

Original Article

Opportunities in the Indian Pharmaceutical Sector: Post COVID-19

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Abstract: *The COVID-19 epidemic's unnoticed effects on the pharmaceutical industry and the healthcare industry as a whole have had a significant impact on consumer conditions and preferences, as well as macroeconomic, structural, and microeconomic changes in the entire value chain. The pharmaceutical industry has reacted deftly to the epidemic and the altered global environment, from the sequencing of the new nimbus contagion to the administration of vaccines to the first philanthropist in the United Kingdom within a short period of time, with efficacy situations exceeding 90, exceeding all expectations of governments and requests worldwide. Due to the most exceptional global efforts collaboration, including re-deployment of funds and real-time data sharing, this idea was made possible. India must reevaluate its current position in the global pharmaceutical industry, look into ways to solidify and strengthen it in light of geopolitical and financial changes, and achieve tone-adequacy as an encyclopedically competitive pharmaceutical industry with innovation as a guiding principle for future growth. The goal for the present decade is discussed in this article with industry stagers from various sectors, with contributions from the government, controllers, and material assiduity organisations. The sector has seen crippling constraints and obstacles that make it difficult to operate and distribute medicines to people in India and around the world. Pharma assiduity outperformed expectations in addressing this global extreme by providing medications to over 150 countries in addition to satisfying all home demands. We must focus on the upcoming set of avenues to fuel the growth machine of this industry in order to reach tone-adequacy and become the true drugstore of the globe, which is both strategically and financially significant.*

Keywords: *Opportunities, Pharmaceutical, Supply Chain, Human Resource, Production*

I. INTRODUCTION

We saw a coordinated international reaction to the COVID-19 pandemic, which was made possible, among other crucial factors, by the expedited transfer of "technology" and the value of partnerships and collaborations. The start of the pandemic made it clear how important it is for businesses in the sector to work together and partner with one another as well as with governments. To encourage innovation and boost the supply of life-saving medications, a number of agreements were reached between local businesses and MNCs. A major American pharmaceutical company negotiated into non-exclusive voluntary licencing contracts with numerous local businesses for their patented medicine, which is used to treat COVID-19. Similar to this, a well-known American pharmaceutical business engaged into a licencing deal with pharmaceutical firms in India for their patented product, an antiviral medication used to treat COVID-19 infection. Along with addressing its own domestic needs throughout the pandemic, India by 2021 also made sure that 123 partner nations received their medication supplies, and it sold a total of 587 lakh doses of the COVID-19 vaccine around the world[1].

These advancements demonstrate the necessity for a virtual ecosystem of care, which is being given priority by many healthcare delivery partners and pharmaceutical firms in order to be able to save lives. This ecosystem of care is necessary to enable a smooth connection between patients and HCPs. We observed numerous cutting-edge solutions establishing an online ecosystem for patient diagnosis, therapy, and wellness. Such programmes were a huge success and, in a relatively short time, positively impacted over +3 lakh people. We need to develop a strategy to support the future of all the new capabilities that arose during the lockdown and improve the point of care with sustainable solutions. "Patient First" is the motto of healthcare practitioners.



II. INDIAN PHARMACEUTICAL INDUSTRY 'PHARMACY OF THE WORLD'

India's thriving pharmaceutical sector is praised as the "pharmacy of the world" since the nation is the leading source of ground-breaking inventions and has the capacity to supply vital medicines and provide medical help to nations all over the world. India's "Neighbourhood First Policy" and "Vaccine Maitri" programme both contribute to this. The COVID-19 pandemic highlighted India's position as a world leader in innovation as well as a supplier of vital and life-saving medicines wherever they are needed. The industry's global impact was clearly seen in 2020, when the nation took the lead in the worldwide fight against the pandemic by delivering vital medicine supplies to over 120 nations[2]. India is one of the biggest global suppliers of affordable vaccinations, and its Serum Institute is the world's largest vaccine manufacturer in terms of dosage output and global sales[3].

