I think one of the things what I'm working with the missions on this is started to think in terms of – I like to use the word a layered strategy. Well maybe scaling up really makes sense in the first stage in the first 10 or 20 kilometers from the road.

Okay, but then hopefully, that will make it profitable for an agro dealer to go into business 20 kilometers away from a road in a village or a town, and that means we can push the boundary in another 20 kilometers in, and depending upon how long each layer takes to sort of fill in, you could think about doing that every two, three, five years. Okay, and especially if you can bundle that with some road infrastructure investment and a few other things, you could start to think about scaling up in sort of that layered manner. Okay, so that's just one way of putting into practice some of these more disaggregated analyses of who does it make sense to adopt, where did the prices make sense, and what's the business case.

So what needs improving? I've already touched on probably most of these, the MFI issues in the DCA, a more strategic geographic

approach, and also bundling with other things such as I talked about at the beginning. You can make it a better incentive for a VBA to go further into the interior if it's bundled with these medicines for cows. And finally, partnering with irrigation. One of I know we've sort of in a lot of cases moved away from infrastructure, but a lot of these high yielding seeds often do much better with irrigation. And particularly for things like horticulture, if you're going to produce off-season products for commercial markets in East Africa, they want them year round or they're not going to get them, and there isn't rain reliable rain year round. So how do you if you don't bundle with irrigation, whether it's large scale surface water irrigation or small scale drip irrigation, it tends to be problematic for farmers to move into certain commercial sectors.

So I touched on all these, and just the last couple points I want to make because I know we want to have time for questions, is that coming back to the original pull and push design, there's a really high variance in countries and in particular crops and sectors or value chains of where there is a viable large scale private sector organization that can pull or push the chain, and where isn't there. And for example, I just came back the last country I was in was Kenya. In Kenya, there is a fabulous chain, which I'm sure most of you know about, and in horticulture are already in place. The current Kaves Feed the Future project is doing a great job of extending that chain, working with private sector partners to parts of Kenya that have traditionally not produced for horticultural exports to Europe, and that's I'm not saying it's a no brainer, but they're doing a great job at that. They're following the facilitation approach to market systems, and it's working really well.

The flip side of that in Kenya is the maize sector. In maize, there aren't so many large buyers. They aren't exporting to Europe. It's mostly a domestic market. It's very difficult to get enforceable contracts with farmers because they eat the stuff, and they don't eat if you grow a ton of green beans, your family is not going to eat a ton of green beans, especially because it has to be eaten in the next week. But if you grow a ton of maize, you keep it all year round, and if you have a medical emergency, the five bags you were supposed to sell to the person you got the contract to, you sell right away to a local buyer because you need the money to pay hospital bills.

So this issue of side selling particularly in staple cereals or owned consumption or other things becomes a real issue in getting enforceable, financial relationships in contracts with large pull or push buyers, which is less of an issue in horticulture or other cash crops. Good intermediary case in some cases is dairy, which often

there are both large buyers, but there's also a potential to move through the chain. In other words from own consumption to selling to local markets to selling to commercial markets. And again, the Kaves project, it's K-A-V-E-S. And Kenya is actually doing a good job of moving from the first stage of mostly owned consumption to selling on a commercial basis to local markets to eventually linking to large buyers.

But I think we need to give more thought in terms of scaling in places where the actors aren't in place in the private sector to push or pull about what do we do in those situations. And last but not least, this issue of on the one hand the tension, as I alluded to in the beginning, between trying to hit a critical mass of farmers and build the ecosystem within a five-year timeframe, and the answer is we need to do both. I think we'd all like to dream of a future where maybe there would be 10 or 15 year contracts, and you could actually go to scale, and I'll talk about that in a minute, which is we are actually thinking about trying to get new contracting mechanisms in place that allow for a balance between the short-term political priorities of getting numbers and accountability with creating more long-term mechanisms for learning scale and sustainability, such as tiered contracts or pay for success, et cetera.

