



Presents

The Millennium Villages Project: A New Approach to Ending Poverty

[Transcript prepared from a tape recording]

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Steve Radelet: I am a senior fellow here at the Center for Global Development. I want to welcome everyone here this morning. Everyone is here bright and early ready to go. I hope you got some coffee and are ready for our discussion today. It is my great pleasure to introduce today Jeff Sachs, who's the director of The Earth Institute at Columbia University and the Quetelet Professor of Sustainable Development at Columbia. He is the professor of Health Policy and Management as well, and an advisor to Kofi Annan and the Millennium Development Goals. He has been one of the major forces, as you well know, in working on the MDGs and as part of that he has also been working on the Millennium Villages Projects, which he is going to talk about today, which is an attempt to focus on a small number of villages. I think there are eight at this point that you...

Jeff Sachs: 78.

Steve Radelet: Your staff told me it was 8. 78? They scaled up when we weren't looking. To work intensively in villages on a range of issues on agriculture, on nutrition, health, economics, energy, water, a whole range of areas and then an attempt to scale those up to the village level and hopefully beyond. Jeff is going to talk about what is going on with the Millennium Villages Projects and some of the questions and concerns that have been raised about it. In terms of scaling up it is not the first attempt, of course, to work intensively at the village level and then scale it up and how he sees this activity as learning from those other activities and how this might be different and how the Millennium Villages Projects attach to the Millennium Development Goals. So with that, Jeff, it's all yours.

Jeff Sachs: Thanks very much Steve, and thanks everybody for the chance to spend a few minutes talking about the extreme poverty in Africa this morning. I am delighted to see many friends from many different parts of mine in different regions. Eastern Europe, Russia, Latin America and so forth and I have been coming to the conclusion very strongly for many years, and I wrote about it a bit in my book this year that understanding local context, understanding the physical geography, understanding the very specific conditions of each challenge that one faces in development is really the key to getting the correct answers and approaches to the challenges and my feeling has been for many, many years and more than a decade of work in Africa that we have not been focusing on the right things.

Most of the discussion in Africa has been about corruption, governance and markets and that is most of what we talk about in other places in the world. It strikes me as a very unrealistic misunderstanding of the main challenges and the main drivers. This is not Poland, this is not Russia, this is not Bolivia, this is not India, this is not China. The conditions are extremely different and the needs are very different. This is a situation of extreme poverty unlike anything that I have experienced in any of my work in more than 100 countries around the world. The lack of basic infrastructure, basic health, basic improved agriculture, ability to manage climatic shocks, ability to manage basic transport and communications challenges are the preeminent issues for Africa by far. And that means that the approaches in my opinion have to be how to mobilize the investments meet these most basic challenges not only to help keep people alive who are dying by the millions every year, but also to enable Africa to have at least a basic platform for normal market-based economic growth because that platform does not exist right now. People are too sick, too hungry, and too isolated to achieve economic development and if

we simply treat this situation as another stabilization, liberalization, privatization episode, as has been done for 20 years we will continue to have more disasters and more failures. And so what I am talking about this morning is how to mobilize some practical investments around the direct challenges that are faced.

Now obviously in 20 or 25 minutes of presentation, I will do many grave injustices by oversimplification. There are 49 countries, there are a range of ecosystems, there are a range of political challenges as well on the continent and I am talking for 25 minutes about them. But I want to emphasize the practical challenges and why the approach that we're actually undertaking in the Millennium Villages make sense but it makes sense not only as a demonstration, it makes sense most importantly for bringing to bear the best science and technology that exists right now to address challenges such as the one that you are looking at in the picture.

This was a visit to Zomba Central Hospital in January. You are seeing children lined up like sardines in coma dying of malaria. That is not a normal picture. This is not a normal circumstance in the world. This is a tragedy and utterly controllable and we have done very little up until now to control it. There is no excuse for this but there is also no possibility of economic development unless we can address these basic challenges of disease and hunger. One child after another in coma. Probably most of them dead the day after our visit. Hundreds of children crowded into this ward. Hungry, parasitized not just by malaria but parasitized by soil helminths, by schisto, by onchocerciasis, by a host of controllable diseases that we have not seen fit to lift a finger to control. This is a different kind of crisis. Very basic.

It is men digging a hole in the middle of a dry riverbed in Teaberry Province, Ethiopia because their perennial river has run dry because the climate shocks of the last five to ten years and perhaps upstream diversions of this river have meant that a river which supports the life of dozens of villages no longer has water in it so the morning we were there last summer the men were digging a hole in the middle of the riverbed to get to the water table a few feet below in a desperate attempt to stay alive. Now the fact of the matter is that millions of people are dying right now because they are too impoverished to stay alive. They are not getting enough food. They are not getting safe drinking water. They are not getting access to basic health services. They are not getting access to a bed net to protect them from malaria or a \$1.00 dose of artemisinin and combination therapy to cure them of malaria when that hits.

As much as Nicholas Kristof writes wonderful articles every other day about Darfur, we have ten or maybe 100 times more deaths from utterly peaceful non-war circumstances in Africa. Just simply drought, famine and the disease that attends to it as well as the chronic diseases or the holoendemic conditions of malaria and a host of tropical diseases and of course, AIDS. One does not even have to mention AIDS to already have several million deaths per year readily preventable that we have not seen fit to take action on. What we have seen fit to do is emphasize macroeconomic stability. What we have seen fit to do is emphasize privatization. The horror for me, frankly has been to hear my own words that made some sense in Poland where there were streets and electricity and water even in houses and clinics and 100 percent literacy. To hear those same words quoted back to me for years in Africa as if this is somehow at all the same economic circumstance. And then also people ask me how could I recommend markets here and non-markets there? Did you change? Are you repenting? You know, this is nonsense. Please

understand the different places have different problems and the problems in Africa are the most extreme poverty on the planet of people that have nothing and are not successful enough to even stay alive right now. And the lack of almost any practical help from our country and very little help from anyplace else when you get right down to it. Because with all the nice news about the increased aid and all the rest, it ain't true. With one exception basically of the AIDS Program. We are just stuck at doing almost nothing. It is almost complete paralysis.

You need to do a diagnosis. What happened? Why did Africa remain impoverished where almost all other parts of the world achieved economic development? That is a good question. It is worth writing a book about. I tried that. It is worth giving a semester of lectures about every year. I am trying that. It is hard to do in five minutes but I will try that too. The best way to think about it in my opinion, if you have to do the five minute version is that Africa is somewhere around where India was in 1965. Hungry, beset by constant famine, by people writing books that there will be mass starvation for generations to come. 1965 was a year of failed monsoons in India. The next year failed monsoons massive PL480 shipments. It all seemed hopeless. We now know that it was actually the beginning of India's surge out of extreme poverty.

