

## **K. VijayRaghavan**

*NCBS; Secretary, Department of Biotechnology & Member, ICTS Management Board*

Good morning to all my friends on the dais. First of all I should apologise for coming in a bit late. I took a wrong turning as I often do.

It is really wonderful to be here today and we must congratulate everyone – Spenta, the scientists here, the administrators, the engineers who have laid the bricks, taken the idea and moved it towards completion.

Before I start, I should request everyone to give Spenta and everyone in the team a big hand.

The amazing idea that people involved in ICTS took forward was to get people in place even as all the complexities of dealing with the creating of the institute – getting the land etc. People were put in first and there are quality scientists at ICTS doing wonderful work even as the buildings came up. But as Churchill said – and one always disagrees with Churchill except on this occasion – he said *‘we make our buildings and then our buildings make us.’* And I think this is very true. All over the world, centres such as these have blossomed not just because of the people but the ambience that has been created which attracts better people. The geometry of the space around is vital in ensuring that this happens. So congratulations again for building a great campus which will be very vibrant and get good people.

About the Government of India – what was being talked about in 2005 is being talked about now and will probably be talked about another ten years from now. This is the way democracies deal with government, we are rightly critical of them. This is the only way the government will function well. There is something rather interesting about India since independence – compared to other post-colonial countries. India is unusual in that they invested in education and science. For that we owe a lot to Nehru and his view about why this is important. I won't go into that but this has resulted in an enterprise, a country which is a strange mix of France and Germany on one hand and the poorest of the poor countries on the other – like a salt and pepper mix. So we have the capacity in this strange country of understanding any topic, any problem but also the capacity to solve the problems right around us. That really transforms this investment in science and technology into something which is both imperative but also affords immense possibilities of change and sustainable growth and development on this planet.

As Indian demography, with a very large number of young people, attempts to pull itself out of poverty, there are lots of pressures that come from the government and the people at large and also from the democratic system. I will outline a few of these. One of these is the demand for processes in whatever we do. The idea is that you should do things properly, there should be rules and procedures, you are using tax payers' money, you are using public resources and therefore you should tell us what you are doing. And that is very important. But processes do not make institutions, it is culture and processes together that make institutions. And institutions quite often have extraordinary culture at the early start up stage and slowly lose it. The challenge is to keep this culture and processes throughout and very few institutions have managed that. The Tata Institute of Fundamental Research has more or less managed it. The Indian Institute of Science has more or less managed it. Both could be better but they have managed it much better than most institutions in the country. This is the challenge for the country as it develops more institutions – to have culture as well as processes. I should say among the many new institutions that have started in the last few years – if you regard them as clones of each other – then you will find that some of them are doing really well. And those which are doing well are those who have brought culture into their processes. The other conflation is between precision and accuracy – there are demands that everything be done in a manner that can be converted into a number. Impact factor of journals, citations, how many trips you make or what committees you served. This is a global problem and is the greatest threat to science and to intellectual thought anywhere in the world. Combating this as scientists is a major challenge. As scientific enterprise grows there is a demand for a way of assessing people and institutions and that's important but that should not be conflated into converting it into a number and taking a decision. There is another trend that is also global. Unfortunately the chaos that is India allows us to subvert this debate but it will be upon us sooner or later. And this is a challenge of whether one should invest in basic or applied science. This is a false debate because there are only two kinds of science – not basic and applied but good and bad. So all the good basic scientists we know of have been interested in the practical problems and as long as science is embedded in the broader cultural milieu in our country, this debate will go away. And that really is a challenge we have – how can we take basic science from a situation where it is today – in which we take the best problems that the world has defined and try to be really good at that – to a situation where we in addition also define the best problems that the whole world addresses. Those kinds of new questions in basic science can come both from interacting with our colleagues all over the world but also by taking new problems from our environment – be it ecology or climate, epidemiology. All of which can raise basic questions that are embedded in our context also.

Finally I would like to end by coming back to the role of government. As I said Indian government has been extraordinary in supporting basic science, sometimes openly and sometimes allowing it to flourish without interfering. For this the government should be

congratulated, particularly the Department of Atomic Energy which set up the Tata Institute of Fundamental Research. The Indian Institute of Science is another example and the IISERs also encourage basic science very strongly and openly as do many other institutions. This is clearly very good and the government needs to be congratulated for that. But the government again falls victim to all these other aspects which I warned about earlier – about requiring processes, conflating precision and accuracy, demanding that the fruits of this year's investment be translated to next year. In that regard, the ICTS is in an extraordinary position. The closer you are to Delhi, the more likely you are to fall victim to all these kinds of demands. The Department of Atomic Energy is in Bombay so it can deal with Delhi at arm's length. The Tata Institute of Fundamental Research is again further away from the DAE, further from bureaucracy and can have a little more flexibility. The ICTS in Bangalore is even further away from Bombay, which is very good and in Bangalore it is still further away from the centre of the city. So it's fantastic. So you have all the flexibility to ask for forgiveness for all your transgressions rather than ask for permission. In that manner wonderful things can happen. So it's very important that with all this flexibility this campus becomes a vibrant place where students from all over the world and the best scientists can come in and makes this a thriving campus which feed back into our society and spreads this culture which is so nicely developing.