Interview of Dr. Sandeep Narula with Bio Spectrum

of India's population is between the ages of 15 and 24 years. This huge mass of talent if provided with the right mix of knowledge, the foundation developed would be strong enough to propel India into a strategic position globally.

Where is the gap?

Research beneficial to mankind demands excellent teacher-student-industry pipeline that can keep pace with the rapidly advancing field. Unfortunately, academic health of life sciences in most of the universities in India is not up to the mark.

Ajay Bharadwaj, MD, Anthem Bioscience said, "Talking about the gap, the quality of teachers in most of the institutes is not up to the mark. Poor pay scale in educational institutes could be one reason why good teachers for this course are not hired thus compromising with the quality. As a result, what we found during hiring interviews is that students may be academically fine but are not up to date with the industry."

"Lack of practical training is the main reason for workforce in biotech industries in India lacking behind as compared to other industries in the world. Most of the students coming out of institutes have little practical knowledge of the subject for lack of latest instruments and equipment in laboratories." he said.

Dr Sandeep Narula, Associate Professor, IIHMR University said, "Biotech is a purely research oriented field. It is highly scientific and research driven. Unfortunately, the basic research here in India is very poor."

"Students in India generally do not opt for higher studies. Enrolment in higher education in India is growing steadily at a rate of 6.1 per cent, but this is quite low as compared to the boom in the economy. There is a steep dropout rate. Only 2.5 per cent of the population enrols in post-graduation studies, while only 0.0283 per cent go for doctorate-level studies. Of the total enrolment, just 20.45 per cent of students are in the faculty of science, while the major chunk opts for the arts stream (45.13 per cent)", according to the report by National Institute of Science, Technology And Development Studies (NISTADS), CSIR.

These figures clearly indicate that India is merely producing graduates and post graduates in large bunches that are not absorbed by the industry which is nothing but wastage of huge investments.

In her blog, Kiran Mazumdar-Shaw, Founder of Biocon says that academic institutes of learning and research have focused on developing large numbers of qualified personnel but not necessarily with the skills and quality attributes sought by industry to compete globally. It is vital to fix the skills deficit if we are to attain our global aspirations.

"Today, the rapid pace at which scientific knowledge is advancing puts a high demand for highly skilled scientists and engineers. We need to push the boundaries of genetic engineering in order to find innovative applications across a diverse cross section of industries from pharmaceuticals to agriculture, industrial enzymes and informatics. Furthermore, synthetic biology is gaining great prominence in developing new diagnostics, novel vaccines and drugs and a number of value added nutritional and food ingredients. Another evolving field of study is the area of bio-markers and companion diagnostics, which is the future of new medicine that will personalise therapy and optimise the benefits of biotech drugs. Another frontier area is DNA-based biometrics which can far outweigh the benefits of retinal and fingerprinting technologies of today and emerge as the most reliable identification technology of the future. Its application in India's Aadhaar programme can spearhead a powerful global paradigm," she said.

A lack of necessary laboratory infrastructure at many Indian colleges means many biotech graduates probably not have used a basic biotech tool such as a gel apparatus. Such lacunae make their undergraduate knowledge inadequate for an industry set-up. The need of the hour is therefore to equip students not only with theoretical skills but also help them specialise in their chosen field of biotechnology through a rigorous multidisciplinary project oriented approach that encompasses practical training on sophisticated laboratory instrumentation, she said.

"Since, it is a highly research driven programme it is pertinent that universities offering them should have a strong infrastructure for research. Tie-ups with industry and providing industry ready graduates is the need of the hour. Scientist and faculty members should