Final Report

Survey of Pharma Clusters

Government of India
Ministry of Chemicals & Fertilizers
Department of Pharmaceuticals

Centre for Market Research & Social Development
39, Ground Floor, Sant Nagar, East of Kailash, New Delhi-110065
Tel: 011-46578478, 41621978, Email: officemail.cmsd@gmail.com

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Dr. Girija Bhusan Nanda

(Director)

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EXECUTIVE SUMMARY

Given the diverse nature of the Pharma Sector within the country both in terms of geographical location and sectoral composition, the Government aims at addressing the need of the Pharma Sector, through well defined clusters and geographical areas. This will enable achieving the economies of scale in terms of deployment of resources as well as focusing on the specific needs of the sector. Department of Pharmaceuticals intended to conduct "Survey of Pharma Clusters" with the objectives of

a. Evaluating contribution of Pharma clusters to overall production, supplies and exports;
b. Assessment of infrastructure and logistics framework and suggest improvements, and
c. Recommendations to boost efficiency and cost competitiveness of clusters

The broad scope of the "Survey of Pharma Clusters" are:

a. Diagnosis of Pharma Clusters of the Country w.r.t their geographical spread
b. Cluster-wise and aggregate analysis w.r.t.:
   (i) Size including contribution to domestic output including production as well as exports at product and aggregate level
   (ii) Assessment of common facilities viz., common effluent treatment plants, accreditation labs, etc.
   (iii) Overview of Government interventions under various Schemes of State Governments and Central Government
   (iv) Recommendations to promote cost competitiveness and boost infrastructure for each cluster

The study was carried out mainly based on both primary as well as secondary data. Apart from collecting cluster level data from the States/UTs, primary information was also collected through Key Informant Interviews. All the pharma clusters were surveyed during the assignment. In order to get inputs from stakeholders, 10 Focus Group Discussions (FGD) were conducted at different clusters. Primary information was also collected through Key Informant Interviews. 100 pharma industries were covered for the study. Other stakeholders (key informants) were selected through purposive sampling techniques. The data collection from various stakeholders was done during May to August 2022.

Major Survey Findings

1) The survey found that there are 118 pharma clusters in the country spreading over 19 states/UTs. The highest number of 40 pharma clusters are in Maharashtra, followed by 13 in Gujarat, 8 in Andhra Pradesh, 7 each in Himachal Pradesh and Rajasthan, 6 in Uttar Pradesh, 5 each in Goa, Karnataka and Tamil Nadu, 3 each in Haryana and Uttarakhand, 2 in Punjab, and one each in Chhattisgarh, Madhya Pradesh, Odisha, Puducherry, Sikkim, West Bengal and Jharkhand.

2) Geographical region wise finding illustrates that majority (65, 55%) of the pharma clusters in the country are in West region, while 26 (22%) clusters are in South region, 23 (19%) clusters in North & Central region, 3 (3%) clusters in East region, and 1 (1%) pharma cluster is in North-East region.

3) During the survey of 118 pharma clusters, it was observed that there are 7673 pharma industries in operation with an average of 65 units per cluster. There are some big pharma clusters in Taloja in Maharashtra as well as in Visakhapatnam, Tirupati, NTR-Krishna-Palnadu in Andhra Pradesh with more than 400 pharma industries.

4) Out of these 7673 pharma industries in 118 clusters, 1995 (26%) are micro industries, 2393 (31.2%) are small industries, 2331 (30.4%) are medium scale industries and 954 (12.4%) are large industries. Most of the large scale pharma industries are located in the clusters of Mumbai, Thane, Baddi, Puducherry, Chennai and Secundarabad.

5) As per the study findings, most (87.6%) units in pharma clusters are MSMEs. The study found that these MSMEs in pharma clusters form an essential part of the supply chain for the large industries. Clearly, these MSMEs operating in the pharma clusters are the backbone of the pharma sector. MSMEs are less focused on exports in comparison to large industries. The MSMEs operate in the local market, and mainly manufacture and market formulations based on less complex molecules. So. the government needs to focus and work on the proper implementation of the MSME programmes for the upliftment of the pharma sector.

6) During the survey of pharma clusters an assessment was undertaken with regard to the availability of infrastructure and facilities in the pharma clusters of the country.

The study observed that common effluent treatment plants, common testing centre, common training centre, common logistics centre are available in most pharma clusters, while R & D centre, captive power plants, emergency response centre, stream and cooling systems are available in some clusters.

7) However, the study observed that Special Purpose Vehicle (SPV), advanced testing centre for pre-clinical testing, digital laboratory, awareness facility centre, advanced research centre and captive power facilities are not available in majority of the pharma clusters.

8) The survey findings illustrate that the annual domestic pharmaceutical production by the industries in 117 pharma clusters in the country is approximately 6,11,120 tonne. Apart from that, the annual export amount of pharmaceutical products from these clusters is about 5,76,140 tonne. Thus, the annual total output of these 118 pharma clusters is approximately 11,87,260 tonne. The value of the domestic production as well as export production from these 118 pharma clusters is estimated to be about Rs. 2 lakh crore each, and thus, the value of the total output of the pharma clusters in the country is roughly Rs. 4 lakh crore.

9) As per the survey, there are 1785 export oriented units in these 118 clusters. Major countries to where the pharmaceutical products from Indian pharma clusters are exported are: USA, China, UK, Bangladesh, South Africa, Nigeria, Russia, France, Australia, Canada, Brazil, Germany, Japan, Turkey, Egypt, Indonesia, Netherland, Belgium, etc.

10) The survey observed that the pharma clusters have been benefitted under the Cluster Development Programme (CDP) with regard to the development of infrastructure and common facilities in the clusters. The benefits received by the pharma clusters under CDP are:

- Easy access to standard testing facilities and value addition
- Strengthening of the existing infrastructure facilities
- Getting the standard environment at a reduced cost through innovative methods of common waste management.
- Optimizing the available resources

11) The survey observed that 22% of the surveyed industries have availed any government subsidy/ assistance under scheme like Capital Subsidy Scheme, Mudra Loan, Production Linked Incentive Scheme, Export Incentive Scheme, Make in India, Pharmaceutical Technology Upgradation Assistance Scheme.

12) The survey intended to know the issues and challenges faced by the pharma industries in availing the subsidy/ assistance. Major issues/ Challenges reported by the units are:
    - Lengthy and time consuming process
    - Delayed disbursement
    - Too much documents asked for

13) Major recommendations provided by the industries to reduce production cost and develop infrastructure in the pharma clusters are:
    - Provide necessary project related clearances expeditiously
    - Tax benefit to the industries
    - Development of research centre
    - Aware the industries about Govt. Schemes
    - Low priced raw material should be available in Indian market
    - Equipment and testing qualities need improvement

Recommendations

1) **Innovation and R&D:** The pharma sector needs to focus on innovation so as to move up the value chain. The pharma clusters in India requires a strong innovation pipeline with new product launches and molecular entities every year. To achieve the same, the industry is now entering the complex generics and specialized drugs market. The idea should be to enhance pharma's significance in new drug development, biologics and innovations and on increasing capabilities in usage of technology, biological sciences and cell and gene therapy, with the core focus on patient needs.

2) **Digital Transformation:** Digital transformation is vital for enhanced patient care, greater transparency, cost-effectiveness, improved production and drug development. Latest technologies such as artificial intelligence (AI), AR/VR, machine learning (ML) and additive manufacturing are helping global pharma industries to improve the R&D

process, conducting clinical tests in less time and adding innovation to the products as well as improving compliance and efficiencies in manufacturing. Thus, digital lab facilities should be established in every pharma cluster in India to improve the R&D process, conducting clinical tests in less time and adding innovation to the products as well as improving compliance and efficiencies in manufacturing.

3) **Efficient Supply Chain Management:** Because of decreasing product life cycle time, varying customer demands, as well as increasing cost of manufacturing and shipment, the pharma sector is increasingly interested in efficient supply chain management (SCM), because the sector is facing extreme competition. Supply chain activities are a series of connected inter-organizational processes containing five echelons: plan, source, make, deliver, and return. Therefore, a comprehensive and efficient supply chain management model needs to be developed by the academics and experts to address the supply chain problems faced by the Indian pharmaceutical clusters.

4) **Focus on high value pharmaceutical products:** Although India ranks third when it comes to the volume of exports of pharma products, it is at the 14th spot when it comes to the value of exports. Thus, big and established pharma clusters in India need to focus on manufacturing high value pharmaceutical products in order to become the export hub of the pharmaceutical products in the world.

5) **Help build transparency and predictability of regulations:** India is one of the most affordable and accessible pharmaceutical markets. For the last few years, the pharma industry has witnessed enormous transformations in regulatory policies aimed at improving the affordability and quality of healthcare. Industry welcomes these. However, the Government needs to ensure a stable regulatory environment, especially on regimens for protection of Intellectual Property (IP), pricing, clearances, trade, and export policies.

6) **Initiatives to faster environment clearance:** The government may bring a change in the current guideline to bring down the approval process of environment clearance to 2 months as delays adversely impact industry competitiveness both domestically and in export markets. Further, changes in the product mix may be allowed if the chemical effluents approved to be processed in effluent treatment plants are all covered. Environmental clearances should be given for categories (broader baskets)

and not for individual drugs. There should be no restrictions on quantity produced as long as the overall pollution load is not breached. Deep sea discharge norms for fermentation products are required to be rationalized as per global best practices.

7) **Support for formation and development of pharmaceutical clusters:** The study observed that there has been continuous government effort and support in the recent past for the formation and development of pharmaceutical clusters. The government should continue its measures for creation and development of clusters, increasing the competitiveness in which clusters operate, the development of institutions which contribute to the clusters creation, as well as development of innovative medicines.

