2013 THE "BORLAUG DIALOGUE"
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Panel: ***Hans Herren, Moderator***

PANEL:

STAKEHOLDERS AND SYNERGIES: SOCIO-ECONOMIC DIMENSIONS OF SUSTAINABLE AGRICULTURE

Introduction:

Ambassador Kenneth M. Quinn
President - World Food Prize Foundation

Now we've got you warmed up on climate volatility and now to sustainability. And this is one of the most decorated panel sessions, because we have Professor Dr. Hans Herren, our World Food Prize laureate, who has received this year the Biovision Foundation Right Livelihood Award for his expertise and pioneering work in promoting a safe, secure, sustainable global food supply. We're so proud of him for being recognized that way. And I know we have here in the audience the winners of the Food Sovereignty Prize, and they're being recognized. But my favorite is Frances Moore Lappé is getting the Feisty Woman Prize on Saturday. So let's give them all a round of applause. And if any of you others have gotten awards and I don't know, I apologize.

I've known Hans Herren from the time that I first took the position of president of the World Food Prize, and there is no one who is more sensitive, more intellectually engaging and who has constantly provided me with advice and guidance. And I try to always be smart enough to take it, but when we were putting this together, he was – and I promise you this is true – he was the first person I called to say, "Hans, you've got to put together a panel for this." So I'm so pleased to have him here leading it, and so I'm now going to get out of the way, and over to you, Hans.

PANEL:

STAKEHOLDERS AND SYNERGIES: SOCIO-ECONOMIC DIMENSIONS OF SUSTAINABLE AGRICULTURE

Panel Moderator:

Hans Herren
CEO and President, Millennium Institute

Panel Members:

M. Jahi Chappell	Director of Agriculture Policy, Institute for Agriculture and Trade Policy (IATP)
Jomo Kwame Sundaram	Assistant Director-General, Economic and Social Development Department, UN Food and Agriculture Organization
Yemi Akinbamijo	Executive Director, Forum for Agricultural Research in Africa (FARA)
Frances Moore Lappé	Author of Diet for a Small Planet and Cofounder, Small Planet Institute

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Hans Herren

Thank you, Ken, for these very kind words. I want to thank the World Food Prize for allowing this panel here and making it all possible. So again thank you very much for the World Food Prize Foundation.

Our panel today, we'll be late, but I think we'll keep on going and be longer too, like the preceding our panel. It is about stakeholders and synergies, socio-economic and, I would add, a number of dimensions of sustainable agriculture. And we have quite a panel here as you heard before, so I will actually introduce them in the order they will be speaking. And we'll have a different arrangement than we've done before, because we'll start actually with Jomo Kwame Sundaram.

Jomo, welcome. And so he is the Assistant Director General, Economic and Social Development Department at the U.N. Food and Agriculture Organization, so you can see somebody who knows what he's talking about today here. He has a lot of experience. He used to be the Assistant Secretary General for Economic Development in the United Nations Department for Economic and Social Affairs, U.N. DESA, as it's called, from 2005 until recently, I think June 2012, when he joined the FAO.

He has many qualities. One thing, he was awarded the Wassily Leontief Prize for advancing the frontiers of economic thoughts, so we'll hear more about some of this here today in his presentation. He will start with some numbers to set the stage for the later discussion.

Jomo is also Professor of Economics in the Faculty of Economics and Administration of the University of Malaya until 2004, so before he joined the U.N. And you have all the details, so I guess you can read about many other activities he has been doing. But I would still like to mention one more thing, that he was a member of the Stiglitz Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Monetary and Financial System. I assume you're still working on that – right? Good.

So then the second speaker we have here is Dr. Yemi Akinbamijo. I met him actually some time ago when he was still with the African Union, so where he was heading there the Agriculture and Food Security Division, the African Union Commission, which is in Addis Ababa. And his responsibility there was actually the development of countrywide initiatives of the Commission on Food Security and Agriculture. So you can see that again a person who has experience in what we try to do here, accomplish today and also in this whole symposium. He's actually an accomplished research scientist with specialization in animal health and production, and he has also expertise in natural resource management, again all issues which we'll pick up here. But what is he doing today? Many of you know Dr. Yemi Akinbamijo, so he's he Executive Director of the Accra-based Forum for Agricultural Research in Africa, or FARA. And again you know that he is taking the position from Monty Jones, who was also a World Food Prize laureate, and he started this just a month ago there in Accra. So again, welcome, Yemi, also.

Then as a third speaker we have Dr. Jahi Chappell. He is the Director now of Agriculture Policy, Institute for Agriculture and Trade Policy in Minnesota, so Minneapolis-based institute. He just started there a few months ago, and before that he was, and I guess he remains, and adjunct faculty member of the School of the Environment at Washington State University, and that's also where we met last year at a symposium of the Ecological Society of America. What's noteworthy is that Jahi was very much involved in Brazil and still is involved in Brazil with the Zero Hunger program, and everybody in this room probably knows about this program for which a few years ago, a couple of years ago, I think, the then-President, Luiz Inácio Lula da Silva received also the World Food Prize. He studies issues with smallholder farmer livelihood, urban food security, and also biodiversity conservation; and all these things, as you know, fit very well together, so again, welcome Jahi.

