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THE CHALLENGE OF AN AFRICAN GREEN REVOLUTION

October 17, 2008 – 10:30 – 12:00 p.m.

Moderator: Gordon Conway

Speaker: Namanga Ngongi – President, Alliance for a Green Revolution for Africa

Participants: Armando Panguene – Ambassador of Mozambique to the United States

Daphrose Gahakwa – Minister of Education, Rwanda

Richard Mkandawire – Director of Agriculture, NEPAD

Pedro Sanchez – Director, Tropical Agriculture/Rural Environment, Columbia University

Speciosa Wandira – Former Vice President and Minister of Agriculture, Uganda

Gordon Conway

Chief Scientific Advisor, UK DFID

I'm going to move now into the new conversation. I realize you need to move about a bit just to get warm. We're doing our bit here for global cooling in the session. But if those who have gotten themselves warm could sit down, it would be nice. And maybe, Namanga, you could come and sit up here, please.

I had a few killer facts again this morning. One was that African contribution to world agricultural trade is only 4 percent. I thought that was one we could bear in mind. The other killer fact is that Mozambique's rivers are undisciplined – and I thought that was a wonderful image. They are beautiful rivers, but I see the point.

I also thought Secretary Sharma's comments were very valuable when she talked about the mistakes that have been made in India. She was very frank and open about the mistakes that have been made, and clearly it's going to be important for African countries embarking on their own distinctive Green Revolution to avoid some of those mistakes.

So we've got a session now which leads up to lunchtime on the changes of the African Green Revolution. And to get us started, Namanga Ngongi is going to speak. And Namanga has had a very distinguished career, particularly within the United Nations. He worked for seven, eight years at the World Food Programme. He was particularly responsible to Africa for African food needs. And he rose to be Deputy Director General of the World Food Programme, working very closely with Catherine Bertini.

One of his great achievements was that he was the U.N. Undersecretary General who headed the U.N. Peace Keeping Mission to the Democratic Republic of Congo. And I think everybody recognizes that it was his efforts that made an enormous contribution to producing peace and stability within the Congo.

He retired from U.N. in 2003 and then went back to the Cameroon as a farmer. It's really great that we have these people who oscillate between running the U.N. and being farmers. And that

made him, of course, ideal to become the Director of the Alliance for a Green Revolution for Africa, which grew out of work that Rockefeller, is funded now by Gates and Rockefeller, and also, I'm pleased to say, by DFID.

And Namanga is going to get us started with a few words before the rest of the panel join us. Namanga.

Namanga Ngongi

President, Alliance for a Green Revolution in Africa

Thank you, Sir Gordon, for these kind words of introduction. I am particularly pleased and honored to be here. This is my second time of coming to the World Food Prize activities here in Des Moines.

And to be here in front of such distinguished participants, president and former president of Mozambique, many Laureates of various years, including my friend, colleague and boss, Catherine Bertini; and my professor, Pedro Sanchez; and one member of our board, Monty Jones – I think that's great to really share this opportunity, and also to be here to listen to those who fund also AGRA, from the Rockefeller Foundation; we'll be hearing later on today from the Bill & Melinda Gates Foundation. We heard from Sylvia Mathews, we heard from Rajiv Shah. And I think it's just really nice to get this kind of interaction. And we have benefited very much from it.

But I could just sit down and answer questions, because I think a lot of the challenges have already been discussed, but let me give my own perspective. There are many challenges, many, and I think if I made a list here, it would be so long that I will be here until probably on Thanksgiving. But let us focus on a few.

Infrastructure has been mentioned over and over and over as a serious challenge in Africa. And if somebody asked me today, "If you were going to do only one thing in Africa, what would you do?" my number-one thing would be infrastructure. As Ambassador Quinn said the other day, he was working the Mekong Valley delta in Vietnam. And his own observation as a nonagriculturalist, nontechnical person – where there was a road, there were activities; where the road ended, there was insurgency.

It's clear that the road or whatever – rail, whatever kind of – it really is a dynamic for bringing inputs, taking outputs out, making people connected to markets – all the other things that we are trying to do in agriculture.

If you ask me what will be the second challenge, I would say it's in capacity – capacity-building from all civil levels, from education, formal education, informal education, to support, teaching, research, and extension. Great efforts were made in the early years. I myself am a beneficiary of the great generosity of the American people; 20 years ago I studied and got my bachelor's degree, under USAID generous support, from Cornell University to get a masters and Ph.D. as a graduate teaching assistant.

But those efforts have actually fallen down. Africa today has less people actively working than there were in 1980. You go to country after country, they are retiring; they are becoming as young as myself for retirement.

If you ask me what would be the third challenge, real challenge, to be faced by African agriculture, I would say the dearth of financing in the rural sector – not just in agriculture, but financial services or resources in the rural environment are just not there. The figures I have – say, for Tanzania: lending to agriculture represented 2 percent, 2 percent of all bank loans in the country, in which 70 percent of the population is involved in the agriculture – more than 70 percent in the rural areas. Agriculture is about 40 percent of GDP. I mean, it's just not possible. Those are real constraints before we try to tackle some of the other issues.

So if you really ask me what another constraint would be, in the long term – and President Chissano mentioned that – it's land, land tenure, land...not only just ownership but security of tenure. As it's said in this country, "Nobody washes the hired car, or rented car." Why would people be concentrating effort to be developing land, maintaining land that they do not own or over which they do not have real security of tenure. So those are four key constraints.

