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RABOBANK ROUNDTABLE

Life sciences: prospects for Asia

OVERVIEW

ASIA is burgeoning with life sciences hubs as major economies in the region are carving a niche in the sector. Multinational pharmaceutical firms are attracted by Asia's huge population that is relatively untapped, the rising demand for quality treatments, the scientific talent pool and the lower costs of manufacturing. But will Asia become the next life sciences powerhouse? And if so, what does it take? Five panelists share their views.

PARTICIPANTS

in the roundtable

Moderator: Chen Huifen, correspondent, The Business Times.

Panellists:

- Ronil Sujjan, head, Life Sciences, Asia, Rabobank International.
- Chu Swee Yeok, CEO, Bio*One Capital.
- Stefan Ziegler, region head, Asia Pacific, Novartis.
- Damien Lim, general partner, BioVeda Capital.
- Venkatraman Thyagarajan, senior vice-president & regional director, Asia Pacific, GlaxoSmithKline Pte Ltd.

Chen Huifen: Almost every major economy in Asia is actively developing the life sciences industry - be it in manufacturing or R&D. Apart from the huge population and therefore talent pool, rising affluence and relatively lower costs of production compared to the West, why would Asia be attractive to American and European life sciences firms? What are the opportunities available to companies willing to expand or shift their operations here?

Ronil Sujjan: The global life sciences market is currently valued at about US\$600 billion. It includes products and services related to pharmaceuticals, medical devices and biotechnology.

Asia's life sciences market was estimated to be valued at about US\$120 billion in 2005, while those of the US and Europe were US\$250 billion and US\$200 billion respectively.

Although this is relatively small, Asia has a population of more than three billion while the US and Europe have 300 million and 460 million respectively. The larger population, coupled with an economy that is expanding faster than the US and Europe, presents growth opportunities for the life sciences industry in Asia. A 10 per cent increase in income will result in a growth of more than 10 per cent in the demand for drugs. This is clearly a compelling reason for life sciences companies to develop their sales, marketing and distribution in this region to take advantage of this impending surge in demand.

Increasing competition and rising costs of R&D, marketing and manufacturing have encouraged many companies to explore the potential of other emerging markets of Asia. The source of lower-cost production is fairly obvious: by shifting production capacity to Asia, major pharmaceutical companies can produce at a lower cost by leveraging on cheaper infrastructure and manpower cost while reducing the logistical cost of transporting these drugs over long distances. In terms of innovation and discovery, countries like China and India boast large and relatively skilled workforces as a key strength. Another strength is Asia's diversity in population, making it easier and cheaper to recruit patients for clinical trials.

Chu Swee Yeok: Growing affluence, cost efficiencies and population dynamics contributing to both a talent pool and growing market are attractive reasons for companies to include an Asian strategy in their business propositions. In particular, the availability of and access to resources in Asia have been main draws to many companies. These include access to specific research, clinical and manufacturing skills and competencies; in some countries, a conducive environment and regulatory framework for research; access to resources unique to this region, in particular knowledge of specific diseases and specific patient pools; and for smaller companies, the access to funding support.

Stefan Ziegler: With strong GDP growth in many Asian countries, the strength of economy is a sure magnet to any business owner. Depending on individual markets, Asia's winning formula includes strong regulatory frameworks and government support, world-class research facilities, strong venture capital and financial resources.

The environment created for the expansion of the life sciences sector in countries such as Singapore, Japan and Korea has potential for massive growth.

Most importantly, there are huge unmet medical and health-care needs in Asia which call for our attention. I believe that this is a gateway of opportunities for bringing innovative medicines to the region, to protect health, cure disease and improve the well-being, hence quality of life of patients and caregivers.

Finally, proximity to growing markets. If you were to position yourself in Singapore, for instance, you can potentially reach 2.8 billion people within a seven-hour flight radius. In addition to seeing their population growing in general, Asian countries are also experiencing a significant shift in disease patterns in relation to changes in lifestyles and demographics.

We need to pay attention to the fact that health-care needs are changing in Asia.

Huifen: Which are the three key countries to watch and what are/will be the reasons for their growing influence/contribution to the global life sciences sector?

Stefan: My bet would be China, India and Singapore.

