

Formal Inauguration of the Workshop

Shri Kapil Sibal:

Dr. Kasturirangan, thank you very much for your very warm words. It's great to have Norman back – great to see you, Norman, thank you very much for being here. Prof. Mu Rongping, welcome to India – I believe it's your first time. Prof. C N R Rao is of course, my guide. I've always listened to him very carefully. Especially when I believe I am flying high, he sort of brings me to the ground, as he has done this evening. Prof. Dahlman, that was a wonderful presentation you made about bringing to the fore the enormous achievements of the United States, the enormous potential of China, and somehow, India is right there as well, trying to move forward.

Let me share some thoughts with you on a global perspective first, and then I will come to India, China and the United States. I was in Norway just the other day. We set up a permanent research station in Ny-Alesund, the northernmost land mass in the Arctic. We are the tenth country in the world to do that. This happened because two years ago, I was in the Antarctic and I said to myself that we must be part of the great science that is happening all around the world. China has a station there already. And I asked why haven't we opened one in the Arctic? And there was no answer. So I took a decision that we would set up a permanent research station. Two years of effort led me there. But I was there attending a conference apart from opening the research station, and the conference was on global warming.

As we move into the 21st century, the issues that confront us are going to be qualitatively entirely different from those that confronted us in the 20th century. Energy and global warming are going to be at the forefront. With the price of oil at \$146, with the food crisis that we are now seeing, countries like Venezuela who are oil producers have an inflation rate of 23 per cent. Russia has an inflation rate of 14 per cent. Russia is a big oil producer and yet has an inflation rate of 14 per cent. The Green Revolution has petered out. We now need a new revolution to deal with hunger. So hunger is going to be an issue that we will have to deal with together. Alternative energy sources will be an issue that we will have to deal with together. The alternative energy technologies, as well as technologies in the area of agriculture, we must make sure are sustainable – in the context of global warming. So none of these three things were at the forefront of the 20th century when we moved forward. So therefore, there is a qualitative difference in what we are going to face in the 21st century.

I was talking about the seminar that I went to and the minister of Norway gave a very interesting speech and said that we must start thinking globally on this issue and acting locally. That is how she started. And quite frankly, in the context of global warming and climate change, I don't see how we can think globally and act locally. You have any number of off-the-shelf technologies anywhere in the world. You try and apply it to a small village in India and you will fail. The head of Samsung came to me the other day and said, 'I have an enormously wonderful solar energy solution for villages in India'. I said, 'wonderful! I will collaborate with you'. We went through the usual inquiry and I

asked the person – she is a lady and she has now resigned – ‘how much will it cost?’ And she said, ‘a million dollars’. I said, ‘that’s great’.

Who can afford a million dollars for an energy solution in India? And this is really true of all the technologies that are being produced in the West because all those may be wonderful technologies, but they are entirely inaccessible and unaffordable as far as we are concerned. So you can produce things globally, but how will those technologies work locally? I don’t understand.

So I said if the world wants to move forward and you really want to collaborate and the West is really serious about meeting the challenges of global warming, you have to think locally and act locally. If you want to produce a technology to find a solution for an alternative energy source in a cluster of Indian villages, you have to think of the Indian village to provide that solution. There is no other way to do it. And if you are willing to come on board on that, we are with you. Because you will have to find out what is the capacity of the villager to pay for the unit cost of electricity, what are the natural resources available around that village, what will be the source of alternative energy, what will be the cost of human resource that you will have to use for the purposes of production, what will be the methods of distribution and what will be the ultimate unit cost of energy. And you cannot think in global terms if you want to provide that energy at the local level. So I said, ‘I am afraid your mantra is completely wrong. What you have to do is think locally and act locally’.

Every country in the world has a different national circumstance. You have 54 countries in the global community who are small island states. Many of them have no human resource; many of them have no expertise of any sort at all. Many of them have no finances. Many of them just depend on tourism – people come into the country, pour money into the economy and go away. They are going to have to face the onslaught of rising ocean levels and all that they have is tourism. Where are they going to meet that challenge? Which technology can they use? They neither have the finance, nor have the human expertise, nor do they have the technology. So you have to think about those countries – the 54 small island states in the oceans of the world – entirely differently. Then you come to mainland China or the subcontinent of India and you will have to think differently. The nature of problems in China and the nature of problems in India are different. The societal structure is different and the state structure is different.

So globally, if we need to talk about challenges, we need a different kind of construct – a different equation – to deal with those global challenges together. And the equation has to be that you need to actually shift to the place where you want to produce the technology to deliver at that place. There is no other way to do it.

