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APAC Vaccine Powerhouses Flex Capacity & Quality Muscle

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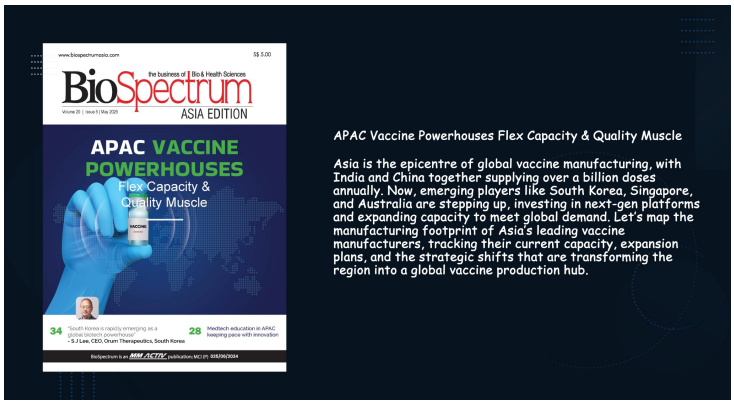
Asia is the epicentre of global vaccine manufacturing, with India and China together supplying over a billion doses annually. Now, emerging players like South Korea, Singapore, and Australia are stepping up, investing in next-gen platforms and expanding capacity to meet global demand. Let's map the manufacturing footprint of Asia's leading vaccine manufacturers, tracking their current capacity, expansion plans, and the strategic shifts that are transforming the region into a global vaccine production hub.



Asia-Pacific is driving a transformation in the global vaccine supply landscape. According to the WHO Vaccine Report 2024, the WHO South-East Asia region now self-supplies 87 per cent of its vaccines—thanks largely to India, which accounts for 84 per cent of the doses procured in the region and produces 99 per cent of its requirements. Similarly, in the Western Pacific region, China supplies 54 per cent of vaccines and meets 90 per cent of its domestic demand. Manufacturers affiliated with the Developing Countries Vaccine Manufacturers Network (DCVMN) accounted for 54 per cent of global vaccine volumes sold in 2023, further emphasising the role of emerging economies in shaping vaccine access. Together, these two countries are not only meeting regional needs but are scaling up rapidly, with production capacities growing by 15–20 per cent annually. At the same time, Asia as a whole manufacturing base is broadening. The number of companies producing between 10 and 100 million doses annually has jumped from 28 in 2019 to 42 in 2023, with half of this growth coming from China.

While India and China remain the undisputed leaders in vaccine manufacturing, other countries in the Asia-Pacific region are stepping up. South Korea has carved out an impressive niche playing a key role in the global COVAX initiative by supplying vaccines to lower-income countries. Japan and Singapore have focused on high-value, specialised vaccines, with Japanese manufacturers particularly strong in regulated markets like North America and Europe. APAC has a diverse manufacturing ecosystem, while private companies dominate in India and China, government-run manufacturers play a vital role in countries like Thailand, the Philippines, Indonesia, and Vietnam.

“The way vaccine manufacturing has evolved in the Asia-Pacific (APAC) region is truly incredible. With 46 per cent of global preventive and 31 per cent of therapeutic vaccines, the APAC region is now a leader in vaccine development, promoting innovation through advanced technologies and strategic collaborations. According to Astatute Analytica, the Asia-Pacific Vaccines Market was valued at $20.9 billion in 2023 and is projected to surpass $63.11 billion by 2032, with a CAGR of 13.07 per cent growth rate annually! What stands out the most are the figures and the shift in capabilities. India's story exemplifies this evolution. Indian companies now supply over 60 per cent of global vaccines used in the National Immunisation Programme worldwide,” said **Dr VJA Gutla Harshavardhan, Director General of the Indian Vaccine Manufacturers Association (IVMA)**.

Many regional manufacturers have moved beyond downstream processing and are now developing novel products like oral cholera, hepatitis E, typhoid conjugate, and rotavirus vaccines, as well as region-specific solutions such as Japanese encephalitis vaccines.

“Over the past decade, vaccine manufacturing capacity in the Asia-Pacific (APAC) region has undergone a transformational shift — moving from a largely recipient and production-oriented role to becoming a strategic hub for innovation, scale, and resilience,” said **Dr N Erlyani Abd Hamid, Head of Strategy Planning and Public Relations, Hilleman Laboratories, Singapore**.