And then last but not least, we have Frances Moore Lappé, and I'm sure that many, many of you know her or know of her and maybe have read her books. She has authored 18 of them, starting I guess back in 1971 with the famous book, *A Diet for a Small Planet*. I think that really was again a change way back then – people start to think more about what do we eat, how do we eat, and what is the impact of what we do in terms of consumption on our planet and our future. She's also a cofounder of the Oakland-based government think tank, Food First, and I think many of you also have heard about this. And she was a few years back also the recipient of the Right Livelihood Award. So again, thank you also and welcome, Frances.

So we will start with Jomo. He will give us at least some background and some numbers. As you know, FAO is very good at producing very good reports, also with good numbers, and I think it's good to set the stage and really discuss a little bit, know what we're talking about when we discuss food and food system issues.

But we're well aware by now that agriculture and food nutrition security are very complex and also interconnected. And I think these interconnections within the whole system in which we

live is very important. And if we don't get it right in terms of understanding how the agriculture and the food system work, I think that we can have basically major problems coming onto us of catastrophic proportions. I mean, think about hunger. For the ones who are hungry, it is catastrophic. Famines, which then eventually also often lead to conflicts, not to mention the contribution to climate change, we just talked before. So we have to get agriculture right. We have to get it right also because we cannot afford more pollution. Our water is very precious, so we have to be very careful there. And also, if we don't get agriculture right, I don't think we can get the poverty issue right either. And I think these are issues which I would like you panelists to touch on.

We have mentioned the word "multifunctionality." I think that's something which is very, very essential when we talk about agriculture. Much more so than any other branch of the economy, agriculture has many, many functions. And I think we need to remember this, whatever we do in agriculture and the food system, is that it touches on many, many other sectors, and many, many are other sectors are also very important. Again, we heard before were sort of the enabling conditions around agriculture, how important these are actually to make the system a successful and sustainable system.

And what is sustainability? I think we will discuss this a little bit also. Everybody has his or her own definition, depending on your background or specific interest. But I think we need to also agree that we have to have a common language in terms of what is sustainable or not, in terms of not only agriculture but the food system as a whole. And I think that's where I think things need to be tackled from a very different angle, not only from a productivistic angle – I think we produce plenty today in the world – but I think much more for also an equity issue which comes in, again the environmental issues that come in, health issues – so we can see all these connection system, and we shall talk about this.

So, Jomo, please go ahead.

Jomo Kwame Sundaram

Thank you, Hans, and thank you also, Ambassador Quinn, for your initiative in sustaining this very, very commendable enterprise over the years. It's a great pleasure to be here, and I want to express my appreciation to both of them for making it possible.

Let me share with you some of the recent data which we have produced. Our estimates right now are that at least 842 million people in the world are believed to be still suffering from chronic hunger. This is a very, very strict definition. In other words, they have been hungry for at least a year. So if they have not been hungry for a month in that year, or for a season in that year, they no longer qualify as being hungry by this very strict definition. In other words, the number of hungry people is probably higher than that; and this is very important for us to recognize.

The progress in reducing hunger has been quite mixed over the last couple of decades; and it's also very important to recognize that in recent years, particularly since around 2006 there has been an increase in what is called price volatility. But this price volatility has not necessarily

impacted on people in the same kinds of ways because they are often mitigated by a number of factors, depending on national circumstances, as well as other circumstances.

The relationship between poverty and hunger is extremely important. Most people in the world, when talking about development, often refer principally to the question of poverty. But it's important to remember that poverty was initially defined primarily in terms of what it takes to avoid being hungry. That definition is unfortunately lost, because what has happened since then is that we have stuck to a money metric measure of what poverty is, and we have lost sight of the original definition in relation to being hungry.

So, as a consequence of this, we find that there has been slower progress in reducing hunger than in the official figures for reducing poverty. So the president of the World Bank, for instance, announced a few years ago that poverty had been halved between 1990 and 2010. But right now the share of people who are hungry has not been reduced by half, and it is a question which we need to ask ourselves, why.

These trends, however, have been very, very uneven. Much of the reduction in hunger and poverty has been in countries like China and Vietnam where Ambassador Quinn served. And it is also important to recognize that some there has been important progress in other parts of the world but not in all parts of the world. And the slowest progress, unfortunately, has been in Sub-Saharan Africa as well as in South Asia.

The distribution of hunger has changed very significantly, and the data for this has recently been made available in a public we released a couple of weeks ago. The progress in regions has been quite uneven, for a number of reasons, which I won't have time to get into.

I want to go back to my initial reminder, that our definition of what hunger is, is very, very conservative. It is very, very strict and very conservative. And that's why I want to emphasize that the 842 million number is a minimalist estimate.

Now, there has been, as I mentioned earlier, slower progress since around 2006. The question is – why is 2006 the turning point? And as you know, for a period of about half a century after the end of the second World War, food prices have generally come down. Food prices have begun to go up again since around 2006. And very importantly as well, price volatility increased around the same period. The factors which increase volatility and prices – and the price levels generally are related but not necessarily the same. It is now clear that biofuel mandates have played some role in increasing the price of food in the recent period, but it's not clear that they have contributed to the increase in volatility.

