



Policy Options to Enable Fertilizer Industry Growth

Q&A Session

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Speakers:

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Female: Thank you, Ray. A big thank you to all of our panelists, you have certainly given us a lot of food for thought. At this point, we want to open it up to your questions, both here in the room and online. Zachary's going to be going around handing out the microphone to the questions. I think, perhaps, first we maybe will take a question from our online group. Oh, and, actually, wait. Sorry. Before we start, when you're asking a question, please give us your name and the institution you're representing if there is one, and that goes for the online folks as well, if we can get that information.

And given that we have such a large panel, I wanted to remind our panelist if you can to please keep your answers brief and that you certainly do not all need to answer every question. Thank you.

Male: That's good.

Male: Hi. I'm Nadav Rindler from the USAID EAT Project. I'm going to read a question from our online audience, from John Bregente. He says, "How do we convince governments to keep markets liberalized when they haven't seen increased use through the private sector? Uganda may be a rather unique case in its relative commitment to liberalization, but ten years later, the government is not seeing results subsidies start to look tempting from their perspective."

Female: Who would like to take that one?

[Laughter]

Male: I'll at least, perhaps, start the ball rolling on that. I think the question speaks directly to some of the issues that we raised today, that market development is not necessarily something that just happens by itself. Well, it will not happen by itself if there is not a facilitating environment. I can't speak necessarily to the particulars in Uganda, but I do know from my experiences and what I have seen is that if you don't have all of the various elements in place that we talked about, if you don't have the infrastructure capability, if you've not made the investments in research and development and extension and distribution and dissemination of knowledge, it's very difficult. If you don't have the financial programs in place, whether it's credit guarantees or educational programs just so that private financial institutions understand how the agricultural sector works.

It's this entire package, and I can understand that there is a temptation to want to reach back and say "Well, it's not happening. The government has to intervene, again," or something. But, again, this more holistic approach and look at the marketplace is just that much more critical and I think that's highlighted by the question.

Female:

I think to add to that, I think the government can't just withdraw from the fertilizer sector and sit back. It has to provision for what it wants to achieve in the agricultural sector in terms of production targets, what crops it want to increase, and communicate that information the private sector, and then provide incentives for them to get involved in terms of there could be anything, tax incentives. It could also be investing in the infrastructure that we talked about to make the private sector want to get involved in providing the fertilizer that is required in different parts of the country.

So I think the basic thing is the government cannot just withdraw from the fertilizer sector and leave it that. It has to also make sure that the private sector has the incentives that it needs and is aware of what the government's plans are for the partial sector, communicate that to the private sector, and discuss ways in which they can collaborate to reach their common goals.

Female:

Can I just add to this? A very practical thing that donors can do in the situation you raise is show other country experiences. When Larry Paulson, who's here in the audience and IFC were in Bangladesh in the '90s, a lot of the major success of that fertilizer privatization and liberalization were bringing key Bangladeshi officials to other places to see how a private market could work. Right next door to Uganda, in Kenya, you have a situation where the government has taken many of these measures talked about in the policy brief, the access to AGRO dealer – the mileage between the average farmer and average AGRO dealer has more or less been cut in half.

I don't know what the specific states are, but Maria Jason do. And fertilizer availability has increased significantly. So there are countries nearby to wherever you are where you can see the approaches outlined here really working and expanding fertilizer availability, and donors can help show that to policymakers.

Male:

I would only add very quickly that my experience in Nepal – the government there is struggling. They've been in and out of subsidies over the years, but that seemed to be one of the major players by which they tried to move fertilizer into the country and accommodate everybody. But the lack of its success I think indicates there's a lot of other challenges that they are not addressing, and I think in there lies some of the issues that maybe in Uganda that there's factors. I went to – in our survey, for example, I identified something that most people wouldn't be that in the very poor country like Nepal, the cost of fertilizer amongst farmers was not an issue. They didn't care. The problem was they could get it. And so within reason, – obviously, it got too high, they wouldn't buy it. But

that was not the reason they weren't buying.

The problem was so subsidy, the cost of the fertilizers was not the issue. The supply of the product really was an issue. So some of those other issue, they may not be addressing the real problems because subsidy is not addressing them.