Dr Harshavardhan echoes the same sentiments, “Asian manufacturers have now shifted from supplying basic UIP vaccines to developing and exporting advanced biotherapeutic products globally. For example, Indian and Korean manufacturers made affordable DTwP-Hib-Hep B combination vaccines, allowing many developing countries to introduce the Hib antigen into their immunisation schedules. Indian-made Measles vaccines were instrumental in eliminating that disease in Latin America. The current progress in global polio elimination would have been impossible without Asian manufacturers.”

Manufacturing muscle of Asia’s top vaccine producers

Serum Institute of India (SII) (India)
Manufacturing Capacity: 3 billion doses annually

Serum Institute of India (SII) is the world’s largest vaccine manufacturer by volume, with a mission rooted in producing life-saving immunobiologicals that are both affordable and accessible. Since its inception, SII has significantly impacted global health by reducing the cost of essential vaccines for diseases such as Diphtheria, Tetanus, Pertussis, HIB, BCG, Hepatitis B, Measles, Mumps, and Rubella.

Notably, SII developed Pneumosil, the world’s most affordable pneumococcal conjugate vaccine (PCV), and introduced Cervavac, India’s first indigenous quadrivalent HPV vaccine. During the COVID-19 pandemic, SII played a central role globally, supplying over 2 billion doses of COVID-19 vaccines.

SII’s state-of-the-art facility in Manjri, Pune, is one of the largest multifunctional vaccine manufacturing sites globally, contributing to the company's impressive annual output. This infrastructure has helped save an estimated 30 million lives worldwide.

Recent Developments (2024):

- Mpox Vaccine Partnership: Entered a license and manufacturing agreement with Bavarian Nordic to produce its Mpox vaccine.
- CEPI Investment: The Coalition for Epidemic Preparedness Innovations (CEPI) pledged $30 million to enhance SII’s capacity to supply affordable investigational vaccines for epidemic and pandemic threats.

Bharat Biotech (India)
Manufacturing Capacity: 4 billion doses annually
Founded on a mission to address unmet public health needs through innovation, Bharat Biotech has built one of the most diversified vaccine portfolios in the world, with over 20 vaccines covering viral, bacterial, and recombinant technologies. It has been a pioneer in developing vaccines for influenza H1N1, Rotavirus, Japanese Encephalitis (JENVAC), Rabies, Chikungunya, Zika, and Cholera, and introduced the world's first tetanus-toxoid conjugate vaccine for typhoid. Bharat Biotech also launched HILLCHOL, an oral cholera vaccine, in 2024 to address the global shortage of oral cholera vaccines, with new manufacturing lines in Hyderabad and Bhubaneswar capable of producing up to 200 million doses annually.

The company has four manufacturing facilities in Hyderabad, Gujarat, Karnataka, and Pune. On January 18, 2025, Bharat Biotech, through its subsidiary Sapigen Biologix, unveiled a new facility in Odisha that can produce 8 billion vaccine doses annually, designed to handle up to 10 different vaccines. This large-scale infrastructure signals the company's readiness to respond to routine immunisation needs and future pandemic threats.

Panacea Biotec (India)
Manufacturing Capacity: 1 billion doses annually
Panacea Biotec is one of India's leading vaccine manufacturers, globally recognised for its contributions to the Global Polio Eradication Initiative (GPEI) through the supply of billions of WHO prequalified oral polio vaccine doses to over 50 countries. The company was the first in the world to develop a fully-liquid, whole-cell wP-IPV-based hexavalent vaccine (DTwP+HepB+Hib+IPV), launched as EasySix in 2017. Panacea's current portfolio includes EasySix, Enivac-HB (Hepatitis B), Ecovac-4 (DTwP+HepB), EasyFour (DTwP+Hib), and EasyFourPol (DTwP+Hib+IPV), while its pipeline includes next-generation vaccines such as a recombinant chimeric dengue tetravalent vaccine and a pneumococcal conjugate vaccine. The company's state-of-the-art facility in Baddi features two independent formulation suites and three filling lines, supporting production in pre-filled syringes and vials. The firm can manufacture up to 1 billion doses annually. In 2024, Panacea Biotec received a $20 million long-term loan commitment from the U.S. International Development Finance Corporation (DFC) to support capacity expansion for its hexavalent vaccine programme.