The fifth constraint, which cuts across a lot – access to markets. How to give really this opportunity to make a go, a living, out of agriculture.

So I would say those, for me, those are the five real, long-term constraints that need to be focused on, resolved, to be able to make African agriculture and the Green Revolution sustainable in the long term.

I did not mention irrigation, because in my definition, this is also part of infrastructure –but it needs to be developed.

But those are really long-term problems; that's not why AGRA was created. It was created to solve more practical issues today, to build a basis for moving forward in the future, to engage all the partners, engage government for government to be able to address also in the long term these kinds of problems.

So, what is AGRA? AGRA is a dynamic partnership working across Africa to help millions and millions of people – especially farmers and especially small-scale farmers, mostly women – lift themselves and their families out of poverty, through especially productivity emphasis on their farms.

AGRA was created, I would say, as a response to the conference that was chaired by President Chissano in Maputo, which created a Comprehensive African Agricultural Development Program, which called for extended support also to support Africa's recent 6 percent growth in agricultural growth. But governments also engaged themselves to put 10 percent of their budgets to agriculture.

So discussions took place by visits in the field, by people of Rockefeller Foundation and the Bill and Melinda Gates Foundation. And they decided to create an alliance working with farmers in Africa, with governments, with other partners and NGOs to be able to move African agriculture forward. Fortunately, also, with your wise guidance, the Department for International Development of UK has also joined as a funding partner.

AGRA is created to be more of a – I think I can go through these, the early slides because those are taken already. AGRA is more to address the great issues which are blocking Africa's agriculture, which as we can see, in this slide used by everybody, probably, in their presentation – I think you used it also – to show Africa's productivity is one metric ton per hectare; the rest of the regions of the world have gone over it – China more than four times Africa's production.

Why is it difficult to bring about technological changes in Africa? The great diversity of soils, great agro-ecologies – I've just used the soil-classes map here, to show the differences – which means we have to tackle small agro-ecologies to be able to make differences for the different programs that AGRA has.

So Africa should put in place, and has already, systems or agreements to be able to fund and reduce the dependency on imports or the cycle of crisis. This is just to show the typology of African agriculture – large farmers, medium, medium who are connected to markets, and those who are not connected to markets at all.

The revolution is to do what? To turn it upside down so that we've got to have the emphasis and effort on... [applause]. Thank you. Put emphasis and effort where it makes a real difference – to the smallholder farmers, mostly women, to work with them, to make sure that the technologies are adapted to their needs and resolve their real problems on their farms. Not to ignore the medium-level farmers. I think I belong, maybe, to the medium-level farmers – not yet large. But to be able to work in a continuum with them.

AGRA was created also with a different perspective – not just to have an organization for seeds, an organization for soils, an organization for markets, an organization for whatever resources, but to try to bring all of these, in a way, together, not as an implementing agent but as a supportive and catalytic factor to help the other partners in the whole process to do it.

The first program was in seeds, which has four areas. One is to resolve the issues of capacity by training people how to improve the breeding of seeds by ecology, agro-ecologies, in the public research institutions; to have African seed companies, not (as the president of Mozambique said) donations of seed coming from different regions and different countries which are not adapted to your region – it may make some good, but is not the optimum goal, trying to do that. And probably the most successful program so far is in the agro-dealerships in trying to bring about connectivity between production and farmers.

That's the first training program of PhDs to train in plant breeding is in the University of Ghana, in Legon, and the University of KwaZulu-Natal in South Africa. We are supporting breeding programs, I said, in publicly funded research institutions, where we are working with people who go out to work with farmers to define their needs, discuss with them. They make mistakes along the way but then be able to come out with varieties which are suitable.

Inherited from the Rockefeller Foundation, where we have already participated in the release of 45 new crop varieties this year, some of them in maize... in Mozambique. So I think progress is coming along.

Seed production: we're supporting small seed companies starting from scratch and some which are already halfway established. And I think a country like Kenya, in the next five years or so,

would already have a dynamic seed system. And I will say how to bring about all of these things to farmers.

Small agro-dealerships that are located in farming communities so that the farmers have access, physical access. And also to pack their seeds and fertilizer in small packages, so that they're also affordable in price. And agro-dealers who know their farmers, so they can also pass on to them on credit.

I think there are many innovative ways which we are trying to bring about. This, I would say are the long-term goal of the seed system, the program: 170 masters degrees, 80 PhDs and 1,250 new crop varieties. But in terms of capacity, it sounds like a lot. It's not enough. Because of the various agro-ecologies.

Soil health program – you can see who works the soil. I don't know if Ms. Bertini will agree that this is the right hoe, but these hoes are also gender sensitive. But that's how we have to work with the people, the women, to be able to make sure that the plant breeding produces results on good soils. We're talking of soil mining – look at soil mining. Many countries in Africa are losing more than 60 kilograms of nutrients per hectare a year – \$4.5 billion worth of loss in a year. That has to be replenished somehow. It is mostly to create opportunities, not only for mineral fertilizers but an integrated soil-management system, which uses everything including the mobile fertilizer plants, which are called cows and goats and sheep, which are able to give us material that can be turned into fertilizer.