Male: I'm Larry Paulson, USAID agricultural officer, retired. Thanks for the introduction, David.

[Laughter]

I'm going to take advantage of my retired status to take a longer view and make a comment I hope maybe will inspire some responses. The success of IFDC – I wouldn't say _____. If you look at right here, the reports of this project, the presentations of policy issues, the AFAP, recommendations, it's pretty much all a summation of what was –

Male: Updated version –

Male: Closer, okay.

Male: *[Laughs]*

Male: The finding of the IFDC, Bangladesh fertilizer improvement project which ended about 20 years ago is pretty much reflected _____. So this isn't new. This story is well known.

One comment is USAID is full of clever people and hires clever people as contractors and grantees, and so we all have known for a long time what's to be done. We want to jump to there. Where USAID shoots itself in the foot, and by extension, sets up its contractors and grantees to fail is with its short attention span.

The fertilizer improvement distribution improvement program in Bangladesh, which is only turning the distribution program, converting it from a government monopoly to a private sector enterprise, took 15 years and more of succeeding projects, just to get to that point. It couldn't have been done or three or five years. It was unrealistic. Even in 15 years, it required the sudden appearance of Korean motors that drove hallow irrigation development in the '80s, coupled with some government budget crises that made them rethink their subsidy program.

USAID and food security I think needs to take a least a 20-year commitment. It'd be nice if it's implementing mechanisms that are similar long so that things wouldn't have to get done in a very short time. I think

we won't success without that long-term attention to a program and a long-term commitment.

Male: Go ahead.

Male: I'll jump in, again. Thank you for your comment because I think it is extremely important, and I'd like to follow with another example that IFDC and other cooperating institutions have enjoyed some success with. And that is the country of Albania where, again, a very long-term commitment to start from the grassroots and to build an industry association and to use that instrument to work together with private businesses, with the government, and to nurture and grow an agricultural fertilizer marketplace.

And as you as you said, the luxury there was that for whatever reason they benefited from a longer-term view, a longer-term commitment, and over a ten-year span has developed a well-functioning, well-established, sustainable fertilizer marketplace. And the key I think it's the level of funding that went into, and the longer-term commitment from the beginning that we were going to building this marketplace as effectively as possible and sticking to it.

So, no, the kinds of approaches that we're talking about here, it's not a one-time fix. It's not set up the regulations and build the roads and everything will take care of itself. It's a n ongoing effort to recognize what the needs are in the marketplace, what the shortcomings are in terms of interpreter or in my opinion needs, and try as best you can to address that. Those are the supporting services that help the private sector market linkages across the have working more smoothly.

So it's always an ongoing effort and endeavor and not set it and forget it.

Female: Just a short contribution there. I agree. I couldn't agree more that we need to a more long-term view if we want to be successful in terms of building up a fertilizer sector. A key article _____ in Africa which we haven't a way of getting around is that fertilizer is often subsidy is often used as a political tool. They're not in the development space. If they were in the develop space, you could see this long-term view being taken.

But that's something that we really need to address because otherwise, you see fertilizer's under radar just when elections are around the corner. Then the interest dies down. And the when the elections around then interest dies down. So that's a real obstacle policymakers need to find a way to address.

Male: With that, we'll take a question from online.

Male: This one's from David Solomon, joining us online. Unfortunately, I don't have their organization. David says, recent field work in Ethiopia show that farmers appreciate fertilizer, but can only afford to apply one-third of the recommended rate. What mechanisms are available, such as public-private partnership to make up the remaining difference. David gives the example of potentially using alternative bio-fertilizers from rural communities.

Male: I'm not familiar with that particular situation. But, again, going back to my experience, one of the issues that came up in Nepal in our project was there's a lot of interest I guess – well-intended interest, but from where I stand as an agronomist, maybe a little bit misguided as far as the intent, the end game of it, and that is the role of organic matter versus commercial fertilizers.

I have always been a strong proponent of utilizing manures and green manures and things of that sort that are available on the farm or nearby that can be incorporated into the system. To me, whether I'm talking to farmers in developed countries or underdeveloped countries, to me, that's like Step 1. That's a given to me. I don't even hardly address that. That's obvious to me that that's what oughta be done.

