



## Upskilling India's Pharma Sector

This editorial is based on [“Indian pharma sector needs a dose of upskilling and reskilling”](#) which was published in the Hindu BusinessLine on 03/04/2023. It discusses the issues with the Indian pharma sector and steps needs to be taken to address it.

**For Prelims:** Intellectual Property Rights, Pharma Sector, Artificial Intelligence, Machine Learning, Environmental, Social and Governance, Strengthening Pharmaceuticals Industry Scheme, Promotion of Bulk Drug Parks Scheme, Production Linked Incentive (PLI) Scheme

**For Mains:** Pharma Sector and Related Issues, Need to Upskill India's Pharma Sector

The **Indian pharmaceutical industry has been instrumental in enhancing global health** by producing inexpensive and high-quality generic medicines. Nonetheless, the industry still confronts various obstacles to become one of the world's leading pharmaceutical producers in terms of value.

The Indian pharmaceutical industry is the third largest in terms of volume globally. Currently, the **Indian pharmaceutical market is valued at around USD 50 billion**, out of which almost USD 25 billion constitutes the export market. The **domestic market will touch USD 130 billion by 2030** out of which over 60% will only be exports.

Despite India's ever-increasing pool of talented scientists, engineers, and entrepreneurs along with its demographic advantage, **it will be critical to invest in building an ecosystem for skilling**. To stay competitive in the **VUCA (Volatile, Uncertain, Complex and Ambiguous) world**, there is a fundamental need for upskilling and reskilling.

### What are the Challenges with India's Pharma Sector?

#### ▪ Regulatory Compliance:

- The **pharmaceutical industry is highly regulated**, and Indian companies must comply with the regulations of various countries where they export their products.
- In recent years, **Indian companies have faced several regulatory hurdles**, including issues with quality control, data integrity, and manufacturing practices, leading to import bans and loss of business.

#### ▪ Intellectual Property Issues:

- **Intellectual Property Rights (IPR)** are crucial for the pharmaceutical industry as it ensures that companies can protect their inventions and earn a fair return on their investment. However, **Indian companies have been accused of violating IPR laws**, leading to legal battles with multinational pharmaceutical companies.
  - **Example:** In 2014, **Swiss pharmaceutical company Roche sued Indian drug manufacturer Cipla for allegedly infringing on its patent** for the cancer drug,

Tarceva. Roche claimed that Cipla's generic version of the drug violated its patent rights.

- The case went to court, and in 2016, the Delhi High Court ruled in favor of Roche, stating that Cipla had infringed on Roche's patent and had to pay damages to the company.

#### ▪ **Price Control:**

- The **government of India regulates the prices of essential medicines**, which has led to low-profit margins for the pharmaceutical companies.
- This, in turn, **affects the research and development activities of the companies**, as they have less money to invest in innovative products.

#### ▪ **Lack of Innovation:**

- The **majority of the pharmaceutical companies in India focus on manufacturing generic drugs** and not on research and development.
- The industry is yet to establish a strong base in innovative drug discovery, leading to a lack of new drugs being introduced in the market.

#### ▪ **Infrastructure Challenges:**

- The infrastructure in India, **including transportation, energy, and communication, poses significant challenges for the pharmaceutical industry.**
- The **lack of adequate transportation facilities affects the timely delivery of products**, while power outages and communication breakdowns can disrupt manufacturing processes.

#### ▪ **Skilled Workforce:**

- The **pharmaceutical industry requires a skilled workforce in various fields**, including research and development, manufacturing, and quality control.
- However, **there is a shortage of skilled professionals in the industry**, leading to a gap between demand and supply.

#### ▪ **Global Competition:**

- The **Indian pharmaceutical industry faces stiff competition** from other countries such as China, which offers lower production costs and higher production capacities.

#### ▪ **Heavy Dependence on China:**

- Despite being a leading supplier of high-quality medicines to several countries, the **Indian pharmaceutical industry is highly dependent on China for pharmaceutical raw materials i.e. [Active Pharmaceutical Ingredients](#).**
  - Indian drug-makers import around 70% of their total bulk drug requirements from China.
  - According to a report by Data Bridge Market Research, **the Active Pharmaceutical Ingredient (API) market was valued at USD 300.72 trillion in 2021** and is **expected to reach a value of USD 540.33 trillion by 2029 at a CAGR of 7.6%** during the forecast period of 2022 to 2029.

## What are the Related Initiatives?

#### ▪ **[Strengthening Pharmaceuticals Industry Scheme:](#)**

- The Scheme provides for **credit linked capital and interest subsidy for Technology Upgradation of MSME units** in pharmaceutical sector, as well as support of up to Rs 20 crore each for common facilities including Research centre, testing labs and ETPs (Effluent Treatment Plant) in Pharma Clusters.

#### ▪ **[Promotion of Bulk Drug Parks Scheme:](#)**

- The government aims to develop 3 mega Bulk Drug parks in India in partnership with States to reduce manufacturing cost of bulk drugs in the country and dependency on other countries for bulk drugs.
- The scheme will also help in providing continuous supply of drugs and ensure delivery of affordable healthcare to the citizens.

#### ▪ **[Production Linked Incentive \(PLI\) Scheme:](#)**

- The PLI scheme aims to promote domestic manufacturing of critical Key Starting Materials (KSMs)/Drug Intermediates and Active Pharmaceutical Ingredients (APIs) in the country.

## What Should be the Way Forward?

- **Research and Innovation:**
  - Professionals with expertise in life sciences, research methodologies, and cutting-edge technologies like [Artificial Intelligence \(AI\)/Machine Learning \(ML\)](#) and data analytics are essential in the innovation space, which constitutes two-thirds of the global market.
- **Ensuring Proper Regulation:**
  - For the Indian pharma sector to retain the “pharmacy of the world” status, **quality control professionals must be equipped** to ensure that products meet international standards.
- **Leveraging Digital Tech:**
  - **Leveraging digital technologies to improve productivity**, efficiency and innovation will be critical for the companies.
  - **For example:**
    - Digital technology is being used to make clinical trials more efficient and effective.
    - **Artificial Intelligence** is being used to improve **drug discovery and development**. [Machine learning](#) algorithms can be used to analyze large amounts of data to identify patterns and predict outcomes.
- **Competitiveness:**
  - There is a **need for upskilling/reskilling in sales, marketing and supply chain management** and to adopt [Environmental, Social and Governance \(ESG\)](#), green technology, and training employees in cross-functional skills.
- **Skilling Pharma Professionals:**
  - The pharma sector demands professionals with diverse skill sets, including scientific research, drug development, regulatory compliance, marketing, and sales.
  - Therefore, educational programs must focus on skill development, which helps the workforce to perform their roles more efficiently and effectively.
  - The **pharmacology curriculum of Indian institutions must be updated frequently to make the students future ready**. In collaboration with the industry, LSSSDC and the [Pharmacy Council of India \(PCI\)](#) have developed skilling modules for the B. Pharm curriculum.
    - The LSSSDC aims to upskill around 7500 workers in small and medium enterprises.
    - LSSSDC is a **not for profit, non-statutory certification Body** under mandate of Ministry of Skill Development and Entrepreneurship.

### **Drishti Mains Question**

What are the key challenges faced by India's pharmaceutical sector, and how can they be addressed to ensure sustained growth and competitiveness in the global market?

## UPSC Civil Services Examination, Previous Year Question (PYQ)

### **Mains**

**Q.** How is the Government of India protecting traditional knowledge of medicine from patenting by pharmaceutical companies? **(2019)**