Chapter 13
Preparing Bio-Entrepreneurs: A Case Study

Sandesh Kamath B.
BioGenics, India

Gireesh Babu K.
BioGenics, India

ABSTRACT

The Indian life science industry broadly comprises manufacturers and service providers. The manpower for both these sectors has to come through the institutes of higher education, mainly the universities. In order to create newer jobs, encouraging start-up enterprises is very much essential. The present day university life science education prepares graduates to work in a pre-set and defined industrial or academic set up. Planned and informed guidance, mentoring, and hand-holding are required for graduate students to inculcate the passion for an enterprise. During their coursework, igniting a flame of entrepreneurship, motivating them to become their own boss and creating conducive environment to establish a business could significantly contribute to the socio-economic growth of a society. The well-coordinated efforts of industry heads, university professors, corporate associations, and governmental departments could bring about radical and far-reaching changes in setting-up industries by fresh bio-graduates. This case study throws light on how the existing system can modify its course work to achieve this goal and how an industry-academia-government alliance can play a significant role towards this initiative on entrepreneurship.

INTRODUCTION

As an interdisciplinary subject, biotechnology or applied biology has wide applications in health-care, agriculture, industrial and environmental domains. In India, these domains heavily rely on university system of education to cater to its manpower needs. The present syllabus based graduation and post-graduation focuses on making a person technically informed and learned. Theory and practical sessions running hundreds of hours end up with score or grade-based evaluation system.

After completion of post-graduation, students generally pursue their career in one of the three areas. Firstly, research leading to doctorate degree,

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secondly, manufacturing industry and thirdly, marketing biotech products and services. Very small percentage opts for PG degree like Master of Business Administration or Master of Science in universities. After Ph.D., commonly, the career continues in one of the two paths, either as a post-doctoral fellow or with a position in industry or academic/ research institute. We chose to take up biotech research, completed Ph.D., then the quite unusual path of self-employment and choose to set up a biotech enterprise. Here we discuss few issues on bio-entrepreneurship and how the present bio-education system, both at post graduate and doctorate level, can facilitate starting up of newer firms.

Issues and Challenges

Small chunk of fresh life science post graduates/ bioengineers with entrepreneurship zeal, coming out of universities, could contribute to phenomenal growth of bio-industries. Suitable guidance and mentoring during the postgraduate course should inspire the prospective student to start and successfully run an enterprise. When one graduates out of this system, willing to start an industry, finds him in front of a puzzle square. The terms business, finance, market, does not mean anything beyond the dictionary definitions. Choosing an area of activity, out of what one has learnt- microbiology, botany, zoology, biochemistry, immunology, enzymology, bioinformatics, biostatistics, molecular biology, genetic engineering, demands panoptic exercises.

Business Plan and Funding

Making a business plan provides overall view of the business proposition and future directions. But business plan preparation needs critical evaluation of market, vision for foreseeable future and understanding of investment matters. These were never a part of our classical study in the past; hence the efforts to generate an effective business plan are entirely different from writing a laboratory experimental report. Any financing or investment in this field was viewed as "highly risky" by the conventional bankers. Self financing was the only available choice to make things happen. Newer biotech processes always attract the industry, producing quality products and providing cost advantages. Hence it was planned to set up a research laboratory to develop cost-effective microbial processes. Since this goal is longwinded and slow rewarding, this laboratory was offered to students to expand their practical skills and thus making the business plan feasible and viable. This also gave a scope for interested students to work on desired area of biotechnology where they can shape their career and, revenue model was generated to make the firm viable.

Immense potential lies in the biotech area to innovate and bring out novel processes and products. This was the driving force for us to get into research and development. The advantage we had was the previous work experience in the technology development projects and training the manpower to match the present day industrial needs. However, this would not even meet half of what is required to kick start a biotech firm. Schemes of Department of Scientific and Industrial Research (DSIR – www.dsir.gov.in), business incubators of Ministry of micro, small and medium enterprises (MSME – www.dcmsme.gov.in) were few of the sources of support to which we looked at for anchoring, growth and to make the ends of circle meet.

University and Industry Collaboration

We strongly believe nurtured university and industry collaboration can bring about considerable changes and a new environment promoting new biotech enterprises. Although this is a long felt need, few hurdles have to be cleared. For instance, the stakeholders- biotech academic institutes, industry associations and policy makers have different and quite contradictory views on