

Building Science, Technology and Innovation Conference, Washington, D.C.

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Mr. Paul Wolfowitz: Thank you Joy, thank you everyone. I didn't expect to see such a good turnout this morning in the face of this weather. I think it is a sign of real commitment to the subject matter. You represent a dozen governments as well as universities, National Science Councils, national and international science research organizations, bilateral donors, private foundations, NGOs and the private sector. That's an impressive range, thank you for being here.

I guess you could say if you know the term 'lapsed' as in people who've left a religion. You could call me a lapsed scientist. If I had gone the way my father thinks I should have gone, I could be joining you today and talking about science and technology. I was actually at Cornell as an undergraduate, Double Major in Mathematics and Chemistry. I was accepted at MIT to do a PhD in Physical Chemistry and at Chicago to do a PhD in Political Science and Economics, and that's when my father thinks my life went astray because I went to Chicago. But, more seriously I think maybe it does give me a better appreciation of why this subject matter is so important.

I was thinking about the challenge here; I believe there is no explicit mention of science and technology in the '*Millennium Development Goals*.' These are very, very important objectives and they drive and should drive the great majority of our work in the World Bank and in other development institutions because it is incredibly important to stop kids from dying of malaria and other preventable diseases. It is incredibly important to get kids into school, it is incredibly important to have healthy mothers and healthy families.

I suppose there is an attitude probably more often in the back of people's minds and on the tip of their tongues because they probably realize how wrong it is but it is an attitude that why should we be worried about science and technology when so many kids aren't even going to the first grade; why should we be thinking about scientific research when people don't even have enough to eat; why should we be thinking about medical research when our people don't have access to medicines that have been around for a long time and are just unaffordable in our countries. Let's deal with poverty, that's the real issue.

I would submit that that's a very unbalanced view of the subject matter, and that if you want to deal with poverty, you better keep science and technology and innovation, maybe especially innovation in the picture. It can't be the whole picture though. It is absolutely true that kids have got to go to the first grade if they are ever going to go to university.

But I think if you think about it as a whole I think one of the challenges here is how to get the right balance. And I suppose also in the back of people's minds, is probably a little bit of an attitude of, "Oh, these poor countries aren't ready to deal with these advanced subjects, give them a couple of decades or more, but science and technology is for the rich countries.

Increasingly we see that that's not true. But, I was thinking about why the subject of your Conference is so important for our main agenda which is reducing poverty. I actually prefer to say it is about giving poor people the opportunity to escape poverty; it is not something you do to them, it is something you enable them to do for themselves. It is the same result.

The last 20-25 years have been the most successful era in the history of humanity, in poverty reduction; not that there haven't been successful eras before that but 500 million people have escaped poverty in the last 25 years, roughly three-quarters of them from the very successful economies of East Asia. Unfortunately, there is still over a billion people that live in what we would call extreme poverty, that's a dollar-a-day or less, imagine trying to survive on that; roughly two billion in near poverty, living on nearly \$2 a day.

So, it is a huge challenge, but there is some prospect of succeeding. And the '*Millennium Development Goals*' are a terrific guide, but I think they are an incomplete guide. For example, there is no Millennium Development Goal for jobs, and yet jobs are very much at the heart of poverty reduction. It is not a critique of the goals themselves, it is just saying we need to look a little broader.

So, in thinking about your conference I was thinking about why this is a subject that some people would say is a luxury that poor countries can't afford, why is it so important?

First of all—while there is still a lot that we don't understand about what makes development work, and what makes some countries succeed and others not—I don't think there is any question whatsoever that education is a major ingredient of success and that investing in people, what economists like to call human capital, is one of the biggest contributors to growth and poverty reduction. There could not be more dramatic proof of that than South Korea, which when I started studying economics 40 years ago, South Korea was still regarded as a hopeless basket case.

It had no natural resources, which we've since learned doesn't matter that much; lots of corruption which was true, there is still some but less; and the funniest thing was burdened with a Confucian ethic that taught that gentlemen don't work, they wear white clothes and grow long finger nails to demonstrate their contempt for manual labor. Of course, it's now that same Confucian ethic that's supposed to explain not just the success of South Korea but every other country in East Asia.

Something else is going on, and one of the things that's going on, is that Korea very systematically educated its population and didn't stop at fourth grade, they didn't stop at middle school, they didn't stop at secondary school. I'm told that 89% of Koreans now have some degree in tertiary education which would make it the highest percentage of any country in the world. I think the US is maybe second.

It's stunning and of course the success of South Korea's economy is equally stunning. It went from being one of the poorest countries in the world, to being I believe the tenth largest economy and continues to grow and is now at the forefront of so much innovation. To me, that's cause and effect and it's very, very clear. And I don't think you can have a strong education system if you focus solely on primary education.

