

**KEYNOTE PRESENTATION: SUPPORT FOR THE WORLD'S POOREST FARMERS**

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**Bill Gates** – Co-Chair, the Bill and Melinda Gates Foundation

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Thank you very much, Ambassador Quinn, for that very generous introduction, and thank you all for the honor of speaking to this distinguished audience.

Like all of you, when I made plans to attend this symposium, I'd hoped to be able to see Dr. Borlaug. His passing is certainly cause for sadness, but his life should make us optimistic. In the middle of the 20th century, experts predicted famine and starvation. But they turned out to be wrong, because they did not predict Norman Borlaug. He not only showed humanity how to get more food from the earth; he proved that farming has the power to lift up the lives of the poor. It's a lesson the world is thankfully relearning today.

I want to congratulate Dr. Ejeta for his discoveries in drought- and pest-tolerant sorghum that earned him this year's prize. I'd also like to acknowledge Gordon Conway, whose book, *The Doubly Green Revolution*, first got me enthused about agricultural work. And I'd like to recognize the researchers, policymakers, and activists who have spent their lives fighting poverty and hunger through improving agriculture. The world's attention is back on your cause.

Now, each of us has come here and developed our interest in agriculture through a different path. And I want to take a moment to talk about how Melinda and I came to this work.

When we started our foundation, we agreed that the basic principle driving our priorities should be a belief that all lives have equal value, that every person deserves a chance to live a healthy and productive life.

Over time, our search for the greatest leverage brought us to the most compelling challenge in development: How do you help those people who live on less than a dollar a day? They face huge difficulties. How can they get some traction so that their daily struggle leads to a better life?

A key answer is in the work they do. Three-quarters of the world's poorest people get their food and income by farming small plots of land. So if we can make those smallholder farmers more productive and have more profit, we can have a dramatic impact on hunger and nutrition and poverty.

Melinda and I believe that helping the poorest smallholder farmers grow more crops and get them to market is the world's single-most powerful lever for reducing hunger and poverty.

Of course, the idea that better farming can end hunger and poverty is not new. It was demonstrated by Dr. Borlaug. It was honored with the Nobel Prize. It was called the Green Revolution, and it helped divert famine, save hundreds and millions of lives, and lift whole countries out of poverty. It was certainly one of the great achievements of the 20th century.

But it didn't go far enough. In particular, it didn't go to Africa. Africa is the only place where per-capita cereal yields have been flat over the last 25 years. The average farmer in Sub-Saharan Africa gets just over half a ton of cereal per acre. An India farmer gets twice that, a Chinese farmer four times that, an American farmer five times that.

The technology and new approaches that are transforming agriculture in other parts of the world can be applied in new ways and help Africa flourish as well. Now is the time. The world food crisis has forced

hunger higher on the world's agenda, from NGOs to the G8s to Africa heads of state there is a rush of new commitment.

But there's also a problem. The global effort to help small farmers is endangered by an ideological wedge that threatens to split the movement in two. On one side is a technological approach that increases productivity. On the other side is an environmental approach that promotes sustainability. Productivity or sustainability – they say you have to choose.

I believe it's a false choice, and it's dangerous for the field. It will block important advances. It can breed hostility among people who need to work together. And it makes it hard to launch a comprehensive program to help poor farmers. We certainly need both productivity and sustainability, and I believe we can have both.

Many environmental voices have rightly highlighted that there were excesses in the original Green Revolution. They warn against the problems of too much irrigation or fertilizer. They caution against the consolidation of farms that could crowd out smallholders.

These are important points, and they underscore the crucial fact that the next Green Revolution has to accommodate these things and, in that sense, be even greener than the first. It must be guided by the needs of the smallholder. It must be adapted to local circumstances and [we must] understand how to make it sustainable for the economy and the environment.