Treatment of the food commodities, including futures and options, has, as a financial asset class, has meant that there has been greater financialization of food markets. And this is probably one of the important factors which increased volatility quite severely around 2007, 2008; but in more recent times that kind of volatility may have gone down slightly.

Now, the higher food prices have probably increased hunger in many parts of the world, but there is no strict relationship, because many governments intervene to mitigate the impact of food prices. And insofar as commodities are a small component of final food prices, especially

when food is prepared, the impact of commodity prices on food prices has sometimes been mitigated.

Now, there is also strong evidence that increases in food prices have contributed to unrest. Many of you know about the circumstances in North Africa, particularly in Tunisia and Egypt. And the importance of food prices are not only around 2011 but also more recently in terms of contributing to the unrest which has taken place in that part of the world. I have already made the point earlier that biofuel prices and the biofuel mandates, as well as increased financial speculation, have had an important impact.

It is also important to recognize that in the recent circumstances where the prospect of achieving full employment and the prospect of achieving decent work opportunities are increasingly distant for many people, especially for younger people, this raises very fundamental problems of the possibility of reducing poverty and the possibility of reducing hunger. Increasingly it is recognized that social protection of some kind is absolutely necessary for some time to come if we are going to eliminate and eradicate poverty as well as hunger.

Now, as Hans Herren reminded us, agriculture has many dimensions, and it's important for us to recognize these various dimensions of agriculture. I won't have time to get into that right now, but it's important for us not to reduce the questions relating to agriculture simply to questions of price and to recognize that it has many other dimensions which are important to life.

Let me suggest to you that the horns of the dilemma… There are many dilemmas, unfortunately, which we face in relation to food as well as the sustainable agriculture. Sustainable agricultural practices are generally considered to be on the whole much more expensive than industrial agricultural prices, as well as smallholder agricultural practices. And this leaves us very important questions about what it would take to induce people to adopt much more sustainable agricultural practices.

It is also of concern that it is very unlikely that sustainable agricultural practices will be possible if food prices were far too low. But if food prices rise, it raises the question of the likely effects in terms of hunger. It is for this reason that it's important for us to begin to think about the possibility of stabilizing food prices at a low but not excessively low level, in order that farmers, including especially family farmers and small farmers will be induced to undertake sustainable agricultural practices in order to be able to increase food production.

I want to emphasize that there is currently enough food to feed everybody, but availability does not ensure access, and that is part of the problem.

Now, there are, as I suggested early, no easy answers. One of the big challenges which lie before us is the fact that in recent years there has been a significant reduction in public sector investments in food production. It will be necessary to revisit the question of public sector investments, not only to enhance food production but also to ensure that kinds of social protection measures which are important in terms of reducing poverty and hunger are put in place.

Social protection measures have been quite successful, not only in the case of Brazil but also in other circumstances. And the recent introduction of the Right to Food Act in India is very encouraging in this respect. But much more needs to be done. In the last year alone we have found that Latin American as well as Caribbean leaders, and more recently African leaders, have all committed to eradicating hunger within a generation. This is a very hopeful development, and with the developments in Asia as we saw recently in India, there is hope. But in that hope we need to be able to introduce the policies and to realize those policies with adequate financing.

There are of course other problems which have been raised, especially in the last session, which I won't have time to get into. But I think what we need is some humility in terms of our approaches to development and our approaches to ensuring food security as well as our approaches to eradicating hunger and poverty within the next generation.

Your efforts and our collective efforts together can make a difference, and hence it has been a privilege to be able to talk to you today. Thank you.

Hans Herren

Thank you, Jomo. You gave a good introduction. I think so. You have some of the facts, latest facts available now maybe. Next, Yemi, please.

Yemi Akinbamijo

Thank you very much, Hans, and I would also like to start by expressing appreciation to the organizers of this event for inviting me to be a part of the 2013 celebration. Of course, coming from FARA, my immediate successor being a laureate himself, we know a lot about the World Food Prize. And we're very happy to be a part of it this time.

In order for me to be quite succinct, I will share from my personal experiences for the last two, three decades in five brief points to give my introductory remarks. This started from my last year in the undergraduate study of animal science a few decades back when my professor put a few of us to task and said to us, "We are sure to find in our own context what is the optimum carrying capacity for ruminant animals in Nigeria." And this was the task we had to do as its own paper.

And so we put our heads together and said – okay, we'll bring in all the best breeds, bring in, improve the genotypes, improve the environmental situation and all of that. But what we could not improve was the size of the paddock that he gave to us and you shouldn't go over one hectare of land. And more in a sense that he was speaking prophetically that there will come a time when you can only go so far and you come into a grim reality of a finite constraint that you can no longer increase the space that you have. Three decades later, the conversation in the global sense is that we are approaching seven billion on earth and by 2050 will be approaching nine billion. Every other thing is increasing, but the space by which we're going to be

generating the food is not increasing. And therefore this calls for very ingenious ways of managing our resources if we will avert the disaster that Hans was referring to a short while ago.

And when I was listening to Jomo, he did mention that of course Sub-Saharan Africa is one of the most challenged regions of the world in terms of food and nutrition security. And I draw from the Ethiopian proverb that says that "The son of the Nile is a thirst." Now, this is what I describe as a very bitter oxymoron.