It started with Norman Borlough and the Green Revolution. That was the most important first step out. The ability to achieve food security at a macro scale, not household by household but a macro scale. The key to that was the ability to grow more food. That happened in all parts of the world except for Africa. Africa has not had a Green Revolution. Its crop yields are almost exactly the same as they were 35 years ago. Maybe less at this point. Almost unchanged for 45 years. This is the basic situation. Food output per capita, Index of 100 in 1961. It has declined in Africa from the lowest base already and in South Asia, in East Asia and in the world there was a significant increase. The world beat Malthus except in Africa where the population increase has run far ahead of the food output. But with food it is actually unlike many things economists talk about. There is actually a production function you can look at, you can measure and you can know a tremendous amount about. It is not just assuming some Cobb Douglas production function. You actually know how you put the seeds in, the fertilizer, the soils, the temperature, the rainfall and you can understand the outcomes quite predictably with very concerted modeling.

And the basic point in Africa is that farmers do not use inputs. They do not use improved inputs, I should say. They use the rain and they use open pollinated variety seeds and they use almost no mechanization. They are farming the same way that they did 50 years ago and not so far, 500 years ago except for one difference. Now the population density is very high, there is no crop rotation. There is no land rotation. There are no 20-year fallows as in traditional slash and burn systems. Every year the farmers are farming in the same tiny plot and the soil nutrients have long been depleted because there is no fertilizer input to replace them. So the yields as measured have been nearly flat for 45 years at about one ton per hectare. They rose from about 700 kilograms to one ton over 45 years. The rest of the world had a green revolution. Here in South Asia, 2½ tons. And China is at about 4½ tons per hectare now. That is the difference of extreme hunger and not.

So then you have to ask the question, why was there no yield increase. And there are four main inputs that one requires. Actually, I'm sorry, let's keep it simple, three main inputs. The sun will be there. There are soil nutrients. There is water management. There is seed and you can understand the genesis of this dynamics pretty straightforwardly. First, Africa is rain fed. It is the uniquely savannah rain fed climate. Savannah is really important for our understanding of this story. The evapotranspiration. The thirst of the atmosphere to pull up water is extraordinarily high at the high year-round ambient temperatures in Africa. Most months of the year you get more potential evapotranspiration than you do participation. And there is almost no irrigation. This is not the Brahmaputra or Ganges, Mekong, Yangtze, Yellow River system of Asia. This is rain-fed savannah agriculture with tremendous water risk. Fact No. 1.

No. 2. There is no fertilizer use in Africa. There is just no fertilizer use in Africa except on a few cash crops. This needs to penetrate our minds, please. Because 100 million impoverished people go out to the farm every day trying to grow food on soils that cannot produce a viable crop and we let them do it as if this is the most normal thing in the world. This is a sham. You would think 25 years ago we would have gotten desperate. Well, the World Bank tried to make markets do it. Markets didn't do it. They tried that for a long time. There is no fertilizer used on smallholder agriculture in Africa. The soils have no nutrients. Nitrogen has been depleted for 30 years. And this is what you get and this is the fertilizer line. That is fertilizer in China. These are in hectograms per hectares. So it is 200 kilo per hectare. And in South Asia it is 100 kilo per hectare. And in Africa it is zero on staple crops. It is not even 10 kilos because that is what goes on coffee or cotton. Not on maize or casaba. So the soils are utterly depleted. And important to understand.

Africa's fate was to lag behind Asia because the germ plasmas for the green revolution took 20 years more to be appropriate for Africa. You can't find that in one place in one paper of explaining cross-country growth in the last 25 years in the literature. Because we don't focus on details like that. There was not the germ plasma to do what India did because the first germ plasmas were wheat coming from Simit in Mexico and rice improved by Japan. Those are not African crops. Paddy rice and wheat. So to get hybrid, high vigor maize, to get casaba, to get the banana tissue culture, to get other things of improved variety finally came in the 1980s and the 1990s but by then the World Bank's motto was that there is not only no concept of state support for a green revolution, the whole thing is to get government out of the green revolution. This is not how the green revolution was made in India, I can tell you. The green revolution was a state supported, heavily subsidized process of the poorest farmers getting access to seed and fertilizer typically having an output market with guaranteed purchases on the other end to help them accumulate enough capital to get over the extreme poverty situation. But by the time the germ plasmas came in Africa, the model was, "Don't touch the subsidy. We don't subsidize an input." And the result is plain to see. The result is that first map that I showed you. I didn't tell you what it was. That is the U.N. Emergency Alert Map of Africa. Those are the places where there is a food emergency right now.

You see, the journalists, they take a story from Neshare and last summer was a Neshare emergency. Where now it is a Northeast Kenya emergency. I am traveling all over the continent every other month. I have not been to a village in Africa in the last three years that is not in

extreme hunger. I have not been to a properly fed village in three years. There is hunger everywhere.

Now here is one bottom line that is truly important to understand from a wonderful book by Johann Rockstrum who is the director of the Stockholm Environment Institute on ecohydrology. He did an intensive study of actual yields in Africa. Reported yields and on station, research station yields using best practice. What is called best option technology. Here is the whole story as far as I am concerned on this part of the challenge. His observations were not even the one-ton per hectare but half a tone per hectare. That is these observations for these nine countries. This is what is reported. That is the data that I showed you. These data according to Rockstrum are even overstating perhaps by a factor of two, the actual yields observed by trained observers. Here is what one station's yields are in the research centers of the CG system. This is not some super experimental seed, this is just using best option standard technology. Small-scale water management. High yield variety seeds and fertilizer. And proper tillage and mulching and composting and other things but it is best option technology. They are growing four tons per hectare. That is where Asia is or above. It can be done if you put the modest technologies of water management, improved seed varieties and fertilizer into the mix.

So the first story is that Africa is as hungry as can be because you have hundreds of millions impoverished rural poor who are too poor to be part of any market. They buy no inputs. They grow food for their own subsistence. They don't grow enough food to stay alive, much less to bring to market. Almost all production is for their own consumption. These are isolated villages but hundreds of millions of people and the continent is seething with hunger right now. And we come back and give lectures about governance and misunderstand you are not going to get good governance with a continent of extraordinarily impoverished, hungry people. You need to find a solution to this problem. The solution technically exists. The solution is improved inputs. They do not reach the smallholders. They do not cost very much. Something like \$20.00 per capita. In the early start maybe \$90.00 per household. And I will show you in a couple of minutes what that can do. It is all getting harder because the rainfall patterns are becoming more unstable. And the most recent evidence suggests anthropogenic interference in the Sahellion climate. There is a downtrend in the Sahel. It is naturally still debated whether it is our fault or just natural fluctuation. Increasing evidence suggests that it is our fault. That it is part of global climate change. Both global warming through greenhouse gases and increased atmospheric aerosols, which are changing the temperature gradient in the north Atlantic and affecting the rainfall on the Sahel. And this is from a paper of the National Academy of Sciences in December, which shows that in the Princeton Climate Modeling that there is strong evidence of anthropogenic fingerprint in the downtrend of participation.