And I should say, good news for fertilizers. There's a plant in Nigeria that I think is functional now, producing about 600,000 metric tons a year. The same company in Nigeria has gone to Tanzania to explore to be able to use natural gas there to produce. Probably if they don't succeed there, President Chissano, maybe they will come to Mozambique to explore the natural gas there. AGRA is facilitating this program.

Market access, I have mentioned. We are just starting now, thanks to a new, approved program on market access for the AGRA program, to be able to provide adequate storage; to have accurate market information, with little boards across the countries to give prices; to use awareness of grades and standards; and also value addition, basic processing and packaging. What a waste; all the resources gone to produce all of these bananas, and most of this will go rotten sitting market-side. We must be able to find ways to increase the marketing of these and also be able to transform them into other things.

This is a slide on the border-crossing point. A truck loaded with ten tons of produce cannot cross. If it crosses the border, it has to go through a lot of paperwork, pay a lot of duties. So they have to unload, one bag at a time on the bicycle, to cross the border, and then load again in that truck on the other side. What a waste of time, a waste of people's time.

Probably one of the most innovative places that we have done is not new – credit initiatives are not new. But they have been done in small communities for short periods of time, a small group of people and not really recognized.

AGRA has put together a system to try to scale this up, to bring it to the attention of governments to be able to take it on. We started in Tanzania timidly with \$1 million, and the

Microfinance Bank of Tanzania put in \$5 million. In Kenya between AGRA and the International Fund for Agricultural Development, IFAD, will put up \$5 million, and Equity Bank is putting forward \$50 million for loans to farmers and agro-dealers. We now have many contacts with a lot of banks now expressing interest in trying to do this.

Just imagine – if 20 countries in Africa were able to mobilize \$100 million each just for their own internal financial resources, investing in banks, that would be worth \$2 billion. It will not eliminate the needs of financing in African agriculture, but it will close the gap. And that's what we are trying to do to also mobilize those resources; it does not mean that we should not support.

President Chissano gave us an idea of what leadership can do to change agriculture in the country. Good leadership, in Mozambique, worked. Good leadership in Ghana has worked. Now this is a practical example also from Malawi, in which the president of Malawi took a decision, after having argued with the donor community quite a bit, to support his own farmers, to have immediately resources for input subsidies to the farming communities. And they're able to go from a deficit situation to 1.3 million tons of surplus, sold \$160 million of grain to their neighbors, and gave 10,000 tons of grain as food aid to neighboring countries.

It can be done. If the will is there, it can be done. Thank you.

Gordon Conway

Thank you very much, Namanga. You've got us off to a good start.

There's one more killer fact: Only 2 percent of the bank loans in Tanzania go to the agricultural sector. I wonder what was the figure in the United States in the 19th century. What was the proportion of bank loans that went to agriculture? Anybody know – come tell me afterwards.

And can I get the rest of the panel to come and sit here, please. I can see three moving, four moving, five. I'm really very pleased to have this marvelous panel here. Many of them are old friends of mine.

I want to introduce in order along here. Richard Mkandawire is the key figure in the Comprehensive African Agricultural Development Program. And I hadn't realized it until just now that there's a direct line from President Chissano to CAADP to AGRA. It's a rather nice inheritance, if you like. He worked with the Commonwealth Secretariat as the Commonwealth Youth Programme regional director for Africa. And he's had extensive experience in development initiatives in Africa over two decades – food policy, agriculture, gender, irrigation, fisheries, land tenure.

The person next to him is well-known, I think, to everybody here – Pedro Sanchez, who was the 2002 World Food Prize Laureate. He gained his award for his really remarkable innovative work on improving lands for agriculture in Latin America. He is currently the Director of the Tropical Agriculture and Rural Environment at the Earth Institute at Columbia University in New York. He was the director of the world Agroforestry Center in Kenya, which pioneered a lot of integrated, mixed cropping systems for marginal soils. And he, with M.S. Swaminathan, co-chaired the Task

Force on Hunger as part of the U.N. Millennium Development Goals project. He was a McArthur Fellow in 2004.

Next to him is Daphrose Gahakwa, whose photograph I showed you in my lecture earlier on, on Wednesday. She trained as a geneticist. She is one of the leading plant breeders in Africa. And I first met her in Uganda when she was heading the biotechnology lab there doing tremendous work on the transformation of bananas. But she went back to Rwanda about three years ago, I think it was, and became the Minister of State for Agriculture in Rwanda. And they've now plucked her from the Ministry of Agriculture to be the new Minister for Education... And I think it's not just education, it's the Minister of Education, Science and Technology and something else. You'll have to tell me what the last thing was.

Next to her, I'm delighted to welcome Ambassador Panguene who has come in at the last minute onto the panel. Ambassador Panguene is the Mozambique Ambassador to the United States, based in Washington. He took part in the liberation struggle with President Chissano. He then worked for the government. He was the governor of two provinces in northern Mozambique. He went to London as ambassador but quickly became high commissioner, because of course Mozambique joined the Commonwealth. And now he's back to being ambassador again but ambassador here in Washington; and he's been here for six years. Whether going from ambassador to high commissioner or high commissioner to ambassador is a promotion or not depends upon whether you're British or not.