Now, if you are thinking of global collaboration in that context, what does it mean? It means if you want to manufacture a car, you need to manufacture it at a place. I take the Nano as an example. Why is Nano such a wonderful example of what India has been able to do? Because Nano represents three things. The small Nano represents the ordinary because it is accessible to the ordinary people. It also represents affordability because a 1-

lakh car can be bought by anybody after he gets a loan. But it also represents excellence. So the Nano represents three concepts – accessibility, affordability and excellence. And I think that the 21st century will be the century where the winner will cater to accessibility, affordability and excellence.

If the West caters to excellence but not to affordability and accessibility, the West can never be a winner. The West needs markets, and as C N R Rao has rightly said, we are going to have a billion people belonging to the middle class, and another 300 million people belonging to the upper-class. The markets will be where the buying capacity is. And within Europe, you will not be competitive because by that time, India and China as economies will be so robust that we will be able to produce those very goods at half the price. So what will happen is that the Europeans will be the markets for us and the goods that Europe supplies, India will not be a market for them because they will be neither accessible nor affordable to the people of India because everybody – every consumer in the global fraternity today – wants two things. He or she wants the best product at the cheapest possible price. So whatever business model you have, you have to produce the best product at the cheapest possible price, that can't be done in the United States. That is why the United States is a service country where the GDP is substantially based on the service sector. That is why, if you look at the European economies, they are all service economies because they can't afford to produce. It is not because the Americans wanted to shift manufacturing to China; it is because they had to. They had no choice. It is not as if the Americans wanted to shift the service sector to India; they have no choice. If we produce 6, 00,000 engineers, there is no choice with the global community, except to come to India and say that we want your people, because we are a low-cost economy. The cost of our human resources is much less than anywhere else in the world.

I see that in the bio-technology sector, except for the very, very sad transaction that took place the other day, the bio-tech companies in the US are now forging alliances with bio-tech companies not in Western Europe, but in Eastern Europe. The bio-tech companies of Eastern Europe again had much less human resource cost and therefore they think of collaborating with them. But suddenly they realized that Indian companies are much more efficient and much more cost-effective. So now you have joint ventures in the bio-tech sector between multinationals in the West and our small companies who are actually now innovating instead of doing generic drugs.

I agree in principle with what Prof. Rao said, whether we like it or not, there is going to be knowledge investment in India through FDI in the knowledge sector. And the reason is simple. I will give you a little story on that. I was in Norway about two years ago – and Norway has a very robust Marine Engineering industry. And they have these oil rigs. As you know, Norway is a very big oil producer. And the then minister Mr U P Dahl (he is no longer the minister now) said to me, 'why don't you send Indians to Norway to become part of our university systems? We need a lot of marine engineers; you've got a lot of human resource, so why don't you send some students from India?' And I said, 'why would anybody come to Norway?' Why would an Indian student go to Norway? First of all, most people living in this part of the world just hate the cold. Number two, I said was, if he has a choice, he will go to the United States of America. And if not, he

will go to England. And if not that, now he wants to go to Australia. So why would he go to Norway?

So I said to him, ‘why don’t you think of doing another thing? Why don’t you set up an institute in India – of marine engineering – and see what the benefit is to you?’ I said that with the cost of teaching an Indian student in Norway, with that same cost, you can teach four – or five – students in India. Now, we need our people to be educated and you need engineers. So after you have finished, you will have four times the stock, or five times the stock of people who could come to Norway. And with that, whoever wants to go to Norway can go to Norway, and whoever wants to be in India can be in India. It is a win-win for us because you serve the Indian economy and we also serve the Norwegian economy. So what do you think of that? And he said, I never thought about it that way. Let’s negotiate and let’s set up a marine institute in India.

The significant point from the story is that this is the way the world is going to move, whether the Americans like it or not, or the Europeans like it or not. Or whether we want institutions here or not, this is how it is going to happen. Because in the demographics of the global community, there is a fall of population in Europe. Most of Europe will belong to people who are beyond 60. The young will have to be recruited from somewhere, and that recruitment has to be from this part of the world, whether we like it or not. And if this part of the world doesn’t have skilled labour, they will not be able to serve the Europeans. So come what may, skilled education will come to India. FDI and skilled education will come to India and they will come to China.

The most insistent refrain that I get, wherever I go in the world is, ‘why don’t you allow us to invest in education in India?’ Because people know that nations cannot survive without cooperation in the education sector. It is our misfortune that we have not created an environment and an appropriate regime to bring in that win-win investment in a very cohesive manner. That is our fault. We have not been able to do it. And the quicker we are able to do it, the better it is, not just for India, but for the global community.