Now the same thing is true with health. I started by showing you pictures of children dying of malaria, which is not a pleasant sight to see. And especially if you see it all the time and especially if you know that a dollar could have cured any one of those children and that a bed net that costs about \$7.00 and lasts five years would have reduced malaria morbidity and complex malaria by perhaps 75 percent in the villages if the nets had actually reached villagers rather than us trying to sell these people nets for the last five years and reaching almost nobody. So this map is a map of underlying malaria ecology. The point of the map, which I do not have time to describe in detail, is to say that Africa has it bad intrinsically. Not because it does not

care and not because its public health system is whatever, but because it has anotholese gamby mosquitoes, which are human biters as opposed to other species of anotholese which are cattle biters. It has high ambient temperatures, which means that the sporogeny cycle is very short, which means the probability of transmission is very high. And it has ample breeding sites, which means that there is holoendemic malaria in most of Africa except in the highlands where it is epidemic. And the point is that the burden of malaria is an order of magnitude higher than in any other part of the world with the exception of Papua, New Guinea for underlying ecological reasons.

Fortunately, we know how to control the disease. But we don't control it. Because U.S. contributions to controlling malaria have been on the order of some tens of millions of dollars for the last two decades and 90 percent of that has been spent on personnel and a few million dollars on commodities. And it has been a travesty. And we have tried to come up with a market-based approach to malaria control. Yeah, right! I hope we don't have a market-based approach to avian flu control. We probably will. The poorest of the poor cannot afford malaria and that is they cannot afford malaria medicines. This is absolutely evident in the shoddy results over 20 years by this country in failing to help really solve this problem. What we know about malaria is that when efforts are made when you actually give away nets and you have people have access to medicines in a timely way in their villages you can reduce malaria morbidity by 90 percent or more. With pretty straightforward interventions. The cost of doing all of this would be about \$3 billion dollars a year. Current spending on malaria control in recent years up until the last year or so has been something closer to \$100,000,000.00. Now the global fund is starting to increase and the United States has announced that it will go up to about \$240,000,000.00 a year; 1.2 billion over five years. I had to grimace that that was less than one day's Pentagon spending. Our next five-year scale of malaria commitment. That is what we are doing wrong in this country. For one day's Pentagon spending we are spending five years on malaria control in what is called the Scale-Up Program On Malaria. We are not serious.

You have a lot of other ugly, ugly diseases. Soil transmitted helmans, hookworm, onchocerciasis, you have schistosomiasis. You have trachoma leading to massive blindness. You have lymphatic filariasis, which is elephantiasis. You have African river blindness. You have African sleeping sickness, trypanosomiasis, and you have African guinea worms dracunculiasis. The notable thing about all of these eukaryotic parasitic diseases is first, they are polyparasitizing the children of Africa. In our village we are finding three or four of these diseases typically in a child. The second thing is that it is 5 or 10 cents to treat in terms of the pills. It is a matter of getting basic organization underway and taking this seriously. It probably requires for its part, \$200,000,000.00 to \$500,000,000.00 a year to get the major soil transmitted helmans, schistosomiasis, onchocerciasis, lymphatic filariasis and trachoma under comprehensive control. The children cannot learn. They can't study. They can't absorb nutrients. They are anemic on multiple co-morbid conditions. They are anemic from malaria, they are anemic from hookworm, they are anemic from the other parasites. And they are not treated. Because there is no health care. And there is no health care because in extreme poverty there is no budget. The places where we are working \$250.00 per capita. That is what you read in the book. Or \$300.00 per capita. First understand that half or more of that \$300.00 per capita is not cash at all. It is the imputed value of the maize grown on the farm.

In Malawi it is estimated that 60 percent of the households have less than \$35.00 per year of cash income. Now then the government tries to collect taxes on that. And it might collect 10 to 15 percent of GNP at \$300.00 per capital. That is \$30.00 to \$45.00 per capita per year. Okay? That is what government is supposed to run on. \$30.00 to \$45.00 per year per person. That is for the presidency. That is for the parliament. That is for all the ministries. That is for public administration. That is for the school system. That is for the roads. That is for the power. That is for the water and sanitation. That is the health care. That is the clinics, the schools. And then I am told, "Oh aid, you don't need aid. No, you just need good governance." The next time you have the impulse to say that will you come with me to Africa? And see for yourself how horrendous it is that we ever got into that fantasy and what we say about poor people in this country is a shame. There is no way that these governments can mount a response to any of these diseases, can run health clinics, can run hospitals, can have roads that work with the extreme poverty that exists right now and the extreme hunger that exists.

So you have a continent that receives a bit of food aid once in awhile. Goes to war when the rains fail, which should be a little bit of a message to us that the situation is bad. But rainfall is a strong predictor of warfare, of conflict. That should be a signal. And then we go and give lectures and you read an IMF document still today. We praise the macroeconomic authorities for the inflation control. Prices are stable, you are all dying but at least you are dying with no inflation. This is not what we bought into, frankly.

That is a lot of pictures of awful diseases and how they sit on top of each other. hookworm and malaria. All the co-morbidity. Finally we have a little bit of a problem of transport. Because the imperial powers in Africa saw fit to build some railroads to the diamond mines, to the goldmines, to the plantations. But Africa is a sparsely populated continent. It has too many people for its current caring capacity, though it could feed itself. But it is sparsely populated because it is a water-starved continent in very large part. So it did not pay to build the rail. Didn't pay to build the roads. The whole network of transport is a disaster. This is the British Ragh inherited true rail network of India. This is the rail non-network of Africa and if you looked at the roads it is the same way. There are no roads from West to East Africa. There are no roads from South to West Africa. There are paths that for several months in the rainy season are impassible utterly. But transport is the next horrendous challenge.

Okay. What is the point of all of this? The point of all of this is if you get real you can compare the situation in Africa with the situation of an impoverished country pre-green revolution. Hunger, lack of inputs in agriculture, not enough income to even – well, no income. Basically, not enough food to bring to the market for a large proportion, maybe 75 percent of the smallholder farmers. Sickness. No access to health and so on.

Now my proposition, which is very unpopular in this city, is that this actually requires some upfront investments to solve. If we actually took the lives of these children at a tiny fraction of the seriousness with which we take the lives of our children, and I believe that we should, not only for the human dimension of it, not only because we promised, but because, as the Major General recently told me from the European Command. He cannot begin to do his job in helping to provide security vis-à-vis Africa with a hungry continent. Because the generals are completely onto this case though our political leaders are not.