Where China and India are concerned, the possibilities are almost limitless. The two giants are growing in every area. In China, life sciences R&D is primarily driven by heavy investments from the government. India's life sciences sector is largely driven by local companies that produce generic drugs. Over time, the increasing cost structure is likely to push these local generic drug companies to develop innovative, R&D-based pharmaceutical products which overall will bring higher value to the company. For Singapore, the government's commitment of more than US\$8 billion over the next five years to further strengthen R&D capabilities in the country is a huge pull factor for top-notch talent and growth within the life sciences sector. Singapore already offers world-class capabilities across the entire value chain and is touted for even greater development. Singapore is also smart at picking the right niche areas of R&D.

But I think that one other market to look out for would be Korea. Its R&D capabilities grow out of huge Korean conglomerates and are focusing more and more on biomedical research. Korea has built significant capabilities in early-phase trials to ensure that local R&D-based products can be developed and registered.

Ronil: The three countries to watch are Japan (half of Asia's consumption), China (40 per cent of Asia's population and 25 per cent of its consumption) and India (the low-cost manufacturing hub of the world and Asia's largest net exporter). Japan is the only Asian country to have pharmaceutical companies that rank among the top 20 largest pharmaceutical companies worldwide. It also has the most advanced drug discovery capability in Asia.

As for China, the GDP per capita figure of US\$1,426 seems small, but it is useful to note that China has two economic groups - the coastal areas where the per capita is about US\$5,000 (population over 100 million) and the poorer, inner regions. It's poised to grow in importance, with the Boston Consulting Group predicting that it will, in 2010, become the fifth-largest market in the world. In terms of innovation and discovery, its large college-educated workforce with science and technology degrees provides low-cost and highly skilled manpower in the area of applied R&D. This together with its large and clinically naive population makes it an ideal place for drug development and clinical trials. In fact, as of 2005, more than 10 of the top 20 pharmaceutical companies have set up R&D facilities in China.

On the other hand, India has excellent process engineering skills and a highly developed generic pharmaceutical industry. Indian generics players are acquiring overseas and outsourcing their manufacturing into India. The country has the most US Food and Drug

Administration-approved manufacturing facilities outside of the US and is an excellent place to set up plants to produce low-cost but very high quality drugs.

Venkatraman Thyagarajan: Two major countries to watch for in the life sciences sector are China and India. In addition, almost every major country in Asia - Korea, Taiwan, Thailand, Malaysia and Singapore - has aspirations to become a life science hub.

Swee Yeok: Definitely Singapore is one such country. Other countries with significant clusters of activities in this region are Australia and Japan, both of which have a long history of excellence in science and technology and today are home to hundreds of life science companies. These countries have invested significantly in the infrastructure including science, manpower, intellectual property, legal infrastructure necessary for the growth of the industry, and this sets the stage for their contributions to the sector globally.

China and India are two major emerging economies in Asia which are also active in life sciences. India has a headstart because it has home-grown companies, such as Ranbaxy and Dr Reddy's. These entities have grown and, most importantly, have gone global, acquiring foreign companies and assets. They are familiar with international standards and practices and recently have even begun to move up the value chain to invest in research to create new innovative drugs. Whether China or India will eventually be more successful will depend on their resolve to create the environment for its companies to innovate, internationalise, and attract talents to lead these businesses. It is this kind of environment Singapore has created that has led biomedical sciences companies to invest here.

Damien Lim: I suppose it depends on how you measure influence and contribution. But Japan, India and China will figure prominently. These three countries and South Korea are amongst the top 10 countries globally when it comes to bioscience publications. If you consider how many Asians are co-authors in US or European publications, the number is even higher. At the other end, there are already numerous novel compounds from Japan that have been in-licensed by Western pharmas. India has a very established base in generics. China's output in the industry is pretty broad, ranging from medical cables and high-end imaging equipment to chemical scaffolds and biologics such as human growth hormone.

Huifen: It's inevitable we'll have to mention the two huge emerging economies in Asia - China and India. India is clearly leading China right now in the area of research and development, as well as its progress in IP protection. What are China's chances of surpassing India? And if it does, when do you think that will happen?

Damien: I don't think the lead is that clear-cut in R&D. Looking at patent filings and publications, I would think China is ahead in the life sciences. Each country has its own issues in IP protection. It'll take time but enforcement will be a critical issue.