The Global Innovation Lab has already experimented with some things like that where okay, here is a few hundred thousand dollars. Show us this technology works. Here is \$1 million. Shows us it works in a few places. Here is a few million dollars. Scale it. So one could think about a ten-year contract that had that kind of structure to it where, basically, there are performance objectives, and when you achieve them, you get another as opposed to as having to recomplete at each level, but this is very much under discussion a work in progress.

The other thing I want to emphasize is that it's also important to have different indicators. I already mentioned the need to have indicators about indirect beneficiaries and to disaggregate who is adopting, what they're adopting, and why they're adopting. The other thing we're working on with BFS and other parts three, and other parts of the agency is how do you measure that you're putting in place a viable, sustainable ecosystem? How do you know that input supply is working so that when you leave, there will still be a place for farmers to get access to seeds, fertilizer, et cetera? Access to extension services.

So if we can't measure this stuff and we can't put in some sorts of targets or objectives within contracts in other words, there's lots of

most of the contracts or the cooperative agreements include a lot of activities on building ecosystems and the value chain and infrastructure well, not physical infrastructure, but you know, value chain infrastructure, but there aren't really clear measurable objectives for that, and that's why when push comes to shove, unfortunately in some cases as we all know, when I have to drive for the numbers, I tend to sometimes sacrifice building the ecosystem and facilitating a process for doing it myself. And so by trying to change and work on both the indicators we're using and the contracting mechanisms we're using to try to get a better balance between the need for accountability, the need to hit numbers, the need to hit direct beneficiaries, and showing that we're building critical mass, that we're creating a spontaneous process, and we're creating a viable market system. And so I –

## QUESTION AND ANSWER

*Joy Chen:* Q&A portion of this seminar, and so we do have 130 people on webinar, and so we'll start with webinar, and when you have a question in the room, just please raise your hand and wait for me or Crystal, my colleague, to pass you the microphone and state your name and organizational affiliation.

*Marisol Pierce-Quinonez:* So the first question comes from Peter Nbuyu from Nairobi with a Kenya Markets Trust.

*Richard Kohl:* I can't hear you.

*Marisol Pierce-Quinonez:* Can you hear me now?

*Richard Kohl:* Yeah.

*Marisol Pierce-Quinonez:* Great. The first question is from Peter Nbuyu from Nairobi with the Kenya Markets Trust. At what time in your intervention do you say or know you have reached the critical mass? What should you be looking out for?

*Richard Kohl:* Well as I alluded to, that is a case by case basis. It depends on, basically, what kind of multiplier effect you're getting. Obviously, if your first you're not going to get much of a multiplier effect in Year 1 maybe, but by Year 2 or 3, you should – if you've put a demonstration plot in place in 50 or 500 villages, whatever the numbers are, you should start to get a sense of, "Oh, so we did two crop cycles in this area. How many of the people in that village who weren't part of that demonstration program or in the next village are adopting?" If the numbers are five-to-one, then you sort of need to cover 20 percent, obviously. If the numbers are three-to-one, the numbers are higher. If you're getting ten-to-one, then the numbers are small.

The only point I'd make, however, is as I tried to emphasize, it isn't just a question of 10 percent, 20 percent, 30 percent, but remember there's a mechanism there. So one of the things that has sometimes happened because there hasn't been an explicit geographic strategy for putting in place these nodes, or if you prefer points of light, for scaling is there tend to be not uniformly distributed. Often, they're clumpy. So if they're clumpy, that means you may have gaps where you have no place, and so even though you may have hit your 20

percent, there's no village or demonstration center within the area you need to influence the farmers in that area.

So it isn't purely the numbers. It's also making sure there's proximity and a sense of the social network or whatever the mechanism by which farmers are learning about this that allows for that transmission to take place.