So the way through this is now the green revolution and the health revolutions have been solved. They have been solved through tremendously increased public investments to address the underlying conditions. That is how Indonesia's green revolution took place, as Steve Radelet, one of the great experts on this could tell you. It is how India's green revolution took place. It is how China's green revolution took place. We have to help these farmers get inputs. Instead we sell them foreign aid and we don't sell them, we send foreign aid too late to actually help them enough to stay alive. But we do the opposite of what we say about the fish and the fishing rod. And that is because we have farm state senators. We don't have fertilizer state senators. If we had fertilizer state senators we would be sending fertilizer. And the result would be that about one-fifth the cost per metric ton of grain, Africa would be feeding itself. And by getting started that way, the farmers would start generating a surplus, there would be a basis for micro finance, enterprise could get started, local infrastructure investment could get made and normal development would take place. That is how normal development takes place. Once you are above the survival level you can start generating a surplus saving and investing. But there is no surplus for investment. Domestic saving in Africa is negative. It is even zero in the accounts but when you take away the soil mining, the deforestation, the destruction of the fisheries, the depletion of the natural resources, it is highly negative and it is highly negative because there is no surplus to live on. You have to use all your income to stay alive and even then you don't manage to get a life expectancy above 45 years in most of the continent. And the children are still dying 200 out of every thousand that are born before their fifth birthday.

So we recommend in the Millennium Projects that we actually help these people like we promised to do because that is how you would actually get started in development and that this structural adjustment era has utterly failed. Not everywhere. Because it makes a lot of sense to have markets and stabilization and privatization if you have the basics so that you can then join the world market economy. But if you don't have any of the basics, it is just not true that we are solving any problems. We are leaving people to die by the millions and that is literally what we have been doing. And I am seeing them dying, many more than I want to see, and I expected to see in my life. Children dying before my eyes and I recommend you go see it too so you can see what we could be doing. Because up until now coverage of long-lasting insecticide treated nets in Africa has been under two percent of those who need it. Now what a shame for a technology that has been proven for years and re-treated bed nets have been known for decades to be effective. And there has just been no energy in it at all. You shake your head no. I know from the villages it is not happening and it is not reaching these children. Not at all.

So we said that in at least some places, and we define a village as 5,000 people. That is what the little confusion with Steve is. It is 78 villages of 5,000. But in 12 sites because these are clustered sites. In 12 sites in Africa we are undertaking with philanthropic money, largely, the actual investments recommended to treat malaria, help smallholder farmers get fertilizer and seed. Get a power generator in there. Get a V-SAT so that there is Internet connectivity. Have cell phones for a truck that the village gets help with. For the clinic, which the village gets help to build. For the school, have school feeding programs for the children. Turns out it can all be done for \$50.00 per person per year from our project. Then we look for partners for another \$20.00 per capita. So \$70.00 per person per year of external aid.

Now the question I am asked all the time is about sustainability. So let me say it right at the beginning. The model here is the green revolution model that when you have enough food to eat you can put aside part of your land and part of your time not to growing maize on nitrogen-depleted soil but actually on growing tree crops. On growing cardamom, on growing spices, on growing fruit trees, on dairy products. On aviary. On woodworking. On metalworking. You can do microfinance once you have enough to eat. And by being more productive on the other side, you also have the income to sustain the inputs to agriculture for the longer term. But since these income-earning activities take several years to bear fruit, literally, you have to start with the help and the fruit will come down the road. And you make a transition, which is the transition that East Asia made from basic help to grow enough food to self-sustaining development.

And of course I haven't said enough because I have already gone way over time, but there is an urban component that is absolutely vital and we are working with the regional cities close to these villages in what we call the Millennium Cities part of this. Because you need to be able to send your horticulture out by plane. You need to do larger scale food processing. Maybe it is a starch mill. Maybe it is a Nestle plant for some kind of food, maybe coffee production or something else for contract farming so you need a city linked to the villages. That is part of it.

But let me tell you about the villages very quickly. The villages are in each of the agro-ecological zones of Africa. They are in the hunger hotspots of the highlands, the lowlands, the coasts, the interior, the dry lands the rain forest. Each of the major farm systems of Africa are represented. The ten countries are going from west to east approximately or Senegal, Mali, Nigeria, Ghana and then down the eastern part of Africa. Ethiopia, Uganda, Kenya, Tanzania, Rwanda and Malawi. And within those ten countries and 12 sites, every kind of rural community, pastoralists, mixed maize farming, coco plantation farming is represented. Artisanal fisheries, they are all represented. So the idea is to understand the ecological conditions that are part of the challenge. The communities are quite well organized. It is the wonderful thing to learn. There is a tremendous amount of social capital in every place we are working. These are not anarchic environments until the violence hits. These are communities. They have structure. They have committees. The first time I had this meeting, which is in Sowri, Kenya, I talked about how a generator could bring electricity and a man raised his hand and said, "I am the chairman of the electricity committee." And I was struck. He introduced the other electricity committee members. I said, "But there is no electricity here." And he said, "Yes, but in 1997 the government promised that there would be electricity and we are the committee that will help bring it to the village when it is coming." And that is the reality. It is the hard reality about no electricity, which is true of all of rural Africa. But it is also the reality of the social capital, which is true of all of the places that we are working, though I stay out of war zones so I am not saying that it is like this everywhere. It is like this in the countries that I mentioned. It is Ethiopia.

Basic interventions. This is a woman helped to grow more food by intercropping with a legume tree, which fixes nitrogen. So this is so-called agro forestry replenishment of soil and nutrients using this composing improved fallow. It is self-financing once you get started. You need the seedlings, you need the training, you need a couple of years of investment. You miss a short rain to get this system started so there is capital that needs to be invested.

Basic land management techniques. Rock bunds, cachsions and so forth.

School feeding program. This is probably the most powerful single intervention there is in the world to get children to school. And if you use maize and beans locally produced you create a market for the farmers and you get the children to school and they can learn. It is an extremely simple, powerful intervention.

When we were starting in this village the schoolmistress had been able to mobilize enough school feeding for one grade of one of the schools. For the eighth grade, which is the national exam year for one of the schools. Now with this program all children in all three of the primary schools in the community have school feeding programs and there is essentially 100 percent child attendance at the schools now. By introducing a well-balanced, nutritious mid-day school feeding program.

The clinic asks us as part of the project \$3,000.00 for cement and a corrugated roof to build a clinic. And they put it up in eight weeks through community volunteer work, they put up a clinic based on a plan of the local ministry of health. This clinic now sees 200 patients a day. The district has seconded a clinical officer, which we pay out of the project financing. Out of that \$50.00 per capita. So this is how a little bit of money can go to now have a clinic in a community of 5,000 people.

What has happened in these villages? We have worked in one a year and a half. It is into its second planting season and in the Ethiopian village a year. In the Sowri village in Western Kenya the crop production went up 3.6 times our current estimate compared to the year before. Not 3 percent more, not 30 percent more; 3.6 times the previous year. Why? Because the soils do not have nitrogen in them. And if you give a bag of urea, 50 kilos, you can get the crops like you have never seen. If you give hybrid seed from Western Seed Company, Cosumo, Kenya, which is just a good privately bred hybrid, and the fertilizer you can get three tons per hectare and that is what they got this year. In fact more than 4 tons per hectare.

