DR. ALTBACH: Thank you very much. I have a very difficult job this afternoon. That is in 15 minutes to reveal to you all of the important issues about higher education systems that are central for you to consider when you enter into collaboration agreements or are otherwise working with colleagues in different countries.

The basic takeaway point of these remarks is very simple. Know about the universities and the academic systems that you are working with overseas because the context is of central importance in understanding how your collaborators are going to work with you and how the academic systems operate in other countries. In other words, what is the sea in which the research fish that you are working with are going to be swimming?

The broad context is that in the world today, we are in a broad arrangement of massification. World higher education has been expanding dramatically in the latter half of the 20th century and will continue to expand in this century.

For example, only 20 years ago, there were about 100 million students in post-secondary education globally. Today, there are about 160 million students globally. We are expanding at a rate of about 10 percent each year around the world. In the rich countries, the rate of expansion has by and large stopped, that is, we enroll between 50, 60, 70 percent of the age group in the developed countries. In developing countries, the rate of enrollment varies tremendously but is much lower. In fact, between now and 2050, the majority of

growth in the entire world's higher education system will be in just two countries, India and China. Why? Because India today, enrolls about 10 percent of the age group and China enrolls about 23 percent of the age group. Both countries are committed to expanding their systems. Even if they weren't committed to it, the public wants it and will get it and will demand it. We are in an era of mass higher education.

That creates, by the way, special challenges for the work that we all do because we operate largely at the top of an academic system. Most of the growth is occurring at the bottom of the academic system. We are not much concerned with that in terms of our arrangements in other countries. The growth sucks resources even if the growth is largely in private higher education. By the way, private higher education is the fastest growing sector of post-secondary education globally today. Even if we are concerned at the top, there are resource constraints that affect the best universities in most countries because of the mass demand. That is the context.

I am going to talk mainly here about doctoral education and what is going on in that area. Again, remember doctoral education, even in the best developed countries, like this one, is a small proportion at the top of the system. But, for us, it is what largely matters. There are some very interesting changes and developments going on in the area of doctoral education.

The first thing to remember is that for most countries, and for almost all developing countries, doctoral education is not well-developed. It has reached the top of the radar screen, if you will, in many countries and is rapidly

being expanded. Countries are thinking about the importance of training doctorates within the country and trying to figure out how to do that. One should note, by the way, and again, this is of peripheral interest here, that the majority of those who are teaching in colleges and universities around the world don't have doctorates. In fact, my estimate is that about half of the total teachers standing before post-secondary students around the world have only a bachelor's degree. Shocking, but probably true. That is not the case at Peking University or the University of Delhi or other such top institutions, but as an average, that is probably the case.

There are essentially two approaches to doctoral education around the world. It is important to understand what they are and how that is developing. One is the American style PhD, what the British call a tossed(?) doctorate, interesting words. There is coursework, heavy coursework involved along with a dissertation and the usual appropriate or inappropriate examinations that go along with the doctorate. That approach to doctoral education is, in fact, a minority phenomenon worldwide.

Most doctorates in most of the world are again, what the British call a research PhD, a research doctorate. What does that mean? It means simply, you register for a PhD, if you are admitted you do a dissertation under a supervisor and if and when you finish, time not clear, you get the degree. There are lots of dropouts, mixed views, mixed approaches to the supervision process. In some countries, in some universities, there is very close supervision. That is typically the case in the United States.

In others, and this is very common around the world, you register for a PhD, you are assigned to a guide and if you see that person, him or her, twice a year, four times a year, you are lucky. So you are kind of dumped in the pool and that is - and you work on your research and if and when you finish, you are lucky.

Now, in the hard science and in engineering, that is less the case. There is more personal interaction, more involvement in a research lab and this sort of thing. In the humanities and the social sciences, it is very often just do the work, come see me once a semester, tell me what you are doing and have a nice day. I am busy with other things. It is important to understand the nature of the doctoral experience that exists in many countries because the collaborators that you will be working with operate in a particular organizational environment.

There is a move globally, in the direction of the American style PhD or a modified American style PhD. What is happening, in my view, quite positively, is that countries are recognizing that doctoral students come to their experience free of any serious methodological sophistication and they are instituting coursework that gives them appropriate methodological training, but that is about it.

Substantive coursework generally is lacking from this system. By the way, the Germans invented the research PhD with the reform of the University of Berlin in 1818 and most of continental Europe the UK adopted that system. We adopted the German system but added the coursework for a whole variety of historical reasons.

Let me talk for a very few minutes about academic culture because that plays a very important role in any kind of collaborative arrangement and in understanding the mindset and circumstances of the people with whom you will be collaborating. Is there in the country, full academic freedom? That is not always the case. In China, in the hard sciences, generally there is no problem, although, the system is very tightly regulated. In the social sciences and the humanities, problems. Problems to access to some kinds of data, controls over the internet, which affects, by the way, even the hard sciences, and other issues relating to academic freedom.