I think it's worth repeating that. The Green Revolution must be guided by smallholder farmers, adapted to the local circumstances, and sustainable for the economy and the environment. We don't want to create short-term gains for farmers that have long-term costs for their children. That's why we believe it's so important to work with local farmer groups. And that's why we're one of the largest funders of sustainable approaches, such as no-till farming, rainwater harvesting, drip irrigation, and biological nitrogen fixation.

The environment benefits from higher productivity. When productivity is too low, people start farming on grazing land, cutting down forests, and using any new acreage they can to grow food. When productivity is high, people can farm on less land.

Now, some people insist on an ideal vision of the environment which is divorced from the people and the circumstances. They've tried to restrict the potential use of biotechnology in Sub-Saharan Africa without regard to how much hunger and poverty might be reduced by it or what the farmers themselves might want. Some voices are instantly hostile to any emphasis on productivity. They act as if there's no emergency – even though, in the poorest, hungriest places on Earth, population is growing faster than productivity and the climate is changing.

According to a Stanford University study published last year in *Science* magazine, if the farmers in southern Africa are planting the same variety of maize in 2030 that they're planting today, the harsher conditions from climate will reduce their productivity by over 25 percent. If you take declining yields at a time of rising population in a region with millions of poor people, you get starvation.

So the charge is clear. We have to develop crops, including new inputs to go with them, that can grow in a drought. We have to have crops that can survive a flood, that can resist pests and new diseases. We need higher yields on the same land, despite the more difficult weather. And we will never get there without a continuous and urgent science-based search to increase productivity, especially focused on the needs of small farms in the developing world.

Right now we're collaborating with many research partners, including the CGIAR and many national programs, to boost productivity by breeding new crop varieties. We're not advocates of any particular scientific method; we support a wide range of agricultural techniques. Some of our group grants do include transgenic approaches, because we believe they have the potential to address farmers' challenges faster and more efficiently than conventional breeding alone.

And of course these new technologies must be subject to rigorous scientific review to ensure they're safe and effective. It's the responsibility of the governments, farmers, and citizens informed by great science to choose the best and safest way to help feed their countries.

Certainly it's essential for Africa to find a maize crop that can get higher yields in a drought. More than 300 million Africans rely on maize as their main food source. When the rains don't come, farmers and their children go hungry. One of our private sector partners is now collaborating with an African foundation, an international crop improvement center, and five African countries to develop drought-tolerant maize, using both conventional breeding and biotechnology. The technologies will be licensed royalty-free to seed distributors so that the new seeds can be sold to African farmers without extra charge. If the seeds perform well, African farmers can expect to produce 2 million more tons of maize in a year of moderate drought.

Of course, for small farmers too much water can be as devastating as too little. To support farmers in flood-prone areas – and there are millions of them in India and Bangladesh – we're helping develop a rice variety that can survive underwater for over two weeks.

Crop breeders have long known about a variety of Indian rice that tolerated submergence. In the 1980s they tried to breed this trait into rice varieties that have high yields, but the combinations always dragged in undesirable traits along with this desirable trait. So the idea hibernated in the minds of crop breeders for 25 years until it was taken up again a few years ago, this time aided by marker-assisted selection, which now has high resolution, so it's a much more precise method of moving a trait from one variety to another.

The breeders developed a new rice variety called Swarna-Sub1 and tested it in Bangladesh. A short time after planting, the floods came. When the water receded, only 10 percent of the normal rice crop was left, but the Sub1 rice flourished – 95 percent of it survived.

Maize and rice that can tolerate drought and flooding are critical for increasing yields in hostile weather. We also need to play defense against disease, which can wipe out a crop no matter what the weather is. We're involved in the effort to stop a fast-moving strain of wheat rust that threatens the world's wheat crop. Almost all existing varieties of wheat are susceptible. And our partners at 15 research institutions are using a number of approaches to breed wheat varieties that will offer farmers lasting protection.

We need to take full advantage of these emerging technologies to develop new crop varieties. And we need to make these seeds available to the small farmers who need them.