Venkatraman: It is not a question of India or China. It is more likely to be India and China. Both countries are attractive from a market perspective and their significant critical mass in terms of scientific talent. There is no question that both the countries will become important players in the life sciences area, but how soon this is achieved will be dependent on the effectiveness of intellectual property enforcement.

Stefan: To put it very simply, China's life sciences sector is driven by government initiatives, while India's is driven by local generic pharma companies. China dominates the mass manufacturing sector, and is one of the few nations building multibillion-dollar industrial plants. There are cutting-edge, big state-run R&D institutes, which have the potential to yield many commercial breakthroughs.

India, on the other hand, possesses sophisticated manufacturing knowledge. India's scientific manpower capabilities in both life sciences and IT, stronger patent protection legislation and the increase in R&D investments by local entities are key factors for its rapid growth. While both nations have their strengths, both need to work on raising the bar on IP protection and legislation. There is also a need for the presence of multinational companies to establish stronger R&D bases. It will be interesting to see how China's government-driven efforts play out vis-a-vis India's entrepreneurial efforts.

Ronil: It is not immediately evident that India is leading China in the R&D arena. China has made huge advances in the area of biologics and genomics, and has been able to develop indigenous novel compounds such as the chemically stable Lysostaphin (an anti-bacterial protein) and interferons for the treatment of Hepatitis C. Through the exploitation of Tradition Chinese Medicines, the world now has the most potent anti-malaria treatment to date in the form of Arteminism, which forms the key ingredient used in Novartis' Coartem treatment for malaria. An overriding advantage for China is that there are more MNCs setting up research centres there than in India.

As for IP protection, the problems in China are not because of the lack of a legal framework but more of enforcement. The Chinese authorities have been putting in effort and resources to improve this - most visibly the upholding of Pfizer's patents on Sildenafil or Viagra. The ideal way to encourage the Indian and Chinese companies to respect IP is to assist them in developing patented treatments. This will provide these companies with the incentive to protect their own investments.

Huifen: Where will Singapore's place be, seeing that it does not have the domestic market size or cost competitiveness of China and India. It doesn't help that, after more than five years from launching its biomedical sciences drive, the island hasn't yet produce the blockbuster drug or therapy that everyone has been hoping for. What will be its niche as the two giants continue to move up the value chain in drug discovery?

Swee Yeok: Unlike most other industries, such as electronics or semiconductor, the life sciences, or biomedical industry as it is called in Singapore in view of her focus on health-care applications, is one with a long gestation period, and where investments in

technology and manpower capabilities are a must, but will take some years to bear fruit. The five years mentioned above is barely enough to train a PhD student in the US.

As a country, Singapore has committed to making long-term investments to grow the industry. The first five years were focused on putting in place the key building blocks by establishing core capabilities in biomedical research, and introducing important human capital development initiatives. During this short period, Singapore has put itself on the global life sciences map and most importantly, built a reputation as a serious and long term player in this industry where companies can locate their IP-sensitive activities ranging from R&D to manufacturing here. The output of the industry which has grown at an annual compounded growth rate of 23 per cent from 2000 to S\$18 billion in 2005, and the growing base of companies, both large MNCs as well as small to mid-size innovative ones, are testimonies of the early successes of the country's biomedical initiatives launched in mid-2000. In my view, one major area where Singapore has done particularly well is in the attraction of a diversity of talents. It is this diversity which is so critical in research and innovation and the growth of this industry.

Ronil: Domestic market size is not necessarily a prerequisite in the development of the industry, as can be seen in countries like Switzerland (Novartis, Serono, Roche, Alcon) which has a population of seven million, or Israel (Teva pharmaceuticals) with a six million population.

Major pharmaceutical MNCs typically take 10 years to bring a single drug to the market at a cost of US\$893 million (TUFTS Centre For Drug Discovery 2003). If the drug succeeds in becoming a blockbuster like Lipitor, it could generate several billions in sales worldwide annually. Looking at the scale at which the industry operates, five years is not a very long time. The idea of looking for a 'blockbuster' from Singapore may be misleading in terms of how the industry ecosystem works. For example, the US\$12.2 billion-a-year Lipitor from Pfizer was not developed by Pfizer but from Warner Lambert, just as Cialis from Eli Lilly was developed by a (prior to that relatively obscure) biotech company, ICOS. The goal of the host country of small biotech start-ups in Singapore is to innovate with promising compounds and license them to the larger pharmaceutical companies with the financial resources to fund the highly expensive clinical studies and the US\$100 million advertising budget required to market a potential blockbuster drug that has just received FDA approval.