And then finally at the end my really very good friend, Speciosa. Speciosa Wandira started in public life as an elected village leader, and she went on to become a member of Uganda's parliament and ended up as vice president of Uganda. I think that's probably when I first met her. She's been extraordinarily active in a whole range of activities to do with agriculture in Uganda in particular but around the world. She's a great champion of the role of women in agriculture and their being recognized. She also did something rather nice – that when she stopped being vice president, she went off to do her PhD. It's not often that people who have been vice presidents do things like that. She went to Harvard, studied population and international health. And the one final thing I have to say about her is that she's the mother of twins. And I'm the father of twins, and if you're the mother of twins, it's very hard work. If you're the father, it's actually, it is quite hard work, too. So we have that in common.

Now, I'm going to ask each of them in turn – well, I'll start with Richard, I think, to say a few words on the perspective of the Green Revolution from the CAADP position and maybe also to respond to some of those stimulating comments from Namanga. Please do so.

Richard Mkandawire
Director of Agriculture, NEPAD

Thank you very much, Sir Gordon. It's an honor to join this august assembly. It's always a delight, Ambassador Quinn, to come here to the World Food Prize events. I would like to thank you for your continued championing of the need for ensuring that there is global food security. And I would like to thank all of you, as experts, for coming to this, I think, important event.

We from Africa, we consider this, I think, as a decade of hope for the transformation of African agriculture. We see the world tilting towards supporting African agriculture. After almost two decades of neglect of this sector, there's really a sign of hope, and we believe that we can actually move towards attaining an African Green Revolution.

But more importantly, I think we're extremely hopeful because the African leaders themselves are committing themselves to supporting African agriculture. Within the context of the Comprehensive Africa Agricultural Development Program and the NEPAD and indeed within the context of African Union, agriculture has been positioned on top of the development agenda alongside infrastructure.

So political commitment is absolutely necessary to attaining any efforts towards advancing a Green Revolution. And there is actually African commitment.

You will recall that President Chissano – and of course Namanga actually pointed out that it was in 2003 – that African leaders endorsed the Comprehensive Africa Agricultural Development Program as a framework for the restoration of agricultural growth and food security in Africa.

This particular document we call the Comprehensive Africa Agricultural Development Program is the first of its kind coming out of Africa as a framework crafted by Africans, and it's owned by Africans, and the program has been driven by Africans. So it's not an FAO document, it's not a World Bank document, it is not a Washington Consensus document. It is an African document. It is an African framework.

The commitment is actually to deepening regional integration to make sure that African markets are opened up. With the prospects of Africa reaching almost a billion in the next couple of years, there is a huge market within Africa, we need to open up the markets for African commodities. And this is a commitment of this kind of agenda.

It is also committed to ensuring that there is evidence, peer review on a regular basis at the country level, to make sure that there is new opening up of spaces for the private sector, for NGOs. In fact, we have seen over the past decade or so the mushrooming of NGOs across Africa in rural areas.

Again, this is actually a reflection of the political and economic governance that has rooted itself in Africa. We have actually, with the efforts of presidents like President Chissano here and other African presidents, have actually made efforts to ensure that there is political stability across Africa. Without political stability, we're not going to develop. And clearly I think Africa needs actually to be applauded for the efforts being made in ensuring that there is stability.

And I think it's this stability also that is actually reflecting the growth trends that we're seeing now – economic growth as well as agricultural growth trends we're seeing. Over the past five years, almost 12 countries have achieved at least 12 percent agricultural growth rate. This is unprecedented and, I think, is again a reflection of the emerging political commitment.

I think there is very clear indication that Africa needs additional financing to really move towards achieving its growth target of 6 percent per annum by 2015. Additional financing is required not just from the partners but also from within Africa itself. As President Chissano pointed out, we're very delighted that there is a movement towards national governments committing resources

in the agricultural sector. Of course, they may not have moved towards the 10 percent which they pledged when they met in Maputo, but there's a movement in terms of increasing budget allocation to agriculture.

This is actually important, because when we're talking of ownership, it also implies that African governments themselves must commit their own resources, public financing, to agriculture. And we're trying to develop a tracking system to explore how these countries are actually moving towards this commitment.

So it's not just commitment of resources, of course. It's also about efficient utilization of those resources, including ensuring that the private sector, as well as NGOs, also are able to access those resources.

But when we're talking of global financing, we are hoping that this can be again in partnership with African institutions, more importantly that this global financing is in support of an African-defined agenda.

I think Africa has seen a flow of resources over the past fifty years from all over the world, but these resources have made a very minimum dent on poverty and hunger. It's therefore important that these resources are not scattered all over. It's important therefore that they are aligned to an African-defined agenda. In fact, we'd like to welcome, of course, the new donors that are coming up, including China, India, Brazil, and indeed foundations. Indeed, as we heard, yes, foundations played a very instrumental role in stimulating the Green Revolution in Asia.

And we think that there's an opportunity, particularly in terms of AGRA's commitment, to supporting African agriculture. There's a great opportunity here for AGRA as well as the Gates Foundation to play a very important role in stimulating an African Green Revolution. And we're delighted that there's actually a commitment to work, and very closely, with this African-defined agenda, which is actually a CAADP.

This is absolutely important because we believe that by working with an African framework, the African framework will actually ensure that there is a common voice across Africa; there is actually a commitment to the critical milestones that we have actually defined, including ensuring that we are committed to a growth agenda rather than actually just focusing on our relief, which actually has been a tendency in the past.