CHAPTER-I
BACKGROUND

1.1 Indian Pharmaceutical Sector

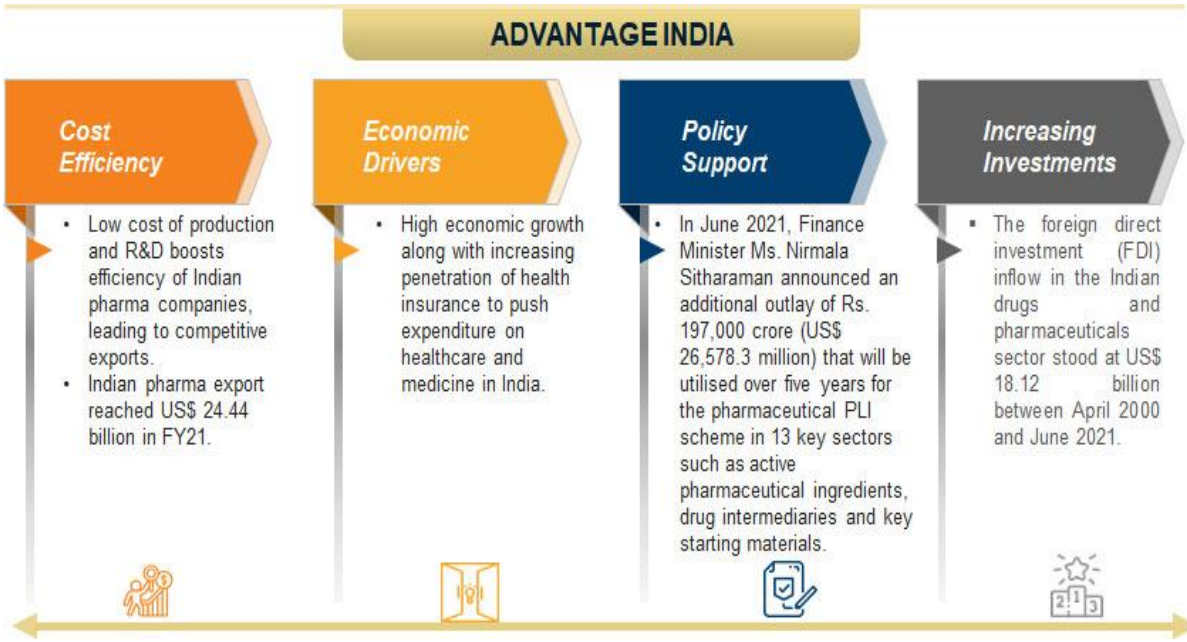
Indian pharmaceutical industry is known for its generic medicines and low-cost vaccines globally. Transformed over the years as a vibrant sector, presently Indian Pharma ranks third in pharmaceutical production by volume. In the last nine years, Indian Pharma sector has grown steadily by CAGR of 9.43%.

Pharma sector has been consistently earning trade surplus. During 2020-21, total pharma export was ₹180555 crore (USD 24.35 Bn) against the total pharma import of ₹49436 crore (USD 6.66 Bn), thereby generating trade surplus of USD 17.68 Bn. Till end September 2021, total pharma export has been ₹ 87864 crore (USD 11.88 Bn) as against total import of ₹ 33636 crore (USD 4.66 Bn), thereby generating a trade surplus of ₹ 54228 crore (USD 7.22 Bn). Major segments of Indian Pharmaceutical Industry include generic drugs, OTC medicines, bulk drugs, vaccines, contract research & manufacturing, biosimilars and biologics.

India is the largest provider of generic drugs globally. Indian pharmaceutical sector supplies over 50% of global demand for various vaccines, 40% of generic demand in the US and 25% of all medicine in the UK. Globally, India ranks 3rd in terms of pharmaceutical production by volume and 14th by value. The domestic pharmaceutical industry includes a network of 3,000 drug companies and more than 10,000 manufacturing units.

Indian pharmaceutical industry also plays significant role globally. India has the highest number of United States Food and Drug Administration (USFDA) compliant Pharma plants outside of USA. There are 500 API manufacturers contributing about 8% in the global API Industry. India is the largest supplier of generic medicines with 20% share in the global supply by manufacturing 60000 different generic brands across 60 therapeutic categories. Access to affordable HIV treatment from India is one of the greatest success stories in medicine. India is one of the biggest suppliers of low-cost

vaccines in the world. Because of the low price and high quality, Indian medicines are preferred worldwide, thereby rightly making the country the “pharmacy of the world”.



Sun Pharmaceuticals, Divis Laboratories, Dr. Reddy's Lab, Cipla Ltd., Cadila Healthcare, Lupin, Torrent Pharmaceuticals, Abbott India are the major pharma companies in India.

The Indian pharma industry has also played an important role in meeting the challenges for mitigation of the infection in COVID pandemic. The industry worked in close collaboration with the government and academic institutes etc., to quickly develop and refine manufacturing processes which helped to ensure a consistent supply of medicines needed for the management of COVID-19 (*e.g.* Remdesivir, Ivermectin, Hydroxychloroquine, Dexamethasone, Tocilizumab, Favipiravir *etc.*). Indian drug supplies throughout the COVID-19 pandemic period have provided relief to over 120 countries for Hydroxychloroquine (HCQ), 20 countries for paracetamol and about 96 countries for vaccines across the world.

Table-1.1: Pharma Sector's Growth at Current Prices		
Item/Year	**Output (₹ in Cr.)**	**Growth Rate**
2015-16	3,03,352	16.56
2016-17	3,21,472	5.97
2017-18	3,28,677	2.24
2018-19	3,98,852	21.35
2019-20	3,89,094	-2.45
2020-21	4,27,109	9.77

**Estimated based on trend growth rate (CAGR) of output at 9.77% achieved during 2013-14 to 2019-20.*

Source: National Accounts Statistics-2021, Ministry of Statistics and Programme Implementation.

1.2 Major Credentials of Pharma Industry

• India provides generic medicines to more than 200 countries
• 8 out of 20 Global Generic companies are from India
• Over 55% Exports to Highly Regulated Markets
• 90% of WHO Pre-Qualified APIs are sourced from India
• 65-70% of WHO's vaccine requirements are sourced from India
• No. of USFDA approved sites: 741 (as of August 2021)
• No. of ANDA Market Authorizations secured by Indian companies: 4,346 (as on December 2020)

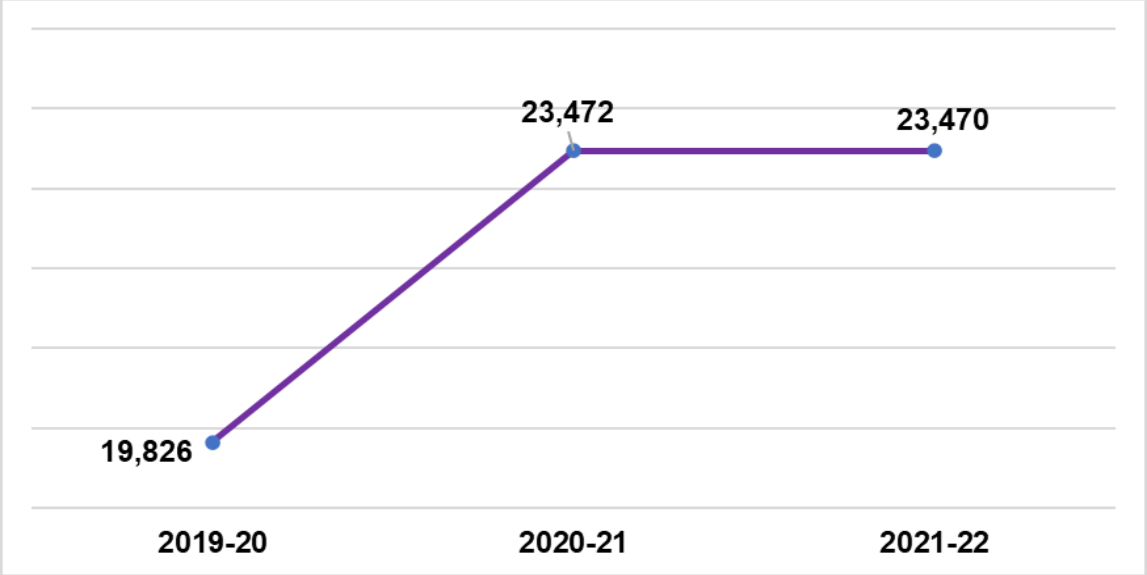
1.3 Export of pharmaceutical products by India in last three years

The data on exports of pharmaceutical products by India in last three financial years shows that the exports in FY 2019-20 was USD 19826 million with an export of 524757 MT of pharma products, and it was increased by 18% to USD 23472 million with an export of 642718 MT in FY 2020-21, and the export was USD 23470 million in FY 2021-22 with an export of 1072475 MT of pharma products.

Table-1.2: Volume (in MT) of export of phama products by India in last three financial years (2019-20 To 2021-22)			
	FY 2019-20	**FY 2020-21**	**FY 2021-22**
Bulk Drugs, Drug Intermediates	271543937	324401275	450732258
Drug Formulations, Biologicals	253212631	318316963	621742391
Total (KG)	**524756568**	**642718238**	**1072474649**
Total Export (MT)	**524757**	**642718**	**1072475**

Table-1.3: Value (in USD Mn) of export of phama products by India in last three financial years (2019-20 To 2021-22)			
	FY 2019-20	**FY 2020-21**	**FY 2021-22**
Bulk Drugs, Drug Intermediates	3885874659	4429696800	4468531169
Drug Formulations, Biologicals	15940616060	19042164947	19001085779
Total (in USD)	**19826490719**	**23471861747**	**23469616948**
Total Export (in USD Mn)	**19,826**	**23,472**	**23,470**

Chart-1.1: Exports of pharma products from India in last three financial years



(*Values in USD million)*

The top ten nations to where the exports of bulk drugs and drug intermediates were done from India in last three years were USA, Germany, China, Bangladesh, Brazil, Germany, Japan, Turkey, Egypt, Indonesia and Netherland. The top ten nations to where the exports of drug formulations and biologicals were done from India in last

three years were USA, UK, South Africa, Nigeria, Russia, France, Brazil, Australia, Kanada and Belgium.

Table-1.4: Top 10 export countries for bulk drugs and drug intermediates

(Value in USD Mn)

Country of Consignment	FY 2019-20	FY 2020-21	FY 2021-22
USA	335.6	398.3	462.7
China	219.4	300.1	253.0
Bangladesh	146.7	149.3	189.8
Brazil	159.1	187.9	185.6
Germany	174.2	198.9	158.3
Japan	126.9	144.0	143.1
Turkey	138.8	193.0	139.6
Egypt	115.2	126.5	138.2
Indonesia	66.9	77.4	124.3
Netherland	97.8	115.9	121.9

Table-1.5: Top 10 export countries for drug formulations and biologicals

(Value in USD Mn)

Country of Consignment	FY 2019-20	FY 2020-21	FY 2021-22
USA	6256.0	7113.7	6398.5
UK	446.5	610.9	607.4
South Africa	554.5	738.9	540.6
Nigeria	386.4	499.4	504.1
Russia	432.1	460.1	471.4
France	223.4	296.8	400.3
Brazil	297.2	314.2	372.4
Australia	247.2	311.2	351.4
Canada	268.9	372.8	351.3
Belgium	200.5	259.8	326.4

The top pharmaceuticals exporters in India are:

- Ranbaxy
- Cipla

- Dr. Reddy
- Aurobindo
- Lupin
- Orchid Chemicals and Pharmaceuticals
- Panacea Biotech Ltd
- Atul Ltd
- Ipca Laboratories

1.4 Import of pharmaceutical products by India in last three years

The data on imports of pharmaceutical products by India in last three financial years shows that the imports in FY 2019-20 was USD 5671 million with an import amount of 386186 MT, while it was increased by 11% to USD 6309 million with an export amount of 403878 MT in FY 2020-21, and increased by 28% to USD 8067 million with an export amount of 423938 MT in FY 2021-22.

