

## "India's biotech industry can reach \$100 billion by 2025"

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There are seven major scientific departments in India's federal government including biggies such as space and atomic energy. Change of guard at these departments take place regularly, but only one of these departments, the Department of Biotechnology (DBT) has a thriving \$ 5 billion industry watching every move in DBT with avid interest. The appointment of eminent geneticist and director of National Centre for Biological Sciences (NCBS), Bangalore, Prof. Krishnaswamy VijayRaghavan, as the fifth secretary of DBT since its inception in 1986 to succeed Dr M K Bhan has been widely welcomed by the industry. That the government chose to bestow the highest civilian honour of Padma Shri on Prof. VijayRaghavan for his scientific accomplishment on January 25, 2013 is an added sweetener for the biotech community.

Hours before taking charge as the secretary of DBT on January 28, 2013, Prof. VijayRaghavan shared his quick thoughts on the contours of India's biotech ecosystem and how it may evolve in the near future in an exclusive interview with BioSpectrum group editor, Mr Narayanan Suresh. Excerpts from the interview:

**From being a scientist, a distinguished professor, a director and now the secretary of DBT, how would you view this opportunity? How are you preparing for the role of a national policy maker?**

As scientists, we are used to demanding that the 'system' serve us in our endeavours. And indeed it has done so extraordinarily well. Despite all our problems, India has been steadfast in supporting science. Therefore, when asked if we will participate in science administration, it is important that we give careful consideration to such opportunities. If the system is to serve us well, we must participate in the system.

In terms of preparation, I will be spending time in listening carefully to everyone. There are many experts and many views about what to do, but all we want to be part of evolving real solutions to complex problems.

**What would be some of your priority areas?**

- Ensuring the effective reach of the DBT science funding-system and combining the further building of foundations and of excellence
- Capacity building in our core strengths and in emerging areas
- Strengthening biomedical and plant research
- Ensuring a connectivity of our programs with our society: our people, our industry, entrepreneurship and our sustainable future. Much of this is feasible only through cooperation across our science agencies and with other ministries. Working together, we see opportunities and not problems.

**You have set up NCBS and very successfully built an institution that we can pride to be a truly world-class institute. Can you outline some of the key things that worked in building such a pre-eminent institution?**

Collegiality with a shared demand for excellence, NCBS grew with the view that its problems could be solved and its ambitions met by its efforts and not by solutions from outside. I may be wrong, but I think if we expect less of others and demand more of ourselves we can grasp 'luck' better when it comes by. NCBS has been lucky, but it has been prepared.

**Can some of these best practices be applied to take DBT to the next level?**

One of the mistakes we make is to assume that the same method 'works' everywhere. Each context is special. DBT has an extraordinarily dedicated and passionate group of officers and working with them and with our life sciences and biotech community will be the best way to learn what to do.

**What is your expectation from the industry and what is the kind of support that you look forward from it?**

Again, I need to work with industry to understand this. But here is what a senior colleague at the DBT, who is working closely with industry, has to say: "India is at the threshold of a decade of innovation and Indian biotechnology is poised to provide solutions to myriad challenges that we as a country face be it in health, food, fuel security. The solutions that India can offer will have both national and global relevance."

The biotech industry as it is positioned today has a potential to reach \$100 billion by 2025. The components of this bioeconomy will involve all aspects of the biotechnology sector, from new forms of vaccines, novel protein therapeutics, biosimilar manufacturing, improved plant hybrids and renewable energy from biological sources.

The biotech industry growth has been steady at around 20 percent CAGR (compounded annual growth rate) for almost a decade now. With the excellent foundation, improved and increased capacity both in human resource and infrastructure, a more conducive innovation research environment, and favourable policies, it is hoped that the Industry will respond and work towards stepping up its growth to 30 percent CAGR. To achieve this target, it is important to identify the challenges and barriers and do a proper risk analysis, in order to identify the critical sectors which need immediate attention and facilitation. A concerted effort is required by all stakeholders - government, private sector and academia.

The Government of India through Department of Biotechnology (DBT), has nurtured the biotechnology field since 1986 and now through the recently established public sector Biotechnology Industry Research Assistance Council (BIRAC), it aims at empowering and enabling the biotech innovation ecosystem for affordable product development.

The DBT would work on developing a strategy for innovation-based biotech entrepreneurship creation for ensuring a bioeconomy with substantial public benefit. A new paradigm of relationship between academia, industry and government, dedicated to quality innovation is to be evolved."

**Would you like to share any thoughts on some of the plans or thoughts for DBT in future?**

Much too early!

**Will you continue your association with NCBS as a scientist and guide your students?**

Yes!