Primary education is obviously critical, but in order to have a good primary education system it is important to have teachers. It's important to get those kids in primary school, the incentive to go beyond just basic education, there needs to be a continuum, there needs to be balance in that continuum but you can't just focus on the bottom end, even if the bottom end is your major concern.

Second reason why I think it's important is because so much of the science and technology that is valuable, is applied science and technology. I learned two new terms since I have been President of the World Bank, maybe more than two, I have learned a lot of acronyms I didn't know before, we like acronyms here almost as much as they do at the Pentagon. But two new terms, one is ghost teachers, which doesn't need any translation. The other is orphan crops, which at least the agronomists among you probably know. It refers to those crops that are mainly grown only in poor countries and so nobody bothers doing research on things like Kasava. And yet, the evidence is again so clear. Along with education, it was the 'Green Revolution,' it was applied research in agronomy that provided one of the major impetuses for the remarkable East Asian growth story.

Africa needs the same thing. We've got to make orphan crops as obsolete a term as oriental fatalism has since become. So, I think there are certain kinds of research and development that are going to be best done in the developing world and probably even best done by scientists from the developing world. The Consultative Group on International Agricultural Research (CGIAR), has one exciting experimental idea after another, many of them are, I'd say most of them are developed in poor countries.

I think a third reason, which is perhaps newer, is that the way technology is moving, the structure of all economies including the most advanced economies is transforming, I guess according to Moore's Law which is roughly at a factor of ten every eighteen months. It gives countries a chance to access advanced economy without going through all the stages that the currently advanced economies had to go through, sometimes over 100 or 200 years. And I think one of the most striking examples of that of course is a country that we didn't really notice when it was a developing country, and now it is a developed country so we may not notice it, but Ireland is one of the development success stories of the last 50 years.

It went from being one of the poorest countries in Europe to one of the most successful ones, and it did it by leapfrogging. I think the idea that sometimes when you start from the ground floor, when things are changing so fast if you grab or hold the technology you can come in at one of the upper stories instead of working your way up.

I think another reason why it's so important is that having innovation and science and technology in your country becomes a magnet for talent, and we see that in a lot of the developments in my own country, I mean I think of the Silicon Valley, I think of the Boston-Cambridge Science And Technology Development, even here in Washington, I don't know if you know it, but this city has now actually in addition to producing bureaucrats, actually produces innovation out in the Dallas Corridor where it has become a real magnet for the new technology and the Internet. Maybe, that's a step too far for the poor countries of the world, but I'm not sure of that and I think we may see in fact in places like India, it is happening already.

I suppose that finally brings me to what I think is one of the biggest challenges and that is reversing the 'brain drain'. We've been talking among some of the economists here about "Who are the best economists in the developing world?" They said "Well, they aren't in the developing world." In fact, they are from the developing world, they are at Columbia, they are at Harvard, they are Oxford, they are at London School of Economics, they are not staying in the developing world. We need to find more ways to get people whose life experience tells them what poor countries need, to stay in those countries, to be productive in those countries and contribute to their countries.

I think there's an enormous appetite among what you could loosely call the 'diaspora' at many levels to do that. Simultaneously with this meeting, we have a big partners conference on Liberia taking place with the leadership of President Ellen Johnson-Sirleaf who is a remarkable African woman and the first woman President of an African country. For those of you who don't know the history of Liberia, I'll tell you in about three sentences. It was destroyed by a civil war over 20 years that left 250,000 people, think about that, a quarter of a million dead out of a population of three million. It was devastated. They had a chance with peacekeepers to hold a free and fair election; they had a choice between a woman who promised economic reform and a popular, no criticism, but a popular soccer star. They voted for economic reforms.

What strikes me about this conference, because we're are inviting not just government officials but many private sector people, is how Liberians who came to the United States, driven out by that civil war, have either gone back or are looking to go back. And I think to attract that talent back, and Liberia is an extreme case, but to attract talent back to any of these poor countries, it's not reasonable to say, give up the intellectual excitement that you found in Cambridge or in Washington, or in Paris or in London. Find a way to capture some of that, because it seems to me that you want to -- it's nice to get to remittances but it's much, much better to have people back home contributing.

So, for all those reasons I think the subject matter that you are dealing with here is incredibly important. I put it all under the heading of balance. Obviously, resources are limited. The amount of resources that can be applied by poor countries to science and technology is going to be limited, but there needs to be balance, it can't be zero. I think zero would just condemn poor countries to backwardness and that we can't afford. So, thank you for being here, I hope this produces more good ideas, your subject is innovation so please innovate and do it successfully.

Thank you very much.