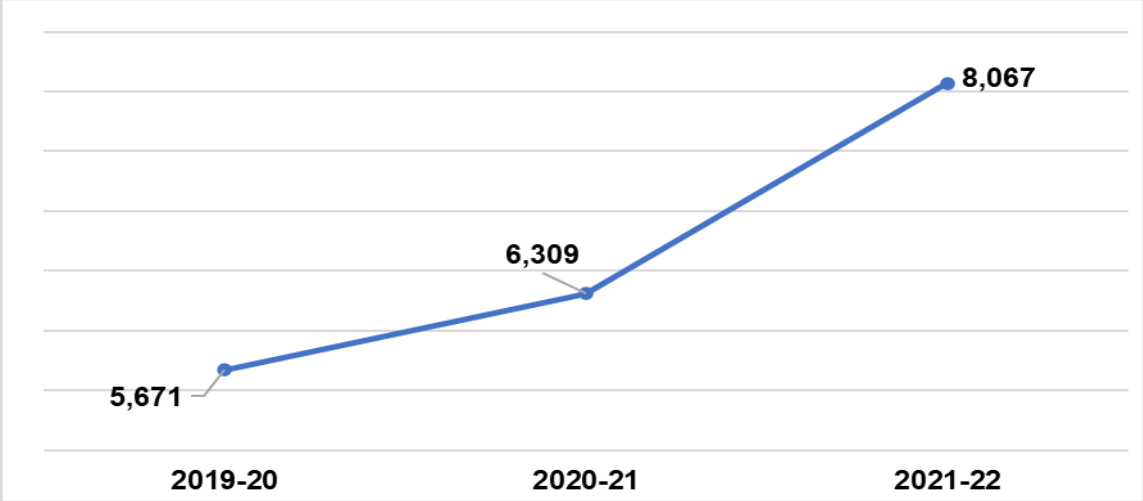
Table-1.6: Volume (in MT) of import of phama products by India in last three financial years (2019-20 To 2021-22)

	FY 2019-20	FY 2020-21	FY 2021-22
Bulk Drugs, Drug Intermediates	364432491	390475699	400642471
Drug Formulations, Biologicals	21753608	13402742	23295361
Total (KG)	**386186099**	**403878441**	**423937832**
Total Export (MT)	**386186**	**403878**	**423938**

Table-1.7: Value (in USD Mn) of import of phama products by India in last three financial years (2019-20 To 2021-22)

	FY 2019-20	FY 2020-21	FY 2021-22
Bulk Drugs, Drug Intermediates	3415806836	3845268560	4731532862
Drug Formulations, Biologicals	2255195893	2464130915	3335094331
Total (in USD)	**5671002729**	**6309399475**	**8066627193**
Total Export (in USD Mn)	**5,671**	**6,309**	**8,067**

Chart-1.2: Imports of pharma products by India in last three financial years



(*Values in USD million)*

The top ten countries from where the imports of bulk drugs and drug intermediates were done by India in last three years were China, USA, Singapore, Itlay, Spain, South Korea, Japan, Germany, Hong Kong and Slovenia. The top ten countries from where the imports of drug formulations and biologicals were done by India in last three years were USA, Switzerland, Belgium, Netherland, Germany, UK, China, Spain, France and Denmark.

Table-1.8: Top 10 import countries for bulk drugs and drug intermediates

(Value in USD Mn)

Country of Consignment	FY 2019-20	FY 2020-21	FY 2021-22
China	2324.0	2615.7	3125.8
USA	120.5	153.8	414.1
Singapore	98.4	109.9	129.3
Italy	103.0	118.3	111.4
Spain	74.1	86.7	83.0
South Korea	42.6	51.2	75.2
Japan	52.2	48.0	74.3
Germany	63.0	66.1	73.8
Hong Kong	42.8	53.6	66.3
Slovenia	35.5	59.6	52.2

Table-1.9: Top 10 import countries for drug formulations and biologicals (Value in USD Mn)			
Country of Consignment	**FY 2019-20**	**FY 2020-21**	**FY 2021-22**
USA	304.8	285.5	519.0
Switzerland	309.7	335.7	391.0
Belgium	289.7	318.9	390.1
Netherland	97.0	107.7	247.0
Germany	185.2	155.3	233.2
UK	83.4	71.7	211.1
China	165.0	198.5	208.1
Spain	14.7	23.3	137.0
France	138.0	169.3	125.4
Denmark	84.4	89.5	121.1

1.4 Major pharmaceutical clusters in India

Pharmaceutical cluster is aimed at providing complex solutions such as molecule generation, synthesis of active ingredients and preclinical studies and elaboration of the technology of pharmaceutical production, clinical trials and experimental production of a pharmaceutical product.

Maharashtra, Gujarat, Andhra Pradesh, Himachal Pradesh, Rajasthan, Telangana, Uttar Pradesh, Goa, Karnataka, Tamil Nadu, Haryana, Uttarakhand have the major pharmaceutical manufacturing clusters in the country. The pharma clusters are located primarily in Ahmedabad, Vadodara, Mumbai, Aurangabad, Pune, Hyderabad, Chennai, Mysore, Bangalore, Baddi, Lucknow and Visakhapatnam (Vizag).

The pharmaceutical hubs offer investment opportunities in the production of API or bulk drugs, biosimilars, vaccines, nutraceuticals, as well as food and drug testing and contract research.

Given the diverse nature of the Pharma Sector within the country both in terms of geographical location and sectoral composition, the Government aims at addressing the need of the Pharma Sector, through well defined clusters and geographical areas. This will enable achieving the economies of scale in terms of deployment of resources as well as focusing on the specific needs of the sector.

CHAPTER-II
STUDY OBJECTIVES, METHODOLOGY AND COVERAGE

2.1 Study Objectives

The major objectives of the study are:

a. Evaluating contribution of Pharma clusters to overall production, supplies and exports
b. Assessment of infrastructure and logistics framework and suggest improvements
c. Provide recommendations to boost efficiency and cost competitiveness of clusters

The broad scope of the study are:

a. Diagnosis of Pharma Clusters of the Country w.r.t their geographical spread
b. Cluster-wise and aggregate analysis w.r.t.:
   (i) Size including contribution to domestic output including production as well as exports at product and aggregate level
   (ii) Assessment of common facilities viz., common effluent treatment plants, accreditation labs, etc.
   (iii) Overview of Government interventions under various Schemes of State Governments and Central Government
   (iv) Recommendations to promote cost competitiveness and boost infrastructure for each cluster

2.2 Approach & Methodology

The study was carried out mainly based on both primary as well as secondary data. However, more focus was given on in-depth analysis of the secondary data and primary sources was invariably used to validate the same. Both techniques were applied to obtain data / information in relation to the core areas of the study.

2.2.1 Secondary Study

Secondary data collection was a continuous process during the course of the study and data / information was collected from all the States and UTs of the country as well as

from publicly-available official sources. Emphasis was also given to collect data from articles / reports / research papers / policy documents on similar subjects and various records / data available of similar efforts undertaken by different government agencies in India in the nature of presentations, reports, brochures, photographs, articles, papers, write-ups, record of observations, project monitoring documents, etc. were analysed during the secondary study.

2.2.2 Primary Study

The questionnaires for different stakeholders are finalized after the desk review, and the questions were identified with respect to information requirements for the study. Various research techniques were applied to collect data / inputs from different States/UTs and different category of stakeholders. Focus group discussions, informal meetings and Key Informant Interviews (KII) were also conducted in the field besides canvassing the questionnaires.

(a) Field Visits

Apart from collecting cluster level data from the States/UTs, primary information was also collected through Key Informant Interviews. The interviews were conducted through face-to-face interviews. Visits / contacts were made to all pharmaceutical clusters to collect the desired information. A semi-structured questionnaire was developed and inputs were solicited from different category of stakeholders. Also, 100 pharma industries were surveyed from different clusters and the industries were pre-selected based on secondary research through purposive sampling techniques. Field work was conducted by visiting sample industries in selected clusters. Also, other stakeholders like Manufacturers Association, industrialists, and district & state officials of Industries Department were interacted for the purpose of the study.

(b) Focus Group Discussions

Primary information were also collected through Focus Group Discussions (FGD) covering 8-10 stakeholders. FGDs were conducted through discussion guidelines. Photographs were taken to support visual documentation of the initiatives The FGDs were conducted at different clusters across the country.

(c) Sample Size

The sample size of the study are as follows:

- All the pharma clusters were surveyed.
- In order to get inputs from stakeholders, 10 Focus Group Discussions (FGD) were conducted at different clusters.
- Primary information was also collected through Key Informant Interviews. 100 pharma industries were covered for the study.
- Other stakeholders (key informants) were selected through purposive sampling techniques.

Table-2.2: Sample Size for the Study

Sl. No.	Category	Sample Number
1	States & UTs	All
2	Pharma Clusters	118
3	Pharma Units	100
4	Other Stakeholders/ Key Informants	20
5	FGDs	10

2.3 Survey and data collection

The data collection from various stakeholders was done during May to August 2022. Data collection was conducted by research executives and adequate number of well-trained surveyors. The supervisors, data verifiers and other key study team members monitored the data collection procedure during the survey. All the data was checked and scrutinized by the supervisors and data verifiers.

2.4 Data management and analysis

The quality of data was ensured by imparting quality training to the study team members, surveyors and supervisors for the survey. Besides these, regular scrutiny of data checking was conducted to clean the database for the final analysis. Prior to data analysis, all relevant range and consistency checks were done. Finally, data was entered in SPSS 16.0 version and analyzed according to the analysis plan.

2.5 Study Limitations

Unavailavility of reliable data and information with key stakeholders on pharma clusters has the impact on the findings and interpretation of the results of the present study.

CHAPTER-III
GEOGRAPHICAL SPREAD OF PHARMA CLUSTERS

3.1 State/UT wise spread of the pharma clusters

The survey found that there are 118 pharma clusters in the country spreading over 19 states/UTs. The highest number of 40 pharma clusters are in Maharashtra, followed by 13 in Gujarat, 8 in Andhra Pradesh, 7 each in Himachal Pradesh and Rajasthan, 6 in Uttar Pradesh, 5 each in Goa, Karnataka and Tamil Nadu, 3 each in Haryana and Uttarakhand, 2 in Punjab, and one each in Chhattisgarh, Madhya Pradesh, Odisha, Puducherry, Sikkim, West Bengal and Jharkhand.

Out of total 118 pharma clusters in the country, Maharashtra has highest share with 34% clusters, followed by Gujarat with 11% clusters, 7% in Andhra Pradesh, 6% each in Himachal Pradesh and Rajasthan, 5% in Uttar Pradesh, 4% each in Goa, Karnataka and Tamil Nadu, 3% each in Haryana and Uttarakhand, 2% in Punjab, and 1% each in Chhattisgarh, Madhya Pradesh, Odisha, Puducherry, Sikkim, West Bengal and Jharkhand.