However, you have to realize that most – it does a couple things. It does provide some nutrients, but it also provides a better till to the soil and a better environment for the seed and so forth. So that's a good general practice. The problem is with that, where the people, I think get a little misguided is they feel like Everett can substitute just for a – manure can just substitute for – especially in a high-yielding system, or where you're trying to achieve higher yields to be more profitable.

The demand – difference between what manure can supply and what the crop needs is it can't do that in most cases. And do in most cases, I say, yeah, start with it. And that's where soil testing and the knowledge of what you're doing is kind of important because then you can put together a nutrient plan that makes sense and you can utilize the proper fertilizers at the proper rates to complement the manure that you're using. And that way I think that it ties the system together, and that would be my comment on that.

Male: My name is Sima Kawa, and I'm from the Bureau from Food Security here in Washington. My question was actually about it's very close to _____ we just had in the last because spoke many times on them. I've been thinking about what is the future – this question is for _____. What is the future for organic manures – I mean for organic fertilizers, or inorganic/organic mixtures if this is something you are thinking of?

Because like the last speaker said, organic matter is extremely important. We consider _____. If you have high organic matter in your soil. I think you may need less of other fertilizers if you PH is in agreement. Also, the type of soil. You mentioned the four Rs. You talked about the right fertilizer. So you have to know where do you apply what type of fertilizer. And we're talking about the right rate.

If the oil is high in organic matter, are you going to need a higher rate or a lower rate? Also, the time. When do you apply this fertilizer? Is it like when it is raining, or what time? And you talk about the place. The sunny soil I think would need more organic matter, if you have this, so I think we would have to give considerations to this.

So my question is do you in your arsenals have any plan for organic fertilizers mixed with inorganic fertilizers, looking at also the additional benefits of organic fertilizers as it may relate to keeping the environment clean? Because a farmer can actually make use of the animal dung, the crop residues, to make a compost and other things. What's your opinion on this?

Male:

Thank you, Sima. I think that's a very good point, and we've talked about lot today in terms of the market distribution and procurement on commercial inorganic fertilizers, but balanced fertilization, soil health and fertility is I think the key objective in terms of the work that IFDC tries to accomplish. And by that, I mean a full recognition of the value and the contribution, as Ray said, of a combination of organic and inorganic soil amendments and nutrients to provide the best possible growing medium for the crop in the AGRO climatic zone that we're talking about.

And those vary everywhere across the country, across the continent, and across the world. So there's no cut-and-dried, "This is what we need to here." It's a very site-specific kind of an approach which, therefore, makes it more expensive, more data intensive, but nonetheless required and recognized.

Now there are some leading indicators, if you will, like soil PH that indicate that you need to pay a little bit more attention to this kind of fertility balance approach, but, certainly, I think the IFDC's approach is to recognize the need and the importance and the contribution of a balanced nutrition and soil fertility effort.

Female:

Zachary, if I might _____ question _____.

Male:

Hi, I'm David _____.

Female: Oh, wait. Sorry.

Male: I'm David Jeffs. I work with USAID _____. Are there –

[Crosstalk]

Male: David Jessie. _____ from _____. You're in USAID. Are there serious environmental issues that we need to be thinking about at this stage of the development of this sector?

Female: I think _____ if you're talking a fertilizers _____ in African and environmental issues and the main environmental threat is not using enough fertilizers because we are continuously mining our soils through harvesting, and we don't replenish sufficient nutrients through the use of chemical fertilizers. So I think the main threat that we create at this moment is we don't use enough fertilizers.

Certainly, we promote the environmental sustainable and responsible use of fertilizers, but in terms of amounts, I think we are definitely saying we need to use more fertilizers.

Male: Mm-hmm.

Male: Yeah, I some of the negative effects, again, that's we've talked about, we see time and again in countries where fertilization programs that are not taking into consideration the kind of balanced approach that Ray has talked about, do contribute to soil degradation, do affect the responsiveness of fertilizer – or, excuse me, of yields to fertilizer. And you have those kinds of negative effects that need to be overcome. But as Maria said, there are, of course, instances I suspect where there is misapplication or lower application of fertilizers, but on average across Sub-Saharan Africa, the issue is very much one of continual nutrient mining and a need for additional fertilizer, again, in a balance and appropriate kind of a framework.