In Ethiopia the same story. We don't have the final count but it looks like the yield went up fivefold. It was the first time ever that that community had used fertilizer. We just planted for 50,000 people, 13,000 households in Malawi, in the rainy season that started in November, giving them fertilizer and improved seed. The government provided some of the subsidy. We topped it up to 100 percent. We asked them to give back a small part for the school feeding programs for their communities. And it looks like the yield, it is still out in the fields, but it is going to be a bumper crop in Malawi. Malawi is absolutely a nitrogen deficient country-scale challenge. And so something so simple can make such a big difference if we didn't let ideology just completely blind us for the last 20 years. If we understood how the actual green revolution worked, there is a wonderful speech online, I don't remember what keywords I used but the USAID Administrator, 1968 talking about how the biggest item in the USAID budget was fertilizer for India. That was the biggest item. And then we have Mr. Easterly tell us 30 years later aid never worked. Because nobody looks in detail except Steve Radelet. Because it is a big difference to take food aid versus \$300,000,000.00 of fertilizer for India to help get the green revolution started. So you have to look at what you are doing. But that is how it actually

worked. And I hope I don't hear 40 years later they are taking away our jobs. Forty years later they are on the path of economic development. Because the green revolution worked. And that is what we have to do in Africa.

Now the villages show that the cost of this comprehensive effort would be about one-half of 1 percent of the gross national product of the donor countries. We recommended in the Millennium Project that the rich world stop bellyaching. Our country, No. 1 bellyacher, 35 years later about 0.7. What a deal the poor world is offering the rich world. The poorest of the poor are saying we buy into your system. You can keep your wealth. We don't call for revolution. We just want a little help to stay alive. How about .7 of 1 percent of GNP so we can have fertilizer and seed and bed nets and anti-malarials and anti-retrovirals and some bore holes, small scale irrigation management, some roads and so on. That is all the poor are asking for in the world. But we are spending 5 percent of GNP on our military. Maybe not quite five. 4.8. We are spending \$550 billion on the military right now but we can't find pennies for this stuff for Africa and the generals know that this is no way to run a business. That we are not getting security.

So, my point is, let's look at the realities, let's look at the history. Let's look at how the green revolution really worked. All the things that are needed can be put in place. You have a continent of hunger and disease that has the potential to raise its food production fivefold on existing best-option technology. If we just put our mind to it this situation could be transformed in just a few years.

Thanks very much.

Steve Radelet: Thanks. We are going to open up for some questions in a minute but I am going to ask two. Both actually having to do with governance type issues, which I know you, are asked about a lot. One of my questions is at the country level and my second question will be kind of at the village level.

I noticed in the 12 clusters, the countries that they are in, most of those are in democracies but not all of them. Uganda and Ethiopia are not and there are some issues in both of those right now but still on the whole, relatively well-governed within Africa. You are not working yet in the Ivory Coast and Chad and Zimbabwe and a lot of the tougher provinces. My question at sort of the countrywide level is at the macro level, what are the different kinds of approaches the donors and the international community should work with in these different kinds of governments and particularly in the tougher government. In working in Chad where they have just diverted money from the pipeline or in Zimbabwe. Is it working with the government and realizing that corruption happens but we are just going to have to live with it because corruption happens in the United States? Is it working through the government but trying to put in constraints and controls to try to minimize that? Is it working around the government? What is the strategy in those countries as juxtaposed to the better government? The Senegal's, and the Ghana's where it might be a whole lot easier to work with the government.

Jeff Sachs: So we picked ten countries where we thought the governance was adequate for this and we stayed out of war zones and we stayed out of real pugeocracies because I

think that you couldn't really do this project there. But the first point is even in the well-governed places we are not making much of an effort. That is what is important to understand. I am immediately always led to the hardest places, but what about Ghana? What about Senegal? We are not actually doing it there. I just want people to understand that we are not even coming close to addressing the problems in those places.

Let me say one more word about this village idea. I started this out of duress because I could not get the U.S. government to do more. So private philanthropy could do a little bit. My own experience has convinced me that this is actually not just a matter of making the best of a situation where we are relying on smaller, private flows but actually a pretty damn good idea in terms of how to deliver aid. Because what I realize much more than I had just in the last couple of years is how much social capital there is at the village level and the village is an organism. It is a cell. It's got a loosely permeable cell membrane around it. And you can actually address it at governance level and of course there are many, many cases of doing this. Most projects that do this are tremendously under funded though. They try to do it at \$5.00 per capita and they don't get anywhere. And we are saying, "Let's get real, at the real scale." Because, you see, what our instinct is, by the way, I'll get to the other countries in a minute. Our instinct in this country especially and in my profession and in his profession we want to do it so much by markets because first, we believe in it and second we're cheap. You know, or we are cheap about everything except war. And then we are profligate beyond imagining. We are spending 7 billion dollars, I read yesterday, for these roadside bombs. I have a better idea. Let's leave Iraq and use the 7 billion to fight malaria. Come on, this is crazy. No really, it is. It's really crazy.

So just on the well-governed contribution, we told the governments the aid is not coming through you. It is going to the local level. But this is not an NGO project. Nobody, there's no expats in this work at all. The villages do every bit of the planting. The villages run everything. They don't handle any of the money by the way. And that is a good arrangement because 90 percent of what we are doing is commodities. And that is important. We need commodities here. This is not about budget support. This is about fertilizer, this is about anti-retroviral medicine, this is about cement and corrugated roofs for clinics. This is about paved roads. This is not about technical assistance and it is not about money. With a few exceptions. Posts for agricultural extension workers. Posts for health workers. That is where the money needs to come in.

Steve Radelet: So in the well-governed countries does this imply looking for ways for the international community to link directly with villages?

Jeff Sachs: First, link, and the local governments are big supporters of this. They provide huge services. These places, you know, we say there is no governance. It's not true. One agricultural extension worker, a young woman, very well trained, never had any work to do because no one ever had any fertilizer, taught 1,000 households how to actually plant the seeds with the fertilizer. She is the one that got the crop yield up 3.6 times. It took her about eight weeks. So this is not a run-around from government.

Steve Radelet: So how does this work?

Jeff Sachs: Let me give you Kenya as an example. Kenya has something called the Constituent Development Fund. The national government has said we will put money into each constituency. Right now they do a school or a clinic or something and who knows, maybe the money also runs off in the end. But they have a model wherein their 220 constituencies or so that there is actually decentralized decision making. There is a local constituency committee and it is for local investment. My recommendation to President Kibaki is take the Constituent Development Fund, let's get the donors to put money into that and let's get that to go out for growing more food, for getting clinics built, for getting the bed nets out there and so forth. And that is a way to decentralize within the context of a national program. They are thrilled about that. The donors are saying, oh, we would rather have conferences about corruption. Which is what foreign aid is about right now. It is workshops on corruption. People getting around the table to talk about corruption.

Now what should you do about corruption? It is extremely important in my view that aid be measurable, practical, known inputs, quantifiable outputs. Like bed nets. That is my ideal aid program. Bed nets and artemisinin and combination therapies. Let's save more than a million lives a year, which is just within reach if we had the money at hand to do it. So you can measure everything. You can audit it. I am really very much against corruption. I believe it is everywhere. But I believe that it is also controllable because this is not a matter of trust and it is not money to the ministry of health to go do nice things. It is targeted programs that are quantifiable with milestones and measurement and you go in and check. Did the fertilizer get to the warehouses? Was it distributed? It takes one day to distribute bags of fertilizer for 50,000 people. This can be done. It can be observed. It is not such a big problem if we care to do it.