State/UT wise number of pharma clusters in the country is given in the following table.

Table-3.1: State/UT wise share of pharma clusters in the country

Sl. No.	State/UT	Number of Pharma Clusters	Share of Pharma Clusters (%)
1	Maharashtra	40	34
2	Gujarat	13	11
3	Andhra Pradesh	8	7
4	Himachal Pradesh	7	6
5	Rajasthan	7	6
6	Telangana	7	6
7	Uttar Pradesh	6	5
8	Goa	5	4
9	Karnataka	5	4

Table-3.1: State/UT wise share of pharma clusters in the country			
Sl. No.	**State/UT**	**Number of Pharma Clusters**	**Share of Pharma Clusters (%)**
10	Tamil Nadu	5	4
11	Haryana	3	3
12	Uttarakhand	3	3
13	Punjab	2	2
14	Chhattisgarh	1	1
15	Madhya Pradesh	1	1
16	Orissa	1	1
17	Puducherry	1	1
18	Sikkim	1	1
19	West Bengal	1	1
20	Jharkhand	1	1
	Total	**118**	**100**

Geographical region wise finding illustrates that majority (65, 55%) of the pharma clusters in the country are in West region, while 26 (22%) clusters are in South region, 23 (19%) clusters in North & Central region, 3 (3%) clusters in East region, and 1 (1%) pharma cluster is in North-East region. Geographical region wise number of pharma clusters in the country is given in the following table.

Table-3.2: Region wise share of pharma clusters in the country				
Sl. No.	**Region**	**State/UT**	**Number of Pharma Clusters**	**Share of Pharma Clusters (%)**
1	North & Central	Uttar Pradesh, Himachal Pradesh, Uttarakhand, Haryana, Punjab, Madhya Pradesh, Chhattisgarh, Delhi, Chandigarh	23	19
2	South	Telangana, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Puducherry, Lakshadweep	26	22
3	East	Bihar, Orissa, Jharkhand, West	3	3

Table-3.2: Region wise share of pharma clusters in the country				
Sl. No.	**Region**	**State/UT**	**Number of Pharma Clusters**	**Share of Pharma Clusters (%)**
		Bengal, Andaman & Nicobar Islands		
4	West	Rajasthan , Gujarat, Goa, Maharashtra, Daman & Diu, Dadra & Nagar Haveli	65	55
5	North East	Sikkim, Nagaland, Tripura, Arunachal Pradesh, Mizoram, Meghalaya, Manipur, Assam	1	1
	Total		**118**	**100**

3.2 State/UT wise locations of the pharma clusters

The following table gives the details of locations of pharma clusters in the country.

Table-3.3: State/UT wise locations of the pharma clusters		
Sl. No.	**State/UT**	**Locations of the pharma clusters**
1	Andhra Pradesh	Achyutapuram, Visakhapatnam
2		JNPC, Parawada, Visakhapatnam
3		Naidupeta, Tirupati
4		NTR-Krishna-Palnadu
5		Ongole
6		Pydiveemavaram, Srikakulam
7		Ramky SEZ, Nakapalli-Rambilli, Visakhapatnam
8		Vijayawada
9	Chhattisgarh	Raipur
10	Goa	Kundaim
11		Margaon
12		Tivim
13		Tuem

Table-3.3: State/UT wise locations of the pharma clusters		
Sl. No.	**State/UT**	**Locations of the pharma clusters**
14		Verna, Salcete
15	Gujarat	Ahmedabad
16		Ankleshwar, Bharuch
17		Dahej, Bharuch
18		Jhagadia, Bharuch
19		Lodhika, Rajkot
20		Makarpura, Vadodara
21		Nandesari, Vadodara
22		Panoli, Bharuch
23		Por-Ramangamdi, Vadodara
24		Savli, Vadodara
25		Vagodiya, Vadodara
26		Vapi-Valsad
27		Vatva, Ahmedabad
28	Haryana	Faridabad
29		Karnal
30		Panchkula
31	Himachal Pradesh	Baddi-Barotiwala-Nalagarh, Solan
32		Kala Amb, Sirmour
33		Paonta Sahib, Sirmour
34		Parwanoo
35		Sansarpur, Kangra
36		Solan
37		Una
38	Karnataka	Bengaluru Rural & Urban
39		Bidar
40		Hassan
41		Nanjangud, Mysuru
42		Yadgir
43	Madhya Pradesh	Indore
44	Maharashtra	Ahmednagar
45		Akola

Table-3.3: State/UT wise locations of the pharma clusters		
Sl. No.	**State/UT**	**Locations of the pharma clusters**
46		Ambar, Nashik
47		Ambernath, Thane
48		Amravati
49		Andheri, Mumbai
50		Baramati, Pune
51		Beed
52		Bhosari, Pune
53		Boisar, Palgarh
54		Buldhana
55		Chikhalthana, Aurangabad
56		Chinchwad, Pune
57		Chiplun, Ratnagiri
58		Dhule
59		Dombivali, Mumabi
60		Hingna, Nagpur
61		Jalgaon
62		Jalna
63		Kalmeshwar, Nagpur
64		Khed, Ratnagiri
65		Kolhapur
66		Latur
67		Lote, Ratnagiri
68		Mahad, Raigad
69		Nanded
70		Navi Mumbai
71		Paithan, Aurangabad
72		Patalganga, Raigad
73		Pimpri, Pune
74		Roha, Raigad
75		Sangli
76		Satara
77		Shendra, Aurangabad

Table-3.3: State/UT wise locations of the pharma clusters		
Sl. No.	**State/UT**	**Locations of the pharma clusters**
78		Sinnar, Nashik
79		Solapur
80		Taloja, Raigad
81		Tarapur, Palgarh
82		Waluj, Aurangabad
83		Wardha
84	Orissa	Cuttack-Bhubaneswar
85	Puducherry	Puducherry
86	Punjab	Amritsar
87		Daerabassi, SAS Nagar
88	Rajasthan	Ajmer
89		Bhiwadi Industrial Area, Alwar
90		Jaipur Rural
91		Jaipur Urban
92		Jodhpur
93		RIICO Industrial Area, Alwar
94		Udaipur
95	Sikkim	East Sikkim
96	Tamil Nadu	Ambattur, Chennai
97		Guindy, Chennai
98		Kanchipuram
99		Thiruvallur
100		Tiruvannamalai
101	Telangana	Bontapally, Medak
102		Jeedimetla, Hyderabad
103		Kazipally, Medak
104		Nacharam, Secunderabad
105		Pashamylarm, Medak
106		Patancheru, Sangareddy
107		Turkapally, Shamirpet, Hyderabad
108	Uttar Pradesh	Agra
109		Kanpur

Table-3.3: State/UT wise locations of the pharma clusters		
Sl. No.	**State/UT**	**Locations of the pharma clusters**
110		Lucknow
111		Meerut
112		Noida, Gautam Budh Nagar
113		Sahibabad, Ghaziabad
114	Uttarakhand	Dehradun
115		Haridwar
116		Udham Singh Nagar
117	West Bengal	Behala, Kolkata
118	Jharkhand	Ranchi

CHAPTER-IV
ASSESSMENT OF INFRASTRUCTURE & LOGISTIC FRAMEWORK IN THE PHARMA CLUSTERS

4.1 Size of the pharma clusters

During the survey of 118 pharma clusters, it was observed that there are 7673 pharma industries in operation with an average of 65 units per cluster. There are some big pharma clusters in Taloja in Maharashtra as well as in Visakhapatnam, Tirupati, NTR-Krishna-Palnadu in Andhra Pradesh with more than 400 pharma industries.

Out of these 7673 pharma industries in 118 clusters, 1995 (26%) are micro industries, 2393 (31.2%) are small industries, 2331 (30.4%) are medium scale industries and 954 (12.4%) are large industries. Most of the large scale pharma industries are located in the clusters of Mumbai, Thane, Baddi, Puducherry, Chennai and Secundarabad.

As per the study findings, most (87.6%) units in pharma clusters are MSMEs. The study found that these MSMEs in pharma clusters form an essential part of the supply chain for the large industries. Clearly, these MSMEs operating in the pharma clusters are the backbone of the pharma sector. MSMEs are less focused on exports in comparison to large industries. The MSMEs operate in the local market, and mainly manufacture and market formulations based on less complex molecules. So. the government needs to focus and work on the proper implementation of the MSME programmes for the upliftment of the pharma sector.

It may be noted that Department of Pharmaceuticals is already taking a number of steps to provide adequate physical infrastructure at cluster levels which may improve the competitiveness of Pharma MSMEs. At the same time, an ecosystem may also be developed to help MSMEs access innovative ecosystem players with solutions in the space of safe operations. This ecosystem would be viable manner through demand aggregation. Wherever possible, the demand of MSMEs must be aggregated across ancillary manufacturers of a similar kind so that better commercial negotiation is possible with suppliers.

Number of industries in different pharma clusters and number of micro, small, medium & large industries in each cluster are provided in the following table.

Table-4.1: Size of pharma clusters

Sl. No.	State/UT	Pharma Cluster	Micro	Small	Medium	Large	Total Units
1	Andhra Pradesh	Achyutapuram, Visakhapatnam	0	4	3	1	8
2		JNPC, Parawada, Visakhapatnam	35	30	15	10	90
3		Naidupeta, Tirupati	0	0	0	5	5
4		NTR-Krishna-Palnadu	12	23	0	0	35
5		Ongole	0	4	2	0	6
6		Pydiveemavaram, Srikakulam	5	18	2	0	25
7		Ramky SEZ, Nakapalli-Rambilli, Visakhapatnam	15	6	8	5	34
8		Vijayawada	5	16	20	5	46
9	Chhattisgarh	Raipur	8	11	12	25	56
10	Goa	Kundaim	0	2	3	1	6
11		Margaon	2	3	4	2	11
12		Tivim	0	3	3	0	6
13		Tuem	0	2	0	1	3
14		Verna, Salcete	0	3	14	15	32
15	Gujarat	Ahmedabad	44	61	175	162	442
16		Ankleshwar, Bharuch	6	26	18	5	55
17		Dahej, Bharuch	0	20	10	1	31
18		Jhagadia, Bharuch	0	5	3	0	8
19		Lodhika, Rajkot	5	25	20	0	50
20		Makarpura, Vadodara	2	8	8	0	18