*John Lamb:*

Hi. My name is John Lamb. I'm with Apt Associates. I have a question on your use of the terminology of multipliers. When you started talking about indirect multipliers, I thought you were heading in a direction of something like the in plan system for regional economic analysis in the US of direct, indirect, and induced. But in fact, it sounds like you're using it to as a means of measuring indirect adoption of the technology. Is there not, first of all, a danger of causing confusion amongst economists who are used to the more traditional thing? And second of all, is there any activity occurring in the food FSB to look at actual ways of increase in the multiplier effects in terms of rural prosperity, jobs for women, and so on that are that are more in keeping with the traditional use of multipliers?

*Richard Kohl:*

I think your first point is very well taken. I think one of the things we struggle with in scaling up in general is that there isn't a common lexicon or language, and so we for example, I think if we went around the room and we asked people to define the word replication, we'd get about six different definitions. As a trained economist, I understand completely what you mean about multipliers, but I'm not sure what the other word I should be using or could be using, but we could probably take that up offline.

To answer your second question about the normal use of multipliers or induced effects in terms of job creation, et cetera, the answer is yes. Actually, we are starting to take a look at that also. I had 35 minutes, couldn't cover everything, but I think for political reasons, but not only for political reasons, for important reasons, you know, the emphasize has really been on scaling technology, and how many and in addressing poverty and food security. Now I understand that job creation, direct and indirect does address poverty, but particularly the issue of food security, the there's only so much of a burden you can put on implementers in terms of data collection. I've already proposed disaggregating the beneficiaries to the indirect beneficiaries, which ones are adopting who, what, where, and why. That's a lot to ask.

And then saying, "Okay, and so how many jobs are being created indirectly?" But you're seeing it. I mean you're definitely seeing it, and certainly some of the projects are starting to measure it, and I

think there is an ongoing discussion within BFS and 3E and the agency as a whole of how to get a better handle on those things as well. The problem is trying to create this balance between the burden of monitoring and evaluation on the one hand and capturing these systemic effects on the other, and it's not an easy balance to strike. But both your points are very well taken.

*Marisol Pierce-Quinonez:*

This question comes from Christina Manfray at Cultural Practice in Bethesda. What how does the framework account for differences among farmers? Specifically, I'm wondering how you reach scale or that critical mass in a way that you know you're reaching both men and women.

*Richard Kohl:*

So that's a great question. I'd say that it's difficult it's complicated, precisely because as I tried to say before, it's not clear that one size fits all in a sense that even though sometimes the projects are fairly nuanced and subtle in their design so for example, the Cambodia project I alluded to has both horticulture in terms of people producing for the market and also market gardens for farmers that don't have the resources and the viable both in terms of land, labor, and financial resources to do a production.

So but in a lot of cases, there isn't a distinction being made in terms of how do we approach farmers who might be women versus men or less than a dollar and a quarter versus \$2.00 or less versus maybe in the \$2.00 to \$5.00 range, farmers who have less than a hectare of land versus let's say two to five hectares of land, et cetera. And it turns out that these projects are having, I think, variable success in terms of who they reach. And I think we need to one of the things we're rethinking is a project may be really good for a subset of farmers, be they men or women in bringing them to commercial into the commercial value chain in producing and increasing incomes and yields quite dramatically, but that might not work so well for dollar and a quarter farmers.

They're too old, they're too under resources, they lack literature, and we sometimes need a different approach. In many – the project Feed the Future has a very, very explicit and strong gender component to it, and goes out of its and there are and every project I know of has strong numerical targets. What we're trying to do for women. What we're trying to do though, however, is get away from simply checking the box, which is I had 50 demonstration projects, and I made sure that 50 percent of the people there were women, to how what are the economic activities that women actually engage in, and how can we make sure that we're supporting those activities in a way that allows

them to come out of poverty or to improve their nutritional status, et cetera.

