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ASIA EDITION

“Asia-Pacific region has firmly established itself as a global vaccine export powerhouse”

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Suchitra Ella, Managing Director of Bharat Biotech, India delves into the evolution of vaccine manufacturing capacity in the Asia-Pacific region over the past decade and explores key lessons learned from the COVID-19 pandemic that will shape the future of vaccine production and distribution.

How has vaccine manufacturing capacity evolved in the Asia-Pacific region over the past decade?

Over the past decade, vaccine manufacturing capacity in the Asia-Pacific region has expanded significantly, driven by rising demand, strategic investments, and public health priorities. The region now produces 46 per cent of global preventive vaccines and 31 per cent of therapeutic vaccines, according to industry estimates. India has led this transformation, with companies like Bharat Biotech scaling up operations to produce billions of doses annually across vaccines for Rotavirus, Typhoid, Cholera, Hepatitis, Rabies, Japanese Encephalitis and more. Indian manufacturers now supply over 60 per cent of the global vaccine demand for national immunisation programmes. China, backed by substantial state investment and export-led policies, has emerged as another major player, contributing significantly to the global COVID-19 vaccine supply. Meanwhile, South Korea has positioned itself as a premier contract manufacturer, especially in advanced platforms like mRNA and recombinant technologies. The COVID-19 pandemic acted as a powerful catalyst, pushing governments and industries to enhance agility, invest in R&D, and build resilient supply chains. As a result, the Asia-Pacific region is now a critical hub for global vaccine supply—technologically advanced, increasingly self-reliant, and better prepared to tackle future public health crises.

Which Asia-Pacific countries are the biggest vaccine exporters, and what are their key markets?

As of 2024, the Asia-Pacific region has firmly established itself as a global vaccine export powerhouse, driven by a blend of manufacturing scale, innovation, and strategic outreach. Leading the charge is India, the world’s largest vaccine supplier,

accounting for over 60 per cent of global vaccine exports used in national immunisation programmes. Bharat Biotech has supplied vaccines for rotavirus, typhoid, polio, and COVID to more than 150 countries, with key markets spanning Africa, Latin America, Southeast Asia, CIS, and the Middle East. India's COVID-19 response alone saw the export of over 282 million vaccine doses under initiatives like Vaccine Maitri, reinforcing its reputation as the "Pharmacy of the World." China follows closely, with massive production capacity—producing over 5 billion COVID-19 vaccine doses during the pandemic—and a growing export footprint in Asia, Africa, and South America.

While smaller in volume, South Korea has carved out a critical niche in the high-quality contract manufacturing space, exporting recombinant hepatitis and influenza vaccines primarily to North America, Europe, and regional Asian markets. The country attracted over $1.5 billion in biomanufacturing investments between 2022 and 2024, signalling its ambition to be a global hub for next-generation platforms like mRNA. Japan, traditionally focused on domestic vaccine needs, is beginning to expand exports of select vaccines such as dengue and influenza, supported by a $1.7 billion investment in advanced manufacturing infrastructure. Indonesia also has large scale vaccine manufacturing companies mostly focused on domestic markets with some exports.

Together, these nations are shaping the global vaccine trade and reinforcing the Asia-Pacific region's role in global health security. Their growing influence enhances supply chain resilience, ensures equitable access to life-saving vaccines, and strengthens the region's standing as a dependable, innovation-driven contributor to global public health.

What lessons have vaccine manufacturers learned from the COVID-19 pandemic that will shape future vaccine production and distribution?

The COVID-19 pandemic was a watershed moment for vaccine manufacturers, offering invaluable lessons that continue to redefine production and distribution strategies across the Asia-Pacific region. Chief among them was the urgent need for speed and scalability. The global race to develop vaccines underscored how flexible R&D pipelines and adaptable manufacturing platforms could drastically compress traditional timelines—what once took 5–10 years was achieved in under 12 months. Several manufacturers in the region, including those in India and China, scaled up to produce billions of doses, collectively supplying more than 4.5 billion COVID-19 vaccines globally by 2022.

Another lesson was the importance of supply chain self-reliance. The pandemic exposed vulnerabilities in global logistics and raw material dependencies, prompting a shift toward localised, end-to-end manufacturing ecosystems. Governments and private players in countries like India, South Korea, and Singapore responded by investing heavily in domestic bioproduction, API manufacturing, and cold-chain infrastructure. For instance, India's government-backed initiatives helped expand local production capacity to over 5 billion doses per year, reducing import reliance.

Regulatory agility also came to the fore. Emergency use authorisations, accelerated clinical trials, and rolling reviews demonstrated that safety and speed need not be mutually exclusive. This has pushed regulatory bodies in the region to modernise protocols and build frameworks for future emergencies. Moreover, public-private partnerships and global collaborations—including technology transfers and co-development deals—were pivotal in expanding access and ensuring equitable distribution, especially in low- and middle-income countries.

Bharat Biotech (BBIL) has built robust, end-to-end capabilities spanning R&D, clinical trials, and large-scale manufacturing, ensuring rapid response to emerging health threats. Bharat Biotech was one of the few companies to develop and commercialise COVID-19 vaccines without technology transfers from foreign entities. With a proven track record in developing indigenous vaccines like Covaxin, BBIL remains committed to global pandemic preparedness through innovation, agility, and strategic partnerships.

Finally, the pandemic catalysed a wave of innovation. Asia-Pacific firms are now actively developing next-generation vaccine platforms, including mRNA, intranasal, and thermostable formulations, designed for greater efficacy, ease of use, and wider reach, particularly in remote or resource-limited settings. South Korea and Japan have together committed over $3 billion toward advanced vaccine technologies and manufacturing innovation since 2021.

These lessons are now shaping a more resilient, responsive, and inclusive vaccine ecosystem, positioning the Asia-Pacific not just as a global supplier, but as a dynamic leader in the next era of immunisation.

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