Steve Radelet: And if you go in and you look and the money didn't go to the fertilizer, then what do you do? Then how do you respond?

Jeff Sachs: If it really is a chronic mess then you probably can't do this project. But you know, you take Kenya where there is so much corruption right now. The donors are not saying that any of their programs went wrong, but the way. It is very interesting. I challenged them. "Tell me about your programs." No it's not our programs it is the defense budget." I said, "Oh, I know that problem. We've got that too." It is defense budget spending. You know, diverted for political purposes.

Steve Radelet: So that it actually dovetails with my second question, which was at the village level. How do you in fact, you say you go in and you track the money and you watch the money. At the village you showed a lot of people and those of thus that have worked in Africa and other places, you know 98 percent of the people are committed and want this done. But it only takes a couple, actually that can bring programs down. We've seen that in the United States. It's not a story that everybody's bad, most people are...

Jeff Sachs: But Steve, the closest analogy here is that you can call this micro aid, like microfinance. This is like group grants. The community knows what it is supposed to be getting. The whole community is involved.

Steve Radelet: That's my point. So there is a transparency openness, information kind of thing.

Jeff Sachs: Absolutely.

Steve Radelet: That's what strikes me as missing in a lot of aid programs. You don't even know where the money is going.

Jeff Sachs: Here the community knows. Next Monday everybody gets 150-kilo bag of urea. Next Friday the community health workers are going to go around and they are going to count the sleeping sites in your household and you are going to get one bed net for each sleeping site. And then they are going to come back and make sure that you are using it properly within the next couple of months.

We gave a truck for this project. One truck because it is hard to imagine ladies and gentlemen, truly, I asked the meeting that I showed you a picture of this meeting. I asked them, "How many of you have been in a truck, a car, a bus, a motorcycle, any form of motor transport in the last year?" In a room of about 250 people, about five hands went up. There is not one motor vehicle. So we gave the community a truck. Now good news or bad news they spent two months debating the constitution for the use of the truck. And they wrote a constitution for it because first it's going to be for the ambulance service. That is the number one priority. That had to be enshrined. If individuals want it for private use they have to pay according to a system that they have made. The community actually got together to do this. It's incredible to me.

Or, everyone wonders about gender. The woman that I showed standing in the field as the most successful farmer in the village. They elected her the chair of the executive committee of the village because she's the big entrepreneur and she understands how to use nitrogen replenishing agro forestry. So she became the chief executive of Luo community, which is not reputed to necessarily put the women number one. But they are interested in getting into business and she's the leading businessperson in the village because she got started with the good crop yields, she has dairy cows and she's very much admired in the community. So the first thing is for the well governed places, I would say to our aid agencies, what happened this year, there were hearings on malarias as it is well known. And it turned out that 90 percent of the malaria spending in the country by USAID was for personnel and only 10 percent for commodities and Senator Coburn and Senator Brownback and others went through the roof. And they pressed AID and got an agreement from AID that at least 50 percent have to be commodities.

I would say at a minimum 50 percent of everything USAID ought to do should be commodities. And I would say that in many projects it should be about 80 percent. Because that is what is really needed right now. It also forces you into practical thinking because there is no practical thinking right now. What passes for aid is, we're going to improve your governance. Yeah, right. It is an unrealistic vision to begin with. It doesn't work. We don't have the tools and it's not doing anything. But that is where our very little bit of aid money is actually going by and large. It is going to technical assistance, not to actual delivery of investments and services so it leaves nothing behind. Not that there is much to begin with, but if you look at the

3½ billion dollars of aid to Africa say in 2004, maybe about \$700,000,000.00 was PEPFAR, was the AIDS program which I like because it is mostly commodities. And all the rest was technical cooperation, emergency food aid and debt cancellation. And debt cancellation, which I like I don't count because these things shouldn't have been loans in the first place. So there is almost no delivery of commodities right now and that means we are not thinking about growing food. We're not thinking about practical things, except with the AIDS program. Because there the president said we want \$2,000,000.00 on treatment by 2007 so this is the only U.S. program I know where people are scurrying around like crazy to get real things done. Because they have a specific, quantifiable mandate to do real things. And that works.

Steve Radelet: If you've got questions, you can line up at the two microphones here and we'll take people in order.

One last question from me. The issue about scaling these up. You've got the village level interventions, as you begin to scale these up do more clusters, more villages go nationwide, what do you see as the biggest constraints to scaling up?

Jeff Sachs: First, I think that this kind of village-based intervention applies for about 50 percent of the need for Africa. Meaning that this is great for the health, education, food production, agricultural transformation, livelihoods, microfinance. All of that is village based. This doesn't have anything to do with building a highway. It doesn't have anything to do with the power grid. It doesn't have anything to do with the national port or the airports. So this is a partial model. It is only for what actually happens in villages but for that I think it's actually quite a good model. Time will tell but I think the idea of practicality, making a green revolution village by village, which is how it's always been done, is something that we ought to do but it doesn't do the full amount. So I would like all the heads of state that I know, Mellis said, "Don't come through us. I don't want any of this to go through Addis. Just take it straight down to the communities. Mellis was absolutely clear about that. The Kenyans want to figure about how to make this constituent development fund work. The Ugandan finance minister has what's called a parish model because for them the village in Kenya it's called a location and in Uganda it's a parish. He wants to do parish-based development.

And by the way, one other point, most good development in practice, it's very methodical. How many clinics for 5,000 people? How many hospitals for 25,000 people? How many bed nets do you need? That's how you actually do budgets and that's how you actually do interventions in development and so this kind of strategy that each village gets this, each location gets this, each sub location hospital has running water that would be a breakthrough. We could do that in a very methodical way where you would go back in six months, is the water tank there, is the borehole there, is the water running in the pipes? It is a great project. Very specific. Very measurable. So scaling up means every country I know has a decentralization map already. And you push down into accounts for different villages and targets for different villages very little should be money transfers so there is very little need for money in almost any of this except for community health workers, nurses, doctors, agricultural extension workers. That's where the money should go. Everything else is commodities.

Steve Radelet: Questions. We'll start front and back. Please state your name and affiliation. Our first is from Carol Grodzins, our former colleague at Harvard at HIID. So state your name, your affiliation, and no speeches, which Carol wouldn't do but direct questions.

Carol Grodzins: Carol Grodzins is now in a new profession. I work with the Ashoka Innovators for the Public and my questions is regarding these local distribution networks. People with models and methodologies already whether it's a Tuki Turner working on girls' education in Tororo, Uganda or Patrick Godfrey in Eldurate, Kenya. They are very practical. They could be a distribution model I think for these kinds of projects. And although that they have their own models, they do think broadly may have the support and trust of hundreds of people, thousands of people. How could they now or in the future relate to this work you are doing?