I hope this debate over productivity will not slow the distribution of these seeds. I also hope that the debate does not obscure another critical lesson from the past: developing these more productive seeds is just one element of an overall strategy. We take that lesson very seriously.

That's why the foundation's investments are guided by two principles – we focus on small farmers, and we make investments across the value chain.

These principles guide every decision we make. We try to see our investments through the eyes of small farmers. Will they lead to a better yield, better soil, a better living, a better income? Our approaches are customized for the diverse crops, diverse climates, and small plots of land. We try to be responsive to the needs of the farmers themselves, and in particular that includes looking at the expertise of women farmers who do most of the farming in Africa.

The second principle about the value chain has a significant impact on where we invest, because farmers need more than the seeds. They also need new tools, they need the training, they need access to the markets to sell the surplus, and they need stronger organizations that can bring them together to represent their interests. The value chain also includes gathering data, publishing results in supporting countries to develop better agricultural policies.

If we're going to get the results, we have to get all these elements right. During the mid-1990s in Ethiopia, the push to increase productivity led to bumper crops in the highlands. But farmers couldn't get the crops to the distant markets, and so local markets had too much food, prices went down and farmers suffered, while the distant markets had too little food and prices stayed high there and poor people went hungry.

Market access can provide the balance – prices high enough for poor farmers to get a good income and low enough for poor consumers to feed their families. That's one of the driving ideas behind our partnership with the World Food Program. In the past, the world's approach to food aid involved primarily purchasing surplus from rich countries and shipping it to the countries in need. In recent years, some food was also purchased from big traders in poor countries. But now WFP is buying crops from small countries – in the same countries where the food will be eaten. They've already purchased 17,000 metric tons of food from small farmers, helping those farmers build the capacity to sell even more to WFP and other buyers in the future.

Today we're announcing an evolution of our strategy with nine new grants of about \$120 million to serve small farmers and span the value chain. The package includes funding for legumes that puts nitrogen in the soil, for higher-yielding varieties of sorghum and millet, and for new varieties of sweet potatoes that resist pest and have a higher vitamin content.

The grants will provide training and resources that African governments can draw on as they regulate biotechnology, so they can make science-based decisions, customized to local conditions, about what advances will best serve farmers, consumers, and the environment.

The grants will also assist Africa governments in developing policies specifically focused on their small farmers. The package will help get information to farmers by radio and cell phone, support school-feeding programs buy nutritious food from local farms, and help women farmers in India manage their land and water resources sustainably.

This illustrates the approach of investing across the value chain in ways that benefit small farmers. If each effort is measured concretely against these roles, it will help keep attention focused on the human impact of the work. It's the best way to de-emphasize ideological arguments and to focus on the overall impact.

In this global movement, it's crucial that everyone play a role, but Africa must lead. In 2004, African heads of state met in Maputo and pledged 10 percent of their national budgets to agriculture. Countries from Ethiopia to Malawi to Ghana are showing the way.

Ghana has met the 10 percent pledge, and its success demonstrates why others should as well. Ghana's agricultural sector is growing at a steady rate of over 5 percent. GDP is rising. National poverty rates are dropping. World poverty rates are dropping even faster. And Ghana is now the first sub-Saharan country to reach the Millennium Development Goal of cutting hunger and poverty in half.

The Alliance for a Green Revolution in Africa, led by Kofi Annan, is pushing for these kinds of advances across the continent. Unfortunately, most Africa countries have not yet met the 10 percent pledge. African leaders should hold each other accountable. Is there any reason not to find 10 percent of those budgets for the highest-leverage approach to the biggest problem the poor face?

Rich countries have also pledged to increase their investment in agriculture. In his inaugural address, President Obama promised to poor nations, "the U.S. will work alongside you to make your farms flourish." And then he took a lead role as the G20 made a three-year, \$22 billion pledge to help the poorest farmers increase their productivity. It's a great thing that donor nations are focusing on this issue. But we need them to spell out clearly what the \$22 billion means. How much is old money? How much is new? How soon can they spend it, and what will it be focused on?