In some places, that's easier to do than others, but I just would point out that in many, many countries, and certainly in much of Southeast Asia and South Asia, you're getting the feminization of agriculture. You go to rural Kenya, you don't see I mean rural Cambodia, you don't see many men. And the average farmer in Kenya is 61 years old and a woman because a lot of people – the people who have migrated to cities are either men, or they're men who died of HIV until anti-retrovirals became more common. So it's an issue. It's an issue that Feed the Future takes extremely seriously and is addressing proactively, but the bigger challenge is does a one size fits all work for women, and if not, how do you have a more nuanced project that addresses not just men versus women, but the other sub-categories of the poor population that you want to address.

*Joy Chen:* Let's take a question in the room.

*Sulika Relon:* Hi, this is Sulika Relon, also from Apt Associates. I guess my question is somewhat related to this, but I wanted to bring the issue a little more to the center that when you're looking at early adopters and you're looking at getting to a critical mass, the typology of the farmer who would adopt would be credit unconstrained, even if he has one to two hectares, is somebody who has alternate sources of income. So in the first five years, the short-term strategy your target beneficiary will be probably way different from what the Feed the Future or USAID wants to target because they are the ones who are going to be unconstrained, have other approaches. So how do you sort of address that particular issue?

And one second piece is that as you start taking things to scale, is there some analysis done vis-à-vis when everybody adopts, is there going to be an issue of glut in the market, or is the market intelligence adequate for farmers to then adjust if there is actually a glut in the future? So those are the two keys.

*Richard Kohl:* Thank you. So those are both great questions. To take the first one, I think as I tried to say, a lot of the work we're doing now is how to make scaling up of Feed the Future a both and. Okay? So we understand that scaling up often takes more than five years. We understand that building the ecosystem often takes more than five years, and relieving the various constraints. We understand that the first tiers of farmers, especially if you're trying to pursue this critical mass or this triggering strategy, the late adopters will tend to be the

ones that you're often the most interested, et cetera. So the question is striking the right balance.

So the first thing we're trying to do is create a coherent story, which is this is our theory of change. In other words, our theory of change is not simply in your – we're going to hit 250,000 farmers, thank you very much, and walk away because we've learned that we come back five years later, and half of those poor farmers aren't doing it anymore. We are trying to move towards a more sustainable thing. Secondly, our theory of change involves building ecosystems, and we have to measure that. At the same time, as I've alluded to, we live in the reality of a congress that gets elected for every two years that wants to know where the money went and wants to see tangible results. So what we're trying to do, as I alluded, to develop indicators that we're on the right path of this theory of change.

We have shown in a certain subset that actually, if you do get the unconstrained farmers, as you call them, to adopt, that that actually does lead to a multiplier effect of three or five or ten to the less resourced, less constrained, poor farmers that we care about. We may not be able to do that everywhere in the first few years, but we have enough of a proof of concept that it's not just that some farmers are adopting, but that sequence that we think we're on the first that little curve I had up on the graphic, we actually are somewhere along we're on that path, and we want to develop indicators for each part of that path to know that we're on track.

At the same time, we need to produce some early results to show that we can that this is going to work. Could you remind me of the second part of your question?

*Marisol Pierce-Quinonez:*

The second was related to farmers having the market intelligence in case they have –

*Richard Kohl:*

Okay, yeah. So each country, each project does do research on the options of size. And is there I think more could be done from an economics perspective, frankly, that often that's done in Year 1, but the markets are fluid. And you know, what works what may have been a reasonable forecast of where the market growth is likely to come in the next few years. I think this is I think to be frank, I think there's still more work to be done here because you know, what I love about the approach that we've moved to is we've gone from giving people fish to teaching people how to fish to teaching people to run a fishing business to both teaching people how to run a fishing business

and building a viable fishing market system in which their business can survive and thrive.

What we're pretty good at or getting better and better at is doing that in a static sense. In other words, putting the pieces in place. Getting into place something that works on a dynamic basis as I alluded to, for example, this our primary focus in these projects is getting these new technologies adopted. I think it's raising the bar, and it's a bar we should eventually raise to say, "Well, what about when the next technology comes down the road in two years or three years or five years?" We'd like to think there will be new seed varieties every few years that are better and better, and these farmers will continue have a continuous adoption cycle. We're not anywhere close to that. Okay?

