

2006 Norman E. Borlaug/World Food Prize International Symposium
The Green Revolution Redux:
Can We Replicate the Single Greatest Period of Food Production in All Human History?
October 19-20, 2006 - Des Moines, Iowa

SESSION THREE: Linking the Public and Private Sectors

October 19, 2006 – 2:00 p.m. – 3:00 p.m.

Panel: Catherine Bertini, Zhangliang Chen, Norman E. Borlaug, Rajiv Shah

Introduction

Ambassador Kenneth Quinn

President - World Food Prize Foundation

Well, that was terrific. So I'm going to now invite up the people with the answers. Gordon Conway, the president emeritus of the Rockefeller Foundation, is going to come up and lead the dialog. Catherine Bertini, now at Maxwell School at the University of Syracuse and former Undersecretary General, Dr. Chen Zhangliang, president of Chinese Agricultural University and a great friend of the World Food Prize, and Dr. Norman Borlaug. And so I'm going to turn the dialog over to Gordon and get out of the way.

Panel Discussion

Moderator

Sir Gordon Conway

Chief Scientific Advisor, UK Department for International Development
President (retired), Rockefeller Foundation

I was fascinated to listen to you, Rajiv. It seems to me that you're really on the right track, and I love the way you're going about it.

I just raise the issues of going to scale. It seems to me that that's the big challenge that we face. As you know, I've gone to scale. I've gone from Rockefeller Foundation to DFID. And I'm not quite sure whether that was the right move, but anyway that's what I've done.

The three areas that seem to me that Rajiv didn't mention: One is government intervention, particularly government intervention in terms of setting prices for purchase of crops. The second is subsidies, to what extent are subsidies going to be important in all of this. And the third is credit. Now, that's just to get this started, but I think each of the others have got comments that you would also like to make to get it going, and then Rajiv can come back. Do you want to try, Catherine, first?

Catherine Bertini

Former Chair, U.N. Standing Committee on Nutrition
Professor, Syracuse University
2003 World Food Prize Laureate

Sure. Well, first of all, I was struck with the simplicity of your basic objectives, that you're starting from the perspective that all lives are equal and that, "From whom much is given much is expected." And it gave me goosebumps to think how simple that is and how effective you could be just with those two simple statements. But what I'd like to do is take up your challenge about policy and advocacy and make some suggestions.

For starters, and people who have heard me before won't be surprised to hear me say this, I'm going to talk about – if we're talking about agriculture, especially in Africa, we have to be talking about women. And when we think about the FAO's statistics that nine out of ten people who work in agriculture in Africa are women, when we think about the IFPRI studies that women are more likely to follow other women than following men, then that brings me to several proposals for your consideration.

One is that we have to think about a different use of the word (in my view) "farmer." Because I don't know about the people in the audience, but I think many people, still, when you say "farmer," you don't necessarily think woman right off the bat. And from an advocacy perspective, I remember some years ago at HHS when we talked about welfare recipients (I'm not trying to suggest farmers and welfare recipients are the same people), but when we talk about welfare recipients, we personalized it when we understood that 90% of the people we were talking about were female head of households, so let's talk about women. So it'd be great if there were ways to talk about farmers, women and men, in some way from an advocacy perspective.

Second, since women more likely follow other women, we should look at the people who are giving advice about agriculture. And by that I mean, first of all, extension workers and whether or not we have – and I don't think we do, anywhere near enough – women trained extension workers with jobs in extension whom other women can follow. And connected to that, of course, is then finding different ways to educate small-scale farmers, especially women, in different improvements in agriculture production.

You mentioned school feeding. If we take a school feeding perspective and then look into targeting, you might want to consider targeting school feeding in places where the education of girls would be particularly useful in order to increase the agriculture production, because again, the statistics show that educated farmers, at least ones that know how to read and write and add and subtract, are more productive, and if they're women, and deal with women.

Then two more points. One is on the issue of titles. Gordon mentioned credit. We could add land, could add animals. And if in fact there are any programs where there are going to be issues of title, that should be looked at as well in terms of opportunities for women. And then it's, of course, critical to develop networks to ask women what they need, because in any development plan, you can't sit in Seattle or in Nairobi or in Washington and say, "this is what we're going to do." You have to talk to the people that you're going to serve. But if you just talk to the extension workers or the ministers of agriculture, you're not going to get to the people that

are really the farmers. And so there have got to be developed some sort of networks so you can talk to women about what their real needs are.

Sir Gordon Conway

Why don't you respond there. I realize we're slightly in danger of you saying, we're going to be very focused – and what we're going to do is say, “Well, you should also think about all these other things, too.” But let's...