Table-4.1: Size of pharma clusters							
Sl. No.	**State/UT**	**Pharma Cluster**	**Micro**	**Small**	**Medium**	**Large**	**Total Units**
21		Nandesari, Vadodara	2	5	6	3	16
22		Panoli, Bharuch	5	30	30	5	70
23		Por-Ramangamdi, Vadodara	0	0	6	0	6
24		Savli, Vadodara	1	5	6	0	12
25		Vagodiya, Vadodara	2	6	3	0	11
26		Vapi-Valsad	0	15	10	0	25
27		Vatva, Ahmedabad	6	14	20	28	68
28	Haryana	Faridabad	0	4	20	12	36
29		Karnal	8	9	12	5	34
30		Panchkula	3	12	25	3	43
31	Himachal Pradesh	Baddi-Barotiwala-Nalagarh, Solan	40	60	250	50	400
32		Kala Amb, Sirmour	3	12	25	15	55
33		Paonta Sahib, Sirmour	15	12	13	7	47
34		Parwanoo	0	4	15	2	21
35		Sansarpur, Kangra	0	8	12	7	27
36		Solan	4	17	15	5	41
37		Una	0	23	0	2	25
38	Karnataka	Bengaluru Rural & Urban	6	10	24	10	50
39		Bidar	0	3	17	5	25
40		Hassan	1	5	8	0	14
41		Nanjangud, Mysuru	3	13	27	7	50
42		Yadgir	0	2	8	0	10
43	Madhya Pradesh	Indore	50	80	50	5	185
44	Maharashtra	Ahmednagar	101	5	0	0	106

Table-4.1: Size of pharma clusters							
Sl. No.	**State/UT**	**Pharma Cluster**	**Micro**	**Small**	**Medium**	**Large**	**Total Units**
45		Akola	29	6	0	0	35
46		Ambar, Nashik	5	15	3	0	23
47		Ambernath, Thane	85	136	180	55	456
48		Amravati	60	3	0	0	63
49		Andheri, Mumbai	59	82	66	58	265
50		Baramati, Pune	19	34	20	7	80
51		Beed	43	0	0	0	43
52		Bhosari, Pune	8	7	15	9	39
53		Boisar, Palgarh	16	41	37	12	106
54		Buldhana	34	1	0	0	35
55		Chikhalthana, Aurangabad	0	2	3	5	10
56		Chinchwad, Pune	12	16	16	4	48
57		Chiplun, Ratnagiri	4	3	8	3	18
58		Dhule	30	0	0	0	30
59		Dombivali, Mumabi	22	17	31	46	116
60		Hingna, Nagpur	86	18	12	14	130
61		Jalgaon	62	1	1	0	64
62		Jalna	34	0	0	0	34
63		Kalmeshwar, Nagpur	0	6	6	4	16
64		Khed, Ratnagiri	0	8	4	2	14
65		Kolhapur	140	8	0	4	152
66		Latur	27	1	0	0	28
67		Lote, Ratnagiri	2	15	9	4	30
68		Mahad, Raigad	0	15	7	3	25
69		Nanded	27	3	0	0	30
70		Navi Mumbai	54	67	81	50	252
71		Paithan, Aurangabad	0	2	7	1	10
72		Patalganga,	3	3	2	7	15

Table-4.1: Size of pharma clusters							
Sl. No.	**State/UT**	**Pharma Cluster**	**Micro**	**Small**	**Medium**	**Large**	**Total Units**
		Raigad					
73		Pimpri, Pune	7	5	7	13	32
74		Roha, Raigad	2	4	4	2	12
75		Sangli	1	4	3	0	8
76		Satara	25	35	30	6	96
77		Shendra, Aurangabad	0	2	2	2	6
78		Sinnar, Nashik	6	4	8	3	21
79		Solapur	79	7	2	0	88
80		Taloja, Raigad	200	460	345	75	1080
81		Tarapur, Palgarh	21	30	38	14	103
82		Waluj, Aurangabad	37	24	20	4	85
83		Wardha	34	2	1	0	37
84	Orissa	Cuttack-Bhubaneswar	23	23	10	3	59
85	Puducherry	Puducherry	0	20	35	16	71
86	Punjab	Amritsar	5	15	20	2	42
87		Daerabassi, SAS Nagar	16	40	23	1	80
88	Rajasthan	Ajmer	2	4	2	0	8
89		Bhiwadi Industrial Area, Alwar	2	8	12	4	26
90		Jaipur Rural	1	2	1	0	4
91		Jaipur Urban	0	3	7	5	15
92		Jodhpur	5	8	2	0	15
93		RIICO Industrial Area, Alwar	0	7	0	0	7
94		Udaipur	76	28	3	0	107
95	Sikkim	East Sikkim	5	15	8	4	32
96	Tamil Nadu	Ambattur, Chennai	0	0	3	0	3
97		Guindy, Chennai	0	0	6	2	8
98		Kanchipuram	2	8	14	5	29

Table-4.1: Size of pharma clusters							
Sl. No.	**State/UT**	**Pharma Cluster**	**Micro**	**Small**	**Medium**	**Large**	**Total Units**
99		Thiruvallur	1	10	5	1	17
100		Tiruvannamalai	4	8	10	0	22
101	Telangana	Bontapally, Medak	4	7	6	4	21
102		Jeedimetla, Hyderabad	24	30	30	36	120
103		Kazipally, Medak	18	25	14	5	62
104		Nacharam, Secunderabad	6	14	5	5	30
105		Pashamylarm, Medak	0	35	25	0	60
106		Patancheru, Sangareddy	2	5	3	5	15
107		Turkapally, Shamirpet, Hyderabad	30	100	60	10	200
108	Uttar	Agra	2	15	2	0	19
109	Pradesh	Kanpur	10	32	10	5	57
110		Lucknow	20	60	35	7	122
111		Meerut	0	12	10	0	22
112		Noida, Gautam Budh Nagar	8	18	1	0	27
113		Sahibabad, Ghaziabad	0	51	6	0	57
114	Uttarakhand	Dehradun	17	36	39	6	98
115		Haridwar	20	22	20	8	70
116		Udham Singh Nagar	0	2	5	0	7
117	West Bengal	Behala, Kolkata	0	5	2	0	7
118	Jharkhand	Ranchi	30	14	7	4	55
Total Units			**1995**	**2393**	**2331**	**954**	**7673**
			26.0%	**31.2%**	**30.4%**	**12.4%**	

4.2 Availability of infrastructure & facilities in the pharma clusters

In a bid to improve productivity, quality, and sustainability of the existing pharmaceutical clusters and Micro, Small and Medium Enterprises (MSMEs) across the country, the Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers is implementing the scheme for "Strengthening of Pharmaceutical Industry (SPI)". The scheme has a total financial outlay of Rs 500 crore for the period from FY 21-22 to FY 25-26. The objectives of the scheme are to strengthen the existing infrastructure facilities in order to make India a global leader in the pharma sector. Under the Scheme, financial assistance to pharma clusters is provided for the creation of common facilities. This will not only improve the quality but also ensure the sustainable growth of clusters. Further, in order to upgrade the production facilities of SMEs and MSMEs so as to meet national and international regulatory standards (WHO-GMP or Schedule-M), interest subvention or capital subsidy on their capital loans is provided, which will further facilitate the growth in volumes as well as in quality. The Scheme has 3 components/sub-schemes: Assistance to Pharmaceutical Industry for Common Facilities (APICF), to strengthen the existing pharmaceutical clusters' capacity for their sustained growth by creating common facilities; Pharmaceutical Technology Upgradation Assistance Scheme (PTUAS) to facilitate MSMEs of proven track record to meet national and international regulatory standards and Pharmaceutical & Medical Devices Promotion and Development Scheme (PMPDS) to facilitate growth and development of Pharmaceutical and Medical Devices Sectors through study/survey reports, awareness programs, creation of database, and promotion of industry.

During the survey of pharma clusters, an assessment was undertaken with regard to the availability of infrastructure and facilities in the pharma clusters of the country. The study observed that common effluent treatment plants, common testing centre, common training centre, common logistics centre are available in most pharma clusters, while R & D centre, captive power plants, emergency response centre, stream and cooling systems are available in some clusters.

However, the study observed that Special Purpose Vehicle (SPV), advanced testing centre for pre-clinical testing, digital laboratory, awareness facility centre, advanced research centre and captive power facilities are not available in majority of the pharma clusters.

CHAPTER-V
DOMESTIC OUTPUT AND EXPORTS OF PHARMA CLUSTERS

5.1 Accelerating Growth of Pharma Industries amid Challenges

The pharmaceutical industry in India is the third-largest by volume across the world and the fourteenth largest in terms of value. For the year 2019-2020, the total annual turnover (sales) for the industry was INR 2,89,998 crores and pharmaceutical exports were to the tune of INR 1,46,260 crores. India exports medicines and drugs to nearly 206 countries with the United States being the largest export destination. It is also a leader in vaccine manufacturing and caters to more than 60% of the global vaccine demand.

In the recent Union Budget of 2022, the pharma industry of the country was recognized as the “sunrise sector” for India’s economy and is expected to grow threefold over the next decade. According to the Indian Economic Survey 2021, India's domestic pharmaceutical market stood at US$ 42 billion in 2021 and is likely to reach US$ 65 billion by 2024 and further expand to reach US$ 120-130 billion by 2030. The massive growth of the industry can be contributed to the domestic manufacturers’ leadership in providing generic formulation to different markets worldwide.

The Covid-19 pandemic has been a major disruptor for different industries across the country including the pharmaceutical industry. While the pandemic exposed numerous infrastructural vulnerabilities and gaps, it also proved to be a catalyst for change. The challenges and adversities posed by Covid-19 provided the opportunity to modernize and transform the pharma industry to better cater to the needs of the population.

The urgent need to understand the Covid-19 virus as well as develop new vaccines and medicines created unparalleled learning opportunities. The pharmaceutical industry not only provided continuous medicines but also contributed significantly to preventive healthcare, quarantine facilities and sanitization. It responded to the immediate challenges of the pandemic by evaluating the utilization of available drugs and explored various innovative approaches to tackle the situation. The efforts of the industry coupled with the regulatory reforms initiated by the CDSCO (Central Drugs Standard Control Organization)

resulted in fast permissions for clinical trials and even encouraged the approval of applications to import or produce drugs and vaccines for trials.

Other than that, Indian pharma companies developed strategic alliances with global pharma companies to provide better access to crucial drugs or new treatments for Covid-19 like Molnupiravir, Remdesivir among others. Under the Vaccine Maitri initiative, the government delivered more than 14.68 crores of vaccine doses to 97 countries. Amid these changes, a new trend of the development of vaccines through collaboration between government laboratories and private entrepreneurs has also been observed.

5.3 Domestic output and exports of pharma clusters

The survey findings illustrate that the annual domestic pharmaceutical production by the industries in 118 pharma clusters in the country is approximately 6,11,120 tonne. Apart from that, the annual export amount of pharmaceutical products from these clusters is about 5,76,140 tonne. Thus, the annual total output of these 118 pharma clusters is approximately 11,87,260 tonne. The value of the domestic production as well as export production from these 118 pharma clusters is estimated to be about Rs. 2 lakh crore each, and thus, the value of the total output of the pharma clusters in the country is roughly Rs. 4 lakh crore.