And I think it's the same thing with the question you asked, which is helping farmers be adaptive, dynamic businessmen. That's a harder slog. Now most of these projects are often organizing farmers into associations for a variety of reasons, but think of it – and that's sort of standard practice, and for good reason. But frankly, I've never seen a country when I go to a country, if they're hitting a 20, 30, 40 percent success rate in terms of long term viability at farmers' associations, I think they're hitting it out of the park.

In the US, you start a small business, and you have an 85 percent success rate after a few failure rate after a few years. This is a much more difficult place to operate, and you're trying to get 100, 200, 300, 500 people to work together effectively. So why would you expect to get any better than 15 percent success of associations in terms of viable long-term businesses? So I think these are real issues. I do think there needs to be a little bit more research on the market implications. There's a tendency, I think, in Feed the Future despite the fact that the framework is set up to have a very strong market financial and economic orientation, there's I think a historical legacy of seeing this more as an agricultural technology implementation drive.

And so you know, it's moving the super tanker. It's getting people who traditionally oriented but this is a better technology. You should adopt to the so this is you can make money. You should adopt this to here is how to run a business and change the crops you go, the technology you use on an ongoing responsive basis. We're very much in process on that. But great questions. Thank you.

*Marisol Pierce-  
Quinonez:*

The next question comes from Steven Lunder at Independent Consultant. Can you say more about how one defines and adapts an offering of a bundled package of goods and services that

simultaneously meets the varied priority needs of producers like input goods and services, access to financial services, and markets, et cetera, and the needs of critical providers and benders? It sounded rather technocratic versus an incremental approach that builds upon evidence in success.

*Richard Kohl:*

The short answer is these are all great questions. I don't think I have a template or a cookie cutter for that. I think it's been on a case-by-case basis, which is the single thing unbundled working, or if not, what could you bundle with it that makes sense? And then actually, the questioner is right, it usually is on an incremental basis. So let me give an example. In Bangladesh, one of the technologies that the some of the Feed the Future projects there are several there, has introduced is what's called urea displacement, and I know that's an issue or a technology that has a strong and a very divergent opinions upon within the community.

But it seems to be working in Bangladesh for whatever the reasons. Okay? However, there are obstacles. One of the obstacles being that it's extremely labor intensive, and while the implementing partners there are working and have been working steadily for several years to develop new and better literally tools that allow you sorry, I should say what it is. Urea displacement is you take urea fertilizer, which is a primary fertilizer, which is nitrogen rich, and you compress it into a small briquette. It's about a quarter or less of the size of what our charcoal briquette that we would use for grill, and you stick it about three or four inches into the ground. It's often used with rice, but can be used with other things in between the four rice plants.

And the big advantages of that is that it dissolves slowly over time, you don't get the runoff, you get much higher absorption rates, and actually it costs less because since there's less runoff, you have about you only have to use 60 or 70 percent as much fertilizer, and it actually increases when effective yields by about 20 or 25 percent because you get higher absorption. That's the theory.

The practice is, as I said, a lot more challenging. So the farmers, as I was alluding to in general, complain about the problem is they can't find labor. They've already run around their hectare, two hectares, three hectares, hand planting all these rice seedlings to do it again with a bunch of rice is literally back breaking work. So they're looking for labor to do it and they can't find it. Well some of the agro dealers who are selling the fertilizer briquettes, urea briquettes, have innovated bundles, which is that they have organized their own labor gangs, which is saying not only will we sell you the 500 kg of briquettes you need, but we have a team which is specialized that can actually do the

placement for you, and we can do it in half a day because we do it all the time.