We also need foundations, universities, the United Nations, the World Bank, scientists, farmer groups, and others to intensify their support. And we need corporations to play a role. Research companies can take the technology they've developed to large agriculture and apply them to the needs of the small farmer. They

should adapt their products to suit what these customers need, which is often very different. The crops are different; the fertilizers need to adapt to the soils; the seed packages need to be 1 kilogram, not 50. In the poorest countries, some of these products need to be royalty-free, or many customers won't be able to afford them.

Food companies can use their buying power to provide markets for small farmers. The logistics might be more complex at first, but these companies have a huge opportunity to help poor farmers by turning to them as suppliers. A number of our corporate partners are making impressive contributions along these lines, and we need others to join them.

In closing, I'd like to tell you the story of a man named Chrispus Oduori, who just last year graduated from a school we support in South Africa, the African Center for Crop Improvement, which is crucial to our hope of training more PhDs in Africa. With his diploma, Chrispus became the only plant breeder in all of Africa with a PhD in finger millet – a grain that is grown almost entirely by small farmers and is eaten by more than a hundred million Africans, but has shown no significant productivity gains since the 1960s.

Today, working in western Kenya near where he grew up, Chrispus goes back and forth from his demonstration plots to the local farmers, hearing their concerns, testing their methods, adding his own ideas. Right now, the expected yield of a finger-millet farmer in Kenya is between 500-700 kilograms per hectare. On the fields where Chrispus conducts his research, using improved seeds and fertilizer, he gets between 2,500-3,000 kilograms per hectare – 4 to 6 times better.

There is no reason for so many farmers to be so hungry and so poor. Poor farmers are not a problem to be solved – they are the solution, the best answer for a world that is fighting hunger and poverty and trying to feed a growing population.

If farmers can get what they need to feed their families and sell their surplus, hundreds of millions of the poorest people can build themselves a better life. It will take passion and focus and a sustained sense of urgency. It will take a willingness to put aside old divisions and come together behind this cause.

We have the ability to build these tools. We know what needs to be done. We can be the generation that sees Dr. Borlaug's dream fulfilled – a world free of hunger.

Thank you.

**Gebisa Ejeta** – Distinguished Professor of Agronomy, Purdue University  
2009 World Food Prize Laureate

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Before we start the question and answer session, maybe let me repeat with your permission what I said to you last night: on behalf of the poor in Africa and everyone involved in agriculture and development, I express my gratitude for the impassioned commitment that you and your family have brought, both your resources and your commitments, to the cause of the poor on the African continent.

For my first question: last March, your staff invited me to Seattle for a dialogue. I told your staff that unless they make the national programs front and center, and challenge leaders of the developing world – particularly Africa – to commit meaningfully and in earnest, we may not achieve your goal of transformative change in the livelihood of Africans.

In that vein, I pointed out the fact that, in my view, the Bill and Melinda Gates Foundation can be a leader and a game-changer – and I've said this in public multiple times. And you can be so if you use effectively and efficiently each of the two capitals that your foundation brings to agricultural development.

The first capital [is] this unprecedented level of resource support that you've already committed. The second, in my view, is the trust and credibility your family name brings to the world of the poor. I think that you've

earned in the minds of many Africans the convening power to bring people together, particularly African leaders, to the table for earnest commitment and dedication to bring their resources and their policy decisions for the cause of agriculture and development.

My question to you – you have eloquently described the need for people to get together and to do this. And tonight then especially you gave all of us a great example. Would you and Melinda be willing to engage with leaders of Africa in this kind of dialogue?

### **Bill Gates**

Well, that's a great question. It's certainly our goal to do that in the best way that we can. And I'd say it'll take several different forms. One, of course, is that there's a lot of research that needs to be funded that's not country-specific, like the great work that you did that is more crop-specific. And so we need to – not just our foundation, but all the rich-world governments, World Bank – we need to provide more support to those horizontal activities so that the opportunities are there.