Many studies tell us that 60% of the world's arable land is in Africa. Earlier this year the heads of states of the African Continent met and came up with a cliché that "Africa is rising." And everybody says Africa is a continent to be watched in the future – Africa will be the continent to feed the world. But currently Africa is the most challenged scenario in the world. So what is behind this oxymoron?

As a matter of fact, there are a lot of issues coming up as to how we can mitigate the challenges that are facing us. But without really knocking our heads and going too far, the problem is not the problem of producing enough food. Well, that is one part of the equation. But a greater challenge is that up to 50 or 60% of what we produce doesn't get to the table. Now, if we plug this hole, just doing that, we will be pumping up the volume, will be doubling access to food on the table.

So by simply addressing the issue of postharvest losses, we may in a way move much higher in our quest of having a food-secure continent. And in this respect I would like to pay tribute to Charity, who has been nominated as a young scientist award laureate for her work on aflatoxin. And this is a phenomenal breakthrough that is potentially able to address more than half of the problem of countries that are cereal-based staples.

When we look into countries like Chad, there are seasons, there are parts of the year where nobody will be willing to pay a cent for mangos? Why? Simply because mangos are just dropping, literally dropping, and you can do nothing about it. But shortly outside that growing season, nobody finds mangos again. And I ask myself – when you look in a supermarket in a country like Kenya, you find mango juice produced around the year from a country like Egypt. So we still have a few issues such that, if we're able to deal with the postharvest loss issue alone, we may get into a much more sustainable scenario.

And my last point on this is that there is still a lot of dairy coming to Sub-Saharan Africa from the desert. How do they manage to do it? And we still have lessons to learn from those scenarios. And I would like to say that, with this, Africa in my own opinion is the last cistern on the planet, and this cistern is fast drying up. And the responsibility of the owners is on us to make sure that this is the last lifeline. And if care is not taken, we reach what I describe as the elastic limit and the carrying capacity of this planet, and everything will crumble. And that is a scenario we don't want to be in.

The next point I wanted to talk about is what I describe as the empty teachings in Africa. In a tribute to Norman Borlaug, he said, "Nobody eats potentials. Nobody eats policies." Interestingly, the first two letters of those two words is P and O. Potatoes are eaten, but we don't have enough of them.

It's not a question. In my career, I've been seven years with the African Union. We turn out policies in the tons, so we're not short of policies. And we recognize we have potentials, but yet the food is not on the table. Something is not adding up somewhere.

And because of this, the food import bill on the continent is now over $40 billion a year. And if care is not taken, the trend is that this will be on the rise over the next couple of years. However, there is a glimmer of hope. We've heard Minster Adesina from Nigeria in these events. And this is one man who has been working so hard to reverse this scenario in Africa's most populous country, to see how we can rearrange our priorities on the continent in a way that we're no longer described as a net importer, that we used to be a net exporter that we used to be decades back.

I would like to say a short word on what I describe as rifles and roses in Africa. We often say that we are waging a war against food insecurity, but what we see today, this morning, in Amsterdam, I can tell you that the largest of import of roses have come out of Africa on the markets in Europe. I've met with farmers who said to me, "We are the largest exporters of cut flowers from Africa." Now the same lines that we have as weapons to fight against food security is what we've traded for roses. Now, tell me – how will we be able to sustain that?

And in a sense I come to a conclusion of what I call a reverse thrust in our quest towards attaining food security. I call this a reverse thrust because you're simply using my family members to cook in my own house the foods that I buy in your restaurant – that's not sustainable. At some point we're going to run out, and when we reach that burn-out stage, then the situation is going to be catastrophic.

Lastly, I'm coming out now. Where are we going from here? On the continent we have the CAADP. This initiative is on track. I invite you to help us build it and support it. The science agenda for Africa is also on track. We'll be talking more about it and elaborating on this, and I invite all partners to help us to embrace it and implement it. Agenda 2063 has been launched by the heads of states. It's time for us to ensure that this agenda is not stopped, and we should follow it.

And to rebuild the army that you have the smallholder in capacity then to be able to help us to win this war against food insecurity. Finally last night, when we were at the dinner, I sat with an Iowa farmer. And this man said to me, "Today I had weighed 14,000 hogs before coming to dinner." And I said, well, I mean simply because somebody in 1862 by the name of Grant sponsored the Land Grant bill and down the year today we could come down to one man weighing 14,000 hogs. But here I am from Africa. I have weighed zero hogs. Well, I would like to end by saying – enough of the blah-blah. Let's now start to do-do. Thank you so much.

Hans Herren

Thank you very much, Yemi, for those insights. And we'll go now to Jahi Chappell, please, and talking about smallholder farmers and maybe yourself, a bit more about gender issues.

M. Jahi Chappell

Thank you, Hans, and I too would like to thank the World Food Prize and particularly Ambassador Quinn for the invitation to speak here.

There's been a lot with this World Food Prize, I think a lot of celebration, rightly so, of science. And in the lead-up to the Prize and the ceremony last night, more broadly within the career of Dr. Norman Borlaug, science has rightly been praised as a very powerful tool, an important set of tools for feeding the world.