It turns out for whatever reason there are some people really good at it and some people not so good at it, and the more you do it, obviously, the better you get. So that's been a case where bundling has been very helpful, and actually something very similar has been tried in Tanzania. It's they are using the briquettes there, too, but it has more to do with the fact that they're actually shifting from broadcast planting to seedlings, and also evenly spaced seedlings, et cetera, et cetera, and most of the farmers aren't used to that.

So one of the goals of the Tanzanian project is to actually encourage youth to stay in agriculture, and this is actually a very profitable activity for young people because it's fairly hard work is to be organized into these labor gangs to do seedling planting using spacing and all this, and they're very good at it, and this has been a very big success. Can I generalize from that? I don't know yet. Maybe that's a conversation I need to have with Johannes Lynn, Larry Cooley, Justin in the lab about how do we think about what are the right bundles of things, whether it's for an agro dealer, for a farmer, for a buyer, et cetera, et cetera in terms of what makes sense financially and what's the process we can use to identify that.

*Eric Hyman:*

Eric Hyman. You said E3 economic policy. To what extent are the more recent Feed the Future projects providing small scale irrigation, which will become increasingly important as a climate change adaptation strategy? And also, integrating with the necessary financing using alternative forms of collateral and using communication strategies that reach indirect beneficiaries in the beginning?

*Richard Kohl:*

I think that was three questions in one. So let me take the first one because actually, it's a very interesting one because it relates to the previous question, which is one of bundling. Okay? Even drip irrigation, there's a variety of shapes and sizes. Right? You can go farmer by farmer and give him a little cistern that he or she fills with water, maybe it's some rainwater collection, or they go to the river or something, and they carry it. Once a week, they have to fill their 50-liter cistern, and then it drips all week and all that, and then there are these large pits that they dig with a line with some sort of water proof material, and then maybe five or ten people use that, or five or ten people have a larger cistern. And so there are varying shapes and sizes.

Now this is a perfect example where technology versus incentives and intangibles comes into place. Once you get into let's say having a large

cooperative of 100, 200, 500 people have a very large common source of drip irrigation water, then you get into all sorts of management and pricing issues and measurement. How much water are they using? How much are they going to pay for it? Who is going to manage it? Who is going to build the infrastructure? Who is going to maintain the infrastructure? And so that gets back into the viability of the farmers association as an effective delivery mechanism.

On the other hand, if you do it case by case, it's actually much more expensive to put in place 500 cisterns than three large ones. Okay? So I think one of the questions the first answer to your question is that many but not all of the projects are using drip. Drip tends to be used more in horticulture, for example, than it does in staple cereals, for obvious reasons. But at least in those areas where it tends to make more sense, it is being used, but this issue that I just alluded to of how do you organize it and what's the right size not just from a technology perspective, but from an organizational capacity and management perspective I think is really a key issue.

And that is yeah, that's how I think about it, and we're playing around with what's the best way to do that. You had a couple other parts of your question.

*Eric Hyman:* Financing with alternative collateral and integrating communications approaches that reach indirect beneficiaries from the beginning.

*Richard Kohl:* Right. I think Judy Payne is here, and I think you should get a chance to talk to her bilaterally about the last one, okay, whose BFS is mobile technologies communications person. My sense is that the indirect stuff is currently being used mostly from a nutritional messaging, and a little bit less for indirect adoption of the core agricultural technologies, but I think you should take that up with her. In terms of the second issue you raised about alternative forms of collateral, there is some experimentation with that, but I have yet to see it go to scale. If land or other tangible assets are not being used, there usually are co-guarantees, but again, this is a perfect example of why scale – you can't – it's not one size fits all.

There are certain countries where finding five other people to sign off on this is never going to happen. When I broached this idea in Cambodia, they laughed. They thought I was the funniest thing that had ever set foot in Cambodia because basically, my next door neighbor was killing me 30 years ago. You think that person is going to co-sign a loan with me, you're crazy. Okay? In other places, it's the opposite. It's a complete no brainer. The whole village signs up together, and they get loans no problem. So again, the social structure

we tend to think of these things as economists from a sort of an economic design of mitigating risk and aligning incentives, but these underlying social institutions are equally important.