Over the years, the Indian pharmaceutical industry has made a substantial contribution to the country's economic expansion. Over 2.7 million people are engaged by the industry directly or indirectly in high-skill fields like research and development (R&D) and manufacturing, according to the Department of Pharmaceuticals[4]. The pharmaceutical sector is in a good position to make a significant contribution to India's economic success. The industry's impressive net foreign exchange revenues of USD 11 billion in 2021 and predicted industry growth of USD 30–40 billion annually by 2030[5] are the basis for the high belief. Due to India's considerable competitive edge in pharmaceuticals, there is a large chance for Indian pharma businesses to use the "China plus one" model and attract significant worldwide investments.

III. INDIAN PHARMACEUTICAL INDUSTRY TAKES A BIG LEAP IN EXPORTS

Indian pharmaceutical enterprises have been successful in becoming a significant exporter of pharmaceutical products in addition to satisfying domestic demand. Because of its quality and price, produced in India generics and vaccines are increasingly in demand at a time when the global pharmaceutical industry is expected to decline by 1-2 percent in 2020[6]. Comparing FY21 to FY20, India's pharmaceutical exports amazingly climbed by more than 18.2%. In the preceding eight years, this was the pharmaceutical industry's greatest export growth rate[7]. The exports, which included vaccines, surgicals, ayush, and herbals as well as medication formulations and biologicals, were USD24,469.8 million in 2020–21 and USD20,254.4 million in 2021–22 (Apr–Jan).

Table 1: Pharma Exports from India across Different Product Categories, (USD Million)

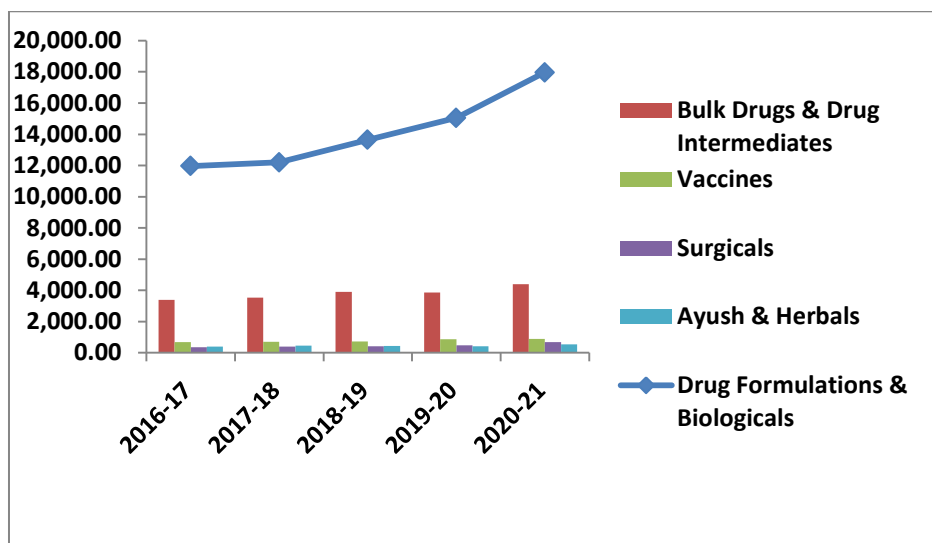
Product Category	2016-17	2017-18	2018-19	2019-20	2020-21	Growth
Drug Formulations & Biologicals	11,966.10	12,203.80	13,648.80	15,049.40	17,959.30	19.30%
Bulk Drugs & Drug Intermediates	3,383.50	3,525.70	3,895.40	3,867.80	4,405.50	13.90%
Vaccines	679.3	696.5	719.9	878.7	887.8	1%
Surgicals	354.4	399.8	425.3	479.5	677.1	41.20%
Ayush& Herbals	401.7	456.1	448.1	428.1	539.9	26.10%
Total exports	16,785.00	17,281.80	19,137.40	20,703.50	24,469.50	18.20%