Unfortunately, I think the power of these tools, the tools of science, has been blunted. It's been blunted because science – which at its most basic is the systematic study of the world around us and the consistent comparison of our ideas against a reality – this wonderful and powerful process has been narrowed too often I think in discussions, especially around food, to mean technology. Technology is but one way to use science; it's the tiniest bit of only one of the tools we have in the toolbox of science, and it's an important one, no doubt about it, but it's only one.

So what do I mean? The World Food Prize I think is very well named. It's about food for the world, not just about agriculture for the world. I think the World Food Prize has been very good in rewarding a wide variety of laureates that have contributed to policies, contributed to production, contributed to science. But, scientifically, technology, agriculture is different than science and it is different than food. We know that what is produced is not the same as how much is eaten or how much goes to become food for people. And I think too often we forget this.

Luckily this is the place where the toolbox of science can help us, I think, but only if we open it wider to use all of the tools. This includes not just biotechnology, not just economics and agronomy but also social sciences like sociology, anthropology, ecological economics and political ecology.

So let's do this. Let's talk about the science. We know scientifically that most countries in the world produce more than enough food, even after waste, which was addressed earlier, that we do waste a tremendous amount of food. But many of these countries that have produced enough food still have hungry people.

We know that, although there are places like Sub-Saharan Africa, that our current knowledge can increase yields, that we can use innovation, technology, support for small farmers, education, that we can increase yields in places like that. We also know that there are places like India, which produces more than enough food for all of its citizens, yet has more hungry people than the entire continent of Africa. It has one of the highest infant malnutrition rates in the world and a malnutrition rate that's almost twice its actual economic poverty rate, similar to the points that Jomo made earlier.

And we know that in India, like many other places, this is tied to not just production but the policies we have, how we go about approaching agriculture and food as concepts we put together. We know that part of this is the wages of monoculture, of focusing on cash crops, of a lack of household equality, especially gender equality, and a lack of support for agrobiodiversity.

And we know that smallholder farmers produce a disproportionate amount of the world's food, in some places as much as twice the proportion of food as the amount of land they hold. We've seen this actually relatively reliably, that smallholder farmers produce more per unit area than larger farms very often – a relationship that's been called the inverse relationship between farm size and productivity.

I know many researchers, including perhaps some here, are somewhat skeptical about the rigor or significance of these findings, for example, that smallholder farmers produce more per unit of area. But I think the same skepticism often precedes many innovations and discoveries and ideas.

Skepticism, for example, about the usefulness of biotechnology, should not and has not stopped investigation of how it might be used. We have to brave enough to ask ourselves, when we are skeptical about things, especially about, for example, if smaller farms are more productive, or investing in small farms and thinking about moving away from large farms, we have to ask ourselves if, when we're skeptical, if this really reflects perhaps our biases or reflects a reluctance to engage against the current trends of consolidation in our system, or whether it really reflects the empirical reality where we see this relationship again and again.

Scientifically, we also know that smallholder farmers tend to have more diverse, a larger number of crops, a larger variety of crops; and these diversity crops actually tend to provide micronutrients as well as livelihood diversity for small farmers. Too often these diverse crops that smallholders rely on for stability, resilience, nutritional diversity, are often defined as "women's crops." They're not cash crops.

The traditional crops that maybe can't easily be made into large-scale monocultures, which is I think both a strength and a weakness for them. It's a weakness, of course, because that doesn't necessarily encourage lots of investment from those that might be able to mechanize it, scale it up and fit it into the current kind of system. But it's also a strength very much as an ecologist, I think, it's a strength because diversity, field diversity, plot diversity, garden-scale diversity, home gardens where you see over a hundred varieties of things being grown, diversity in variation is the very basis of that powerful process of adaption evolution. Without diversity you can't have evolution. And so we need to remember the importance of diversity and agrobiodiversity and support it.

The science is also very clear. Study after study has shown that diverse crops, agrobiodiversity, better supports related ecosystem services. There was some talk earlier about getting the prices right. If we think about ecosystem services, some of the estimates out there say that the size of ecosystem services outside of formal economic evaluation is three times the size of the formal economy.

And so if we think about this and we think about smallholder farmers who are maintaining some of the ecosystem services, we think about how being a smallholder farmer is very hard work. But it's not hard work only because the work is laborious and difficult, which of course it is very often. But it's also hard because farmers I think are too often forced to be our volunteers in maintaining agrobiodiversity and ecosystem services.

These services are also cultural services in terms of maintaining variety, maintaining culture heritage, maintaining a thing I think a lot of us like… this agropastoral ideal. They're not valued, and so these farmers are not paid. They're paid part of the price often in making food, but at the same time we're making them work as unpaid volunteers to maintain these other values that I think we would agree, even if they're not valued in the market, are very valuable.

And then on the other hand, the farmers that are larger, that do expand and scale up and maybe go to a monoculture, they've often made what's a very rational decision to focus on providing only what they're paid for and providing the most of it the best way they know how. And this can be a very rational response in terms of narrowing your diversity, separating crops and livestocks, and using energy-intensive, environmentally unsustainable levels of inputs which might currently be economically sustainable.