The one thing that I've seen working, but again, I think it needs more time and effort is I know it's not the only MFI that's doing it, but they're doing a nice job on it is called Opportunity, and what they're doing is traunched release, and also controlling the cash flow. So in other words, we'll loan you \$700.00 to plant a hectare of corn, but first we only loan you \$100.00 to see that you actually use it to buy seed the first round of seed and fertilizer, and we won't pay it to you. We'll pay it to the fertilizer company or the agro dealer. If you do that, we release another \$100.00 to have your field leveled and the row planting done. If that works, et cetera.

So in a sense, it's sort of like IMF conditionality. We've got these hoops you've got to jump through. It's not so much that we're going to reclaim anything, but it creates sort of an incentive mechanism and an ongoing relationship that seems to be working. I think it's too small to say that this is the next big thing, but I'm sympathetic to that. The one thing I would add, by the way though, is that there's a real both challenge and problem about developing appropriate risk insurance mechanisms that particularly for things like buying a new cow, which is often expensive, it just doesn't work if there isn't animal insurance. So creating viable –

For a farmer to for example, in Kenya, the Dairy Project is helping farmers switch from traditional cows that produce very little milk, like five liters a cow, to European origin breeds that produce 20 or 30 liters a cow. The new cows are often \$200.00 or \$300.00 a pop, which for a small farmer is a lot of money, especially if you're going to buy two, three, or four of them. So there's I think it was IFAD or a different project that had developed an animal insurance that was bundled with the loan for the animal, and that makes a lot of sense because if that animal dies and you're left holding the bag for three, five, \$700.00, game over. So thank you for the great questions.

*Marisol Pierce-Quinonez:*

This question comes from Michael Dougherty. The presentation was primarily about smallholder farmers, but he was wondering if you could address the role of larger farmers as leaders in innovation and their impact on the adoption rates.

*Richard Kohl:*

I hate to say I guess it depends what you small and large most of the areas that I think Feed the Future programs are working, but I'm not familiar with every 19 countries, is sort of really small farmers tend to

be less than a hectare or two. Medium sized farmers are two to five, and then the larger ones are way above that. I don't think we have from the experience that I've had, I don't think we have a lot of experience at working with the really large farmers. You know, the ones that are the 10, 20, 30 hectares.

Now the exception to that is that in a few places, there has been some work with things that look more like out grower schemes. So for example, there's a large rice producer in Kenya called KPL. I think it's got 3,000 or 30,000 hectares. It's a big farm. It's very commercial. The latest technology. I think it's got \$40 million or \$60 million in investment, and in fact, when the project in the Nefaka Project in Tanzania was really originally designed, actually, the vision was to use large agro businesses like this to have some sort of relationship with them, whether it was an out grower, sub-contractor. I mean what the contractual relationship was going to be was very much a work in progress, and I actually think that needs more work because I think there are pluses and minuses for those different particular relationships.

The expectation was that the government was actually going to induce through a variety of changes in the policy enabling environment a large number of other KPLs to come in and be players in the rice and maize and sugarcane business, and at least to date, that hasn't happened yet. So I think this is whoever the caller is, I think Jeanne – Jeanne Downing is probably a better person to answer this than I am. But at least in the five countries I've seen, the only place where it's really being tried is Tanzania, and right now, that model is on hold until there are more large scale partners to work with.

*Patricia Deveckio:* Hi, Patricia Deveckio, International Purpose. When you look at what you might call is the ideal profile of your a doctor or your direct or indirect beneficiary, do you ever look at personal characteristics like what degree are they internally motivated? Do they feel confident in the success of the project?