Having said that, I think it's important also, Sir Gordon, that we recognize that the major successes taking place in Africa. A number of successes are taking place in West Africa, in East Africa, in southern Africa, and I think these need to be recognized. We have seen the *Wall Street Journal* is here and a lot of the media. I think the tendency in the past has been to paint a rather negative picture of Africa. I think it's important that the international media recognizes the major strides being achieved within Africa, and I think we need to highlight these in the agricultural sector, in the area of governance; all these, I think, need to be highlighted.

Therefore, Sir Gordon, we are very hopeful for the future of African agriculture. We think that there's an opportunity for Africa to remain, to become a global player in ensuring that there is actual global food security.

Gordon Conway

Thank you. I think what you've achieved is very impressive. Let me just ask you, though – you've got this tremendous commitment from African leaders. You need more funding from outside, but there's also a need to, as it were, increase the amount of funding that individual African governments give towards agriculture as compared with other sectors. Are you seeing that happen?

Richard Mkandawire

Well, of course there's been not as we expected in terms of the flow of resources commitment by national governments, but there has been a movement towards increasing budget allocation to agriculture. Countries such as Rwanda, Mali, Malawi, Chad, Niger, Senegal have actually moved towards – they've surpassed the 10-percent target commitment. And it's our hope that we can continue to engage national governments to increase this budget allocation to agriculture.

Gordon Conway

Ambassador, would you like to come in now, from a Mozambique perspective?

Armando Panguene

Ambassador of Mozambique to the United States

Thank you. Let me first of all express my appreciation to have this opportunity to be part of this distinguished panel. And secondly, say that if I knew President Chissano was speaking in the previous panel, I probably would reluctantly accept to take part. But since I'm already in the game, I have to play.

But let me say that first of all, I don't like slogans, because slogans are misleading. For instance, now the Green Revolution is like a commercial on TV to convince us to consume a certain product. Now, there is a danger that if we keep repeating “a Green Revolution,” in our heads we might think that a solution is on sight, which is wrong.

Why do I say so? How old is Green Revolution? I think the first scholars of Green Revolution started in the '60s, but why don't those colleagues do not present us with concrete result of this Green Revolution? I was listening keenly to the lady from India, yes, who talked about the failures, achievements, and calling attention to avoid repeating the mistakes that were done, and so on and so on.

So instead of just talking about, preaching about a Green Revolution, I believe that we should talk about concrete action that a government, a farmer, a smallholder should take in order to bring concrete results. Mozambique, like any other government, has devised a strategy on agricultural development. And this in Mozambique is within the long-term vision that is known in Mozambique as “2025,” which means...aims at reducing poverty.

And the main focus of this activity, in order to get the immediately result, is focus on territorial unit, which is a district, so that very easily the result can be there. Therefore, I will not talk about Mozambique's experience on this, this Green Revolution, because it's still in its very early stages, and it has a long way to produce results to be presented to the public.

Rather, I will stress what was mentioned earlier as well, on the fundamental role that the family, the smallholder farmers, women's organizations, associations of farmers will play in order to achieve food security.

However, to guarantee this success – and I agree completely, I subscribe completely, with the AGRA concept – this strategy should be based on grassroots, so that the farmers do not depend only by the product system, which starts from the top, to let them know what to do. The emphasis should be that to deal with the farmers themselves, with the families, so that it comes up and brings concrete results.

Now, as a role for the government: the government is a facilitator. It should carry on with extensive research so that they can discover the best quality of crops for the farmers and also disseminate information on new technology to boost productivity, so that the farmers can transform their subsistence agriculture to commercial-based agriculture. That, for me, is fundamental. If that cannot be done, then it will be a failure – like those years in the '60s, we cannot present results.

So what is the challenge for the government? The government must resolve – I think AGRA mentioned these as well – the land ownership. This issue must be resolved once and for all, so that there is no confusion to whom the tenure of the land can belong.

And the government should strive, and I stress strive, to motivate banks to provide lower financial loans to farmers – because banks in our country do not dislike agriculture, but agriculture profitability takes a long time. So that they're not keen to it. So it's the role of the government to do that, to play that role, and also to devise a holistic infrastructure development. That's not just roads; it's roads, schools, and whatever takes the farmer's awareness and develops his own knowledge and expands [it].

And finally, if I shorten my main points, is to guarantee the market to the farmers. And I think I saw in one of the slides the bananas and whatever, laying idly – they cannot sell. And the result – they would rot and so on. I only have good experience of what I saw in Ghana; the partnership of the farmers in Ghana, who even know how to export their products to America. That's not found in many other African countries. So we have to decide to do that.

And therefore the conditions should be created to have available the daily commodities that the farmers are looking for. Because it's not enough to have money; you have to use the money. I think the farmers have the same mentality of a fisherman. The fisherman is happy to sell the fish, but if he cannot sell the fish, what's the use of going back to sea and catch more fish?

So my final point on this challenge for the government, and I think this point has been also emphasized, is to create incentives to motivate experts – I repeat, experts – and the young people for attraction to the rural life. Because this is not so easy. The experts, the governments even give them doubled their salary, but they're not ready to go to the rural area. And we have seen cases where some trained people, doctors or other experts, they even prefer to resign from their post if they are forced to go and work in the rural area – even if it's just for a short period.

And my last comment is to say that with the ever-rising price for food products, it's absolutely necessary that our scientists and experts devise appropriate policy to guarantee food security – whether that is food security to fight hunger, you call it Green Revolution, I don't care, as

long as we guarantee food security so the farmers can eat, feed their children, and sell the extra product.