But we should understand these decisions and understand that they're made in the context, in the face of a system that doesn't include all the costs. It doesn't include costs like contribution to climate change and doesn't pay for all the services that we want to enjoy.

And so we might need to realize that proper pricing actually might lead to smaller farms. It might be more appropriate to have more smaller farms, and we might need to do different things to support small farmers so that it's not necessarily such a miserable life. I think a lot of us, including people in this room, are willing to do hard work. Hard work is not the issue. I think hard work that you're paid properly for, is.

And lastly, I think we need to remember that scientifically, our biggest opportunity to fight hunger is smallholder women. It's been estimated repeatedly that over 50% of the decrease in hunger between 1970 and 1995 was from increases in women's equality and women's education. Estimates also say that increasing women's equality and education to parity has three times the potential of increasing production. I would argue that women's parity, as important as it is, and as people in this room have addressed it, it doesn't get three times the attention as productivity. It doesn't get 50% of the investment as productivity.

So if I can conclude with one message, it's for us to remember that science is a powerful set of tools, but to use it, we have to learn to use all the tools – the social, the natural, the technological – and we must expressly and purposefully use them to support small farmers, especially women farmers, and not to ever let the social be our second step when we're talking about food and feeding the world, but to take its proper place scientifically at the forefront of all of our conversations.

Hans Herren

Thank you very much, Jahi. That was very enlightening, and I think we'll discuss a little bit about this pricing issue, because I think that's really at the heart, I think, of the problem but also probably at the solution for where we want to go. So now, Frances, I think can you maybe sew some of these things together we have heard so far?

Frances Moore Lappé

Thank you, thank you, Ambassador Quinn, and the World Food Prize. I am delighted to be with you today.

My goal is the big picture. The big picture of our food troubles and the solutions that are right in front of our noses. So, yes, we are in big trouble; but, as we've heard, it's not lack of food. We've heard that repeatedly. And I just want to add to that – think about it – there's 2800 calories for every single person on earth every day, and that is true, despite the fact that only 43% of the world's grain goes directly to people. The rest goes to cars, to cows, to a lot of other things.

So then we need to let this sink in, that, if it were not for China's progress, mainly in the 1990s, that we have managed over more than two decades to cut the number of hungry people in the world by only 6%. And Jomo stressed to us that those remaining, that 842 million, that is an extreme long-term hunger. And that is only calorie hunger, because what is spreading fast is what I think of as food disease; it's what we get from eating, because food doesn't necessarily mean nutrition anymore.

Recently a doctor in rural India, whose clinic sees 2,000 very poor patients a month, he told me that their calories are fine; but 60% of them are suffering diabetes and heart conditions. Two billion of us lack essential nutrients. But maybe the most horrifying figure for me is that one in four of every child on earth is stunted with irreparable harm. In India, make that one in two. So at the same time we also know that we're destroying what it takes to grow food – soil quality, water quality, and biodiversity.

So we are in big trouble, but here's the great news. It is all needless – if we get the diagnosis correct. Because we know that a physician's misdiagnosis can actually kill the patient. So what is the false diagnosis that I see?

The false diagnosis is that the problem is scarcity. It is a fear-driven message that there's not enough and we must narrow, narrow, narrow our focus more and more and more in order that we can keep up in this race with population growth. Well, why does that diagnosis make us sick? This premise of scarcity is not just in nature, but is a premise about scarcity in human capacities as well, particularly the capacities of ordinary people. And we know that both are false.

We know that agroecology approaches have the potential to meet our needs and increase production. But we absorb this distrust of nature and of self, and what do we do? We go along with power concentrating market driven by one rule – highest return to existing wealth. So wealth continues and power continues to consolidate so that it hits almost unthinkable extremes, in the food system, for example, three companies controlling 53% of the global commercial seed market. So concentrating power that's disempowering billions inevitably creates the experience of scarcity no matter how much we grow.

So for me, genetically modified organisms not only fail to address hunger, but they contribute to the concentration of power that is at the root of hunger. So I think we need to see the protest over this year's Prize as - it's not just about the seed, it's about the system.

So the good news. An ecological or relational way of seeing life is in breaking us through. Now, this could sound new age, but it's actually new science. Because what's happening is virtually every field of science is converging us on this simple insight. All life exists in interacting systems. So there are no parts. There are only participants. And it's the quality then of the relationship among all participants that really matters, not just how much quantity is produced.

And for human beings, for me, the surest way to measure the quality of our relationships with one another is whether they enhance dignity. For what is dignity? It is knowing we count. It's knowing we have a voice. It's knowing we have power. It's root in Latin is "the capacity to act."

So systems concentrating power deny dignity, as they fail to tap our innate need to contribute. And that's a huge problem because we need all hands on deck right now. So what keeps me going is evidence from the village to global forums, that we know what does work. It is systems that have dispersed inclusive power, where transparency and mutuality, mutual accountability is what characterizes our relationships.

So farmers all over the world then are showing us that path, rejecting "dependency farming," I think of it, and building knowledge-based, collaborative power. I had the privilege last October to be in Andhra Pradesh in India, meeting with the Deccan Development Society women there, who 20 years ago had been hungry and humiliated, desperate. And as I walked with them through their fields of maybe an acre with 20 crops growing, a whole range of millets and other things, they were just beaming with pride that they had achieved absolutely food security. And this was all chemical-free farming and very, very productive.