*Richard Kohl:* Yeah, I think that's a great question. I, as you have heard now, am an economist by training. One of my little pithy remarks, which is probably not so smart, but I think it's cute, is if you want to scale up, hire an anthropologist just because there's much of an emphasis on the finances, the economics, and the technology, and that human dimension is missing. So I'm aligned with I think what's behind your question, but as a non-anthropologist, I don't know how to I think that's a certainly if I was out there trying to figure out why other people are adopting, certainly the personal characteristics of these

influencers or whatever they're called, these nodal farmers would be one of the things I'd want to be looking at.

But I'm personally not capable I don't have that skill set. So but I think you're right. I think that's definitely the direction we want to go in.

*Joy Chen:*

And we'll take one last question from the webinar. If we didn't get to your question, please do stick around because I know Richard will be here for a little bit, and if not, feel free to go on the event page, and under comments, post your question, and we'll work with Richard to answer your questions.

*Marisol Pierce-Quinonez:*

Yeah, and just there were a lot of questions coming in through the webinar, and apologies to those of you that I didn't get to ask. This one came from Sierra Versillo through Twitter. She's joining us from Toronto. If agro dealers are biased to their own products, how can we partner with public sector extension to overcome this? Is this possible or worth prioritizing?

*Richard Kohl:*

Well first of all, let me just make a clarification. It's not the agro dealers who are biased. The agro dealers are the retail link in the chain in most cases, so it's like I actually grew up in a rural area. There was an Agway store literally across the street from where I grew up. That's where I bought my guinea pig feed and other things, but agro dealers carry usually the brands of, I don't know, I never counted, but I'm sure it's a dozen or more different kinds of fertilizer or seed producers in most countries, and they tend not to be biased unless they're getting particular incentives from a producer to be that way.

But the problem is that in most cases, the well, and its variable. The projects are working with agro dealers to get them to both go out in the field to work with farmers, to advise farmers, and to run demonstration projects, but there's a limit, it appears, to how much how willing some of them are to do it, especially if it's a sole proprietorship. They don't like to leave their store empty. So actually, there's another important social dimension. In some countries, where women usually I haven't yet been to a country where the agro dealer is at least with their own stores are women, though actually I understand in Haiti they are.

Is there somebody else who can take the store so I can go out in the field and work with the farmers? In some countries there is, and they do it, and some countries, there isn't. And that seems to be a cultural or social thing. But where the bias comes in is that it's not so much the

agro dealer. It's the seed producer or the fertilizer producer who obviously doesn't want to tell you that generically, this is the best fertilizer. It's why their fertilizer or this this is the five kinds they have, and this is the one used here or there or there that's the best, and they don't like to tell you about the other – the competition actually, for your soil, it's really the competitor's fertilizer that's really better.

I know there's a project that USAID BFS is running called Mias, which I think it's something to do with building extension systems. I think we've had a very mixed track record on public extension systems, and it's a complicated duck to fix. They usually have all sorts of problems in terms of motivation. They usually lack the sufficient financial resources for both salaries, and particularly for transportation is huge. Often, the projects when they partner with them are often in a very difficult situation where as they can't even get these guys to come and it's usually men to come out to the field and even sort of just show the flag, let alone do something actively if they don't subsidize them in terms of salaries or transportation incentives or per diems, and at the same time, we're trying to get away from that.

But even if they do it, it's certainly not sustainable. So there are a few places where that's viable, but that's one of those long-term 5, 10, I think 15 year slogs of building the ecosystem that is the case, which I think is why we've moved towards embedded private sector extension in the majority of cases. Now that said, in Kenya, they've just decentralized agricultural services to the county by county level, and actually, farmers like extension agents. And so many county people who are allocating their own money are actually putting their money into it, and that's an example where that is working.

Ethiopia, which tends to have a very strong state governance, is pretty good regardless of some of the other issues you might want to raise about the nature of governance in Ethiopia, and they have 60,000 extension workers. So but for example, the notion that you're going to make the I mean IFAD and USAID are working together to try to make a quasi-private or public sector extension system work. They see it as a five to ten year slog, and right now, it isn't a viable alternative.

*Joy Chen:*

Please join me in thanking Richard Kohl for an insightful seminar.



