

'The Best Place To Work'

The IISc director on the 100 years gone by and the 100 years ahead

Sugata Srinivasaraju interviews Prof P. Balaram

How does it feel at 100? What thoughts pass your mind?

I think a hundred is a very special milestone for an Indian institution, because 100 years encompass the most important period of modern Indian history. It encompasses several decades before and after Independence. Therefore a century of the Institute is in many ways a century of science and technology development in India.

What are those factors in these 100 years that has made IISc a premier institution of science?

The most interesting thing about IISc is its history. Its origins are set at a time when there was no scientific research of note in India.

"The absence of a nobel winner isn't worrying. One would like to raise the whole level of performance."

This was the very first decade of the 20th century. The institute evolved very slowly. In a sense, if one uses a biological analogy, it has been shaped by environmental pressures. IISc has responded to the changing environment in a gradual manner. It has been invested with a degree of stability and solidity which may not be always available to institutions that have grown rapidly over a short period of time.

Can you elaborate on these 'environmental' pressures?

For example every dept of the institute in the early days was set up as a response to some need of the surroundings. The institute itself began with one department of chemistry and one department of electrical technology. So, it had one science and one engineering department. This was to serve the

needs of the growing chemical industry at that time and also the increasing need for power. This was a 100 years ago. The bio-chemistry department was set up later, when it became apparent that research in nutrition and on food was critical. The physics department came to being when C V Raman became the first Indian director and he brought in this component of basic research.

Before Raman was it a technology-oriented place?

It was not technology-oriented, but it was an institute that was oriented towards research, which had applications in the immediate surroundings. The early bio-chemistry work that was done for example was done on sandalwood, which is of great importance in Karnataka. But during the Second World War, when it became apparent that there was a great need for industrial growth in India, as well as the recognition that Independence was not far away, the board of scientific and industrial research was set up in India. The institute actually grew in a dramatic manner with many engineering departments being established at that time. So, if you look at most engineering departments here they were set up in the 40s and some in the early 50s.

So, a new nation was creating new pressures?

Yes. Significantly, this was long before the IITs were conceived. If you look at the history of development of engineering education you will find, the true source of the intellectual capital for setting up the IITs came from the institute. Although they were set up with foreign aid, the people who went to man them were from here. Prof. J.C. Ghosh, the first director of IIT Kharagpur, the first IIT to be set up, went from here. He was the director here. He was the one who set up many of the engineering departments here. The first director of IIT Kanpur, P K Kelkar, was an alumnus of the institute. All the national laboratories that came up -- the CFTRI, the Dept of Atomic Energy and ISRO among many others -- have either been conceived, or in their genesis been helped, or during their gestation period maintained from the institute.

In the 100 years of its life is there something that the IISc should have done, but didn't do?

When you look back at a lifetime for individuals, you can have a regret. You might have done this or you might have done that. But I don't think that institutions look back the same way.

Institutions shape differently, they evolve differently. Institutions do not make conscious decisions. The decision or directions are many times made by external factors. So I don't think institutions can look back on their history with any regret and say this should have been done and that should have been done. In fact, what institutions should do is look ahead and ask what should be done. We are using the centenary year in many ways not only to reflect on the past but also to think a little bit about the future.

The environment in Bangalore in recent years is filled with technology, do you see pure science surviving?

I take somewhat a more detached view with respect to this apparent loss of interest in pure science.

This is largely because in urban centres people sense opportunities in others directions. The flame of pure science must be kept burning only by a relatively small group of people. The phenomenon you are seeing is really an urban phenomenon. It is not the phenomenon of small towns. Certainly not a rural phenomenon where there is no exposure to either science or technology. I think we have a very large resource in our population. It is a matter of how innovatively we tap this human resource.

A student today, given a choice between an IIT and the IISc, would want to join an IIT, although they know getting into the IISc is very big. How do you look at this?

IITs and the IISc are not competing institutions. They are in many ways complementary institutions.

IISc is unique in the sense it is primarily a postgraduate institution. We don't really offer undergraduate degrees here as yet. While the IITs are predominantly undergraduate institutions, although they do have a significant postgraduate presence in some departments. We are in some ways a more research-oriented institution. We look at other institutions as a source for

our students. We would like to attract students who have graduated from colleges, universities and also IITs.

Is there a crisis of finding good students?

I don't really know if there is a crisis of good students or if there is a crisis of appropriately trained students. Human beings, if looked at as raw material, don't vary enormously. They are reasonably good people. They must be trained properly. The real problem is that training in schools and colleges has deteriorated, essentially because the teaching profession has not been well regarded or rewarded, both in terms of respect and remuneration.

Is this because of some lopsided development of some technology industries that has taken away all the talent?

I may be in the minority on this, but I wouldn't call it lopsided development. When an industry explodes, as the IT industry has exploded, it obviously means that they are on to a good thing. It provides enormous sources of employment and improvement in economic conditions for large sections of populations. Therefore I will not grudge the explosion of any sector of industry at all. I would say more power to them. But I would think that the education sector must look at itself with a significant degree of introspection. They should ask the question if they have been attractive enough. Do they make things exciting enough for students?

Does the IISc have any plan in place to attract good teachers and students?