Jeff Sachs: I think, Carol, the key is and you can help a lot, I'm sure, the key is that most NGOs do one thing or another. Some do schools, some do adolescent girls, some do safe drinking water. And what we rarely have is what a village really is, which is a full life. Agriculture, health, microfinance, children in school. And the key in my view is to get the synergies of the set of interventions taking place. So I am having one meeting next month with some of the biggest of the service providers to talk about overlays of map so that we can figure out how to really work together. Because there is no magic in this model. So many people have the basic idea and they see the realities of the community but they rarely bring the resources to bear to allow enough to be done around the whole area so the key is, I think, pooling resources with a very open mind not to undo the organizations and their donors and their base and all the rest, but to pool what they are doing within the same geographic areas and working with government. This is not a run around or an end around from government. Government at the local levels desperately needed for this.

Question: My name is Sada. I am an investment associate. I am affiliated with ****. Private sectors belong at the forefront of development. What are your thoughts on the role that private sectors should play in the challenges for the Millennium development goal?

Jeff Sachs: So, almost all of Africa is the private sector. Farmers, that's the private sector. We should help the private sector to develop 80 percent of Africa, maybe 70 percent of Africa now is farmers. But private sector doesn't mean you just leave them alone. That's what's been wrong. They can't get started because they are so impoverished. So we should help a private sector led development by helping these farmers use inputs, boost their productivity to the same that they could achieve to other places around the world. Bring in microfinance and let them rip. And that's basically the model. Now on the urban side, there are everyone of Africa's urban areas needs to participate in this as well. That's another part of the story whether it's export processing, whether it's apparel using locally produced cotton. Whether it's food processing, whether it's tourism. There is a whole urban development private led as well. But the public investment provides the platform for a viable private sector. That's the point. And that's what we lost in Washington in the last 20 years of the structural adjustment era. We wanted to privatize everything including the platform and that doesn't work.

Elizabeth Aarons: Good morning. My name is Elizabeth Aarons. I am a student at the Johns Hopkins School of Public Health and I understand the investment of basic resources as

a solution and I understand your point about purchasing commodities but the point that the community has no say in what those commodities are is a concern to me.

Jeff Sachs: I didn't say that. Everything that's done is led by the community. We talk to them about the budget. We do the procurement because we are not right now giving money. We are helping them to bring in fertilizer, seed. We are helping this year in Sowri to diversify crops. There was a long discussion about what in addition to maize what kinds of tree seedlings for a local nursery. They are in the lead and they are doing many wonderful things. They decided on building the clinic. They decided on the water points. It's not at all told from the outside but unlike most projects, we have real money to provide them real goods, not just advice.

Elizabeth Aarons: Then my question is then pointed towards the indicators that you spoke of. Again I understand the importance of having quantifiable measures and that's always what donors want to hear at the end or in the middle of an intervention or a project.

Jeff Sachs: Especially in public health.

Elizabeth Aarons: Absolutely. Unfortunately for me. I am more qualitatively oriented and I wondered if there are any qualitative measurements being implemented in any of your villages. Because I am thinking of a recent study that was done in Mali through Johns Hopkins on insecticide treated bed nets and they interviewed a lot of families who had their brand new, free bed nets in their original packaging and they were never used. And there were all the cultural issues that go into a bed net. The color, the texture, whether or not it gets dirty and people don't want to hang it up. I just wondered if there are any qualitative methods at hand to assess the success of these programs.

Jeff Sachs: First of all, sorry to tell you but there are quantitative methods to tell you that the bed nets are being used, so we're actually counting. Bed nets in place and actual use as well as survey data. And by the way on this bed net issue because it is something I care a hell of a lot about because I think it's the single lowest hanging fruit on the planet. The overwhelming experience is if you explain to people how to use them, help them to use them. Give enough bed nets for the household, they'll use them and in our community it is essentially 100 percent use and they couldn't be more thrilled. Malaria burden seems to have come down 80-85 percent. Children are much healthier and what the adults are saying is they can sleep at night because the mosquitoes aren't buzzing around their heads, as they use to. And this is the experience that I know all over Africa. So there is a lot of mythology about the bed nets. I don't know about the particular model example you are talking about but the cases that I know all over the continent are people want these nets. Their children are dying for God's sake. They understand what they are and they need a little bit of training or help hooking them up and they have to be appropriate for the kind of structure that the people have.

Kelly Cantrell: Hi. My name is Kelly Cantrell and I am with The Hunger Project. And our epicenter strategy, as you know has a very similar bottom up approach and I really appreciate your comments about the social capital that's there in Africa. I was wondering how you see these two bottom up approaches being complimentary?

Jeff Sachs: Well, The Hunger Project is very similar to what we're doing except for one thing, which is that The Hunger Project doesn't make enough investment in my view in the community. Not because you don't want to but because the donor resources aren't sufficient for the number of communities that you are doing. And so the level of input in my view is too low. In the village that I visited there was no fertilizer being used. The emphasis was on composting. But the yields that were being obtained were one ton still. So to really make a breakthrough I wanted to get fertilizer to that community and the wonderful head of the project said, "We do too but we don't have the money for it." So it isn't a difference of philosophy, it's a difference of the level of financing. But I very much like what the Hunger Project does and you're building really on the social capital. I'd like you to have more money infused into each place so that the level of investment could be sufficient.

Jeff Barnes: Jeff Barnes, currently with ABT Associates. Fifteen years ago I worked for an organization called Africare doing integrated rural development in villages in Mali, which sounds very much like your approach. At that time there was kind of a constant dialogue between us and the donors and they basically had three objections. One of course, was it's not sustainable, there is no exit strategy and that commodity drops were essentially giving people fish and not teaching them how to fish. What do you say now?

Jeff Sachs: I say that's exactly the opposite. What all these donors are doing is bringing food aid. **[dictation ends here]**

Jeff Sachs: **[dictation begins here]** ...For these donors to say that's awfully cheeky because it's the opposite and the exit strategy here is transformation from subsistence or sub-subsistence to commercial agriculture and commercial non-agriculture. And to do that you have to have food security first. But you can't have food security on 0.4 hectares producing a half a ton per hectare. That's my point. And I know exactly now, not because I'm so clever, but because I work with clever agronomists, why they're getting half a ton per hectare. Because that's the inputs that are being put in. So the donors stopped doing agriculture twenty years ago. The World Bank made a theory about agriculture. This is important for everyone to understand: there's a World Bank theory of agriculture. It was written in 1985. It said the problem of African agriculture is urban bias. That the urban elites want cheap food so they're repressing the markets in the rural areas, squeezing the farmers for the cheap food for the urban elites and the key therefore for African agriculture is privatization. That's a theory. I like it. It's a coherent theory. You could write papers about it. You could model it. You could write whole books about it. It happens to be wrong, though. And when you have a theory that's wrong and you've tried it for twenty years it's good to try something else. Maybe my theory will be wrong in twenty years. But this one that we're going on has been wrong and proved wrong now for twenty years.