Male: My only comment there were would be that I think they've got to go hand in hand. Coming from the fertilizer industry, I always tried to run a parallel path and education about the importance of soil management, environmental stewardship. I think a lot of times fertilizer or whether it's organic or commercial fertilizer gets a bad rap because of other things that goes on. It's not properly managed. It's allowed to leach. It's over applied. It's soil erosion is a factor.

All those – I mean there are secondary affects, but if you put it the right amount and the right place at the right time, you minimize that. Plus, to me from an agronomist going back to my original premise that you're

trying to grow higher yields to be more profitable, that type of thing, the best way to control nutrients is put it in the crop. [Laughs] If you're not getting it up in the crop and you're applying it to the soil and you're wasting it, not only money wise, but you're potentially impacting the environment. So I think education to get people to understand the proper applications, getting it up into the crop is probably one of the best environmental protection programs that we can have.

Male: Just along those lines just _____ there is one of the major projects that IIFDC has been involved in a long time, and particularly starting in Bangladesh, but now moving into sort of various areas in Africa is fertilizer deep placement or specifically, urea deep placement, again, to place the fertilizer in the appropriate zone within the root system, which reduces the volatilization cuts back on the leaching of nutrition because of the readily available placement of the nutrition. And, again, getting it into the plant and into the grain. So, certainly, those kinds of efforts are underway and have been for some time and we're trying to spread those.

But the key is we wind up with a technology like urea deep placement which significantly reduces the nitrogen losses as an environmental benefit. It has a benefit to the farmers in that more of the nitrogen that they purchase directed to the plant and, therefore, we're seeing increasing yields with less fertilizer use and less loss either atmospheric or leaching through the soil. So kind of a win/win/win kind of a situation that are quite important.

Male: We have a question from online.

Male: Building off of what Ray was just saying on the best way to manage the top nutrients is to get it into the crop itself. Thomas Range from the USDA asks how is the nutritional value of the crop evaluated.

Male: Well, I think there's a mechanisms in place which often is, unfortunately, not available to a lot of developing countries, but plant analysis, seed analysis. There's different ways of measuring what the value of that particular crop might be. Quality issues. As you go into specialty crops, they tend to identify whether you're going bananas or whether you're going some other kind of crop that really quality is important. The industry defines what those parameters are and how you manage 'em.

I tend to look off in that plant health more from a nutritional standpoint of growing the crop. I love – to me, it's a final extension of soil testing and developing a higher production system is to complement that with plant analysis. So you would measure not only what's going into the soil and the rate, the placement, all that, but you're actually measuring what's actually getting up into the crop, and, together, is a tremendous

management tool.

And so there are ways, laboratory analysis is the way to identify the qualities of what you produce.

[Crosstalk]

Male: My name is John Holdsman. I was a USAID contractor for many years. I'm now in the World Bank, and in agricultural and environmental services working on AGRO business indicators in Africa, courtesy of the Gates Foundation, which is work that's been underway for a couple years, and we've done studies in African countries. And one of our core indicator groups is fertilizer. And one of the things that – is it Ray or Roy?

Male: Ray.

Male: – Ray said that really echoed with me is, is fertilizer use profitable in these countries. And you laid out a number of agronomic and soil chemistry kinds of issues which I think were very pertinent. We're saying we're taking a systematic view by doing value chain analysis, but it's vertical and it's narrow.

And Maria said at the beginning of her talk that 30 percent of the attribution for yield increases is from fertilizer. What's the other 70 percent? So we're also looking a seed. We're also looking a mechanization. And then the next phase, it looks as if we'll be in business for another three years, and we'll be looking at the irrigation as well as access to land.

So I think it's nice if you've got indicators of fertilizer profitability, and there are ratios to do this. There are nutrient output ratios. There are value cost ratios. And depressingly, it's very hard to get this information in most countries. It's not that hard to get fertilizer import information desegregated by type, and even price information, which IFDC is generating. But is fertilizer use profitable? And we would ask that question of researchers and they couldn't answer it. It just blew me away. Why are we pushing this commodity when you can't really tell us what the bang for buck is?

