China's Biotech Long March

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Birth of a Future Biotech Giant?

The Chinese biotechnology industry offers immense potential for global companies due to its vast market, low-cost pool of professional talents and extensive research and development infrastructure. In 2003, the Chinese biotech market was valued at US$ 3 billion and is projected to reach US$ 9 billion by 2010, growing at a CAGR of about 17%. The industry is one of the key areas for China's high-tech competitiveness and is expected to account for around 7%–8% of GDP by 2020. According to the Chinese Academy of Sciences (CAS), China is likely to become one of the top five countries in the world in terms of the scale of its biotechnology industry by 2020. The biotechnology market in China consists of agricultural biotechnology, biopharmaceutical, industrial biotechnology, biological resources technology, and environmental biotechnology — with agricultural and biopharmaceutical segments being the prime drivers of growth.

Biopharma and Agribiotech Industries Leading Growth

The biopharmaceutical industry, aided by strong government support, active efforts of biopharmaceutical companies, and a growing demand for prescription drugs, is a key contributor to the overall development of China's biotech industry. In 2004 to 2005, the Chinese biopharmaceutical market grew by 30.2%, accounting for 7.5% of the total pharmaceutical sales in the country and 7% of total global sales. Even though China's biopharmaceutical industry is still considered rather small in the global scale, its rapid growth is poised to continue. Currently, China is home to more than 400 biopharmaceutical companies and is fast becoming one of the key outsourcing hubs for this sector in the world.

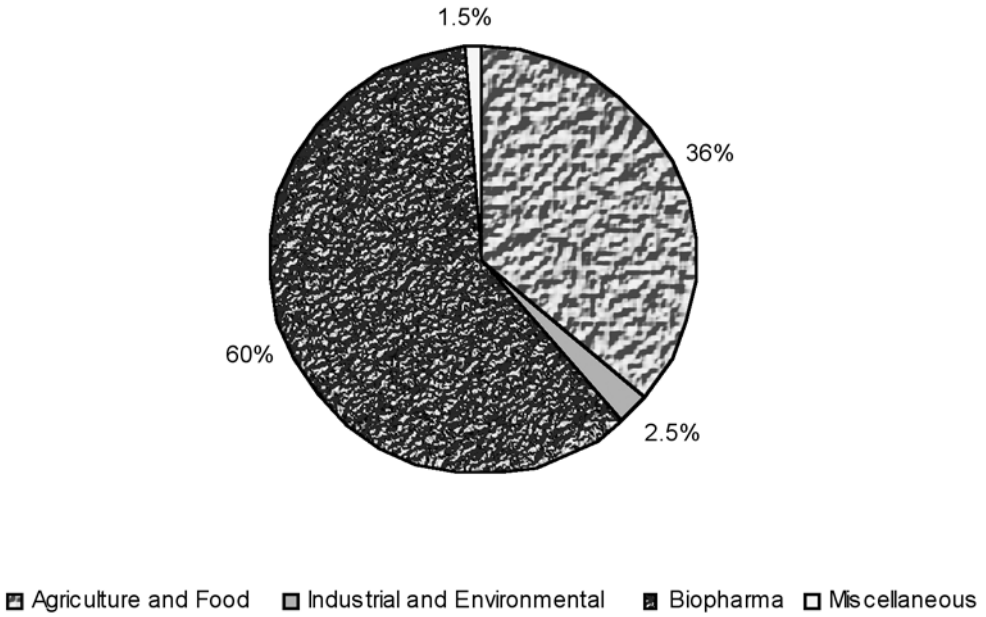

Fig. 1. Biotech value contribution by sub segments in 2006.

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Biotech Value Contribution by Sub-Segments in 2006

Agricultural biotechnology is the other key growth segment. China is second after the US in terms of investment in agricultural biotechnology and is continually increasing its investment in research and development in this sector. Currently, agricultural biotechnology accounts for nearly 42% of the total government spending on biotechnology and about 37% of the total biotechnology market value. Growth in agricultural biotechnology will be fuelled by the increased need for food grains, with China expected to increase grain yield per hectare by 50%–60% to cater to an increasing population. Rice, wheat, corn, cotton, soybean and canola crops are the main commodities expected to be genetically modified by 2010.

Government Support Creates Flourishing Environment for Domestic Players

China has been aggressively investing in biotechnology. From 2001 to 2005, the annual government investments increased significantly by 400% (CAGR of 200%) from US$ 100 million in 2001 to US$ 1.2 billion by 2005. This figure is expected to reach US$ 8.8 billion in 2010 as the government intends to transform China into one of the leading biotechnology players in the world. According to the "2006–2020 National Medium and Long-term S&T Development Plan", the government is expected to invest US$ 111.8 billion or 2.5% of expected GDP, into overall research and development (all sectors) by 2020, with the development of biotechnology being considered the top priority over other industries.