Gordon Conway

Ambassador, can I take a slightly contrary view in terms of small farmers. You've got an enormous potential for agricultural development in the Lower Zambezi, a huge potential for irrigated sugarcane, irrigated rice, even for biofuels. I mean, you could become one of the great biofuel producers of the whole of Africa. Do you think you can do that with smallholders, or is it going to need some big investment on large farms, too?

Armando Panguene

I don't see any contradiction to combine.

Gordon Conway

Okay.

Armando Panguene

Yeah, you can support the small farmers, and if conditions exist for bigger farmers to operate, yes. And this becomes – they know the roads, where to bring investment from big foundations and other partners in the world.

Gordon Conway

It's investment you need.

Armando Panguene

It's investment.

Gordon Conway

Speciosa.

Speciosa Wandira

Former Vice President and Minister of Agriculture, Uganda

Thank you very much, my husband, the father of twins. I also want to say I'm very, very happy to be here. This is my first time, and thank you very much to the sponsors and the people of Iowa. And for the soybean.

Now, I've been at the policy level. I'm a chicken farmer. I'm a surgeon. And I want to say that my observation from that perspective is that we need a lot of coordination. Because what's happening is that, as we sit here, researchers are talking about the diversity in genetic material. We have funders talking about the need for us to increase productivity, research, extension, and

everything within agriculture. And the thrust of what we are talking about for Africa is increasing agricultural productivity in the short run.

Now, what is this person that we are talking about, the individual? And we are saying that we want to target the individual, but this individual needs to be healthy. I must say that I got the opportunity at Harvard to read the history of medicine for the first time. And I discovered that the first people to actually put a patient on a bed were not trained in medicine, they were butchers. The first surgeons were butchers. The first public-health officials were sanitary engineers. The first microbiologists were agriculturalists.

Now, coming from the medical side and being introduced to why I became a doctor in the first place, I thought that, you know, I saw the Hippocratic Oath and that I must not pass on the secrets of what a patient is suffering from; I must not do all sorts of things. But the medical school never told me that really the important thing is to help people who are productive, and that should be the thrust of health.

So these days when I went back home, I'm telling President Chissano that we do have ministries of diseases and not ministries of health.

The same with the veterinary surgeons. Their curriculum is very, very similar to that of the medical school, in that they train to be doctors of veterinary surgeons for the diseases, not for the productivity.

So then, when we are actually sitting here and talking about change, real change will come from people themselves. And we talk about Africa. But here we are only talking about pests of plants, pests of whatever. I didn't hear anybody talk about trypanosomiasis, which is really a disease of people and a disease of livestock. I'm not hearing of brucellosis, which is a disease that affects people and affects livestock.

Now, I heard about nutrition, but go to African countries. What is the home for the policy on nutrition? There is a struggle. Is it the ministry of diseases or the ministry of agriculture? And I remember we went to India with my sister Catherine, and this was one of the issues.

So at the policy level, we need not only governments to come together and really internalize what we are talking about. Otherwise, it is, What is the need for me, as a physician? What is the need for me as a researcher, so that I can come and get the World Food Prize? But are we really looking to the interest of this farmer whom we are all targeting?

It still continues to be a problem to me, even though I'm no longer within the executive but have been charged with some responsibilities to disperse credit for the farmer. I get there, and what do I find? The extension agents are working on their own; the plethora of NGOs are all working on their own; the ministry of health – or diseases – has programs for mothers to be able to buy fish to feed their malnourished children – that's a separate credit program. The ministry responsible for environment has a separate credit program, but we are going to this poor farmer, this family. Today it will be health. Tomorrow it's agriculture. Another day, it's veterinary. Because within each project, each ministry, there is a project with a director of that project, with a commissioner, and it's total confusion.

And this is why I say that even extension – my sister here is an extensionist and Namanga is an extension person; they are both agriculturalists. But were they given the skills to mobilize people? Because, you know, you go to the village and they'll tell you about this agriculture. Now, when it comes to a project coming in, the coordination [is needed] even at that level with the community development officers who traditionally are doing everything. When I was young, the community development officer was the agricultural extension officer for cotton in my area. The same officer was the extension agent to make sure we had [inaudible] for our things. The same officer was responsible for making sure the pit latrine, or the toilet, was 100 feet away from the kitchen.

Now, under the agriculture program, extension, you get these experts, the scientists. And when I was minister of agriculture, I marched out all of them and took them to the field, but they could not even explain the results of their science to the poor farmer.

So all I'm really saying, that if we are really to operate and cause a Green Revolution, to me I think it's possible, Mr. Ambassador; it is possible if we are coordinated in terms of policy, all money being put in the same basket. But the government at the ministry level, each one, after the budget is read, everybody's doing their own thing. The technical people are doing their own thing. And everybody is taking this fragmentation right up to the farmer in the rural areas.

Gordon Conway

Speciosa, I'm going to have to interrupt you because we are running out of time.

Speciosa Wandira

Can I just say one little thing?

Gordon Conway

Yes.

Speciosa Wandira

About women.

Gordon Conway

I knew you were going to do that; I thought we'd get there faster.

Speciosa Wandira

Yes, it is the biggest, actually.

Gordon Conway

But it needs to be still short, even though it's big.