We are thinking of some initiatives. We would like to get college and university teachers to come here and spend time and become familiar with the research activity that takes place here. This will enable the researchers and teachers to have some connection with one another. This is very important. In the old days the UGC would run a lot of summer schools. We ourselves used to run a lot of them here. Over the years many of these have fallen into disuse.

There are many attempts to revive them with fresh inputs and by giving fresh names.

There is a very humanising aura about the IISc, how has it come about?

I spent all my adult life in IISc. You can't find a better place to work. It has a wonderful ambience. People are free to do what they want. By and large the discourse here is gentle. Many many people in IISc are involved in their work. They like what they are doing. They are completely involved in it. They are happiest when they are pursuing their research. If more number of people are happy, their happiness contributes to the ambience of the place. An academic research institution is a wonderful place. However lowdown in the academic hierarchy, there is nobody telling you what to do. You are really in many ways marching to your own tune.

Did the involvement of people like J N Tata, Vivekananda or the very benevolent Mysore Maharaja at the inception of the institute alter its course? Did it make a difference to the way the institute shaped? Did these great men set the tone?

I don't think individuals matter. In fact, if you look carefully at the archival material, you will realise that the institute has gone through a very turbulent phase. It is just that that turbulence has vanished into history. People don't know about it. Newspapers and magazines remember turbulence that are current. The mandate of the institute is to provide an environment in which people do their research and work in areas of interest to them. This gives them a freedom that is unparalleled. I don't grudge anybody's high salary, because for all you know he may be doing something he does not like. He may be really earning his salary. Here you are paid to do what you like to do. That is not very common.

Without the intellectual capital of IISc do you think Bangalore would have become a IT hub or would so many public sector industries flourished here?

The institute has contributed to the growth of Bangalore in a very imperceptible way over a long period of time. Let me give you an example. We had the country's first aerospace department. Now, HAL grew from people who went from here. NAL came later and lot of people there,

past and present, were

alumni of this place. If you take the space department, Prof. Dhawan made ISRO what it is today,

because Vikram Sarabhai died prematurely. But Sarabhai himself was associated with the institute. The

same is true for electronics industry and many aspects of IT industry.

Does it hurt you that Bangalore's reputation as a science city has been submerged by the tag IT city?

People in the scientific community get rankled about this?

No, I don't get rankled. If tomorrow Bangalore acquired the tag of film city or something else, why

should I worry? A city must have growth in all directions. The institute is quite secure that way.

The institute is part of the old tradition of the city and I think the old tradition of the city

would survive.

The Nobel Prize is not a criterion to judge an institution, but still, it is pointed out that the

IISc has not produced a Nobel-laureate.

I can only tell you my personal views. I wouldn't worry about it at all. Although the Nobel prize is

the best known among scientific recognitions, it is given to very few people.

There are a lot of

people in the US who should have got the Nobel but have not. There are some people in India who

should have got a Nobel prize but did not get it at a time they should have got it. The question is,

suppose they had got a Nobel prize, would India have been tremendously different today? May be not.

It may have provided us with an immediate burst of energy and enthusiasm. I still hope it will happen

someday. Someone in India will get the Nobel prize. It would be a little like Abinav Bindra getting a

gold medal at the Olympics. You can ask, now in general will it lead to Indians doing well in sports?

Will it lead to getting 50 gold medals in 20 years time? I would say I don't know. I wouldn't worry

about the Nobel prize. When you are talking about the Nobel prize you are talking about peaks. You

can have peaks over pretty barren landscape too. On the other hand, what one would want to do is to

raise the level of this landscape itself.

Where does the institute go from here? Also, you are presiding over a historical

moment.

I am conscious of one thing. These sorts of anniversaries put a great deal of pressure on individuals and sometimes I think you happen to be present at an anniversary by accident. As far as the institute is concerned, we would now like the institute to modernise in a major way. We have begun the process of modernising our laboratories. We want the next generation of researchers to be doing research in laboratory surroundings that are distinctly more competitive from what we have had till now. We are also investing in new areas. We are making investments in areas of nano electronics, nano science, and areas of biology. We are constructing new buildings for the aerospace and physics departments. We are also putting into motion programmes that will bring many more international scientists to come and work here for reasonable periods. We want to increase international presence here and make it more heterogeneous. And we would like to expand in some other areas too. We are looking at the possibility of creating an inter-disciplinary research centre where we hope biologists, physicists, computer scientists, electronics and electrical engineers and people from other fields would all work together on some important problem of great practical use. One area that has been identified is energy and materials. Also synthetic biology. Last year, we created a centre for earth sciences and are in the process of creating a centre for neuroscience. My personal hope is that we should be able to expand the component of bio-medical research. Another programme that is still being talked about is if we should actually create an undergraduate programme as a bridge between science and engineering and try to create a unique programme that is not available elsewhere.

Is there some scope for humanities and social sciences in the institute's plans for the future?

This is again my personal view. Every place which is devoted predominantly to science and technology would vastly benefit by having a small section that dealt with humanities and social sciences. In fact, the setting up of the archives at the institute is itself an attempt to hope some historians of

science would come and spend time here. We started a centre for contemporary studies sometime ago to bridge this gap, but these are still small efforts. I hope we will be able to do more.