Biological E (India)
Manufacturing Capacity: ~700 million doses annually (excluding COVID-19)
Biological E is a long-established Indian vaccine developer and manufacturer, supplying vaccines and therapeutics to over 130 countries. With a strong focus on both chronic and communicable diseases, its portfolio includes vaccines for diphtheria, pertussis, tetanus, hepatitis B, Haemophilus influenzae type B, measles, rubella, Japanese encephalitis, typhoid, and more. The company currently produces around 700 million vaccine doses annually, excluding COVID-19 vaccines, from four manufacturing facilities—three in Hyderabad and one in Dehradun. Biological E holds 10 WHO-prequalified vaccines.

In 2022, Biological E announced a major expansion plan with an investment of over Rs 1,800 crore to ramp up manufacturing of vaccines, generic injectables, and R&D operations across its three facilities in Genome Valley, Hyderabad.

Biological E is also extending its global impact through strategic partnerships. In 2025, Bavarian Nordic partnered with the company to expand access to its chikungunya vaccine across low- and middle-income countries. In 2024, the company joined forces with Takeda to scale production of the dengue vaccine Qdenga, aiming to produce up to 50 million additional doses annually.

With a pipeline that includes pneumococcal conjugate, inactivated polio, and human papillomavirus vaccines, Biological E continues to invest in the development of next-generation products.

CanSino Biologics (China)
Manufacturing Capacity: 280 million doses annually (Tianjin) + 100 million doses planned (Shanghai, mRNA facility)

Founded in 2009, CanSino Biologics is a rising leader in China's vaccine industry, focused on developing innovative, high-quality, and affordable vaccines that address global public health challenges. The company operates over 200,000 square meters of modern manufacturing space across its facilities in Tianjin and Shanghai. Its flagship campus in Tianjin spans nearly 130,000 square meters, built with an investment of nearly RMB 10 billion and an annual production capacity of 280 million vaccine doses. In Shanghai, CanSino is constructing a state-of-the-art mRNA manufacturing facility within the Life Blue Bay Industrial Park of the Lin-gang Special Area. With a Phase I investment exceeding RMB 1 billion, the site aims to

add another 100 million doses per year in mRNA capacity.

CanSino's diverse portfolio is underpinned by five integrated technology platforms and includes more than 10 vaccines. Notable achievements include Asia's only Ebola virus vaccine (Ad5-EBOV), its WHO Emergency Use Listed COVID-19 vaccine Convidecia, and Asia's first quadrivalent meningococcal conjugate vaccine (Menhycia).

CNBG – Sinopharm (China)
Manufacturing Capacity: Over 7 billion doses annually

China National Biotec Group (CNBG), a subsidiary of Sinopharm, is China's largest and the world's fifth-largest manufacturer of human vaccines. With a legacy spanning over a century, CNBG has played a central role in the history of China's biological products industry, from developing the nation's first smallpox, cholera, typhoid, and rabies vaccines to eliminating polio and controlling major infectious diseases. Today, CNBG produces 50 types of vaccines annually, including all Class I vaccines under China's National Immunisation Programme, supplying over 80 per cent of the country's vaccine needs.

CNBG operates six major production bases across China, with nearly 100 GMP-certified production lines and a manufacturing capability exceeding 200 biological products for prevention, treatment, and diagnostics. It is home to the world's largest inactivated COVID-19 vaccine production facility, with an annual output capacity of over 7 billion doses. The company has developed four different COVID-19 vaccines and has made significant contributions to China's and the world's pandemic responses, including past efforts against SARS, H1N1, and other outbreaks.

Sinovac Biotech (China)

Manufacturing Capacity: Estimated over 150 million doses annually (based on available line-wise capacity data and excluding COVID-19 vaccine)

Sinovac Biotech is a leading China-based biopharmaceutical company specialising in the research, development, manufacturing, and commercialisation of vaccines that protect against human infectious diseases. Headquartered in Beijing, Sinovac has played a crucial role in public health, both in China and globally, through its wide-ranging vaccine portfolio and rapid response to emerging infectious diseases.

