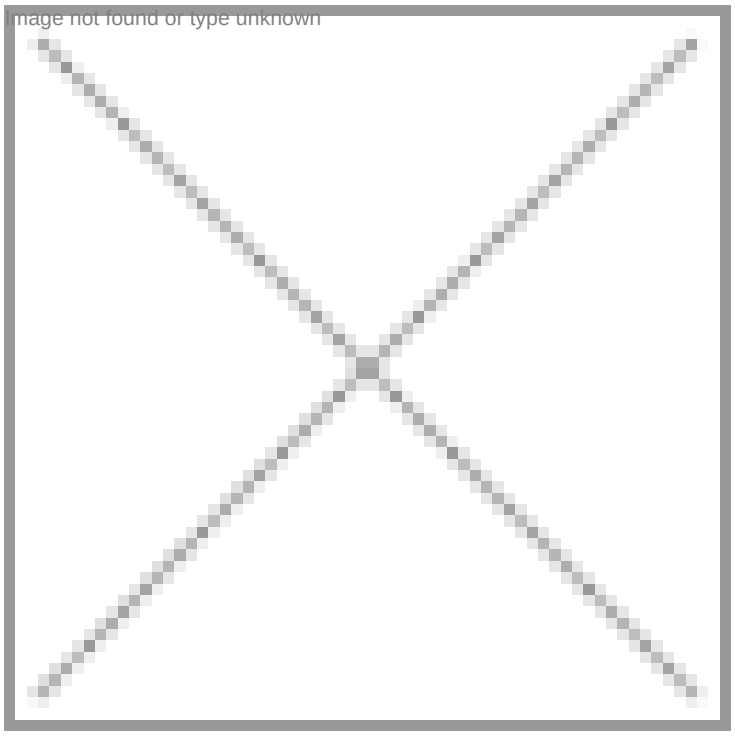
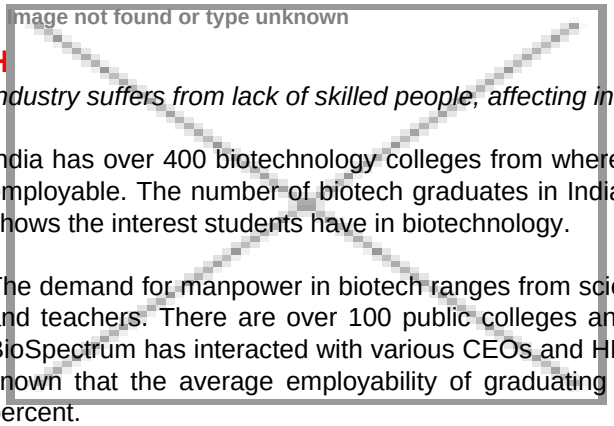
BioSpectrum the business of Bio & Health Sciences

7 Roadblocks

08 March 2010 | News





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Industry suffers from lack of skilled people, affecting innovation

India has over 400 biotechnology colleges from where annually over 15,000 students graduate, however, not all of them are employable. The number of biotech graduates in India has increased to 15,000 in 2009 from a paltry 1,000 in 2003 and this shows the interest students have in biotechnology.

The demand for manpower in biotech ranges from scientists, researchers and technicians to the sales personnel, legalteams and teachers. There are over 100 public colleges and over 300 privately-owned biotech colleges in India. Over the years, BioSpectrum has interacted with various CEOs and HR executives in biotech companies to look into this aspect, and now it is known that the average employability of graduating students in the country for the Indian biotech sector was just 22-25 percent.

Lack of practical knowledge and hands-on experience imparted to students at educational institutions can be one of the reasons for this dearth. Quality thus becomes a crucial factor for such a specialized industry. Being a knowledge intensive sector it requires highly-skilled manpower. It is for this reason that biotech students think it is appropriate to study abroad, acquire higher degrees and specialization to get better exposure in terms of salary and growth.

Technology access

Constraints limiting researchers' access to vital technologies

Indian scientists have difficulties accessing information and participating in knowledge networks. They also have very limited access to efficient utilization of high-end platform technologies.

If Indian scientists have to grow up to world-class levels, India needs to create physical infrastructure in critical platform technologies. These should be used to support disciplinary and interdisciplinary education, training and research in biotechnology.

Platform technologies facilitate a broad range of application-based activities. Access to appropriate platform technologiescan reduce costs and avoid unnecessary duplication of facilities, increase international R&D competitiveness and provide an environment of effective networking and collaboration.