In many countries, there are topics which are accepted for research and topics which are not accepted for research. Generally speaking, no one writes down what is okay and what is not. It is up to the understanding of what is feasible within the society for research that the graduate student needs to figure out. Of course, that will come up against, in many cases, the kinds of collaboration that we may be doing because some topics are fine and some topics are not.

In addition, in some countries, working with a foreigner, particularly on a topic that may be culturally, politically, religiously, economically sensitive, may also be a question that security forces, government ministries, bureaucrats of various kinds, even academic administrators may ask about. It may cause problems for your collaborating researchers. It may cause time to be spent on getting appropriate permissions from the Ministry of Foreign Affairs or the internal security people or the Education Ministry. The issue of academic freedom and

the ways that thought is controlled or not in the country, may play a role and it is simply important to understand.

Is there corruption in the university? In many countries there is corruption in the university; in admissions, in examinations, in promotions and so on. It is important to understand the culture of the university with regard to the probity of the system because if you are a collaborator, just because there is a general corrupt arrangement in the university, is affected by this no matter what agreements you may sign, it can be a problem. Most of the people that we all will be working with really want to do the right thing. These are not corrupt guys. They are real academics, many of them are trained abroad, they sort of get it. They are operating in a context that is important for us all to understand because there are constraints that may be placed on them.

Is the academic profession meritocratic? Are professors promoted because of who they know? Is there, as the Chinese say, lots of guanxi? Which there is lots of personal relationships involved in the promotion process, not so much in the admissions process but the graduate school that may be the case.

Is there any inbreeding in the university? Are the professors who you will be dealing with - are they educated from their bachelor's degree at that same institution and just promoted up the ranks? My guess is that in the majority of the world there is a lot of inbreeding.

Is there a true academic ladder? In other words, are people promoted on the basis of the merit of their work or are they simply promoted on the basis that they have been teaching in the institution? Again, my guess is the

majority of the world's professors are promoted on the basis of how long they have been in place. That can make a difference in the motivation of people to do outstanding work.

Are they recognized for the quality of their work or even for the number of their articles or books or patents or whatever, or just because they have been there long enough or because they know somebody within the system who is powerful? The culture of the academic profession and of the university is of central importance in understanding how people approach a collaboration, how people approach their careers.

Let me speak for a few minutes about working conditions of the academic profession. Mr. Kirkland, this morning, of the Association of Commonwealth Universities touched very importantly on this topic again. In all of the developing world, I can't think of any exceptions to this rule, professors are not paid enough to spend their full time on their academic jobs. It could be that a collaborative agreement with a foreign researcher, American or others can bring to them the income necessary so that they can actually do academic work and don't have to do consulting on the side, don't have to teach in another university.

By the way, as a footnote, the growth of the private sector of higher education around the world is dependent almost completely on the public sector. Almost all of the professors who teach in private universities in China, in India, everywhere have a full-time job in the public sector that doesn't pay them enough to live in a normal middle class lifestyle in their own country.

What we can do to help the best academics to actually devote themselves to science and scholarship is a very positive thing. I think that is an element of collaboration that can be quite helpful. We should understand that the salaries that are earned are not enough to support people.

My center, a couple of years ago, did a study of academic salaries only in 15 countries, the methodology had a problem. One of the things that we realized is that it is not the salaries, stupid, it is the remuneration.

Because in many countries, unlike the US, and it would cause us to rethink some of the ways that we think about how professors are paid, it is not their salaries so much, it is the salary plus housing benefits, consulting in Mexico. The best researchers are part of a national organization called the Syndicate of National Researchers which pays people. You have to be chosen to be a member of it. It pays people 40 percent more money if they are productive researchers and so on.

In China, if you publish an article in a referred national journal that is on the Chinese list of goody journals, they will pay you sometimes a month extra salary. Again, that can play an important role in collaboration and can make your Chinese collaborator want very much to have author credit because he or she is going to get a big chunk of money based on what is published in an ISI approved journal.

You have to understand how the payment system works. We also have to understand that again, in most countries, professors, even in that small

number of research universities, teach too much. They don't have time to do all that much research.

As was mentioned, I am just back from South India. I like to ask lots of questions of my colleagues, as always. I ask how much people in the university departments, leaving aside the undergraduate college are teaching. They are teaching three or four times as much as a research university professor would teach in the United States. They are still expected to do some amount of research. That is a problem.

My lesson for today, the sermon is, understand the context of the universities that you are working with, how they are organized, how they are governed within the country, how the academic profession works within the country. What is the reward system - issues of corruption, of salary and so on. These are all of central importance and if we don't understand them, no matter what agreements we reach, our colleagues are going to be at a disadvantage. Thank you.