Speciosa Wandira

Yes, father of twins. Now, the women. I want to ask here whether any of us has engaged in a study to find out how many women would like to be in agriculture. Farming is not a joke, and yet we are planning for all of these millions of farm families. Why aren't the men in agriculture? I'm not going to answer these questions, Gordon. But I may say, every time there's a better opportunity, the men go and the women remain behind.

Now, because people must eat, what is it that we must do to make sure that this African woman is better at doing what she's doing now before she gets better opportunities to do something else?

I know of an organization called The Hunger Project. It works with the government, it works with NGOs, and works with other people. This organization, when it lands in a country, it links up with the central government and local government, and together they make a partnership and go to the villages. The rural people give the land and the bricks, and they build a center, very cheaply, unlike the villages of Pedro Sanchez – very cheaply, and they take ownership of their credit programs, the seed banks, everything. And at the end of about three to five years, the whole project is sustainable.

Now I want to ask that if we want to give capacity to these women to be the food baskets for Africa, there should be a separate program geared to mobilizing these women, educating them, giving them the skills as individuals, so that they can also make the decision when to get out of production to go into trade and to do other things. Otherwise, we are really overburdening these women, who are also doing everything else, but giving them no hope of ever getting out of the drudgery of using the hoe, as we saw, which Namanga showed on that screen.

Thank you.

Gordon Conway

Well, Speciosa, you mentioned Pedro, so I think we should turn to Pedro. Unfortunately, we literally only have about ten minutes left, and I apologize to that, but we have to go to luncheon session. But, Pedro, if you can do five minutes and then if Daphrose can do five minutes. And then Namanga could use one sentence to summarize the whole thing.

Pedro Sanchez

Director, Tropical Agriculture/Rural Environment, Columbia University

No problem, Gordon. Let me say first, the African Green Revolution is alive and well and it's happening. It was called forth by then-Secretary General Kofi Annan at a meeting of the African Union in July 2004, and since then there has been some very, very significant progress.

It is based, and has been helped and assisted by NEPAD and CAADP developing its programs, so there's no incompatibility about being African-based or any of this. Actually, Richard here in mid-2003 called me and says, "We need to develop quickly a program" – for what? Homegrown school-feeding programs in Africa, for which the World Food Prize winners of this year got [the award].

So I send a SWAT team of three people. One of them is here, Chris Dowswell, right hand of Norman Borlaug. Another one, Bashir Jama, is now the director of soil health for AGRA. And the third one was from Unilever, private sector, Hans Eenhoorn. They put it there, and it's been one of the successes that we have heard.

There is a confluence of ideas that I see here in many, many other issues. And I have a great feeling of these things are going well. But now I want to give you some actual figures at the village scale, at the national scale, at the international scale.

At the village scale, out of the Millennium Project came the Millennium Villages. There are 80 villages, each of about 5,000 each, so a total of 400,000 people in 10 countries of sub-Saharan Africa, representing 14 hunger hotspots in different agro-ecological regions ranging from the deserts of northeast Kenya to the rain forest of Ghana, from the uplands of Uganda to the lowlands of Nigeria.

In the last three years, by empowering farmers, what farmers wanted according to their culture and according to their own vision. They said they wanted agricultural inputs, and they wanted a clinic, and they wanted clean water.

I won't talk about the other two. But in agriculture starting with subsidized fertilizers and hybrid maize seeds or treadle pumps for irrigation at the beginning – and I said starting, because now that subsidy is changing into a market-based credit system. But starting with that, these farmers have tripled their maize yields. And tripling – I mean, going from roughly from one to about almost four tons per hectare. And I tell you, Speciosa, nothing empowers the women more than high maize yields – I can assure you of that. It's not the only thing, but it sure does.

Caloric hunger is over in those villages. But this is not going to accomplish the first Millennium Development Goal of reducing poverty, because there has to be the shift to high-value crops that are in the markets, and the connection and transformation of what used to be subsistence farmers into small-scale entrepreneurs – and that is beginning to happen, and it's very, very exciting in many, many fronts.

At the national scale, the president in Malawi made a courageous decision to basically support what the U.N. Millennium Project Hunger Task Force was recommending for countries like that – subsidized, improved maize seeds, mostly hybrids, and subsidized fertilizers. This transformed the country from a 44 percent deficit in their main food production and having about a third of their people depending on food aid, to now a three-year surplus – crops average about a 50 percent surplus – which is sold commercially to Zimbabwe, which is bought by the World Food Programme. And Malawi has become even a food-aid donor to neighboring Lesotho and Swaziland. It is possible to do it. With strong government policy and good science behind it, it is possible to do it. Malawi has shown the way.

We talk about South-South cooperation – how about the other countries? The biggest South-South cooperation that is happening is taking the example of your country, Richard, and with the other countries that are involved. We had the opportunity to meet with ministers of agriculture and finance of ten countries in Oslo last month, and they developed a proposal for the next harvest, basically to support inputs and improve seeds, treadle pumps and these sort of things, agricultural inputs.

The total of the ten proposals – the countries were Malawi, Kenya, Tanzania, Uganda, Rwanda, Mozambique, Mali, Ghana, Liberia and Burkina Faso – the total ask to the donor community was \$660 million. But what they put in as counterpart funds out of their own budget was \$440 million. So they're putting roughly about more than 40 percent, and this is what is meant by commitment. This is what is meant by the African governments taking leadership, and they're ready to do that. The World Bank has set up a fund to accomplish that, but only we have \$50 million in that fund from the government of Australia – we hope the \$1 billion Euros come to fruition. This is South-South cooperation.