China currently has around 2 500 modern biotechnology companies, more than 20 biotechnology parks located in Beijing, Shanghai and Guangzhou, and major research and development centers in Beijing, Shanghai, Xi'an, Tianjin and Nanjing. In addition, favorable policies related to taxes, finance, human resource have also created a favorable environment

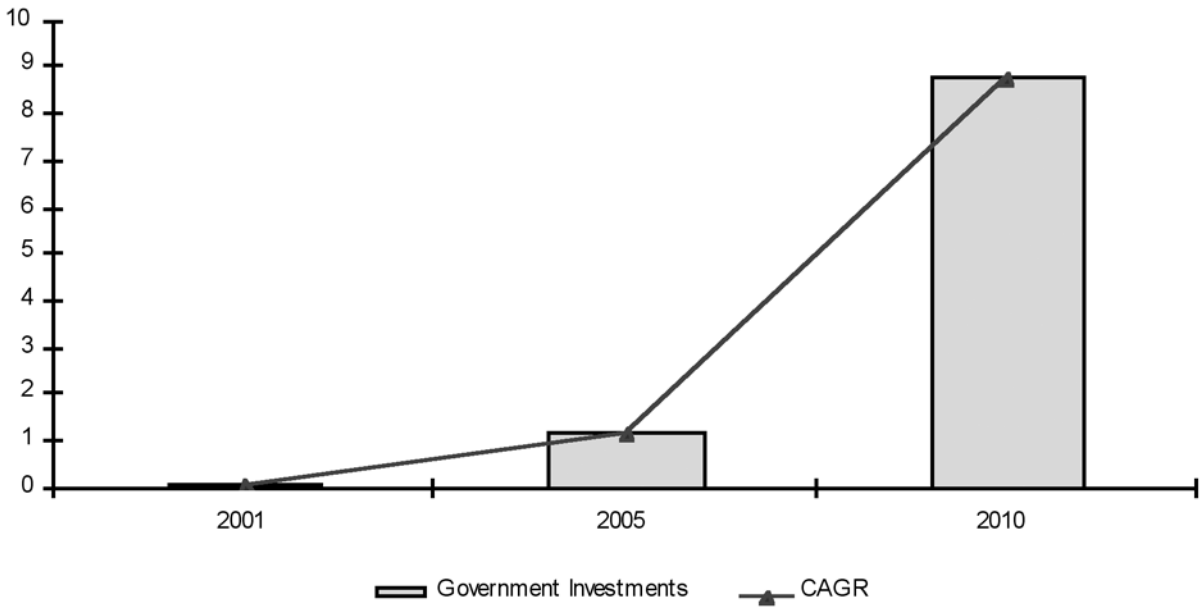

Fig. 2. Government investment trends 2001–2010.

Drug development cost is around 80% lower in China as compared to the US.

for the industry stakeholders as well as potential investors. In the future, the government is expected to encourage biotech companies to increase their capabilities for original innovations. China's biotech companies are still largely generic manufacturers.

However this situation is changing as companies are becoming more active in innovating to compete in the global arena. The government is expected to strongly encourage this trend by taking serious measures to address IP shortcomings in accordance to TRIPS (Trade-related Aspects of Intellectual Property Rights) and to undergo various regulatory reforms in its healthcare system, product approval, pricing and taxation policies.

Cost Arbitrage Attracts Foreign Investors

China is a highly attractive market for international biotech companies keen to leverage on its low cost set up for manufacturing units and R&D, its large pool of low cost professionals, and a relaxed regulatory environment. International companies (such as DuPont, Invitrogen Corp., Dragon Pharmaceuticals Inc, and GeneMedix plc) typically enter this market through joint ventures with local firms, setting up manufacturing bases in China, or outsourcing R&D to local firms. Till end 2005, China had about 750 R&D centers supported by foreign capital in the form of joint ventures.

Bridge Pharmaceutical Inc which opened a research center in 2006 employing 200 people, cited that its drug development cost is around 80% lower in China as compared to the US. Large international pharmaceutical companies like Novartis and Pfizer have also established research facilities in China primarily because of its low cost research talent pool, with the cost of research scientists estimated to be 5–10 times lower than in the US. However, the scope for outsourcing business in the biotech sector to China is still huge with global firms outsourcing less than 5% of their total requirement to China.

China Trailing India?

While China is expected to dominate the global markets in the future, it is expected to face challenges from other Asian countries such as Singapore, Taiwan, Korea and India. Amongst these, India with its highly qualified researchers and vast market is expected to give China a run for its money.

India offers a huge market for biotech products and has advantages of low-cost technology (for clinical trials, R&D, molecule synthesis), reasonable cost scientists and researchers, a network of bioscience centres, and a strong IT infrastructure. The biotech work outsourced to India is in the form of contract research, clinical research, and research process outsourcing, which started in 2004. As China has focused on agriculture biotech products (BT cotton, rice crops), biotech protein drugs, and traditional Chinese medicine, India has achieved success in areas of enzymes, vaccines (recombinant Hepatitis B), diagnostics, and veterinary products (animal health products).