Rajiv Shah

Those are both very helpful comments. Maybe I'll start with the challenging issue of – how do you reach and leverage the critical role of women in agricultural development.

Just as an outsider to the sector, observing something, we do go to these places to try to visit those who would ultimately be beneficiaries of the types of programs we hope to support. And I think we're relatively regularly struck by how difficult it is, even on a farm where women are providing much of the actual farm labor, to meet in a structured way and sit down and talk with women to get a real deep understanding of what some of the needs and some of the challenges are.

We've tried to explore – how do you find the right networks to reach women. I think the observation that government extension workers are probably not right now the best network for doing that is a very accurate and important one and leaves us with the challenge of – how do you build extension systems that can be much more effective at reaching women with knowledge information. How do you provide plant breeding resources against the crops that we know women preferentially work in? We had a bean breeder tell us that she does all her work and since graduate school has done all her work in beans because that's what women care about in the part of Kenya where she does her work.

The other thing we try to do is connect with the NGOs that might actually be more effective in reaching women. So Wangari Maathai is a name that has come up earlier today and someone who I think all of us consider inspiring. Her organization reaches 60,000 farmers in Kenya. And despite her official post within the agricultural ministry, there are very few official relationships between her network to reach all of those farmers (many of them are women), and either the existing kind of plant and technology, breeding projects that are there or the official extension system.

So one thing we're looking at is – how do you connect those types of systems so that you can have broader reach. But it's a challenge, and I hope one where we can continue to learn as we go forward. Just very briefly on the government intervention role, in general I think we're very skeptical of government policies that set prices, but our knowledge of agriculture in OECD environments certainly proves that a high degree of government intervention around providing farmers with credit extension, risk protection, some coordinated access to markets, and sometimes subsidies can make the difference between farmers having security year-on-year

versus farmers being in a very precarious situation. So I think it would be, at least from my perspective, too early for us to say that we know what the strategies are and we know that governments should completely be out of the procurement price setting and providing support in that manner.

Sir Gordon Conway

Chen? Zhangliang Chen, please, what's your reactions?

Zhangliang Chen

President, Chinese Agricultural University

Director, Chinese National Laboratory of Protein Engineering and Plant Genetic Engineering

Yeah. First I'd like to really acknowledge the Gates Foundation, because they have supported Chinese researchers and also for public service on HIV. And I understand that over \$14 million U.S. dollars have been provided to the Chinese Research Institute and also service. And from your speech I feel very happy because now part of the money will go to agriculture. And this is very important, especially in Africa and some other areas.

From the experience we have, especially to small farmers or small families in rural areas, I think a couple of things need to be really considered. Number one is education, especially for agriculture extension. The experience we have so far, even in our university we have over 50 African scientists in agriculture attending our university at this moment. Each year over 100 researchers or policymakers attend our university. And we have sent our professor over to Africa to some country in Africa. We even brought the seeds and some other necessary equipment and technology over to Africa. So at the beginning, it was doing very well. But then when our scientists or our experts left the region, the area, and then somehow when we returned back next year, we found the knowledge we taught disappeared. So when we left, that technology disappeared. So I think it's very important to educate farmers how to keep good technology.

Second is for the experience we have to build small partnership enterprises. For example, somehow to invest little money and to process the agricultural products, even like a fruit juice or some other small agricultural products would help a lot to those poor farmers, especially to small families. So those are very good experiences.

The last one I'd like to say is education to the kids. Those children really need to be educated. At the beginning we really have lots of problems. Nowadays we push very hard for compulsory education, nine years free education for farmers' children. And that makes a significant difference with a nine-year free education experience, really helped them change their family.

Rajiv Shah

I think all of those are very important concepts and very important points, and I now understand what you mean by the tension between wanting to stay focused as a foundation with a limited set of resources to invest in this area and of course a very broad set of needs and ideas and opportunities to invest to make a difference.

The two things we found compelling about the Chinese example in terms of agricultural development and rural development has been first how some basic reforms around access to land and the way people think about ownership of land have affected the core incentives that they internalize. And that then has had a significant impact on the use of inputs and strategies for marketing and creating extra value for products both on farm and in rural environments.