I think that is the model. So instead of having services from India and manufacturing from China, you are going to get knowledge from India and China. The moment you give our young minds the kind of opportunities they deserve, you will have a mushrooming of talent the global community has not seen ever before in the 20th century. And that will come from China and from India, whether we like it or not. This is the global picture and I have done with the global picture. I think this is going to be the business model, this is going to be the economic model, and if the policy-makers in India understand it, they can use it to their advantage. Unfortunately, they don’t. And I think we must all sell it, because unless we speak in one voice, we are not going to get there.

The fact of the matter is that we are behind China. Why is China far ahead of us in this? Simple. We have been behind China for 14 years. It is true. China started the liberalization process in 1977 or 1978; we started it in 1991. We can’t catch up with China. Just think of India 14 years from now. Fourteen years from now, India will be a different country.

And why is the United States far ahead in this? If you look at any university system in Europe or the western world, you will find that the university system is entirely independent of state control. There is no such thing as the UGC, there is no such thing as the AICTE, and there is no such thing as the MCI. These are institutions which have destroyed our entire effort to take education forward. They don't have any of this. Some of the richest institutions in Europe and the United States of America are educational institutions. Why do you think they can pay those salaries? It is because they are rich. We have ensured that our educational institutions must suffer abysmal poverty. I give great credit to our institutions that despite extreme poverty, they have produced C N R Raos – with \$8 a day!

That is the difference between America and India. They have been able to do that and therefore they can collaborate with whom they like, they don't need any FIBP clearances, and they don't need any clearances from the Government of India. They just collaborate. They come, they collaborate and they go. And they have collaborated with each other for years. That is why North-Western is such a wonderful university. That is why, in California and in so many places in the United States, you have excellence. That is why they are so good. Then, on top of excellence and independence at the university level, you have \$ 355 billion from the treasury to invest in R&D, as opposed to \$ 10 billion in India.

So how do you compare? And how did China do it? China did it because China has a state system. In other words, when they build universities, they don't have to ask anybody. And they build universities with a national mission. I want to be Number One in nano-technology, and I will be Number One in nano-technology. I want the tallest buildings, so I will have the tallest buildings. I want the biggest avenue – I will have the biggest avenue. I want to create a Pudong that is bigger than Manhattan, and it is four times the size of Manhattan. They think big. Go to Beijing and you will realize how big they think. They do it with a national mission and they put all the state capital into it even if they have \$ 800 billion worth of non-performing assets. They don't care about that. They think that with their export earnings, they can take care of the non-performing assets. They hold the banks, they control everything. I am sorry; I'm just being very forthright. We should know. We cannot compare apples and oranges.

And so we come back to too much democracy. We have a state structure on the one hand that invests in human resource and capital and uses capital to build institutions. You have an independent hands-free educational structure in the United States backed by \$350 billion and you have neither of that in India. Now, you have to create a structure to build institutions – you can't do it out of the air. And so we need to free our institutions of controls. We need to allow our institutions to borrow from the market, we need to allow our institutions to enter into collaborations, we need our institutions to pay world-class salaries, and we need our institutions to have excellent faculties – they can import people.

At the moment, something really wonderful that has happened – I had a science budget of 25,000 crores in the 10th Plan. Today, it is 80,000 crores¹. In just four years, we are 300 per cent more. In the 10th Plan, we used to invest 8 per cent of our GDP in education. In the 11th Plan, it is 19 per cent of the GDP. It is not two-and-a-half times; it is 400 per cent because the GDP has increased exponentially. So it is a much larger percentage of a much larger GDP. So the investment in education is 400 per cent greater. And that could only happen because in 1991 we liberalized the economy. Had we not liberalized the economy, even that wouldn't have happened.

So the key is that we must continue to grow at 9-10 per cent, to get that money to invest in education. And then we must have an environment and an educational structure to free education of controls. You allow universities to offer their own degrees. And in a competitive environment, those universities will survive where merit prevails and those will not survive where merit doesn't prevail. It is as simple as that. You need competition in the educational sector. Now, we need to move forward there.

So you really cannot compare the systems of the United States and China and India. But I dare say that this is going to work. We are going to work in this direction. Come what may, we have a Foreign Direct Investment Education Bill which Prof. Rao knows we have talked to him about. We have prepared it, but unfortunately, it has not happened because of obvious reasons. But the point is that the Bill has been prepared. Obviously there are many people in government who think in this particular way, and at the appropriate time, it will happen. And that is not going to be too far from now. So we are going to get rid of these controls. Once we are able to do that, we will move forward.

In the meantime, what is happening is that the private sector is investing hugely in education. Some of the universities are not very high quality; some of them are, in fact, fly-by-night operators and we need to take care of them. But many of them are very, very good universities. And the time will come when this state effort and university effort will coalesce and will move forward.