And in some countries, partly because maize prices are low the ratios are terrible. Fertilizer use is not profitable. Surprise, surprise, farmers don't use it. So, anyway, this is more of a comment than question, but I think it's important to look at the factors that affect cost and to try to reduce cost and improve the regulatory and policy environment. But ultimately in African countries, most of these places are not going to import huge

volumes of fertilizer. They're not going to apply fertilizer same cost we do in the United States. So you got to look carefully crop by crop as to whether or not it's profitable. And it's no surprise that Ray found it and, "Hey, Paul, it's going on vegetables, fruits and vegetables, and peri-urban productions."

So, anyway, this is a plea for not just looking at the regulatory framework and the factors that affect cost, but to look carefully crop-type they crop-type at how profitable is fertilizer use.

Female:

Yeah, I think it it's a bit tricky because farmers, they do, of course, ask themselves the question of whether it's profitable. But they also use fertilizer because they know that if they don't, they won't get anything. They won't a yield. So profitability in the monetary sense is not the only issue that they're looking at. They're looking at, "Can I produce something to feed my family?"

Male:

I would kind of add one comment to yours, John, and then also respond. There's certain situations where farmers don't see their basic food grain crop as so a profit-making enterprise. It's a sort of risk management enterprise. If they get a little more money or they want to put something into a profit-making enterprise, they're going to do something else. But those situations aside, I think part of the reason for this approach and emphasis on the regulatory and policy environment to bring costs down is profitability is going to be partly a function of cost. So for some set of those farmers that you're talking about where it may not be profitable right now with this year's maize prices to put fertilizer on, it would of been profitable, or it will be profitable five years from now if costs come down 20 percent for fertilizer.

A final response I'd make is and the EAT brief makes this briefly, this is a brief about fertilizer, not about food and agricultural output markets. But there's a lot happening and that we know needs to happen in food and agricultural output markets in terms of greater volumes and risk management and alternative uses for maize in terms of growing poultry demand and stuff like that. So just as we sort of have this hope and vision that input market will evolve and become better and broader, there's the same vision simultaneously for output markets which will change the profitability and risk at least making a certain growing number of farmers we hope see fertilizer as more profitable.

Male:

I think that was an excellent question, though my comment, one of the reasons that we don't often have the answers we'd like in this regard is it's a very complex question that we have – we don't have a lot of data, hard data. We have a lot of qualitative data as far as how I think a lot of times the problem we have in developing countries is because a lot of these

other factors that impact yield have a negative impact. And so we're not truly measuring the value of fertilizer. In some of the examples I gave earlier, in fact, you're not getting any benefit from your fertilizer. Why? Because all these other things are going on. And so I think you have to measure that.

One of the follow-up questions, very quickly, that I had after I left Nepal and they were wanting to – I didn't put it in my report for a good reason, but they wanted to get to it, and I had to go back and explain in long-term – cut several pages as to what the problem was. They said, "Well, what would you predict would be the loss of crop production due to soil acidity in Nepal?" Very good question. I don't have an answer for that, other than I can tell you that if you have a real acid problem, you're going to have decreased yields.

We do have data, for example, that like on maize when it drops below like a PH of 5, you can have as much as 50-percent reduction yield. We have some of those kinds of data that we can back into. And so it builds a case for liming, balance fertility, building your program up to a higher level. And we do know that as we do that, we get better crop response to what we're doing and what we're applying. And, therefore, the margins become better and we know that farmers can get the most out of it by balancing it that way, but there's not – I wish I had hard, fast numbers for a lot of it, but it's a lot of it is based on experience.

But I think it's real important that we get people to understand that it's part of a bit picture of crop management and it has to do with – the soil management has to do with the varieties. It has to do with irrigation. I spent a fair amount of time in my report on importance of irrigation in Nepal needs to develop their irrigation system. They're right there at the foot of the Himalayas. Come on. *[Laughs]* India briefs from their water. You know what I mean? They need to intercept some of that and do a better job of irrigation and not just depend on the monsoon season to grow something. So there's a lot of things that play into a lot of these countries. Water is one of the biggest factors. We haven't even touched on that today, but that's a major thing.