Innovation ecosystem

Building the right innovation climate is critical to the innovation process

India lacks an innovation ecosystem that can drive the country's development over the next decade.

Innovative solutions that are developed in several research labs with potential are not nurtured and rapidly applied.

Research institutions must promote an innovation culture. Their research goals should be aligned with the expectations ofthe industrial and social sectors. Scientific institutes should also improve their outward orientation by strengthening links with industry and increasing international research partnerships.

Different types of policy measures are also needed to create a climate favorable to innovation. Along with policy measures there is a need for local structures such as incubators and innovation centers which help entrepreneurs developing their projects. The development of a venture capital industry is equally important. It is needed in the later part of the innovation process when projects have to be scaled up at the production and commercialization phase.

Lack of seed funding

VCs and PEs are risk averse

Unlike other industries where gestation period and time to market is less, biotech industry is a time and capital-intensive industry. A product development can take anywhere between 5-10 years and has a massive cost involved and this puts off venture capitalists and private equity firms who cannot risk loosing money when a product fails. While this is the case in India, abroad, especially in western countries, VCs invest seed money into a startup.

India has numerous firms ready to pool in late stage funds of a product cycle but there is a dire need for startup funding inthe country. Industry experts attribute this to the lack of awareness amongst investors about the complexity and technicalities of the industry. The long drawn gestation period in a product cycle is another reason for VCs and PEs being reluctant, as it does not bring about quick RoI. Barring a handful of firms that have a dedicated team for life sciences and have allocated separate investments for this sector, there are many firms for whom the sector remains in the periphery of their priorities. Investors on the other hand claim that there is a lack of innovation in the country. This is a stark contrast to funding firms in North America and Europe where team members are veteran biologists and have had hands on experience of the industry.

Spirit of entrepreneurship has not caught on

Entrepreneurs look at quick RoIs which is why biotech does not appear to be their preferred choice

Biotech in India might be picking up but a lot depends on investments not just by funding firms but on the willingness of the new age well informed entrepreneurs opting for this sector. India has definitely brought out some successful entrepreneurs like Dr Kiran Majumdar-Shaw of Biocon and Varaprasad Reddy of Shantha Biotech but then the number of entrepreneurs opting for the sector still remains small. Being a science-intensive industry, entrepreneurs find it difficult to grasp the dynamics. Also staring a venture in biotech requires heavy investments and lack of funding mainly at early stages is a major deterrent.

Research infrastructure

Despite some recent initiatives by the DBT, the lack of infrastructure has been a major bottleneck to promote R&D in India

It has been well said that tomorrow belongs to those who can innovate today. This can come only with effective research. As R&D forms the core of the biotech industry, the availability of a better infrastructure plays an important role in its overall success. Positive steps taken by the government in the form of development of bioclusters with great infrastructure at Faridabad, Bangalore and Mohali are commendable. Despite these initiatives, there are certain areas that need to be looked

into.

The lack of proper research infrastructure has been a major impediment to the growth of life sciences industry. The not so easy access to technology and information along with the better coordination between researchers has been lacking. The need of the hour is a total revamp of the existing structure to promote innovation as well as providing the medium to achieve it including the increase in fund flows.

So far, Indian universities have not been able to get proper research infrastructure. The better equipped labs and all the related facilities required for research needs to be provided. There is also a need for co-ordination in different research areas and sharing of facilities between the government and the private sector.

Institutional framework

The lack of enabling institutional framework led to the compartmentalization of public and private sector activities thus hampering the cause of the research

Institutional framework has been recognized as an essential component for the sustainability of the industry. This involves the commitment and genuine involvement of a broad variety of components namely the public sector services; the scientific community; private firms; local and non-governmental organizations.

However, in India, gaps in institutional framework and the lack of well-defined roles, have led to cases of conflict of interest between different authorities thus hampering the growth.

Therefore, there is a need of having an institutional framework with in-house competent experts from multidisciplinary fields dealing with different aspects simultaneously and finalizing the decisions concurrently. Such an institution could work under a single regulatory authority that could oversee the bio-safety concerns right from the stage of planning and research to product development.

This could produce innovative ways of broadening the research-funding base and sharing responsibilities. Better liaison between research providers and research users, and a balance among the research organizations, could force the system to move towards a dynamic and entrepreneurial approach, thus increasing the effectiveness of the overall research system.