Steve Radelet: The analysis wasn't wrong in the sense that farm gate prices were being suppressed as the solution—

Jeff Sachs: But actually not for—not for food, Steve. It was mainly for the cash crops. It was for the export crops where the big...where the big take was.

Steve Radelet: —Yeah. It was also for food as well.

Jeff Sachs: Well, even though...a recent study from Lunds called Africa's Food Crisis claims to show that the...that the food actually was on that subsidized, not on that...not on that tax but I think the main point was it was cocoa and it was the other cash crops. Not—not the staple production.

Steve Radelet: All right. We've got two more questions. In the back, Jessica.

Jessica Gottlieb: Jessica Gottlieb, Center for Global Development. In a sector where there's a lot of big question marks about what works it sounds like you are beginning to create these interventions where you know what works. So I'm wondering how you're evaluating these programs so that in the future we'll be able to learn lessons from some rigorous evidence.

Jeff Sachs: So, the whole theory of our program is what—every intervention we're doing is a proved intervention at a small scale. The agriculture interventions are agronomically demonstrated repeatedly. The bed net and ACT interventions on malaria control are demonstrated. The anti-retroviral things that we're putting in are—we're working with PEPFAR in the local community on that. Every intervention has a track record. What...what isn't known here is the overall governance of pan interventions simultaneously. That's what's not known. And that...I don't find it so hard for that to happen because actually people can do different things. So it's not surprising to me that you can both food and have a school feeding program and have a clinic. That's how local communities work. But that's what the proved part of this in a way. It's to take best options in each area and so we're not doing any drug trials. We're not doing any new technology trials at all on this project actually. But we are very carefully monitoring every step—baseline surveys, baseline blood samples and nutrition samples, parasitemia, entomological sampling—everything's being done. And then crop modeling and so that there will be a full record of...of it along the lines that you're suggesting.

Jessica Gottlieb: And compared to other communities that look the same but didn't get the interventions?

Jeff Sachs: Yep. What we're not doing is controls in a detailed way because it's almost impossible in a—and ethically not possible—to do an intensive intervention of measurement without interventions of...of actual process. So what we're doing is collecting data in the areas around through the district governments and so forth. But it's more an intervention study before and after but at a micro level that here was the crop yield the year before. Here's the crop yield this year. Here's the crop yield next year, plus information from the surrounding areas. But not detailed surveying in non-intervention sites.

Steve Radelet: Celina?

Celina Schocken: I'm Celina Schocken—

Jeff Sachs: Yes, I know.

Celina Schocken: —From the Center for Global Development. I worked for you for two years in Rwanda and my question is about scalability and how these are going to be scaled up. When I was in Rwanda recently I spoke to a number of ministers who said, “Well, you know we’re sending agricultural extension agents to Bugasera. We’re sending health workers to Bugasera. This is a real priority of President Kagame. And I’m sure that it’s a priority in all of the countries where you’re working that they really want to make these villages work—

Jeff Sachs: Yeah.

Celina Schocken: —And I think there’s a huge value to what you’re doing and you going and meeting with the President and really telling them that you want this village to work and I—I guess I think that that might be worth probably more than \$70.00 a year, in addition the value of your going there, and all of these experts coming in and this entrepreneurship that you’re creating. How are you going to scale that? Because I would suggest that it’s going to be very difficult to do beyond one or two villages in each country.

Jeff Sachs: I think the main effect of the high-level buy-in is that the project is much less likely to get held up by local officials, for example, which is a real possibility in general. So there’s political—I would say, I hope—political protection of the project. It’s not so much the direct interventions, you know, having those nice meetings. It’s more the fact that the project can go forward. The scalability is really a different question in...in my view, which is first there are real resources in this project. This isn’t just showing something great and then the next village will do it. But the next village can’t do it. Because there’s real resources required. So some donor I have in mind, the U.S. Government, will actually decide to spend some money on solving these problems. So that’s one...one point.

Second, the biggest constraint is technical capacity and there I think the most interesting unsolved but solvable problem in my view is training health workers and agricultural workers at a mass base and I’m very much enamored of the one-year health worker model and maybe Joel has exactly the curriculum and the right model for that. Because what I believe we need to do is to be training tens of thousands of community health workers that know how to do an antibiotic, to give an anti-malarial, to give an immunization, to weigh a child, to direct a woman to an anti-natal clinic, to directly observe therapy for TB or for AIDS. Those don’t exist but you could see how they could be massively scaled up. What doesn’t work is to train doctors six years and who the hell’s going to go to a village anyway. So you have to take people from the villages and train them. And that, I think, is the key for the scaling—and it has to happen in agriculture and basic infrastructure as well. So we see teams in every village—one or, you know three people that have that technical level that can...can do that and I’d like to see that done on a massive...on a massive basis.

Then the last scaling point is monitoring evaluation and audits. Because I believe the key to this project is timelines, measurables, quantifiable inputs and outputs and people coming in to check. And so we need a whole compliance piece of this. But aid doesn’t work that way, surprisingly. Aid is so amorphous in general that it’s so much about meetings and about workshops and so little about delivery that we don’t actually measure because it’s not what we’re

doing. So that's why if we're going to give commodities I want to make sure that they actually get there and that they actually—that the fertilizer is actually planted in the ground and for that we need a scalable monitoring system as well. And you can think of how to do it. I believe, for instance, the Internet and cell phones offer a revolutionary change in how aid can be done. Every—not every village—I think eight out of the twelve sites have cell phone coverage. There are no cell phones. But there's cell phone coverage. And we put a VSAT now in the Western Kenya thing so we have high—broadband Internet connectivity at a few thousand bucks and we're going to put VSATs in all of the villages and Motorola has a wi-fi canopy which is going to mean that for the whole fifty-thousand people with all their laptops they're going to be able to get online. And...and this will change monitoring and evaluation tremendously as well. And we haven't taken that step to fully IT re-base the aid delivery mechanism.

Steve Radelet: Thanks. I think we're going to have to end at this point. We're about ten minutes over. Quickly, three events coming up that I think will be of some interest: On Wednesday at noon next door at the Center for Global Development we'll have a discussion about the road network in Africa and some work by the World Bank about crops and benefits about connecting through—

Jeff Sachs: That's a great paper.

Steve Radelet: —through a road network. On Friday here at 2:15 we have a heavy weight fight debate on the reorganization of USAID State Department with Andrew Nasios who just stepped down as administrator and Carol Lancaster, who was deputy administrator in the mid-nineties about their differing views as to the new reorganization of state and USAID. Monday at 2:15 here—Friday's at 2:00. I said 2:15. Friday's at 2:00. Monday at 2:15 we are very privileged to have the new president of Liberia, Ellen Johnson Sirleaf, who will speak about the challenges—the big challenges but also the great hope that's emerging in Liberia so that you're all welcome to come to those, space prevailing. It's going to be a little tight on Friday and Monday. I want to thank Jeff Sachs for taking the time today and thank all of you for being here.