(Source: Trade statistics, Pharmaceutical Export Promotion Council of India (Pharmexcil), Ministry of Commerce and Industry, Government of India)

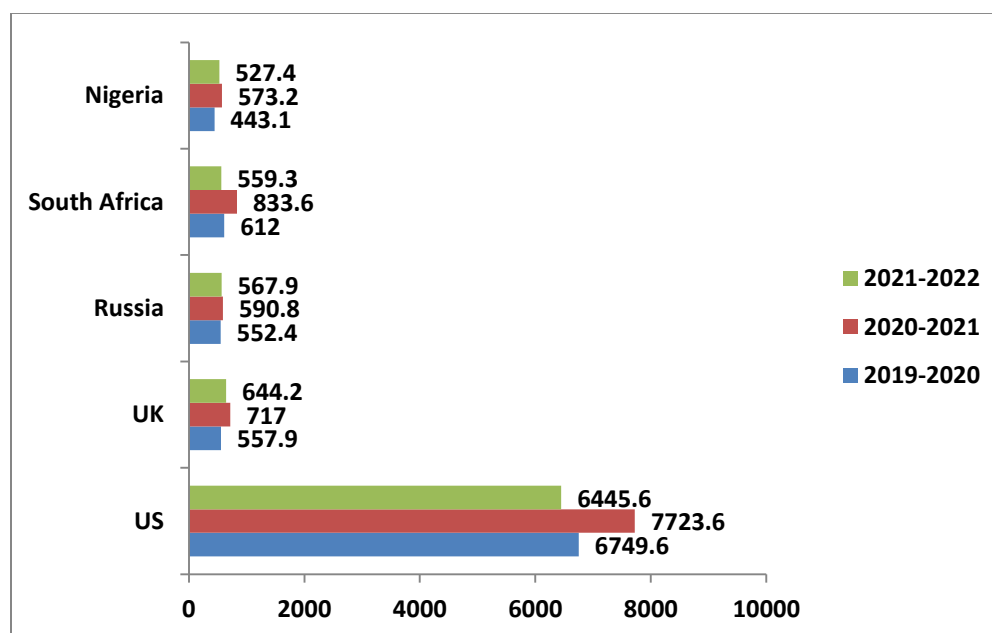
The top five countries to which Indian pharmaceutical items are exported are the United States, the United Kingdom, Russia, South Africa, and Nigeria. In terms of total exports to the nation from 2017–18 to 2021–22, pharmaceuticals account for more than 33% of all imports from India, making the U.S. the largest buyer of Indian medicines[8]. India's cost advantage has been a major factor in the growth of exports to the United States during the past two decades.

During the pandemic year 2020–21, the demand for Indian pharmaceutical products surged in non-traditional markets[9] such Latin America (14.5%), CIS countries (23.5%), and the Middle East (17.5%). Additionally, exports to previously untapped nations including Australia (21%), the United Arab Emirates (43%), Uzbekistan (125%), and Ukraine (40.6%) had exceptional growth rates. For the fiscal year 2020–21, the Indian pharmaceutical industry received record FDI inflows totaling USD1441 million. The need to address COVID-related demands for treatments and vaccines was what spurred on the record-breaking inflow of foreign investments during the pandemic period. During the six-month period from April to September of FY 2021–22, FDI into the medicines and pharmaceuticals sector was USD559 million. This is more than the USD518 million that was

recorded over the course of the previous year, from April 2019 to March 2020.