As Prof. Rao rightly said, the heart of the matter is that we must keep on investing in science. And that the private sector will never do. You can't expect the private sector to invest in nano-technology because he is not going to get returns from nano-technology five years, six years or ten years down the road, or tomorrow. So he is looking for short-term economic gains. Don't expect the private sector to invest in science. It is only the state that will invest in science. So when you talk about nano-technology, we have a National Technology Mission. It is the state that will invest.

In a federal structure, we must make sure that our state institutions also become exceptionally strong. Because unless the states are strong, education will not move forward. And therefore we need to help the states in a major way. And, in a sense, I think that we need to change the way we deal with education as far as state-centre relations are concerned. Well, that is another story. But that is something that we need to do.

1. Editor's note: 1 crore = 10 million

The other thing – and this was pointed out by my good friend Norman – is that China benefited enormously from what happened after 1972, which India could not benefit. What happened after 1972, and especially after Clinton’s visit in 1995, is that the whole Chinese-American partnership changed. And the kind of hardware technology that they got, India never got access to. Therefore, when you go to China and say, ‘why are they ahead in hardware than us?’ the reason is simple. We never got access to that technology because it was always denied to us. That is why they are ahead of us. When it came to software, you don’t need technology – you just need a computer. And so we are ahead – because we didn’t need any help. We just had to produce programs. And that just requires the innovation of the mind.

That is why we are trying very hard to open up the technology sector in a big way. That is why, when you talk about the Indo-US nuclear deal, it is not about India and the United States. It is about India and the international community collaborating in civil nuclear energy. We are trying to see the deal in the context of India and the United States. It is not that at all. We are trying to get rid of the denial regime which we suffered from, and because of which we are where we are today in technology terms. Once we get over that, then slowly you will see the opening up of technology. Because the days of the 20th century, even of the IPR, are over. There is no way in the world that you can meet the challenges of agriculture unless you collaborate in technology, for that evergreen revolution that we talk about, for increasing levels of productivity through genetic engineering or through markers – through identification of markers and transferring of markers through technology. That all has to be done ultimately in the lab, and that can never be done unless there is global collaboration in that area.

So you are going to get that collaboration. And IPR will not be an issue – I can tell you that. It will never be an issue because this is a global problem and you need to face it. The Americans give about \$280 billion – almost a billion dollars a day – as subsidies to their farmers. It cannot continue. The subsidies in Europe also cannot continue because they want to support one per cent of their population. One per cent of their population do agriculture as opposed to 60 per cent in India. So you cannot afford that. And you talk about subsidies that we are giving to our people. Think of the enormous subsidies that they are giving to their people. They never talk about that. They don’t want to talk about it. And once those subsidies are not given, all research will have to come here. All investment in agriculture will have to be in China and India.

It is the same with health, because today we literally live in a globalized world. You come to Bangalore and you have had to drive from the airport. There is a new international airport here and it is not enough for the population. People are already saying that we want another airport in Bangalore. We are going to open up 23 more airports. We are going to have the largest fleet in the world. We are going to have direct flights from Bangalore to anywhere in the world in times to come. So disease will move. The pathogens will move very quickly across territorial boundaries without anybody knowing about it. And when these pathogens move, they don’t care where they are. So you can’t say I will do my research in the United States, or I won’t collaborate with you, because this is going to be a global problem.

The new terrorists of tomorrow are not the ones who destroyed the Indian embassy today in Kabul, which I strongly criticize and abhor. The new terrorists of tomorrow will be the pathogens. And we are going to have to deal with them globally. Where will the research be? It will be in India, it will be in China; because wherever there is poverty, wherever there is pestilence, there are pathogens. So the world cannot afford to continue doing business as usual. In the 20th century, you could do business as usual. In the 21st century, you cannot. And business as usual was that one billion people in the western world enjoyed goodies for a hundred years. That is not going to happen any more. These goodies are going to have to be shared, because three billion people will have the capacity, as economies move forward, to share the goodies. So you will have to share everything. And the quicker we all realize it, the better it is for us.

It is a similar thing with energy. The last thing I want to say is – and this is what people don't realize across the world – India is this great democracy, and perhaps there is too much of it. It is the greatest experiment the world – the history of civilization – has seen. And we cannot afford for this to fail. I mean not just India. the global community cannot afford it to fail. What is happening in China is something that hasn't happened in centuries. We cannot afford the Chinese system to fail because you are dealing with 1.3 billion people and 1.1 billion people – you are dealing with 2.4 out of 6.2 billion people in the global world. And if either of the countries fails, the consequences on the global community are enormous. You can't even think about it.

So it is not that Indians have a stake in India and the Chinese have a stake in China. It is the global community which must ensure the success of both India and China. And the only way that can happen is through science, technology and innovation.

Thank you very much.