And we see that then through the FAO's Farmer Field Schools, two million Asian farmers have turned their fields similarly into learning labs, showing a different way that enhances human dignity as it enhances yields.

So we can take these lessons about power as well to an urban city, Brazilian city of Belo Horizonte of 2.5 million people, who took the Right to Food as their guide, a foundation of dignity, and built a citizen/government collaboration that created tremendous forms of positive power. And in 12 years, 12 years, Belo Horizonte cut its rate of under five mortality by 73%. I think that's historic, and it shows we can do this.

So we need the World Food Prize to help us break free from this failed premise. So I am making three requests of the Foundation that would infuse in the Foundation's process what it takes to end hunger, inclusive power and transparency. So if you're interested in that, you could find out about it at realizetheprize.net, and I hope you will consider looking there.

I'll end with Dee Hock's very wise words. He said, "It is far too late, and things are far too bad for pessimism." Thank you.

Hans Herren

Thank you very much, Frankie, for these emotional words that are I think very clear in exposing some of the issues. But also I think it looks like – Yes, we can do it. Right? And if we know that we

can do it, then we can do it so that also the future generation would have a world where they can have good food, quality food.

And maybe one thing I didn't mention at the very beginning, that something which has been bothering me all along is this feeding versus nourishing. And I think that's bad. When we stop using "feeding the world" and say "nourishing the world," I think we also are going to change the whole system behind it. Because at least in my own language in Europe, feeding, we feeding animals, and we nourish people. And I think that it's very important, this concept, because that would actually change the way I think we think about how we produce, how we produce commodities and food which actually will help people lead better lives. Because I think there's a very big connection, I think, as we heard already between this issue of good nourishment, not only calories but actually also all the other essential elements, which are as we know very much influenced by the way we grow our crops and also raise our animals.

PANEL DISCUSSION

Hans Herren

So I think from the discussion, one question I have to all of you somehow is: How are we going to get out of this bind of the pricing, the true pricing? Because in the end, if farmers need to get out of poverty, they should be paid for their labor. But if people out there always want cheap food, the governments think that cheap food is a God-given right, I'm not sure we're going to go anywhere. So I'm just wondering – How do we get out of this? Maybe an economist… How can we transform that system to make sense of food prices? Sure, a farmer may need subsidies maybe, but again so how do we do that? Do we really have to go and get government money to support smaller farmers? I mean, we can talk enough tricks, but I'd like to know sort of your views.

How can we actually implement that true pricing, which may be different around the world, but so that the value of the farmers' work is respected? Because if you don't pay for the food with the hard labor, it means you don't respect your farmers. So maybe can you give us some insight now, please?

Jomo Kwame Sundaram

I think one of the big problems we face in the world today is that much of the reduction in poverty in the previous period was due to the reduction of food prices. And we cannot rely on that as a means, as the principal means of reducing poverty. What is clearly needed right now is better remuneration for farmers. In the world today almost three-quarters of the poor people, of the officially recognized poor people, are to be found in rural areas. Their livelihoods are either directly or indirectly related to agriculture, and this is part of the problem. So relying on the system, I think, reduction of agricultural prices and food prices would not be the way forward if we are trying to address the problem of poverty and hunger.

Another big problem, of course, is the fact that many people in the countryside today do not have the means to feed themselves, either because they are unable to get employment or get different work opportunities. And this is a very major problem. This is a problem not only for women, although it is particularly serious for women in many contexts. It is also a problem for many people. Yet, however, we have a situation where the basic approach is to expect a continued reduction in food prices. And this, I think, has begun to change and needs to change. But having higher food prices alone can also impoverish others if there are no means of mitigating that. And it's for this reason that we need to be to think very carefully about ways and means by which the full costs of food production are actually internalized into the price of food. But at the same time we have stable food prices not subject to the kinds of extreme volatility which we have experienced in recent years. That is very important to incentivize farmers to invest in the kinds of production. And we have shown in a study which was released last year that the vast majority of those who invest in food production are actually the farmers themselves. But they are not going to invest if their own future is uncertain, and this is part of the challenge for us.

Hans Herren

Sort of a chicken and egg situation then, I guess, and that's why governments cannot delegate all the responsibility for agriculture and food, I think, to the private sector. I think they have. There is a big job there to be done, I guess, also by governments to help this transition, I guess, to these true prices.

Maybe because we are almost running out of time here, what I want to do ask Yemi – Now you are the chief of FARA. What are you going to do to actually change the fact that Africa is sort of tailing in terms of food and food security issues?

Yemi Akinbamijo

Africa is what?

Hans Herren

Trailing behind. We've seen it in South Asia and in Africa. So from a research point of view, do you have a good solution?

Yemi Akinbamijo

Okay, thanks, Hans. I think one of the things I've said in a few situations has been – When you look into agricultural history over the past decades, there is no single country that has broken the food insecurity barrier without paying due attention to agricultural research. There is no guessing about it. Everybody knows that agriculture is the backbone of Africa's economy. Now, that being the case, the question that is begging for an answer is – How much research do we have underpinning this backbone? And the direct link to that answer is the financing of agricultural research.