We also need to help build the capacity – the number of PhDs, the people trained in agricultural science – and make sure that those people by and large are going into these national agricultural planning groups. And then as you say, as that capacity is built up, we have to show the trust that we're simply backing the national plan. Now, in some cases, we'll have to help get that going. We're really doing it primarily through AGRA. It's great that Kofi Annan has agreed to lead that. They've hired a strong team of people, and even though it's only a few years old, it's a partnership where Rockefeller Foundation and our foundation helped provide the funding for that. I think it's off to a very good start.

We'll also be lending our voices personally. You know, I'll be getting to Africa at least once a year, and every trip there I'll be talking about the agricultural issues and really trying to highlight the countries that are doing well. The ideal is to see almost the competition between governments, in order that they be able to receive grant money because their program is a leading program.

If you can build up the standard of excellence, and learn from each other, then you can get a very positive dynamic going. Certainly we've seen that in India, where you have states competing with each other to try and be the place that the latest things get done.

And I think we can see the very beginning of that in Africa. It's a huge challenge. People are always telling me not to be too naïve about the path from the lab with the great new advance to how much it'll get out to the smallholders. In fact, you and I were talking last night about how much your work, you know, in five years, 10 years, how much that'll be actually used. And I hope we can, by working with these national programs, actually get these crops out there a lot faster than it's been typical in the past.

### **Gebisa Ejeta**

Thank you. In your speech, you also called for people with vastly different opinions to come together around a shared vision of agricultural development. What would it take to get that achieved?

### **Bill Gates**

Well, I think one of the things is that this will be most concrete as people are actually seeing the progress in the new science. I mean, people have to actually know that the benefit of the new technology is quite substantial and it's not just some consumer thing about how long something stays nicely colored; it's really to do with significant productivity differences that actually can make the difference between starving or having a reasonable amount of food.

And so that's why I think the different projects that are going on – the sweet potato, the drought-resistant maize – in the next two or three years, if things go well, there will actually be seeds that are adapted to African conditions that are available to use. And then you have this very large benefit; then you can look not at what

was known in the 1980s, when the GMO idea first came along and there was a lot of uncertainty and it hadn't been tried anywhere – but instead look at what has the experience been if you have good scientific review, if you register things in a careful way. Has that experience made us look at the risks involved and understand them far better?

So now you have a very different benefit level, and these sovereign countries, hopefully assisted by the expertise that we are and others are finding in NEPAD, can make the sovereign decision to say, “Okay, we're taking a very modest risk here, based on what's been done.” And then it moves forward and you actually have the success stories.

So we need more benefit. We need to really pick the big problems and solve those, using these tools; and I think that's what's underway now. So I think we can claim it in a very different way than what that's looked like in the past.

### **Gebisa Ejeta**

Thank you. You and your foundation are associated with using technology as an important part of the research to achieve progress in health and development – and you mentioned a couple of these examples in your speech. What do you see of the long-term potential for technology and research in sustainable agriculture and development in Africa?

### **Bill Gates**

Well, I am an optimist about technology, and – you know, I can hardly help but be, given the background that I have – and there's a constant dialogue where people inside and outside the foundation are making me understand, you know, are we mapping the technology to the particular needs of the smallholder? And how challenging it is to make sure you've got – you're solving the right problem, and then how difficult it is to get it delivered.

Whenever we have a new vaccine or just the potential for a new seed, and people say, “Oh, that's going to take five to ten years,” I want them to put the critical path on the piece of paper. You know, why can't it be four years or three years? This Swarna-Sub1, actually, is a case that's kind of broken the records from how quickly it's gone from the lab actually to lots of smallholders. Now, I think there are some things that made that particularly easy, but I hope there are some lessons that come out of that that can apply to some of these other things.