Graph 1: Pharma Export (Million USD)



Graph 2: Top five export destinations of Indian pharmaceutical products (USDmillion)

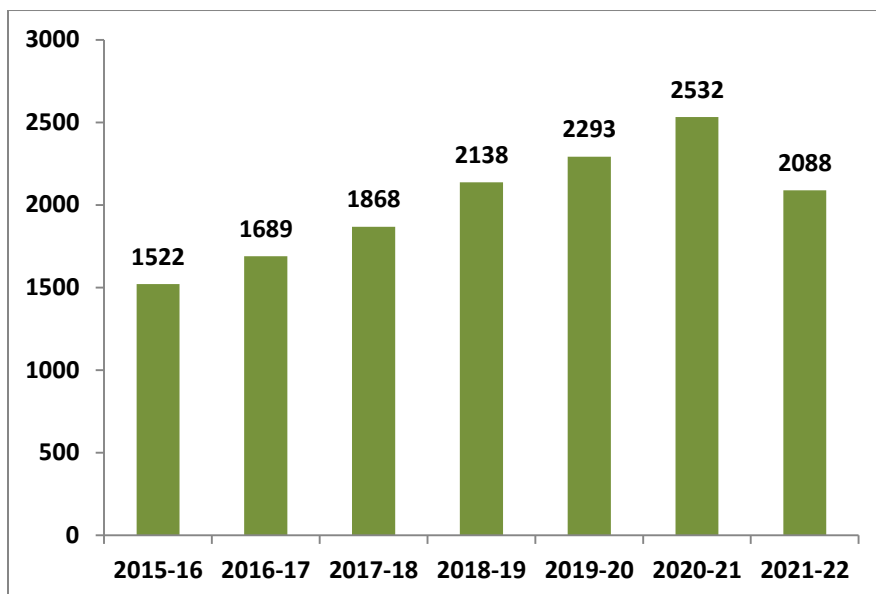
(Source: Trade statistics, Pharmaceutical Export Promotion Council of India (Pharmexcil), Ministry of Commerce and Industry, Government of India)

Indian medical device manufacturing industry

Global investors have started to exhibit a revived interest in Indian medical devices due to a variety of geopolitical factors. At manirbhar Bharat, India's dedication to self-reliance, would not only help India become a world leader in the production of medical equipment but will also advance India's goal of being a reputable supplier of high-quality goods on a worldwide scale.

Due to the Indian government's confidence in domestic producers to meet the rising demand for both domestic consumption and exports, medical device exports increased by 10.4% in 2020-21. Prior to the start of the pandemic, just 20 companies were generating 62 lakh PPEs annually[10]. However, the number of manufacturers listed with the Association of

Indian Medical Device Industry (AiMeD) increased to 140 companies in just two to three months, contributing an additional USD3.3 million (INR25.55 crore) in annual capacity[11].



Graph 3: Exports of medical devices from India (USD million)

(Source: Engineering Export Promotion Council of India (EEPC), Ministry of Commerce, Government of India)

In order to help the medical and surgical equipment sector, the Indian government has begun a number of initiatives. It has prioritised various R&D projects and allowed 100% FDI for medical devices in order to expand the industry. For the period of April 2021 to December 2021, the present amount of FDI inflows into the market for medical and surgical appliances is Rs. 1177 crore (USD158.77 million). To ensure that India transitions from being an importer of medical devices to an exporter of the same goods, the international community must take more proactive actions.

IV. GAPS IN THE INDIAN PHARMACEUTICAL SECTOR

The pharmaceutical value chain must include both manufacturing and the supply chain. In this competitive period, it is important to control manufacturing and supply chain costs as well as customer costs and inventory levels, all while preserving service quality. As a result, there is a need to upgrade the infrastructure for distribution, transit, and storage of raw materials, including completed goods, across the nation as the Indian pharmaceutical industry aims to expand. According to regulations set forth by regulatory agencies, some pharmaceutical items, such as injectables, vaccines, or complicated medications, require specialised transportation and storage facilities during shipment with temperature and humidity requirements monitored. There is still room to improve storage and transportation infrastructure in compared to the west and rising markets of China and South Korea. In order for Indian ports, airports, railroads, roads, and waterways to match the international standards for facilities, automation, and time-to-complete/speed, a significant gap still needs to be bridged. Therefore, as the pharmaceutical sector expands in value and volume over the future years, it will put a tremendous pressure on numerous supply chain components. Massive disruptions in the demand and supply sides of the pharmaceutical supply chain were caused by the COVID-19 pandemic. Following is a timeline of COVID-19 restrictions imposed by the Indian government and their impact on pharmaceutical production from the end of 2019 to July 2020[12].