Now, let's start from policy's support in agriculture on the continent. It has taken more than ten years since Maputo to get 33 countries to align to the CAADP. In a continent that is subsisting literally on agriculture, it's been a hard battle to get governments to commit 10% of public expenditure into agriculture. Now, what can you do? But if we look into situations of countries that have broken this barrier, you look at Brazil, you look at China. China did it in the course of 30 years by investing consistently and coherently in agricultural research. But that is not the case that we are seeing currently on the continent.

But I must say that there is good news. We have now elaborated what we call the Science Agenda for African Agriculture, which in July 2014 is going to be endorsed by African heads of state, and we hope that this will bring a new lease of life in the way we do business in agricultural research on the continent.

Hans Herren — Would that then do something different than before? You know, you started this program endorsed by the heads of states about ecological organic agriculture in Africa.

Yemi Akinbamijo — Yes.

Hans Herren — Is that something you also put into the pipeline? Or are we going to do more of the same?

Yemi Akinbamijo — No.

Hans Herren — And end up in the same place.

Yemi Akinbamijo — Well, we put ecological organic research in the pipeline and you are aware of how we ran these to get that to the summit of African heads of state and government. The same process is what we are going through now, and we have a ministerial conference coming up in March 2014 that will endorse the Science Agenda for Africa, and from there on we are going to the summit. One thing is certain. If it doesn't get the nod of the heads of state on the continent, we are not going to move. So take it as it is – getting any agenda on the desk of the heads of state in government of Africa, that's a big plus and it's a good step in the right direction. And that's what we'll follow.

Hans Herren — Jahi, you worked a lot in Brazil, and in Brazil, I mean, they're trying something new, two types of agriculture – large scale industrial versus smallholder sort of farming, which supplies a lot of the schools and cities but also the local communities. Do you think this has a future? Can two systems work in parallel? For how long would you think that's going to go? Also, because not the least, this type of agriculture is exported also to Africa. So do you think this is a solution to actually some of the main problems you have? Briefly.

Jahi Chappell

Briefly, yes. Thankfully, these are easy questions. I think that part of the genius and the contradiction of Brazil is that it has tried to embrace both trying to satisfy very traditional measures in terms of economics and agriculture while trying some very innovative things.

And arguably some of their large-scale agriculture and things like that has given them the room to experiment with these other methods. I would say in the long term, I mean, climate-wise, resource-wise in terms of actually getting food nourishing people rather than just feeding cows or cars, that there isn't that same kind of future for the large-scale agriculture. But I do think it's giving them some of the political ability to engage in these other measures where they're directly supporting, for example, smallholder farmers.

They're addressing some of this – how do you get the prices right by actually having direction connections between institutions, including the government and schools and city governments to buy directly from smallholder farmers at a price that is above the cost of production, that they very consciously and research-based made sure it was about the cost of production. And in the program that I worked on in Belo Horizonte that Frankie referred to, they also had facilitated bringing small farmers directly into the city to sell to people, which increased the access. There was a 100 to 200 percent markup among retailers. And so that money actually ends up being divided between the consumers and the farmers. So you saw improved prices for the farmers, at the same time lower prices for the consumers. I would say that that's the future, trying to figure out how to link small farmers, how to logistically make sure that small farmers can get the same access to markets. I think it's going to be a complicated problem, but there are some advantages in terms of transportation, especially, with large farms.

But I would say that the economies of scale we often see with large farms are more related to their ability to demand lower prices from the suppliers and extract prices from consumers than it is about ecological efficiency. And so I think as we move towards an ecological efficiency model, we are going to see more and more of these small farms and small farm innovation take the center stage.

Hans Herren

Thank you. So we are badly running out of time, so maybe just one quick comment. I would like to hear from Frankie. So, do you feel that the lessons are getting learned? I mean, are we changing something with all of what we know as we move forward. So if not, what would it take to actually change the direction we are in right now to make the difference we all know is needed out there, actually fairly soon, as we are learning from the previous panel, that we are running into major roadblocks.

Frances Moore Lappé — Well, I think that people change in moments of dissonance when – wait a minute, this isn't working. And I think we're in that moment of cognitive dissonance, particularly on two fronts: On health and the fact that food is making us sick. That, I think, from parents trying to raise healthy kids all around the world to the people… that is in our face now. And second is climate change, so that the fact that our food system contributes as much as half of global greenhouse gas emissions, our whole food system does – that is a wakeup call that can't work that way. And the health crisis related to food is a wakeup call that's not working that way.

So I think it is a moment when people are looking, and the great thing is, as we all know, that compared to a couple of decades ago, there's so much more evidence of what works . You know, the women I met in Andhra Pradesh I described. So we have models and we have studies, like Olivier De Schutter, the Special Rapporteur on the Right to Food, said if we went agroecological practices throughout the developing countries, we could increase food production there tremendously in just a short time.

So I feel like it is a moment of strong – Wait, this isn't working. Let's go for it. We have the proof – let's go for it.

Hans Herren — Thank you. A great panel, so I was very bad in managing my time, I guess, here, but I hope that you really benefited from the many contributions we had from our great panelists today. And we are around, so we can also answer questions in the hallway and with coffee. So thank you very much, great panel.