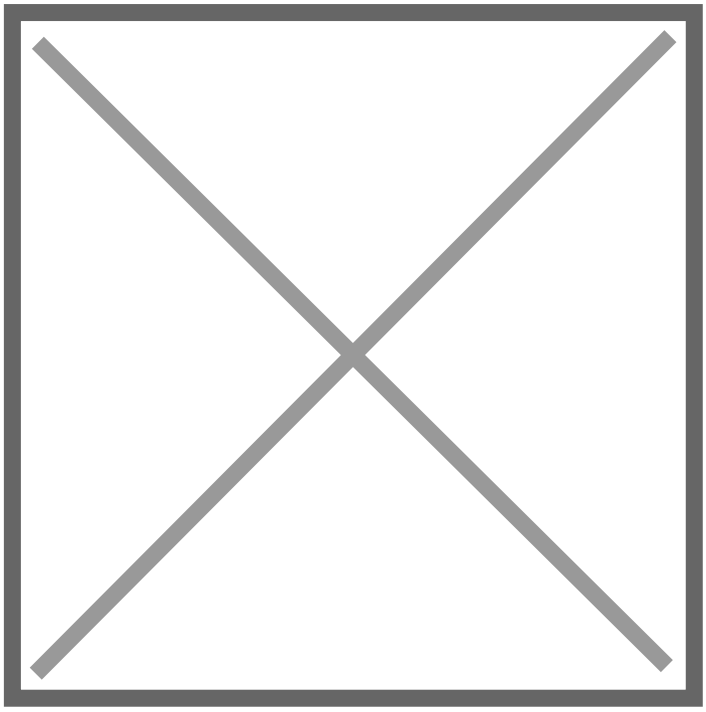
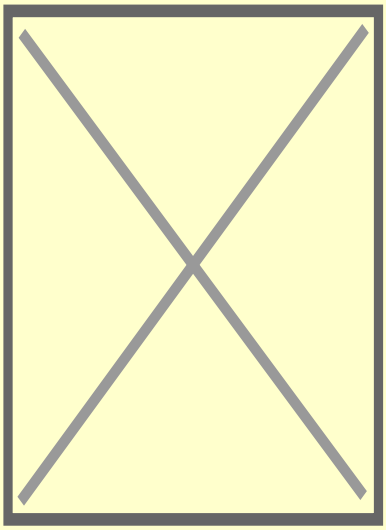
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Catching them young

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Catching them young



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The interest in life sciences needs to be revived so that more and more young minds take it up as a career option

An understandable concern among parents of students undergoing biotech courses is whether their wards will be able to get suitable jobs. While there is no dearth of graduating students, the common refrain from the industry is that they are unable to find enough talent to fill in the growing number of scientific positions in their organizations. It is not the lack of employment, but the employability of the candidates that is often cited as a reason for this striking paradox. There is something amiss in our

biotech education system that needs to be immediately addressed if the lack of human resources should not become a stumbling block in the future growth of this sector.

The biotechnology industry in India is growing at a healthy clip of around 40 percent year-on-year in revenue terms. From the current size of over $2 billion (over Rs 8,000 crore), the industry should be doubling in size at least every three years to reach the projected size of over $25 billion by 2020. The present growth rate will not be sustainable as the base becomes bigger, unless there is significant boost to innovation and product development. Today, India is seen as an attractive destination for contract research, primarily because of the cost advantage. For the same reason, the cost of failure, a risk which is inherent in any innovative research project, would be less if it is done in India. India has an unquestionable lead in the area of generic drugs.

But these are all the low hanging fruits and would serve us well only for the next few years. The real value of biotechnology is in novel products that can address the growing needs of mankind. And in our country, with over one-sixth of the global population, no one can complain about lack of demand! It is estimated that the global pharmaceutical industry, which is over $600 billion dollars (in sales) would double in the next 15 years and 20 percent of that would be between two countries, India and China. The Indian biotech industry therefore has no option but to make investments in the necessary infrastructure and scientific manpower to promote innovation and product development. The physical infrastructure can be created provided you have the financial resources. Training of skilled human resources, however, is a different ball game and need the revamp of the current biology education system through short and long-term measures that are initiated right away.

There has been an unrestrained proliferation of institutions offering biotechnology courses in the country in the last few years. Somewhere along the way it was also forgotten that biotechnology is not a stand-alone science, but is the application of basic sciences, primarily the life sciences-microbiology, botany and zoology, complemented by principles of chemistry and physics. It also draws from the developments in many of the other engineering and technology disciplines like chemical engineering, information technology and material science. While it may be more fanciful to flaunt a degree in "biotechnology" as against one in one of the basic sciences, such a "specialization", that too prematurely, runs the risk of producing candidates who do not have a rounded understanding of the fundamentals of basic sciences. Such candidates, even from good institutes, of which sadly there are too few, will not be able to meaningfully contribute as part of a multi-specialty team, to a project that a dresses a specific biological problem. At best they could be glorified technicians. To add to this, the methods of training in most colleges do not impart the spirit of enquiry nor the necessary experimental and analytical skills which are the basic requirements to be an innovator in an industrial environment. Companies often have to spend many months, if not years, in training before a new recruit becomes a productive member of their team.

In these early growth stages of the biotechnology sector in this country, there are not enough companies, which are large enough, that can afford to spend the time or the resources. The creation of an independent national accreditation agency that can ensure minimum standards in biotech education has been mooted by various experts. Continuous faculty improvement programs for existing teaching staff in the departments offering biotech courses is another valid suggestion. In addition, "finishing schools" where students can enroll for a short-term course after their degree programs to gain some of the skills that the industry would be looking for, would be useful. However, these are all at best, ancillary and short-term measures. The real change can happen only if the interest in life sciences, which has been on a decline for the last several years, is revived and more and more young minds take it up as a career option. This effort therefore, has to necessarily begin in schools, particularly the senior classes where the student is at the threshold of making a career choice. There has to be a serious effort to revamp the biology curriculum in schools so that the excitement and the immense promise that this field holds, are not lost on the young minds. Programs that kindle the intellectual curiosity-learning through inquiry and through "problem-solving"-have to be developed. Sadly, this is the one glaring omission in the recently released National Biotechnology Policy,-while there are several measures outlined to improve the undergraduate, masters and doctoral programs, there is nothing in it to catch them young!