The last word I'd like to talk about is infrastructure, as important it is to me. The biggest infrastructure constraint is the poor state of African soils in terms of being depleted of nutrients and suffering from unreliable water supply. That is to me the most important infrastructure constraints, although there are many others.

Thank you.

Gordon Conway

Thank you very much, Pedro. Daphrose, your experiences now of working in Rwanda.

Daphrose Gahakwa

Minister of Education, Rwanda

Thank you very much, Sir Gordon, Ambassador Quinn. Whenever I actually talk of the Rockefeller Foundation, there is a quote that I use, that if I could see far, it is because I stood on the shoulders of giants. Now, sitting here, at the Norman Borlaug Dialogue; I am a geneticist, the hard work has been done. So let us not keep on talking. Let's implement. Implementation.

I have already seen what AGRA plans to do and is already doing. And if we did what the AGRA program does, we would achieve a Green Revolution. So the Green Revolution is achievable. We just don't have to continue talking about it. We have got to implement and get it to the farmers.

I like the inverted triangle, and if we do that, we are going to achieve a Green Revolution, not in the fifty years, but probably in the two years. I would use my experience in Rwanda and leave all the other experience, which is actually what I built on, to say that when I left the Ministry of Agriculture to the Ministry of Education, the CAADP framework had been done, signed, and handed over to Richard for implementation. It is still on the shelf.

So the problem is implementation. And the problem is not implementation – the problem is resources for implementation. So let's get the resources.

I would also say that actually in Rwanda we have success stories of implementation. We have the Millennium Village, which Pedro supported, but we also have our own crop-intensification program, whereby we selected a few crops and put all of the resources to the production of a few crops. And those few crops were cassava, maize, wheat, bananas. And then we pulled all of the resources from about six ministries. Actually, the Ministry of Agriculture was not the one heading the program. We were the one who designed the program and then we handed it over to the

Ministry of Local Government so that they can implement. That was in 2007, after we had done the CAADP.

And we helped the farmers. We purchased improved seeds, we purchased fertilizers, and after 2007, the first harvest, agricultural production had increased by 16 percent. So it is possible. The farmers, first of all, didn't know how to use fertilizers, but together with the local government, Ministry of Land and Natural Resources, Ministry of Infrastructure, Ministry of Agriculture, Ministry of Defense, and the police, we helped the farmers. Now the farmers are demanding inputs, and the private sector has moved in. So the problem is not that the Green Revolution in Africa is not possible. It is possible, and very many thanks to the Rockefeller Foundation and particularly to Dr. Borlaug. We are very, very grateful to have had that inheritance.

So why didn't the Green Revolution take place in Africa? I will use another quote. We are as strong as our weakest link. And the weakest link is education.

Do we know what we want? Unless we invest in education, higher education in particular, we will not get the breeders who will improve the crops, who will improve infrastructure. We will not get people who will fight climate change, we will not get people who will design irrigation dams.

So we need to invest in education for agricultural development. And we need to unleash all the potential from our farmers so that they can move from the production sector to industry and service sector, so that the land is left for a few people who can use it effectively.

I'd like to thank you.

Gordon Conway

Thank you very much. I like the way you've been stressing not just implementation but implementation to scale. And I think you've done a tremendous amount in Rwanda in the last few years.

Now, Namanga, you've got your challenge. It's 1, 1.5 sentences, to crystallize all this wisdom.

Namanga Ngongi

Thank you very much, Gordon; this was very interesting. I think there are a lot of points of synergy that come together, except for the problems of twins, of course – everything else comes together.

Let me say two points, just two points. First, women. I think the organizational capacity of the African woman is very much underevaluated. All over I go, there are women's groups. In fact, I spent two days visiting women's groups in Western Kenya before coming here, to see groups which are well organized, 25 to 30 members in a group, and they're all forming a network of 500 groups belonging to a number of organizations. That's really considerable. And they were already organized for access to inputs, access to seeds, access to technology, and [access] to microfinance – which means that those groups exist and they can be used. I think it's a wonderful opportunity. I wish men in Africa could be organized in a similar fashion – we'd be far, far ahead.

The second point is youth. I think the point of youth came up quite well. And I think that's an area in which all of us need to think really creatively on how to create opportunities, not only directly in agriculture but in the rural areas, to have capacities to retain young people in agriculture and out of agriculture.

I think one of the areas in which you have helped, Sir Gordon, is in the creation of this Africa Enterprise Challenge Fund, which is really a fund to challenge African entrepreneurs to be able to establish businesses, including agricultural businesses, in rural areas, to turn young people actually into entrepreneurs in their own milieu, rather than running away to the cities. AGRA will be working with a variety of interested partners to try to help programs to restore this critical, critical program.

Gordon Conway

Thank you for that. Those are wise words. As you can see, we've got a tremendous panel here. There's more wisdom about African agriculture on this stage than any other panel we could have brought together, and I'm sorry we can't spend another half hour or even an hour, because we started late. It would have been great to do so.

But I do want to thank them all enormously for their contributions. Thank you very much.

And can I now ask you to move rapidly to the third floor. The lunch, which is going to be addressed by the president of the Rockefeller Foundation, Judith Rodin, whom I know is here. And she'll get up there fast, and then she can talk.