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Both the Indian and Chinese governments are determined to build this sector and have put in place various investment-friendly measures to encourage growth. While the Indian government offers 150% weighted average tax deduction of R&D expenditure for recognized R&D facilities, the Chinese government provides biotech firms with around two year tax exemptions on profitability. This is followed by a 50% rebate on enterprise tax for the next three years which is usually extended for another three years. However, both countries are considered to be handicapped by poor IP laws. While India is perceived to have started improving its IP laws, China still lags behind. The Indian government has recently shifted its patent regime from a process based patent regime to a product based patent regime.

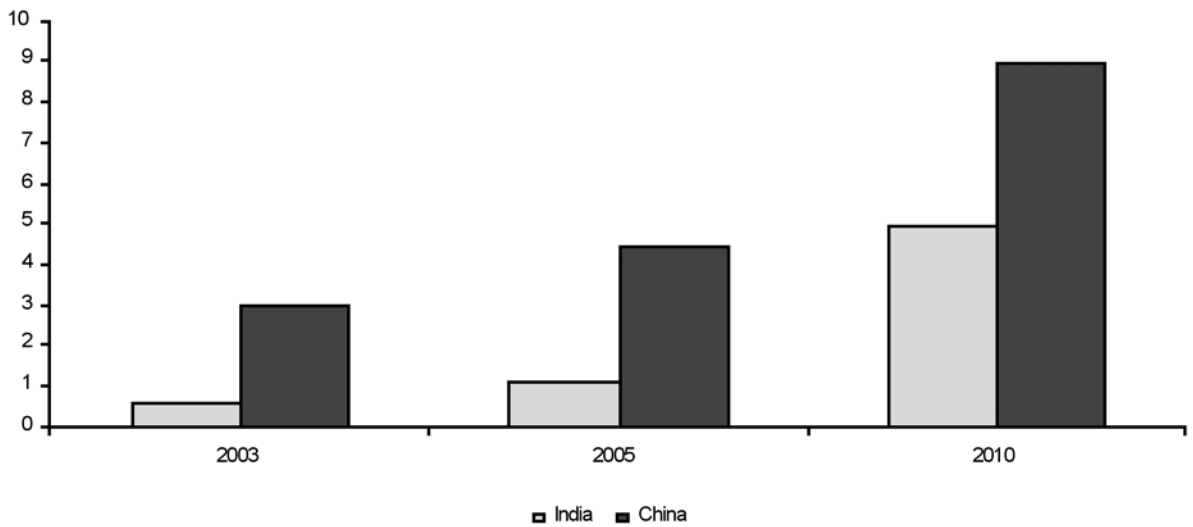

Fig. 3. Clash of the upcoming biotech giants?

As both countries receive substantial attention from foreign players and have gained experience in various fields of biotechnology, there is a substantial potential for co-operation between them. For example, India can utilize the benefits of a relaxed regulatory environment in China for animal testing. Chinese companies on the other hand, can utilize the data management services of Indian companies to comply with international standards such as good manufacturing practices and good laboratory practices.

The Chinese government has plans to implement policies to support and guide these companies on finance and grants.

Lack of Start-ups Funding Hurts Growth

The biotech industry is comprised of government funded research centers, dominant domestic and international players, and small private companies established mainly by researchers who have returned from abroad. Typically, angel investors or venture capitalists that initially finance these smaller companies do not have a proper exit strategy to enter the capital markets resulting in a financial crunch in the later stages. Additionally, some of these firms are not financially prepared to raise funds through foreign capital markets where they have to adhere to international regulations such as the Sarbanes Oxley Act, which in itself is an expensive process.

However, these companies can consider a mix of financing options overseas such as the Alternative Investment Market (AIM) in London, which offers capital for emerging-market companies. Increasingly, Chinese companies that felt frustrated by the lack of funding in China are turning to international sources of financing and advice. With the right mix of financing vehicles, they will have a better chance of seeing their innovations reach a wider customer base worldwide. The Chinese government is aware of funding issues faced by small and medium-sized biotech enterprises and has plans to implement policies to support and guide these companies on finance and grants.

More Progresses in IP Protection and Enforcement Required

A significant drawback in the Chinese legal system is that patents are granted to Chinese firms without thorough validation of originality, leading to copying of innovations. This has resulted in apprehension among the international companies and venture capitalists, affecting FDIs into the industry. After joining WTO, the government is perceived to have improved patent protection; however various IP regulations are yet to be implemented. The Chinese government may have to focus more on this aspect in order to grow this industry further.

About Clearstate

Clearslate prides themselves in being "Growth Engineers and Innovation Architects." They are devoted to work side by side with their clients to beat competition, close growth gaps, and deliver breakthrough improvements in performance and profitability. Their clear focus on Asia Pacific provides clients a better understanding of intrinsic regional strategic issues.

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