The breadth of use of technology, I think, is quite vast. At least, we're willing to try out different things – you know, the way that milk is pasteurized; we think there might be a better way to do that. Vaccines for animals – I'll this afternoon meet with a group that we're backing that is taking a lot of the animal diseases that really devastate smallholders that invest in their animals, and it's a key part of their income. If you can improve the health of those animals, that can have an incredible payback. There are ways of gathering water, which will be more important over time.

We have a pretty high threshold to meet, which is – we're trying to get these smallholders to have, say, twice as much output at a time when the climate is going to make that more difficult for them to achieve. And a factor of two – you know, that's quite difficult. In Africa, getting inputs in is harder; you don't have the roads there, [or] the number of people with expertise.

And so I'm often cautioned not to think that what happened in the Green Revolution will be nearly as easily achieved. And yet we have to conquer those things. And we do see this increased visibility of these problems.

One of the things I'm very enthused about is, we have the pamphlet out – and the book to come out in the months ahead – called *Millions Fed*, which can take some of the success stories and get people to understand it. If you bring these terms up in terms of all the acronyms and the different agencies, and trying to figure out what the budget is, it's not as clear-cut as if you tell the success stories. And certainly in health, we did a book

like this called *Millions Saved*, which was about new vaccines or helping with skilled birth attendants, and that really galvanized things. So we brought that same lesson of – bring more people to the party through the good news, the success story. We're trying to apply that here as well.

### **Gebisa Ejeta**

I'm not sure if we have more time. But technology, as a vehicle of change, has tremendous power.

As you indicated, these problems are getting complex. And I have an understanding that you came to agriculture believing that addressing the health issue alone may not fully address the concerns for the poor in Africa. And so this holistic approach is what is really necessary: an integrated approach to the problem, as you indicated, bringing people together. And that's why I am advocating the fact that you have, in the person of Kofi Annan, the most respectable African in the program. You can knock on anybody's door and get attention from Africa leaders.

And I pledge the name, your name and your family name, working both on the fronts in Africa as well as in the developed world where people who are making commitments, similar commitments, to the cause of the poor can come together, begin to make this, as many are now beginning to say, to make this a country-led program and activity. And I pledge that you would be a willing participant in that dialogue.

### **Bill Gates**

Absolutely, and that's the great thing about the leadership at AGRA and having Kofi involved. They're there in Africa, they know the leaders; and so as things are being done well, they can make sure the right praise and reinforcement is there. If things like the agricultural budgets are, they're still, you know, pretty disappointing; if that's not happening, they can in a very constructive way – often in a subtle, appropriate way – push for those things to be done well. So it's our voice in particular, but then we get the leverage as we've been able to back great people and show them what can be done.

And, you know, for us to come to agriculture was really a progression of things. We first started on population issues, and that got us into health, and then when we got into health, we were learning about nutrition and some of those challenges. And I read the Gordon Conway book, and we let some people come in and tell us the story – you know, the Dr. Borlaug story, first and foremost, but many others as well. And that's what this said to us – it really has that same paradigm, that if you have good governance, if you take a long-term approach, science is a piece of it, but you can have this very dramatic impact.

And so that's why I think it's great to be here with this group, making the commitment to work with those national programs that you've asked for.

### **Gebisa Ejeta**

One of the weakest institutions in Africa is the private sector. And one of my hopes is that we would make this assertion, that public-private partnership is important. I think there is gradual recognition of that happening. While someone like Kofi Annan can really with confidence affirm the value of public institutions and the commitment of government to development, my hope is you have the credibility to speak about the power of the private sector in terms of catalyzing that kind of activity in Africa as well.

### **Bill Gates**

Yeah, the role of the private sector. If the private sector is unleashed, it can do amazing things. And so a lot of these government policies have to do with deciding what the government needs to do to enable that to happen. It's both the local private sector, and then it's other private sectors actors coming into Africa, making investments as well. I do think we're starting to see the beginnings of that with a lot of the responsible companies.