A. Dependency on China:

There was a lack of raw materials in many industries in India at the same time as the COVID-19 pandemic was affecting international trade. Indian pharmaceutical sector was among one of the worst hit sectors. India struggled to maintain a consistent supply of active pharmaceutical ingredients (APIs), a crucial raw material for medications, while China's factories went on lockdown. India is a worldwide and domestic leader in the production of affordable generic drugs. However, China, which is the world's largest manufacturer and exporter of antibiotics (especially penicillin, cephalosporins, and macrolides) by volume, is where the majority of APIs are imported from.^[13,14,15]

B. Labor shortages and facility shutdowns^[16]:

The lockdown had a substantial impact on the majority of Indian pharmaceutical companies due to facility closures and employment issues. The difficulty in procuring raw materials is another issue facing Baddi-Barotiwala-Nalagarh, Himachal Pradesh, the largest pharmaceutical centre in Asia and the location of the production of numerous important COVID-19 and anti-inflammatory drugs. Government action was demanded by those in the industrial belt to simplify the transportation and delivery of raw materials.

C. Reduced availability of workers^[17]:

Restricting employees' ability to travel freely within factories. When these workers crossed state borders, several of them ran against border restrictions. They returned home since the contract workers who assisted with the loading, unloading, and material transporting were from states like Uttar Pradesh or Bihar. People were deterred from reporting for duty by the Government of India's assurance that employees would get their salary during the lockdown. Because they were afraid of becoming sick, pharmaceutical company employees who resided in housing cooperatives set up a scam.

D. Supply chain disruptions^[18]:

Despite the healthcare industry being exempt from lockdown limitations because of important services, the countrywide lockdown during the COVID-19 pandemic resulted in supply chain problems. However, due of restrictions on the transfer of personnel, other necessities, and pharmaceuticals across state boundaries, there were considerable obstacles. Additionally, support services like courier services and packing materials are not offered. Additionally, input costs for numerous chemicals (APIs and key starting materials (KSMs)) dramatically increased as a result of rising freight costs despite China's supply of raw materials restarting following lockdowns from January to March 2020. The price of air freight, for instance, increased from USD2 to USD5 to USD6 per kilogramme.[19] The average cost of shipping a container from China to India increased from USD 750 to USD 1,200 to USD 1,300 during the first and second waves of the pandemic.

V. CONCLUSION

Opportunities in the Indian pharmaceutical sector with regard to active pharmaceutical ingredients (APIs) and intermediate chemicals were investigated using the example of three very successful drugs and their value chains. The opportunities are obviously not limited to the aforementioned scenarios, and those willing to enter this industry may work to build a wide range of APIs and intermediates that might be used to develop drugs with a variety of physiological effects. Many drug manufacturers also produce APIs, but because the demand for pharmaceuticals exceeds the quantity of API they can produce, they are now forced to buy from countries like China. These pharmaceutical businesses would gain a lot from growing API production capacity for the pharmaceuticals they are already manufacturing and backward integrating into the API industry. They may also maintain a constant level of output with the aid of this. Many chemical businesses are hesitant to enter this sector due to lack of knowledge and the complicated regulations in the pharmaceutical industry. The government will need to loosen regulations and make it easier for companies to set up an API or intermediate production plant. In order for chemical firms to discover how their skills may help them enter this dynamic market, it would be beneficial for an economic body like the NITI Aayog to help facilitate dialogues between Indian pharmaceutical enterprises and chemical corporations.

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