The second has been a learning that has come out of the IFPRI papers that compared rural development in India and in China, where they really make the point in a very strong way that, what you mention about the processing and the importance of that industry creating employment in rural environments alongside sustained improvements in agricultural productivity are probably critical to achieving large-scale rural poverty reduction. And we understand that lesson, and I think the challenge for us is trying to understand – how does a private philanthropy and a private foundation support what is essentially industrial development in large, dispersed rural environments. The tools at our disposal, such as grants, are often not the best tools for getting that done. So that's an area where we recognize there are critical needs, but we're not exactly sure how we use our resources to help make that happen. But it's one where we hope to continue to study and make some exploratory investments in the next year or two.

Sir Gordon Conway

Dr. Chen made a very important point at the beginning, which is – In a sense the world is littered with the results of experts going along with their pet technology, trying it out on a small side, persuading farmers to take it on, walking away, and then it stops. And it's not just Africa but everywhere else – you can see that. And I think one of the changes is going to be – what kind of system allows farmers to make the kind of choices that they're happier with so that they feel it's their system, not one that's been imposed.

Rajiv Shah

Just very briefly on that, that's something that we've just observed over and over and over again and been warned of many, many times over. And I think one example of trying to address that is in the context of the partnership with Rockefeller in Africa. We're very carefully funding only those breeding projects that take a very participatory approach to including farmer

input in developing product profiles and product design and trying to work with breeders to identify what are the specific characteristics of the crops that they want for those specific areas.

And I know that's challenging, and I know that's often different from the way work has been done in other environments, but that's one where we think it's critical if they're going to, at the end of the day, adopt the seeds and those technologies. And the statistic that continues to be striking is that only 20 or 26% of the smallholder farmers use improved crop varieties. So really dissecting and understanding the reasons for that is part of the challenge in this new initiative.

Norman Borlaug

Well, first of all I have to say, after listening to the commitments that the Gates Foundation is making to agriculture and rural development and other agencies, governmental, including the U.S. government, I feel like a living fossil. I'm the only one left from that original Rockefeller Foundation Mexican program. And I'd just like to give you some insights of how that came about, briefly, and what the struggle was like at that time.

That program was initiated, as I recall, eight years before President Truman's declaration of doing something about food aid. And one year earlier the Marshall Plan was being talked about. The Rockefeller program was initiated six or seven years – I can't remember exactly which year – but six to seven years before these programs came to be. And we went through all sorts of turmoil. And I have to say this: that the one thing I've admired most is the Rockefeller Foundation, who started these programs without any idea of how difficult these things were to change, stuck the course. And they're still there in Africa. Other agencies came and went. USAID, I have to say, has persisted; and the USDA in different ways continues to contribute to these developments.

But going back to the role of women in agriculture, in Latin America there were no women students in any science and agriculture until the Rockefeller program started. And, although she is not here today, the first woman to work jointly with Dr. Vasal on the creating QPM maize was Eva Villegas. Because of health, she is not here. But she was the first woman recognized by the World Food Prize. There was among the selection committee, lots of pressures. "Why haven't you been able to find a group of women scientists that merited the Prize?" And she was first. Now there are many women in Latin America studying in science and, of course, in Africa the women are the farmers. They should be represented in a higher proportion than in any other country, with all due respect to the Asian countries.

Let me just add one other thought, I think, on development under crisis. There had never really been any good international collaboration on a large scale before the disasters of the stem rust epidemics of 1950 to '54, when throughout the United States and Canada every variety of wheat, winter and spring, all became receptors. And there were disastrous epidemics. The world doesn't remember that anymore. When we saw the—after 50 years of the varieties that were developed because of collaborations between the Canadian scientists, U.S. and the Rockefeller Foundation program, and the USDA especially, we got this set up, the universal testing. But it started just in Canada, the U.S., and several places in Latin America, 17 locations. This was

successful in sampling the – I guess you would say in the medical population – the variation of the pathogens in a region. These are airborne diseases, widely spread, viable; and if they land on the susceptible varieties with moisture and temperature, it is devastating, it spread like fire.

As a result of that, the Rockefeller Foundation moved the Mexican technology into Asia. There's not time to go into detail, but the techniques we used to cut time in half by growing two generations each year – two: one when the days were getting longer, one when they were getting shorter, selecting for adaptation. We knew in Mexico that these fit across 10 degrees of latitude. They were adaptive; they controlled the diseases. Twenty-five years later when this technology was moved into North Africa as far as India, all of those countries, they stayed fit. They unlocked the doors of photoperiodism.