Sinovac's product portfolio includes vaccines against COVID-19 (CoronaVac), enterovirus 71 (Inlive) for hand-foot-mouth disease, hepatitis A (Healive), influenza (Panflu and Panflu.1), varicella, poliomyelitis (Sabin-strain inactivated polio vaccine, sIPV), and pneumococcal disease. Sinovac was the first to receive approval in China for an H1N1 influenza vaccine (Panflu.1) and remains the sole supplier of the H5N1 pandemic influenza vaccine (Panflu) for the national stockpiling programme. It also continues to lead in the production of Category 1 Preventative Biological Products, with innovative vaccines like Inlive commercialised in China.

The company operates four manufacturing sites across Beijing (Haidian, Changping, and Daxing Districts) and Dalian with a combined output of nearly 150 million doses.

Chongqing Zhifei Biological Products (China)

Manufacturing Capacity: 1 billion doses

Chongqing Zhifei Biological Products is one of China's leading private vaccine manufacturers. With a workforce of around 4,500 employees and assets totalling RMB 23.9 billion, the company integrates R&D, manufacturing, marketing, and distribution of human vaccines. Zhifei's product portfolio includes a recombinant COVID-19 vaccine (CHO cell-based), tuberculosis fusion protein (Ekear), Hib vaccine (XiFeiBei), meningococcal polysaccharide and conjugate vaccines (Menwayc, Mening A Con), and Mycobacterium Vaccae for injection (Vaccae). It is also the exclusive distributor in China for key MSD vaccines (Gardasil, Rotateq, Pneumovax, Vaqta) and GSK's Shingrix. The annual production capacity is estimated to be 1 billion doses.

CSL Seqirus (Australia)

Manufacturing Capacity: 150 million doses (6-month pandemic capacity at Holly Springs facility)

CSL Seqirus, a division of global biotechnology leader CSL, is one of the largest influenza vaccine manufacturers in the world and the only company operating an influenza vaccine manufacturing facility in Australia. The company's manufacturing network spans three continents and includes advanced facilities such as the Holly Springs plant in the United States, designed for rapid pandemic response with the ability to produce up to 150 million doses within six months, and its upcoming state-of-the-art facility in Australia, set to be operational by 2026. This new Australian facility will manufacture both seasonal and pandemic cell-based influenza vaccines, the MF59 adjuvant, the world's only human Q fever vaccine, and various antivenoms for Australia's unique wildlife. In addition to its robust seasonal flu vaccine portfolio, CSL Seqirus is advancing next-generation technologies, including self-amplifying messenger RNA (sa-mRNA) platforms, aimed at improving vaccine efficacy across diverse age groups and global markets. This scientific and manufacturing innovation positions CSL Seqirus as a key global partner in both routine immunisation and pandemic response.

GC Biopharma (South Korea)
Manufacturing Capacity: 300 million doses annually at Ochang facility

GC Biopharma is a leading South Korean biopharmaceutical company with a global footprint in vaccine and biotherapeutic production. The company operates South Korea's largest filling and finishing facility in Ochang, established in 2019, with a capacity to produce up to 300 million doses annually. This WHO-prequalified plant is fully automated, leveraging isolator technology and a single-use system to minimise contamination and ensure streamlined, GMP-compliant manufacturing for both vaccine and non-vaccine drug products (sterile vials and prefilled syringes).

GC Biopharma is a major supplier of seasonal influenza vaccines through global health agencies, including PAHO and UNICEF, delivering over 50 million doses annually even during the peak of the COVID-19 pandemic. The company's facility in Hwasun complements its global vaccine efforts and has recently expanded to include a new mRNA production pilot plant, completed in late 2023. This "all-in-one" GMP facility covers the entire mRNA production process, incorporating single-use technology to enable rapid, flexible, and contamination-free manufacturing across multiple products.

GC Biopharma also achieved a major milestone with BARYTHRAX, the world's first recombinant anthrax vaccine, approved by the Korean Ministry of Food and Drug Safety in April 2025.

Emerging markets beyond India and China

Following COVID-19, there have been increased efforts to develop and expand regional manufacturing so that each region has local manufacturers that can supply vaccines, in service of equitable access, regional supply security and economic development.

