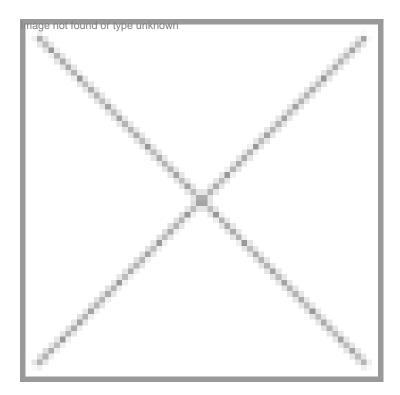


Indo-German Symbiosis

11 November 2005 | News



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The collaborative route will allow the small and medium enterprises in both countries to reach out to enhance research and business opportunities.

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Germany is one of India's oldest collaborators in Science & Technology (S&T), the collaboration dating back to the 1970s. S&T cooperation is reckoned as one of the main pillars of Indo-German bilateral relations. Trade ties between India and Germany have been improving by the year as is evident by the record levels of Indo-German trade in the year 2004. For the first time in history, Indo-German trade crossed the \$7.21 billion (6 billion Euros) mark. Indian imports from Germany grew by almost 35 percent, while exports to the country grew by 11 percent. The Indian imports from Germany in the pharmaceutical sector amounted to \$99.4 million in 2004 and have shown a 31 percent growth in 2003-2004. The Indian pharmaceuticals exports to Germany on the other hand have grown by 4.09 percent (Source: Indo-German Chamber of Commerce)

Pharma Sector a Catalyst

While Germany is the largest pharmaceutical industry in Europe and its healthcare expenditure is the 3rd highest in the world after the US and Japan at \$219.6 billion, India is one of the fastest growing pharmaceutical industries in the world. The size of the German pharmaceutical industry is sizably larger at \$43.5 billion as compared to the Indian industry at \$8.7 billion. However, it is the Indian pharmaceutical industry which is growing at a faster pace of 7.2 percent as compared to the 3.5

percent growth rate of the German industry. (Source: Epsicom Pharmaceuticals Market Fact Book 2005).

The pharmaceutical industries in both countries have already witnessed high levels of cross border activity, with the Indian firms expanding operations to Europe via Germany and the German firms either setting up subsidiaries in India or outsourcing a part of their activities. Torrent Pharmaceuticals of India acquiring Heumann Pharma GmbH & Co in 2004, through their German subsidiary, exemplifies this trend. On the other hand major players such as Boehringer Ingelheim, have setup shop in India and have scaled up operations through joint ventures and alliances. For instance, Boehringer Ingelheim had entered into a tie-up with Zydus Cadilla to manufacture and market its drugs (cardio-vascular) in India.

A Biotechnology Perspective

Biotechnology in India has evolved as a high growth industry owing to a strong science base, a booming Indian economy, increasing globalization and a proactive developmental effort by the government. Consequently there exists a distinct possibility of innovative product launches, collaborations and partnerships to take India's biotechnology sector to the next level.

One of the core strengths of the Indian biotechnology industry is the availability of trained manpower. This has been possible because of the extensive network of research laboratories and institutions. In addition around 200 companies currently employ around 25,000 scientists for R&D. Further, the industry has clinical trials and research access to the vast and diverse disease population. Considering Genomics is an integral part of the biotech sector, the biodiversity in terms of the human gene pool offers an exciting opportunity for research in the area.

Another factor which has influenced increased MNC investment in India in the industry has been the demonstrated success of biotechnology through companies such as Biocon. Biocon, India's leading biotechnology company, recently went for an Initial Public offering, raised \$71 million and was oversubscribed 32 times. Gaining confidence in the market potential, a few global biotechnology companies have either planned or have made direct investments in the biotechnology industry. For instance, the Moscow-based Shreya Life Sciences is investing \$22.7 million in India. Continuing on the trend of MNCs investing in India and the domestic firms seeking markets to export/out-license their products, the focus has turned on the European market where Germany is a prominent destination.