Male: We have a last question from online.

Male: This question comes from Felix Naomador. "Would the panelists advise African countries to establish domestic fertilizer industries, meaning manufacturing and blending as options to reduce cost?"

Male: No, go ahead, David.

Male: No.

Male: Just a couple of remarks, and then I'm now curious to see what David has to say.

[Laughter]

That's a case-by-case kind of an approach and it depends on a lot of things. It depends on the resource that's available to enter into fertilizer primary product manufacturing, whether you have the natural gas supplies, the power, potentially phosphate rock, potentially pot ash deposits. And those resources and deposits are in a lot of places, but they're not always commercially viable or exploitable, so it's a very complex issue and it varies place by place, and it's influenced, again, by all the factors we've talked about today in terms of logistics and cross-border trade, and the definition of what a fertilizer product is and those kinds of things. So it's a very complex kind of an issue.

The second part, blending, which is sometimes referred to as manufacturing, but it's really the transformation of existing manufactured fertilizer products, in my mind, I think does have an important role to play. It has the potential to take advantage of the delivery of bulk fertilizer commodities, and then to blend them into specific nutrients for particular crops that'll go in particular areas of a country and create a little bit more site-specific kind of an approach to the fertilization regime in a particular country. Relatively inexpensive, when you're talking about building a blending plant which is kind of a high-tech sophisticated cement mixing kind of an operation, versus a very complex ammonia urea facility or a phosphate rock mining and chemical complex that can cost hundreds of millions, if not a billion dollars or more to undertake.

So very difficult animals. And I think there is an important and immediate role for the kinds of things like blending facilities, and in terms of primary fertilizer manufacturing, I think it's more of a case-by-case situation and one that may develop over time.

Male: When nobody else was about to answer, I was going to say I'll answer since I know less about it than anyone else on the panel.

[Laughter]

But I'd echo everything Peter says. One of the – personally, I don't see that question as a food security or agriculture issue. I see it as kind of an economic and industrial strategy issue. And I think one of the great disappointments and concerns of African policymakers and economists and the rest of us who are involved in African development is that the manufacturing sector in most African countries hasn't developed as fast as

anyone would have liked or expected. And so an important question for policymakers is where does it make sense to try to draw in investment and manufacturing.

And for all the reasons Peter just stated about the very high complexity and demands of a fertilizer manufacturing industry, not in terms of blending, but in terms of whatever the formulation you were just talking about was –

[Laughter]

– that may not be the wisest choice for African countries that have seen kind of not as great progress as they wanted as manufacturing. Why would you start at kind of the top end of sophistication and demands when there are both more labor-intensive and less complex ways to kind of get involved and jump start a manufacturing sector. But I don't see that as a food security question.

The same approaches and policies that Marie laid out from the briefer on how to make the fertilizer sector work better, whether you're an importer or a manufacturer, whether your supplies are coming domestically or internationally, apply in either case. Those get at the food security issues regardless of where the manufacturing plant happens to be located that's generating the fertilizer you're using.

Female:

Okay, thank you, David. And I want to, on behalf of the entire EAT Project, say a big thank you to everyone – to all of our panelists, and also to the entire Agrilinks team for helping us put on this event, and to all of you here and online for your wonderful questions.

Our panelists will be hanging around for a little while afterwards, grabbing another cup of coffee, if you have any additional questions. And after that, if you would like to ask anything else, feel free to e-mail us at the EAT Project at eat@fintrac.com, or you can find me or our _____ after the event. Thank you, again, for coming.

[Applause]

Male:

Thank you all.

[Applause]

Male:

And, also, thank you from USAID BFS for attending. Please take a moment to fill out the evaluations that are sitting on your chair. And for those of you online, we'll have a link for you, or have had a link. We take

these seriously and we appreciate your participation. Also remember our next Ag Twitter chat is tomorrow at 2:00, I believe, so please join us for that. And resources will be e-mailed out after this event to let you know where to find them on Agrilinks, so you'll get the audio recording and the like. Thank you, again. Have a good day.

[Applause]

[End of Audio]