Singapore can play a key role in fund-raising as well as in forming partnerships within the industry. The country is well positioned to leverage its banking and finance infrastructure to become a destination for raising both equity and debt. We see the country emerging as a regional hub for life sciences. What's probably missing are the critical number of home-grown companies, as well as a cluster of the mid-range pharmaceuticals players which can be attracted from the developed markets to set up bases in Singapore, and use Singapore as a springboard into Asia. Indian and Chinese companies will always view Singapore as a country where capital can be easily accessed. Stefan: Most recently, the Biomedical Services Group announced its phase-two efforts in partnership with the Ministry of Health to enable the translation of A*Star's clinical

discoveries into clinically and commercially viable products. Its focus on developing niche products is also part of the country's winning formula to compete against large MNCs and successful biotech companies in the US. At the end of the day, it is not the size of the company that matters but the dedication and long-term vision that will finally produce winning therapeutic solutions to ease patient suffering.

Venkatraman: It must be remembered that life sciences is a business with long gestation period. It is therefore, unrealistic to expect that within five years of launching its biomedical sciences drive Singapore will discover a blockbuster drug or therapy. Singapore has created an environment and an R&D eco-system which could enable establishment growth of a life sciences cluster. The areas of focus of the hub could be basic research as well as clinical research. A particular area of focus could be the research and developing of diseases of the developing world.

Damien: You sometimes need an alignment of the stars to produce a blockbuster, it's not just about funding and taking five years. Otherwise, arguably Nobel laureates would all have blockbuster drugs to their names. Singapore's attraction is clearly not in the market but an aggregation of many significant parts - infrastructure, IP protection, government support, a diverse talent pool, the environment and lifestyle it offers. Singapore's challenge is to overcome the quantity deficit, perhaps be like a Boston of East Asia.

Huifen: For global life sciences MNCs looking to expand their operations in Asia, what are the challenges they should look out for?

Damien: The issues are not really that different from what a Microsoft or Siemens has to consider when they're thinking about Asia. Asia is not a large homogenous market. There are different language, cultural, political and, in the case of pharmaceuticals, regulatory issues to deal with. Japan is clearly a different market from China. Within China, the coastal cities are different from the central ones. A multi-pronged approach may be required to tackle the heterogeneity, such as HQ in one country, R&D in another, and manufacturing somewhere else. Picking the strengths of each while maintaining a unified approach will be a challenge.

Swee Yeok: Whether the company's intent is to pursue R&D, clinical or manufacturing or sales activities, the key consideration for companies in looking for a suitable location to site its operations is a sound and stable business infrastructure and with the necessary transparency, legal and intellectual property protection frameworks to support the intended activities.

In-depth assessment would also need to be undertaken on various risk factors, including operational risks such as the ability to access good managers and researchers. Business leaders have fed back to us that while some locations are known for their low cost of operations, the operating rules are still evolving, so project implementation risks can still be relatively high and often substantial enough to negate projected cost savings.

For companies that are looking for partners in Asia, then the key would be in identifying the right partners with the prerequisite credibility, reputation as well as familiarity with the local operating environment. Based on Bio*One's experience, our successful partnerships are often built on synergies of interests, having a common vision for the partnership and most importantly commitment to a long-term and mutually beneficial relationship.

Stefan: General characteristics to look out for include: existence of reimbursement systems; health-care coverage of the population; self-payment; demographic development; disease pattern; health-care professionals (number, training); infrastructure base of health providers (public, private); hospital and primary care structure. In addition, as with any business, the stability of government and growth of the economy are critical. Specifically for life sciences, I would look into the government's involvement and support for this sector, in areas such as investment, infrastructure and regulatory framework, as well as the effective enforcement of IP legislation.

KEY POINTS

- Asia stands in good stead to become an influential player in the global life sciences industry. Life sciences companies are looking towards Asia for its scientific talents, patient pool, lower costs of production and collaborative and funding support.
- It remains to be seen who will emerge as Asia's life sciences powerhouse, although there is space for a number of winners with each excelling in a niche field or function.
- Singapore can play a role as a hub for higher-end activities. It can be a centre where fund-raising, innovation, collaboration, and commercialisation take place.