



India's Future as a Biologics Manufacturing Hub

Collaborations between Western and Indian companies may provide the best path for offshoring successfully and for developing India's readiness

India has long been an important producer of small-molecule active pharmaceutical ingredients (APIs) for Western pharmaceutical companies, particularly in the generics sector. In fact, India currently accounts for approximately 8% of all global pharmaceutical production, and India's contract manufacturing market is growing more than three times the rate of the global contract market, according to a new survey conducted jointly by the Organization of Pharmaceutical Producers of India and Ernst & Young analysts.¹

Now, as the biopharmaceutical sector continues to grow, many wonder whether India can take a similar role in the biologics arena. Key questions, however, surround India's regulatory oversight, intellectual property protection, and compliance with current good manufacturing practices (cGMPs) (see box). Furthermore, recent high-profile problems with India's small-molecule manufacturing, such as the US Food and Drug Administration's September 2008 ban on imports from two Ranbaxy sites, because of consistent failure to comply with cGMPs, heighten concerns about quality.

Yet the increasing importance of biologics makes the eventual offshoring of biologics manufacturing to India seem a likely path. Biologics are expected to account for almost 50% of all approved new pharmaceuticals by 2010.² Yet biologics also have tended to be very costly, and it is expected that biosimilars will become increasingly important in the West, as Europe's biosimilars market grows and especially once legislation is passed to create a regulatory pathway for biosimilars in the US. The biosimilars market is likely to offer India the greatest opportunity for manufacturing biologics for the West.



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COLLABORATION BETWEEN WESTERN AND INDIAN COMPANIES

One way that some Western companies are seeking to take advantage of the cost advantages of offshoring to India while reducing risk is through collaborations.

For example, the Swiss-based contract manufacturing organization (CMO) Lonza, has recently announced plans to invest in two major projects in the Genome Valley outside of Hyderabad—India's first state-of-the-art biotech complex for life science research, training, and manufacturing. Lonza's investment, which is scheduled to begin in 2011, is expected to take place in two phases. Both phases will include expanding manufacturing capabilities as well as biologics research and development.³ Another example is the Indian CMO, Kemwell, which recently announced plans to build a new biopharmaceutical manufacturing plant in Bangalore, in collaboration with the German company Boehringer Ingelheim (BI).⁴

Lonza and BI together hold over half of the market for outsourced protein APIs.⁵ The decision by Lonza and BI to make these important investments in manufacturing facilities to India reflects the West's changing view on offshoring biologics to India and will facilitate future collaborations between Indian manu-

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facturing companies and other multinationals.

Western CMOs are not the only ones investing in India, of course. For example, Mumbai-based Reliance Life Sciences, which started off in 2001 developing stem cell products and expanded into biopharmaceuticals in 2006, set up a collaboration in 2007 with GeneMedix, a UK company with a pipeline of biosimilars.⁵

Other Indian biotech firms, meanwhile, are developing biologics based upon technology transferred from

abroad. For example, Bharat Biotech International (Hyderabad) and the Serum Institute of India (Pune) have licensed various vaccine technologies from institutions in Canada, the United States, and the Netherlands. Bharat Biotech International is the first vaccine manufacturer in a developing country to produce a foreign proprietary product, i.e., Wyeth's (now Pfizer's) *Haemophilus influenzae* B (Hib) vaccine.⁹

INDIA'S BIOTECH FUTURE

Despite the success of some of these

international collaborations, however, India's biotech sector has not yet reached its potential, and Indian CMOs have not yet acquired significant quantities of foreign biologics manufacturing contracts. Collaborations have been limited by the concerns of Western companies regarding both quality and IP protection, as mentioned above.

Therefore, India's continued success in competing with other emerging countries, such as China, will depend on the country's ability to address the concerns of Western biophar-

Ongoing Concerns about Offshoring to India

Regulatory and IP Concerns

A key problem that continues to plague the Indian biopharmaceutical manufacturing industry is inadequate regulatory compliance and oversight. Compliance with cGMP guidelines is quite variable in India. In addition, although intellectual property (IP) protection legislation in India has undergone significant reforms in favor of foreign investors, inadequate protection continues to be a major concern for many Western companies. According to World Health Organization statistics, the production of counterfeit drugs in India accounts for one-third of the total counterfeit drug production worldwide.⁷ Corruption and bureaucracy pose additional challenges.

The Indian government has made significant efforts to improve the situation. One example is India's new drug approval authority, the Centralized Drug Authority (CDA), a single centralized agency that will eventually be responsible for all regulatory oversight. The CDA, which will be fully operational within a few years, is already taking measures to improve the existing regulations that have permitted substandard drug manufacturing. Despite the CDA's efforts, however, India's state drug regulatory authorities are inadequately staffed and often insufficiently educated in regulatory affairs related to biological products. Additional resources, however, are coming from abroad: The US FDA opened an office in New Delhi in January of 2009, followed by one in Mumbai. These new offices are expected to improve enforcement of cGMP regulations.

The Indian government also has recently provided financial incentives favoring collaboration with foreign innovator companies and domestic innovation

over the production of copycat drugs. This situation also is showing signs of improvement as a result of greater scrutiny by the United States.

Linguistic and Cultural Challenges

India is one of the most diverse nations in the world. Hindi, one of the official languages, is spoken by 30% of the population. However, there are 14 other official languages as well as several additional dominant languages. In many regions of India there is more than one dominant language, further complicating the situation. Although English is a second language for much of the population, the majority of Indians with adequate English proficiency are those who have had the benefit of higher education. As a result, most scientists in India are adequately proficient in English, but many manufacturing employees are not. Therefore, to avoid communication barriers, manufacturing standard operating procedures must be translated into the regional language of local personnel, and managers' site visits must be conducted in the presence of interpreters. The translation of regulatory documents is best provided by native translation experts who are fluent in the local languages and cultures, have a background in the field, and are experienced in dealing with the local regulatory authorities.

Infrastructure

Finally, despite India's strong IT and technical support in biopharmaceutical manufacturing, there are still many limitations in India's infrastructure, including power and water shortages, that hinder efficiency.

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maceutical companies. The Indian government must better ensure that regulations to improve quality control and regulatory oversight are enforced, and that training programs for both biologics regulatory approval and manufacturing practices are improved.

Western companies who choose to work in India, meanwhile, must make a conscious effort to address India's regional cultural and linguistic differences by incorporating professional translation and interpreting services into their business strategies, and help to provide specific training in the areas in which India is lacking.

Greater collaboration between Western and Indian companies means fostering an unprecedented level of partnership between the two. However, the result—new quality products that are available to more people for less—may be worth the effort. ♦

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