As per the survey, there are 1785 export oriented units in these 118 clusters. Major countries to where the pharmaceutical products from Indian pharma clusters are exported are: USA, China, UK, Bangladesh, South Africa, Nigeria, Russia, France, Australia, Canada, Brazil, Germany, Japan, Turkey, Egypt, Indonesia, Netherland, Belgium, etc.

The cluster wise annual domestic production, exports and number of export oriented industries are given in the following table.

Table-5.1: Annual domestic Outputs and Exports of pharma clusters (approx. in tonne)					
Sl. No.	**State/UT**	**Pharma Clusters**	**Domestic Output**	**Export**	**Number of Export oriented Units**
1	Andhra Pradesh	Achyutapuram, Visakhapatnam	1000	880	6
2		JNPC, Parawada, Visakhapatnam	1600	4000	3
3		Naidupeta, Tirupati	800	600	5
4		NTR-Krishna-Palnadu	2880	2000	18
5		Ongole	720	480	6
6		Pydiveemavaram, Srikakulam	1800	1600	9
7		Ramky SEZ, Nakapalli-Rambilli, Visakhapatnam	3200	2400	5
8		Vijayawada	1200	1040	6
9	Chhattisgarh	Raipur	2400	2000	24
10	Goa	Kundaim	320	320	6
11		Margaon	640	800	3
12		Tivim	240	160	4
13		Tuem	80	80	1
14		Verna, Salcete	560	480	6
15	Gujarat	Ahmedabad	20000	20000	150
16		Ankleshwar, Bharuch	12400	12000	11
17		Dahej, Bharuch	8000	7800	6
18		Jhagadia, Bharuch	1000	920	2
19		Lodhika, Rajkot	7800	7200	8
20		Makarpura, Vadodara	2000	1680	10
21		Nandesari, Vadodara	1400	1320	5
22		Panoli, Bharuch	18000	17120	12
23		Por-Ramangamdi,	1200	1120	4

Table-5.1: Annual domestic Outputs and Exports of pharma clusters (approx. in tonne)					
Sl. No.	**State/UT**	**Pharma Clusters**	**Domestic Output**	**Export**	**Number of Export oriented Units**
		Vadodara			
24		Savli, Vadodara	2000	1840	7
25		Vagodiya, Vadodara	2400	1960	2
26		Vapi-Valsad	1000	3000	12
27		Vatva, Ahmedabad	6400	6000	35
28	Haryana	Faridabad	1000	960	7
29		Karnal	2200	1600	10
30		Panchkula	800	640	7
31	Himachal Pradesh	Baddi-Barotiwala-Nalagarh, Solan	20000	18200	5
32		Kala Amb, Sirmour	800	720	6
33		Paonta Sahib, Sirmour	2000	1640	8
34		Parwanoo	2480	2360	4
35		Sansarpur, Kangra	400	320	6
36		Solan	2000	1640	2
37		Una	0	0	183
38	Karnataka	Bengaluru Rural & Urban	2000	1760	12
39		Bidar	3400	3160	3
40		Hassan	560	480	3
41		Nanjangud, Mysuru	2000	1800	5
42		Yadgir	400	360	6
43	Madhya Pradesh	Indore	8400	8200	13
44	Maharashtra	Ahmednagar	10000	9480	8
45		Akola	10000	9040	6
46		Ambar, Nashik	5400	5280	6

Table-5.1: Annual domestic Outputs and Exports of pharma clusters (approx. in tonne)					
Sl. No.	**State/UT**	**Pharma Clusters**	**Domestic Output**	**Export**	**Number of Export oriented Units**
47		Ambernath, Thane	24000	20000	180
48		Amravati	5200	5040	5
49		Andheri, Mumbai	14400	12000	80
50		Baramati, Pune	5600	4800	36
51		Beed	4000	3640	6
52		Bhosari, Pune	2600	2000	15
53		Boisar, Palgarh	5600	4600	52
54		Buldhana	5920	6640	7
55		Chikhalthana, Aurangabad	720	600	4
56		Chinchwad, Pune	4800	4000	22
57		Chiplun, Ratnagiri	1640	1040	8
58		Dhule	2600	2600	6
59		Dombivali, Mumabi	8800	6600	54
60		Hingna, Nagpur	9680	8720	48
61		Jalgaon	10000	8880	10
62		Jalna	7600	7400	6
63		Kalmeshwar, Nagpur	1920	1120	6
64		Khed, Ratnagiri	1600	1280	7
65		Kolhapur	8400	8440	23
66		Latur	8720	7800	12
67		Lote, Ratnagiri	2880	1800	11
68		Mahad, Raigad	2560	1640	9
69		Nanded	12400	11400	11
70		Navi Mumbai	16800	12000	40
71		Paithan, Aurangabad	1200	800	2
72		Patalganga, Raigad	1600	600	2
73		Pimpri, Pune	3400	2400	8

Table-5.1: Annual domestic Outputs and Exports of pharma clusters (approx. in tonne)					
Sl. No.	**State/UT**	**Pharma Clusters**	**Domestic Output**	**Export**	**Number of Export oriented Units**
74		Roha, Raigad	800	400	2
75		Sangli	1920	1840	6
76		Satara	14000	13520	12
77		Shendra, Aurangabad	600	400	2
78		Sinnar, Nashik	2400	1600	12
79		Solapur	9800	9120	6
80		Taloja, Raigad	40000	72000	120
81		Tarapur, Palgarh	5600	4000	24
82		Waluj, Aurangabad	6480	4560	18
83		Wardha	7600	7200	6
84	Orissa	Cuttack-Bhubaneswar	16000	15000	12
85	Puducherry	Puducherry	1200	1120	7
86	Punjab	Amritsar	2200	1880	6
87		Daerabassi, SAS Nagar	12800	12080	4
88	Rajasthan	Ajmer	360	340	4
89		Bhiwadi Industrial Area, Alwar	3080	2640	14
90		Jaipur Rural	800	680	4
91		Jaipur Urban	2200	2080	7
92		Jodhpur	11200	10800	2
93		RIICO Industrial Area, Alwar	520	480	5
94		Udaipur	8000	6600	9
95	Sikkim	East Sikkim	8800	8440	13
96	Tamil Nadu	Ambattur, Chennai	400	400	4
97		Guindy, Chennai	800	560	2
98		Kanchipuram	4000	3680	6
99		Thiruvallur	2000	1920	7

Table-5.1: Annual domestic Outputs and Exports of pharma clusters (approx. in tonne)					
Sl. No.	**State/UT**	**Pharma Clusters**	**Domestic Output**	**Export**	**Number of Export oriented Units**
100		Tiruvannamalai	2600	2520	6
101	Telangana	Bontapally, Medak	1760	720	5
102		Jeedimetla, Hyderabad	12000	11800	10
103		Kazipally, Medak	4480	2200	10
104		Nacharam, Secunderabad	6800	5000	7
105		Pashamylarm, Medak	4000	6000	12
106		Patancheru, Sangareddy	3200	2000	5
107		Turkapally, Shamirpet, Hyderabad	12000	11200	8
108	Uttar Pradesh	Agra	2600	2320	8
109		Kanpur	800	640	8
110		Lucknow	10000	8400	6
111		Meerut	5200	5240	5
112		Noida, Gautam Budh Nagar	400	320	6
113		Sahibabad, Ghaziabad	1400	1360	16
114	Uttarakhand	Dehradun	13800	13200	13
115		Haridwar	14000	5600	10
116		Udham Singh Nagar	2400	0	0
117	West Bengal	Behala, Kolkata	600	0	0
118	Jharkhand	Ranchi	0	0	0
Total			**611120**	**576140**	**1785**

CHAPTER-VI
OVERVIEW OF GOVERNMENT INTERVENTIONS UNDER VARIOUS SCHEMES

6.1 Government Interventions under various schemes for development of Pharmaceutical Industry

6.1.1 Umbrella Scheme - Development of Pharmaceutical Industry

The Department has an Umbrella Scheme namely 'Scheme for Development of Pharmaceutical Industry'. Its objective is to increase efficiency and competitiveness of domestic pharmaceutical industry so as to enable them to play a lead role in the global market and to ensure accessibility and availability of quality pharmaceuticals for mass consumption. This Scheme is a Central Sector Scheme and comprises the following seven sub-schemes:

a. Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of critical Key Starting Materials (KSMs)/Drug Intermediates (DIs)/ Active Pharmaceutical Ingredients (APIs) in India
b. Production Linked Incentive (PLI) Scheme for Promoting Domestic Manufacturing of Medical Devices
c. Promotion of Bulk Drug Parks
d. Promotion of Medical Device Parks
e. Pharmaceutical Technology Upgradation Assistance Scheme (PTUAS)
f. Assistance to Pharmaceutical Industry for Common Facilities (API-CF)
g. Pharmaceutical Promotion and Development Scheme (PPDS)

6.1.2 New PLI Scheme for Pharmaceuticals

The Union Cabinet in its meeting on 11.11.2020 approved yet another Production Linked Incentive scheme for Pharmaceuticals with the objective to enhance India's manufacturing capabilities by increasing investment and production in the sector and contributing to product diversification to high value goods in the pharmaceutical sector. One of the objectives of the scheme is to create global champions out of India who have the potential to grow in size and scale using cutting edge technology and thereby penetrate the global value chains. The outlay of the scheme is Rs 15,000 crore and

three categories of pharmaceutical goods will be incentivized under the scheme based on their incremental sales. The tenure of the scheme is proposed to be from 2021-22 to 2028-29.

a) Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of critical Key Starting Materials (KSMs)/ Drug Intermediates (DIs)/Active Pharmaceutical Ingredients (APIs) in India

With a view to attain self-reliance and reduce import dependence in critical APIs, a scheme called "Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of critical Key Starting Materials (KSMs)/ Drug Intermediates (DIs) and Active Pharmaceutical Ingredients (APIs) in India" has been approved by the Government of India on 20th March, 2020. The Scheme intends to boost domestic manufacturing of identified KSMs, Drug Intermediates and APIs by attracting large investments in the sector and thereby reduce India's import dependence in critical APIs. The guidelines for implementation of the scheme were initially issued on 27.07.2020. However, based on the feedback received from the investors, the guidelines were revised on 29.10.2020. Financial incentives under the scheme shall be provided on sales of 41 identified products for six (06) years at the rates given below:

(i) For Fermentation Based Products, Incentive for FY 2023-24 to FY 2026-27 would be 20%, for 2027-28 - 15% and for 2028-29 - 5%.

(ii) For Chemical Synthesis Based Products, Incentive for FY 2022-23 to FY 2027-28 would be 10%.

