



## International Journal of Advanced Research in Humanities and Social Sciences

An International open-access peer-reviewed Quarterly journal

journal homepage: [www.ijarhss.in](http://www.ijarhss.in)

### Some Important Aspects of Pharmaceutical Industry In India

**Dr. Laxmi Biban**

Assistant Professor, Department of  
Botany Govt. College Karnal, Haryana  
[laxmibibanbotany@gmail.com](mailto:laxmibibanbotany@gmail.com)

#### Keywords

Generic drugs, vaccine manufacturing, pharmaceutical exports, API production, healthcare economics.

#### ABSTRACT

India's pharmaceutical industry has emerged as a cornerstone of global healthcare, currently ranking as the world's third-largest producer by volume and fourteenth by value. Contributing 3.7% to India's GDP, the sector manufactures 60% of global vaccines and supplies 40% of generic drugs in the U.S. market. This study analyzes three critical dimensions: economic impact (projected \$130 billion market by 2030), healthcare accessibility (providing 80% of global antiretrovirals), and global leadership (exports to 200+ countries worth \$27.8 billion in 2023-24). The research highlights how strategic initiatives like the Production Linked Incentive (PLI) scheme are reducing API import dependence from 90% to 65% while identifying persistent challenges in regulatory harmonization and R&D investment..

#### Introduction

The Indian pharmaceutical sector represents a unique success story in post-colonial industrial development. From producing 5% of global generics in 1990 to dominating 20% of the market today, the industry has grown at 9.8% CAGR over the past decade (IBEF, 2024). This transformation stems from three strategic advantages:

**Cost Competitiveness** (Production costs 33% lower than Western counterparts)

**Regulatory Expertise** (584 USFDA-approved facilities - highest outside USA)

**Demographic Dividend** (500,000 pharmacy graduates annually)

The COVID-19 pandemic underscored India's pivotal role, with Indian manufacturers supplying 65% of global vaccine doses through COVAX (WHO, 2023).

#### Literature Review

Contemporary scholarship reveals critical insights:

**Policy Evolution:** Ghosh's (2022) analysis of the Bulk Drug Parks scheme demonstrates 28% reduction in API import dependence since 2020

**Supply Chain Resilience:** As noted by Chatterjee (2023), the PLI scheme attracted \$2.4 billion in domestic API investments

**Innovation Shift:** Singh's (2024) patent analysis shows 140% increase in new drug applications since 2018

## Economic Impact Analysis

### 1. Structural Composition

**Manufacturing Base:** 10,500 facilities including:

- 3,000 domestic companies
- 1,200 WHO-GMP certified units
- 60+ EU-GMP approved plants

**Employment Generation:** Direct employment of 2.9 million with 6.1 million in ancillary sectors (NTI Aayog, 2024)

### 2. Macroeconomic Contribution

| Indicator    | 2021      | 2025P     | Growth |
|--------------|-----------|-----------|--------|
| Market Size  | \$41 bn   | \$65 bn   | 58%    |
| Export Value | \$24.4 bn | \$27.8 bn | 14%    |
| FDI Inflows  | \$2.1 bn  | \$3.4 bn  | 62%    |

### 3. Global Leadership

- Supplies 60% of global vaccines
- Provides 80% of worldwide antiretrovirals
- 40% generic drug market share in USA

## Healthcare Contributions

### 1. Affordability Metrics

- Reduced HIV treatment costs from \$10,000/year to \$100/year
- Produces 90% of WHO-prequalified vaccines at 40% lower costs

### 2. Pandemic Response

- Manufactured 2.8 billion COVID vaccine doses in 2021-22
- Supplied 198 million hydroxychloroquine tablets to 55 countries

### 3. Innovation Pipeline

- 1,200 ANDAs approved in US (2023)
- 45 novel drugs under development (DCGI, 2024)

## Challenges and Policy Recommendations

### Critical Constraints

1. API Dependence: Still importing 35% critical APIs from China
2. R&D Deficit: Only 0.3% of revenue spent on new chemical entities
3. Regulatory Lag: 18-24 month approval timelines vs 10-12 months globally

### Strategic Interventions

- API Parks: Full utilization of \$1.2 bn PLI scheme
- Research Incentives: 200% tax deduction for novel drug development
- Single Window: Unified digital platform for regulatory clearances

## Conclusion

India's pharmaceutical sector stands at an inflection point - while maintaining its "pharmacy of the world" position in generics, it must transition to higher-value innovation. The next decade requires tripling R&D investment (\$15 bn by 2030), complete API self-sufficiency, and digital transformation of regulatory processes. Success in these areas could elevate India from a \$50 bn to \$130 bn sector while ensuring global health security.

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