

Biotechnology in India and Biobusiness Opportunities

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Biotechnology, a frontier of science offers enormous possibilities of its use as a premium precision tool for the welfare of society and creation of wealth for sustainable commercial and socio-economic development. Biotechnology also offers immense commercial and socio-economic potential for the development without destruction. The sweep of biotechnology is quite vast as it embraces many sectors of the global economy with the potential to answer the pressing problems of immense growth in population, need for increased food, medicine, energy generation to clean environment. During last five years, there has been a stupendous growth of biotechnology in the country reaching to \$ 2 billion and the Bioagri sector reaching to \$130 million. At present it accounts for 1.1% world's biotech investment. During the last three years an increase of 30-35% has been observed every year in biotechnology field.

Biotechnology which was being pursued in about a dozen national research laboratories and universities and few enterprising entrepreneurs, few years ago, have undergone massive change. The first wave of biotechnology entrepreneurship started in 1999-2000 when India had about 75 companies with very small revenues. By 2005 the number of companies climbed up to 2000 generating revenues of \$1 billion. The industry today has touched \$2 billion in revenues. According to a recent survey by Biospectrum India, there are 35 top companies in field of Biopharma and Bioagriculture. The Biopharma sector has largest contribution. The Government of India through Department of Biotechnology has taken several initiatives creating an enabling environment for the industry to utilize India's potential and strength. The country has several multi national companies like Biorad, Lilly, Monsanto, Aventis, syngenta who are making a successful business. The India's Biotechnology is going global. The Shantha Biotech's - **SHANVAC-B** meets 40% of the global demand of Hepatitis B vaccine. India's first genetically engineered vaccine costs less than half the price of competing vaccines.

The country is the largest producer of Measles & DTP vaccines and these vaccines are exported to over 130 countries. About 10 vaccines are under clinical trials. In the field of Bio Agriculture India is the 2nd largest producer of food and offers significant opportunities to source products. This year India surpassed China in growing BT cotton. It is being grown in 3.8 million hectares. The country has released 62 hybrids of transgenic cotton for commercial cultivation. Thirteen transgenic crops have been approved for contained multilocational trails. For the promotion of human resource, the Department of Biotechnology has established Centres of Excellence and is supporting M.Sc and PhD programmes. It is also setting a Centre for Translational Research and Centre for Technical Training. A mission on biofuels and bioenergy has also been launched. The Department of Biotechnology has formulated a National Biotechnology Development Strategy for the growth of Biotech industry. The strategy includes setting up of innovation clusters. Biotech Parks, special economic zones, world class regulatory mechanism, promotion of public private partnership and grant of several incentives. Bioclusters have developed in several parts of the country mostly from south such as Hyderabad, Bangalore and Chennai.

Biotech Park, Lucknow

UP is becoming a hub of Biotechnology in the North India and a favorite destination for Biotechnology research, training and business because of the enormous opportunities. The setting up of Biotech Park jointly by Department of Biotechnology Government of India in collaboration with Department of Science and technology Government of India has provided a great impetus for the growth of biotechnology. The park is serving as technology incubator where several common facilities are being provided to new entrepreneurs and has attracted several industries. In Biomedical and Pharma sector, a Human DNA Bank, first in this part of country has been set up by M/s **Iqra Biotech Services** and the company proposes to start an umbilical cord blood bank for which they have leased out a plot in the park. M/s **Sepragen** US Based company is setting up their production unit. Along with the office and laboratory space, they have leased out a plot of 1 acre in the Park. M/s **CLINTECH RESEARCH** a USA -

based Clinical Research Organization (CRO) is having a wholly-owned subsidiary in India and has leased out space to set up their office. They provide clinical development, data management, regulatory and pre-clinical toxicology, and consulting services to pharmaceutical and biotechnology. M/s **Shantha Biotechnics Limited** has taken 6000 sq ft constructed space for the production of diagnostic kits and other products. M/s **Life care Innovations Pvt Ltd.** are in process of setting up their R&D cum production facility for biotech products for health use (including therapeutics, diagnostics & vaccines).

To boost agribiotechnology facilities are being run in public private partnership mode. The plant tissue culture facility is being operated by **M/s Sheel Biotech Services** a well established company located at New Delhi. Biofertilisers and Biopesticides unit is being run by **M/s Next-Gen Biofertilizers** and Aroma Products, a Lucknow based upcoming company on Biofertilizers & Aroma Products. The quality control and molecular biology facilities would be operated by M/s Bio Gene Laboratories. The Park is also playing an important role in human resource development. About 20 training programmes have been organized and a total of 400 persons have been trained so far. Individual training to 40 students has been provided. The park regularly holds lectures, conferences and training programmes in emerging areas of biotechnology.