The tenure of the Scheme is from FY 2020-21 to FY 2029-30. The total financial outlay of the Scheme is Rs. 6,940 crore.

b) Promotion of Bulk Drug Parks

The outbreak of the COVID-19 in China has brought out the risk of disruption of supply chain of critical bulk drugs for the Indian pharmaceutical sector, highlighting the need for India to attain a sufficient degree of self-reliance in bulk drugs. In this regard, a Technical Committee was constituted by DoP on 02.03.2020 under the chairmanship of Dr. Eswara Reddy, Joint Drugs Controller, Central Drugs Standard Control Organization (CDSCO) to make recommendations for the revival of fermentation industry, new technologies for manufacturing of APIs including its backward integration, costing of the projects and identification of strategic business models. On the basis of the

recommendations of the committee, DoP had prepared the scheme for promoting domestic manufacturing of critical KSMs/Drug Intermediates and APIs by attracting large investments in the sector to ensure their sustainable domestic supply and thereby reduce India's import dependence on other countries for critical KSMs/Drug Intermediates and APIs.

This sub-scheme aims to provide grant-in-aid to 3 Bulk Drug Parks for creation of Common Infrastructure Facilities (CIF) with a maximum limit of Rs.1000 crore per park or 70% of the project cost of CIF, whichever is less. In case of North Eastern States and Hilly States (Himachal Pradesh, Uttarakhand, Union Territory of Jammu & Kashmir and Union Territory of Ladakh) financial assistance would be 90% of the project cost. The total size of the Scheme is Rs. 3000 crore and the tenure of the Scheme will be five years (2020-21 to 2024-25). The application window of the scheme got closed on 15.10.2020.

c) Pharmaceutical Technology Upgradation Assistance Scheme (PTUAS)

The objective of the sub-scheme is to facilitate Small and Medium Pharma Enterprises (SMEs) to upgrade their plant and machinery to World Health Organization (WHO)/Good Manufacturing Practices (GMP) standards so as to enable them to participate and compete in global markets. Assistance in the form of interest subvention against sanctioned loan by any scheduled commercial bank/financial institution, both in Public and Private sector will be provided to 900 Pharma SMEs of proven track record. The Scheme will be implemented through a Public Sector Financial Institution (PSFI) to be identified by the Government by inviting Expression of Interest. A total of Rs. 144 Crore has been earmarked for the scheme. The upper limit of interest subvention on loans for technology/infrastructure upgradation shall be restricted to 6% per annum for a period of three years on reducing balance basis. The maximum loan eligible for this purpose will be Rs. 4 Crore, availed by the concerned SME.

d) Assistance to Pharmaceutical Industry for Common Facilities (API-CF)

This sub-scheme is implemented in a Public Private Partnership (PPP) mode. Financial assistance under this scheme is provided for creation of Common Facilities, such as Common Testing Centre, Training Centre, R&D Centre, Central Effluent Treatment Plan (CETP), Common Logistic Centre, etc. to a Special Purpose Vehicles(SPVs) set up for the purpose. Maximum limit for the grant-in-aid under this scheme is Rs 20.00 crore per

cluster or 70% of the cost of project whichever is less. A total of Rs 12.00 crores has been sanctioned for the year 2020-21.

e) Pharmaceutical Promotion & Development Scheme (PPDS)

The Scheme aims at promotion, development and export promotion in pharmaceutical sector by extending financial support for conducting seminars, conferences, exhibitions, mounting delegations to and from India for promotion of exports as well as investments, conducting studies/ consultancies, for facilitating growth, exports as well as critical issues affecting Pharma sector. Under PPDS, the Department of Pharmaceuticals on its own or through financial support by way of Grant-in-aid to the Institutions, organizations, Voluntary organizations or Non-Government Organizations as mentioned in Rule 228 of GFR 2017:-

i. Conduct Training/knowledge improvement programs/activities on issues/subjects relevant to growth of pharmaceutical industry. An indicative list of subject is as under: - a. Quality Management System/Quality Improvement Program b. Handling USFDA notice c. Success Story Presentation- Pharmaceutical Entrepreneur d. Government regulations/guidelines for clinical trials in India versus USA, EU etc. e. Waste Management.

ii. Organize Summits, Conventions, Exhibitions, Pharmacy weeks, meetings etc. in India and abroad and produce promotional materials like films, displays etc.

iii. Conduct research studies, sector reports etc.

iv. Purchase books, quality standards, pharmacopoeias, magazines, directories, software for developing information data banks, developing e-learning modules etc.

v. Give awards to achievers in pharmaceutical industry.

vi. For creating awareness and publicity of important activities related to Pharmaceutical/ Medical Device and related sector.

vii. For any other activity not covered under above categories which may be decided by the Department of Pharmaceuticals from time to time.

6.2 Clusters Development Programme for Pharma sector

The Clusters Development Programme for Pharma sector is implemented on a Public Private Partnership (PPP) format through one time grant-in-aid is released for creation of identified infrastructure and common facilities. The scheme is for setting up of new Clusters as well as up-gradation of existing Clusters.

Extensive stakeholder consultations were held to revise the guidelines of hitherto sub-schemes of APICF / PTUAS and PPDS to meet the expectations of the Pharma clusters and SME Pharma and MedTech Industry to upgrade their facilities on the fronts of Quality and Technology.

The API-CF sub-scheme, aims to strengthen existing pharma clusters' capacity for sustained growth, by creating common facilities with a focus on research and development labs, testing laboratories, effluent treatment plants, logistic and training centres.

Under the PMPDS sub-scheme, knowledge and awareness about the Pharmaceutical and MedTech Industry is promoted. This is done by undertaking studies, building databases and bringing industry leaders, academia, and policymakers together to share their knowledge and experience for overall development of the Pharma and Medical Devices sector. It is expected that the units supported under this scheme will act as Demonstration Firms for the pharma clusters and MSE Pharma Industries, to develop on quality and technology upgradation fronts.

The DoP has recently launched a scheme, Strengthening of Pharmaceuticals Industry (SPI) with the objective of strengthening the existing infrastructure facilities of pharmaceutical industries to make India a global leader in the pharma sector. The department of pharmaceuticals now plans to issue a detailed guideline of the SPI scheme and is expected to release the notification of inviting the application for both sub-schemes of the SPI soon.

6.3 Benefits to Pharma Clusters under Clusters Development Programme

The survey observed that the pharma clusters have been benefitted under the cluster Development Programme (CDP) with regard to the development of infrastructure and common facilities in the clusters. The benefits received by the pharma clusters under CDP are:

1) Easy access to standard testing facilities and value addition
2) Strengthening of the existing infrastructure facilities
3) Getting the standard environment at a reduced cost through innovative methods of common waste management.
4) Optimizing the available resources

6.4 Benefits to Pharma industries under various government schemes

The survey observed that 22% of the surveyed industries have availed any government subsidy/ assistance under scheme like Capital Subsidy Scheme, Mudra Loan, Production Linked Incentive Scheme, Export Incentive Scheme, Make in India, Pharmaceutical Technology Upgradation Assistance Scheme.

The survey intended to know the issues and challenges faced by the industries in availing the subsidy/ assistance. Major issues/ Challenges reported by the units are:

- Lengthy and time consuming process
- Delayed disbursement
- Too much documents asked for

In this regard, to improve the subsidy or assistance facility, the units suggested for:

- Subsidy should be increased & sector should be promoted
- More such schemes must be launched
- Guidance must be given & the process should be fast
- Stability & constantness in the services
- Promote the benefits to the units on root level
- The schemes should be well promoted & implemented

31% of the surveyed industries feel that this sector requires separate dispensation for credit or non-credit products as the sector is fast growing and constantly requires funding for R&D of new drugs.

In this regard, to improve the subsidy or assistance facility, the units suggested for:

- Credit limit should be increased
- Online platform should be developed by Govt for submission of application
- Establishing a Digital Single Window System to track the status and mitigate the issues

6.5 Industrial Policy and Key Incentives of the State Governments for the growth of the sector

6.5.1 Uttar Pradesh Pharmaceutical Industrial Policy 2018

(https://invest.up.gov.in/up-pharma-industry-policy-2018/)

Key highlights of the Uttar Pradesh Pharmaceutical Indistrial Policy 2018 are:

- Patent Filing Subsidy@ 100% of actual filing costs on domestic patents
  @50% of actual filing costs on international patents
- Quality Certification Subsidy @75% of cost incurred for ISO certification and 50% of cost incurred for BIS certification
- Support for setting up R&D institutes @60% of annual interest on loan taken reimbursement
- Support for Clinical Trials @ 75% of total expenditure reimbursement
- Support for Contract / sponsored research @ 50% subsidy on eligible project cost to institutes situated within UP
- SGST Reimbursement, Stamp duty exemption, Capital Interest Subsidy, Infrastructure Interest Subsidy, Industrial Research Subsidy, Electricity Duty & Mandi Fee exemption as per Incentives under UP IIEPP 2017
- Pharma Park: Horizontal Pharma Park developed over min 10acres of land and Vertical Pharma Park developed over min 3 acres of land will be provided same incentives as provided to Private Industrial Parks under IIEPP 2017

6.5.2 Andhra Pradesh industrial policy 2020-23

Andhra Pradesh industrial policy 2020-23 extends tailor-made incentives for mega projects and sector specific incentives. Apart from bringing down cost of doing business, it aims to facilitate plug and play units where ever possible, and MSME and women entrepreneurs get a focused handholding approach packed with incentives. These include reimbursement of stamp duty, ₹1 per unit rebate on power for five years and 15 per cent investment subsidy, among others.

6.5.3 Maharashtra industrial policy 2019

The objectives and strategies of Maharashtra industrial policy 2019 are:

- To retain leadership position in industrial investment by providing conducive business environment.
- Creating land bank for industries through MIDC.
- To sustain high levels of employment generation, primarily through MSME promotion.
- To promote regionally balanced, environmentally sustainable and inclusive industrial growth.

6.5.4 Rajasthan Investment Promotion Scheme 2019

To generate employment opportunities and promote rapid, sustainable and balanced economic growth in the State of Rajasthan, the State Government of Rajasthan, issued “The Rajasthan Investment Promotion Scheme, 2019” (RIPS-2019) to provide more and attractive benefits to eligible manufacturing and services sector enterprises by investment made by them on New/Expansion enterprises. Types of incentives given to the industries under the scheme are:

6.5.5 Gujarat Industrial Policy 2020

Pharmaceuticals & Medical Devices identified as one of the thrust sectors in Gujarat Industrial Policy 2020. In August 2020, Gujarat government announced the New Gujarat Industrial Policy (GIP) 2020. The policy is designed to strengthen Gujarat's manufacturing ecosystem as well as provide a thrust to the 'up and coming' sectors of India's dynamic business ecosystem. The policy objectives include employment generation, new generation manufacturing, the advancement of thrust sectors, technology adoption, support to MSMEs, and balanced development of industry and infrastructure. Variuos types of incentives like Capital Subsidy, Interest Subsidy, Electricity Duty, Power Subsidy, assistance for green & clean manufacturing, assistance for infrastructure development, relocation incentive and other incentives are provided to the industries under GIP 2020.