But with it when this broad adaptation gives wide range of diseases and the thing that put the Green Revolution on a commercial basis was the judgment made by political officers. Swaminathan that's here as a representative, a young scientist of that period, and his minister of agriculture, C. Subramanian, and the chief secretary that he picked who knew the bureaucracy – he grew up in it, and he knew how to maneuver past all of the blockages. And those three people, when hunger and, yes, starvation was in front of them. Together they went Pakistan to talk to the president, Ayub Khan. They said, "We have to do something." But decisive information that gave them the courage to do this was the data developed by the Rockefeller Foundation-sponsored training program.

Many scientists that have come to Mexico for hands-on training during the period when I was there, there was theoretical backdrop, but there was dirty hands and dirty boots applying this to farmers' fields. And those students, when they went back, I used to tell them the last day, "Now don't go back and destroy yourselves." The bureaucracies – there are three bureaucracies you have to deal with: the scientific bureaucracy – the top scientists are ultraconservative. They have to be; if they make a mistake, they're out. The people who are all raised to study this are starving. And so they won't move. That's why I've always wanted young scientists to do the training. But the day before we went back, and we trained them in disciplines as best we could, under field conditions with minor laboratory facilities then available. And there was genetics and plant breeding, agronomy, soil, weed control, disease control, this and that. And working with farmer coops in Mexico—Sure, we worked with the government bureaucracies. But it was those individual farmers' groups that gave the backup support, true support, for the Rockefeller Foundation, especially in the state of Sonora.

Okay. When India and Pakistan knew they had to do something, it was the young scientists that saw what was happening. And I remember C. Subramanian, Swaminathan was there and Subramanian – they said, "But this is a chance that the world has never taken, to move huge quantities of seed across international borders." The data on the seeds that we had from the research, were two, three hundred kilo, a half a ton, three-quarters of a ton, and it would take then eight years to build this up to the needs of India.

So the decision was to import 18,000 tons of seed – never been done – Pakistan, 42,000, Turkey, 21,000, and so on. And they said, "What's the data?" The data was from all of those students that had been trained, and they were across all of those countries. North African countries, Egypt, Turkey, Iraq, Iran, Jordan, Afghanistan was very much just beginning, and

Pakistan and India. And it was from the data from Canada, U.S., Argentina, Chile, Brazil, all the South American countries. Uniform testing of all of these materials – there is the data. They made the decision. And that was the key.

Of course, everyone was predicting doom: “You guys are playing with the lives of millions of people.” But look what happened. One of the great things – as bureaucracies accumulate, and become more strangling, at the top the people become more and more conservative. And when you’re faced with the problems of the overpopulation or the land resources or the technology being used, somebody’s got to make the decision. But with that information, that was the key.

And look what happened. And yet that whole system has collapsed. They haven’t had this disease for 50 years. Now we’ve got a tiger by the tail—it appeared in Uganda in ’96, spread to Kenya and Ethiopia, and the next couple of years, nobody paid any attention to it. Finally I wrote a memorandum about two and a half years ago that this tiger was out there, and we suspected that it would be able to attack broadly the commercial varieties around the world. Last year for the first time, we got funding, and it goes back to the Rockefeller Foundation and the U.S. Department of Agriculture, the agricultural research services, to set these testing nurseries up in Kenya and in Ethiopia. It turned out that it looks like 75% of all the commercial acreage grown wheat in Asia is susceptible to that tiger. And more than half of North America and most of South America.

I just got word today from Dr. Quinones, our Sasakawa representative in Africa. He says it’s worse. It’s probably 90%.

And the Gates Foundation can provide long-term research funds.

Sir Gordon Conway

Rajiv, you now know what you have to do. You’ll now get the answers to your questions if you sit down with Norm and the cassette tape recorder. The stories are there and I think in particular the point about data. And you’ve got that on your list there. I think that’s absolutely crucial. But this is about making sure that we have the right information to make the right progress.

And I’d just like to finish by saying I want to congratulate Gates on this new initiative. I’m delighted, of course, that Rockefeller is involved. And in my new perspective, I very much hope that DFID and other bilaterals can really begin to work with you because I think there are complementarities here which we can all go forward to the future with.

I’d like to thank the panel. This has been a great experience, and good luck, Rajiv.

Rajiv Shah

I'll just very, very briefly thank our panelists and thank all of you. And specifically for Dr. Borlaug, I think it's worth noting that I think when we were first asked to consider and to look at and think about potentially investing in agricultural development, the very first thing we did was visit CIMMYT and then read the book about Dr. Borlaug. So we have a lot to learn from him, with or without a microphone, and we'll continue to do that. Thank you.

Ambassador Kenneth Quinn

Dr. Shah being a medical doctor, I just offer a medical comment – some thought Norm wasn't feeling too well. So I think this is pretty good evidence of just how strong he is.