Dr N Erlyani said, "Pre-COVID-19, countries like India, China, and Indonesia had already built strong vaccine manufacturing footprints, driven by domestic demand and public health goals. India, in particular, was recognised as the largest global supplier of WHO prequalified vaccines. Post-COVID, the pandemic catalysed massive public and private investments across the region: mRNA capabilities were introduced in countries like Singapore, South Korea, Thailand, and Australia. Fill-finish capacity expanded significantly in countries such as Indonesia, Vietnam, and the Philippines to reduce reliance on imported vaccines. Regional institutions began developing platform-based R&D ecosystems to complement manufacturing, enabling faster response to emerging threats."

Other players like South Korea, Singapore, and Australia are emerging—not yet major exporters by volume, but leaders in biotech innovation and contract manufacturing. Prior to COVID-19, Singapore did not have a single facility for vaccines. Over the past few years, however, the country has seen an outpouring of interest from pharma giants to set up manufacturing sites. Vaccine-maker Hilleman opened a $27 million plant in Singapore in November 2024. In the same month, pharma giant Sanofi inaugurated a $595 million vaccine facility, aimed at preparing for potential pandemics. Earlier, other vaccine makers—BioNTech and GSK had also announced plans to build manufacturing plants in the country. Altogether, these facilities will produce millions, if not billions, of doses annually.

Australia is also taking significant steps to scale up its vaccine manufacturing capabilities, with a clear ambition to become a powerhouse in mRNA vaccine production. In December 2024, global vaccine leader Moderna opened its state-of-the-art facility in Victoria. Beyond domestic capacity building, the Australian government is forging regional partnerships to boost manufacturing across Asia. As part of its Biomedical Manufacturing Programme , Australian scientists are collaborating with Thailand and Malaysia to strengthen their local vaccine and medicine production capabilities.

South Korea is another country ramping up its vaccine game, with a strong push to enhance both domestic capabilities and global partnerships. The Korea Disease Control and Prevention Agency (KDCA) is building a robust vaccination infrastructure aimed at enabling faster response in developing and producing vaccines. In April 2025, vaccine maker EuBiologics was chosen to spearhead a major government initiative to establish a domestic mRNA vaccine platform, targeting future pandemics and emerging infectious diseases. Meanwhile, another firm SK Bioscience is expanding its vaccine manufacturing plant and scaling up exports—most recently extending its influenza vaccine reach to the Southern Hemisphere. The company is also teaming up with Sanofi to distribute RSV and Hepatitis A vaccines within Korea, reinforcing South Korea's growing footprint in global vaccine supply chains.

Korean firms are playing a key role in strengthening vaccine capacity across the region. SK Bioscience signed an MoU with Thailand's state-run Government Pharmaceutical Organization (GPO) to bolster the country's vaccine infrastructure. In the Philippines, Glovax Biotech and Korea's EuBiologics are collaborating to build the nation's first vaccine manufacturing facility, an investment of PHP 7.5 billion ($132 million) under the banner of Glovax Lifescience Corporation.

Malaysia, which currently relies entirely on vaccine imports, has outlined plans to advance its vaccine manufacturing capabilities. The country's National Vaccine Development Roadmap aims to build domestic production capacity, including the development of Halal-certified vaccines to serve both national and regional demands. Supporting this initiative, the National Institutes of Biotechnology Malaysia (NIBM) is setting up a pilot-scale vaccine manufacturing facility at the Malaysia Genome and Vaccine Institute (MGVI).

Overall, we are seeing a shift from contract manufacturing to end-to-end vaccine development, with Asia-Pacific increasingly positioning itself as a self-reliant and globally competitive vaccine hub.

"Behind these advances is an industrial maturing to conduct world-class clinical trials and increasingly robust compliance processes. We are witnessing greater harmonisation of regulatory standards across the region, which helps speed up access to life-saving vaccines. Similarly, strong technical knowledge, scalability, and a highly skilled workforce are the other factors that will continue to set advanced production standards in the region. We are just seeing the beginnings. Ten years from now, this decade will be the foundation of Asia-Pacific's leadership in global vaccine innovation and production," signs off Dr Harshavardhan.

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