The German biotech industry is estimated to have 340 companies (Source: Beyond Borders) and employs as many as 10,700 people (Source: Deccan Herald, April 2005). Further, Germany is well known for its strengths in basic research and for its excellent universities and research centers including the Institute for Biotechnological Research (GBF) in Braunschweig, the Max-Planck-Institutes, the Fraunhofer Institutes, and the European Molecular Biology Laboratory (EMBL) in Heidelberg. The state of Hessen in Germany is one of the largest markets for biotechnology products and Frankfurt is an international center of finance in addition to being one of the leading production and distribution sites for biotech products worldwide. These locations are known for their internationally recognized research in academia and company related R&D. This offers a potential to collaborate between interrelated sectors in the health sciences industry.

Opportunities

Germany can invest in R&D activities in India for enabling growth and at the same time share established processes/technologies with the Indian firms. Likewise, Indian firms require a catalyst to reduce the time to market and establish market tie-ups in Europe either by setting up representative offices or R&D subsidiaries. For domestic firms dealing in areas such as oncology, inflammatory diseases, auto-immune deficiencies, cognitive dysfunctions and proteomics, Germany can serve as a suitable partner to collaborate owing to its existing R&D competencies and technologies in these areas.

Currently, the German Biotech industry is in search for partners in the areas of bio-informatics, agri-biotechnology, drug discovery, cheminformatics, pre-clinical and clinical development, genomics products and in-vitro diagnostics. The high burnout rate and high cost of commercialization are driving R&D companies in Europe to look for solutions in countries like India. For instance, three German companies are looking at outsourcing bioinformatics and formulations to India.

While innovation is important in the knowledge based industry today, the basic requirements such as access to innovative research and technology is a must, but which still eludes the small and medium enterprises in both countries. This gap displays a potential for mutual cooperation between India and Germany where India can provide the world class R&D facilities and manufacturing expertise, to produce innovative yet cost effective drugs. The potential becomes even more important in the context that the German landscape is still littered with large number of small cash starved companies which have small pipelines. In this situation, good science can be bought for an attractive price. The collaborative route will allow the small and medium enterprises in both countries to reach out to enhance research and business opportunities.

Lucrative initiative

Recognizing the existing potential for harnessing mutual capabilities, the Indo-German Biotechnology Cooperation has been conceptualized. This is a partnership between the Karnataka Biotechnology Development Council (KDBC), the international technology network (INTEC) and the Frankfurt Biotechnology Innovation center (FIZ).

This initiative aims at creating a platform for supporting Indo-German collaboration in R&D, technology, marketing and manufacturing. As part of this initiative, a German biotechnology delegation participated in the Bangalore BIO 2005. Further, the KBDC plans to conduct road shows and seminars across Germany every year.

In addition, some firms have gone in for joint ventures such as Sartorius India Pvt. Ltd which is a biotechnology engineering major that provides total solutions from designing to commissioning of bio-reactors. Three biotech companies - two from Bangalore and one from Pune are planning to set up research centers at the Frankfurt Innovation Center for Biotechnology.

Companies such as Rhein Biotech and Bayer AG from Germany started with engagements in drug discovery, technology licensing and outsourced production. Rhein Biotech later was bought over by Wockhardt. This gives a glimpse into the inorganic growth which Indian firms are planning to leverage the technological capabilities of the German firms. Another significant example is Ocimum Biosolutions which recently acquired the genomic diagnostic division (micro array facility) of the German major MWG Biotech AG.

The Way Ahead

Whilst the Indian market is attractive for German investments, the Indian companies are also integrating with the world-markets. Germany has always occupied a priority position for Indian business being a leading global power in Science & Technology.

For Indian companies, business with Germany means, being able to integrate with the largest pharmaceutical industry in the European Union, to access cutting edge technologies, to innovate products, to absorb best practices and to expand businesses in more regulated markets. Although India has many of the core strengths required for a successful biotechnology sector, there exists a scope of improvement in terms of establishing diverse and collaborative relationships. This codevelopment will facilitate production and distribution of innovative biotechnological solutions.