6.6 Expectations of the industries with regard to reduce production cost and development of infrastructure in the pharma clusters

Expectations of the industries with regard to reduce production cost and development of infrastructure in the pharma clusters are summarized and given below.

- Provide necessary project related clearances expeditiously
- Tax benefit to the industries
- Development of research centre
- Aware the industries about Govt. Schemes
- Low priced raw material should be available in Indian market
- Equipment and testing qualities need improvement

CHAPTER-VII
ROLE MODEL PHARMA CLUSTERS IN INDIA

1) **Pune Pharma Cluster**: The Western region has been a major base for the Indian pharmaceutical industry for more than a hundred years and houses leading national companies like Wockhardt, Nicholas and Intas as well a number of large international companies including GlaxoSmithKline, Novartis, Pfizer, Johnson & Johnson, Abbott, Aventis Novo Nordisk, etc. Almost all the traditional pharmaceutical companies **are now engaged in research and production of biopharmaceuticals mirroring global trends**. One of the oldest Indian firms and largest biopharmaceutical company in the country, the Serum institute of India, is based in Pune. The Institute is the largest manufacturer of vaccines in the world.

2) **Hyderabad Pharma City:** Hyderabad Pharma City (HPC) is the **world's largest integrated cluster for pharmaceutical industries with thrust on R&D and manufacturing**. The cluster is recognized as National Investment and Manufacturing Zone (NIMZ) by Government of India, given its national and international importance. Hyderabad Pharma City offers significant cost and set-up time optimization for the pharma industry with its centralized smart infrastructure solutions.

3) **Baddi (Solan) Pharma Cluster:** Baddi, an industrial area in Solan, Himachal Pradesh, is the **largest pharmaceutical hub in Asia**. Baddi is home to biggest players in the pharma market. For the pharmaceutical giant, Abbott, Baddi is largest branded generic manufacturing site. And Abbott is not an isolated case. Baddi is India's unofficial pharma capital. Pharma giants like Cipla, Cadila, Unichem, Dr. Reddys, Torrent and Glenmark have their industries in Baddi pharma cluster. Baddi pharma cluster's contribution to the total turnover of pharma companies is more than significant and only growing. For instance, Unichems first factory in the area began production 30 years ago and now it has 36 acre campus in Baddi which houses its four units that chip in over 25 per cent of the companys gross revenues.

4) **Sikkim Pharma Cluster:** East Sikkim is home to many major pharma companies, which have significant investments in the state. These include the Cipla, Sun Pharma, Zydus Cadila, Alembic, IPCA, Alkem Lab, Intas Pharma, Torrent Pharma

and Unichem. The **industries in the cluster get tax benefits and NEIIPP benefits**. Therefore, all new pharma units as well as existing units go for substantial expansion Sikkim. However, poor marketing is a handicap for Sikkim cluster. If this cluster can effectively market the pharma products, then it will emerge as next Baddi.

5) **Lucknow Pharma Cluster:** Lucknow is a key economic base in north India and a prominent trading city. Lucknow pharma cluster is one of the most **cost effective manufacturer** of pharmaceuticals all over India, owing to the richness of natural resources and availability of cheap labour in the country. Lucknow pharma cluster produces a diverse range of products, and the health care market is also rapidly increasing here. Major factors for the growth of Lucknow pharma cluster are: (1) Availability of raw material and growing industry: The industrial scope in Lucknow in encouraging and increasing the growth of pharma sector in Lucknow. (2) Availability of labour and strong R&D base: Lucknow has the constant supply of skilled and unskilled manpower, and prestigious research institutes. This factor automatically increases the demand for pharmaceutical industries in Lucknow. (3) Availability of besic amenities: Lucknow phama cluster has many research laboratories, diagnostic centres, common facility centres, godowns of pharma companies and a power station for uninterrupted power supply which are helping the growth of pharmaceutical industries in the cluster.

6) **Ahmedabad pharma cluster:** At present, there are more than **100 bulk drug producers and 400 manufacturing units** mostly in formulations and other areas including excipients, disposables, homeopathic, ISM and miscellaneous products operating in Ahmedabad pharma cluster. The major industries in Ahmedabad pharma cluster are Zydus Cadila, Sun Pharma, Torrent, Core, Alembic, Dishman, Intasand Sarabhai. The major products manufactured in this cluster include: (a) Pharmaceuticals—both allopathic and ayurvedic formulations, indifferent dosage forms (including tablets, liquid, capsules, externals and injectables), and (b)Medical disposable products like IV sets Around 50 manufacturing units in the cluster are producing medical disposables. The rest are in formulations including ayurvedic products. **Strong linkages between small and medium size industries**, industrial bodies, and medical & financial institutions has created a proper ecosystem for the growth of Ahmedabed pharma cluster. This has made Ahmedabad pharma cluster as one of the highly developed pharma clusters in the country.

CHAPTER-VIII
CONCLUSION & RECOMMENDATIONS

With significant contributions toward generics, the pharmaceutical clusters in India is all poised to further extend its R&D capabilities and offer cutting-edge products in a post-pandemic world. The major recommendations for the growth of the pharma clusters in India in the future are given below:

Recommendations

1) **Innovation and R&D:** The pharma sector needs to focus on innovation so as to move up the value chain. The pharma clusters in India requires a strong innovation pipeline with new product launches and molecular entities every year. To achieve the same, the industry is now entering the complex generics and specialized drugs market. The idea should be to enhance pharma's significance in new drug development, biologics and innovations and on increasing capabilities in usage of technology, biological sciences and cell and gene therapy, with the core focus on patient needs.

2) **Digital Transformation:** Digital transformation is vital for enhanced patient care, greater transparency, cost-effectiveness, improved production and drug development. Latest technologies such as artificial intelligence (AI), AR/VR, machine learning (ML) and additive manufacturing are helping global pharma industries to improve the R&D process, conducting clinical tests in less time and adding innovation to the products as well as improving compliance and efficiencies in manufacturing. Thus, digital lab facilities should be established in every pharma cluster in India to improve the R&D process, conducting clinical tests in less time and adding innovation to the products as well as improving compliance and efficiencies in manufacturing.

3) **Efficient Supply Chain Management:** Because of decreasing product life cycle time, varying customer demands, as well as increasing cost of manufacturing and shipment, the pharma sector is increasingly interested in efficient supply chain management (SCM), because the sector is facing extreme competition. Supply chain activities are a series of connected inter-organizational processes containing five echelons: plan, source, make, deliver, and return. Therefore, a comprehensive and efficient supply chain management model needs to be developed by the academics

and experts to address the supply chain problems faced by the Indian pharmaceutical clusters.

4) **Focus on high value pharmaceutical products:** Although India ranks third when it comes to the volume of exports of pharma products, it is at the 14th spot when it comes to the value of exports. Thus, big and established pharma clusters in India need to focus on manufacturing high value pharmaceutical products in order to become the export hub of the pharmaceutical products in the world.

5) **Help build transparency and predictability of regulations:** India is one of the most affordable and accessible pharmaceutical markets. For the last few years, the pharma industry has witnessed enormous transformations in regulatory policies aimed at improving the affordability and quality of healthcare. Industry welcomes these. However, the Government needs to ensure a stable regulatory environment, especially on regimens for protection of Intellectual Property (IP), pricing, clearances, trade, and export policies.

6) **Initiatives to faster environment clearance:** The government may bring a change in the current guideline to bring down the approval process of environment clearance to 2 months as delays adversely impact industry competitiveness both domestically and in export markets. Further, changes in the product mix may be allowed if the chemical effluents approved to be processed in effluent treatment plants are all covered. Environmental clearances should be given for categories (broader baskets) and not for individual drugs. There should be no restrictions on quantity produced as long as the overall pollution load is not breached. Deep sea discharge norms for fermentation products are required to be rationalized as per global best practices.

7) **Support for formation and development of pharmaceutical clusters:** The study observed that there has been continuous government effort and support in the recent past for the formation and development of pharmaceutical clusters. The government should continue its measures for creation and development of clusters, increasing the competitiveness in which clusters operate, the development of institutions which contribute to the clusters creation, as well as development of innovative medicines.

ANNEXURE-1

LOCATIONS OF PHARMA CLUSTERS IN THE COUNTRY

Annexure-1: State/UT wise location of the pharma clusters			
Sr. No.	**State/ UT**	**Pharma Cluster**	**Location**
1	Andhra Pradesh	Achyutapuram, Visakhapatnam	Visakhapatnam Denotified Area, Industrial Estate, Achyutapuram, Andhra Pradesh
2	Andhra Pradesh	JNPC, Parawada, Visakhapatnam	JNPC, Parawada, Visakhapatnam
3	Andhra Pradesh	Naidupeta, Tirupati	Naidupeta, Tirupati
4	Andhra Pradesh	NTR-Krishna-Palnadu	NTR-Krishna-Palnadu
5	Andhra Pradesh	Ongole	Chimakurty, Ongole
6	Andhra Pradesh	Pydiveemavaram, Srikakulam	Pydlbheemavaram, Srikakulam Industrial Development Area, Pydibimavaram, Andhra Pradesh 532409
7	Andhra Pradesh	Ramky SEZ, Nakapalli-Rambilli, Visakhapatnam	Ramky SEZ, Nakapalli-Rambilli, Visakhapatnam
8	Andhra Pradesh	Vijayawada	Brahmin St, Mallikarjunapeta, Vijayawada, Andhra Pradesh 520001
9	Chhattisgarh	Raipur	Naya Raipur, Raipur
10	Goa	Kundaim	Kundaim Industrial Estate, Kundaim, Goa 403115
11	Goa	Margaon	Margaon Pharmaceutical, Margaon
12	Goa	Tivim	Tivim Industrial Estate, Karaswada, Acoi Village, Goa 403526
13	Goa	Tuem	Tuem, Goa 403512
14	Goa	Verna, Salcete	Verna Industrial Estate, Verna, Goa 403722
15	Gujarat	Ahmedabad	Himat Nagar, Ahmdeabad
16	Gujarat	Ankleshwar, Bharuch	GIDC Industrial Estate Ankleshwar, Gujarat 393002
17	Gujarat	Dahej, Bharuch	Dahej Industrial Estate, Gujarat 392130
18	Gujarat	Jhagadia, Bharuch	GIDC, Jhagadia, Bharuch, Gujarat

Annexure-1: State/UT wise location of the pharma clusters			
Sr. No.	**State/ UT**	**Pharma Cluster**	**Location**
			393110 Industrial Area, Bharuch
19	Gujarat	Lodhika, Rajkot	Lodhika GIDC, Lodhika, Gujarat 360003
20	Gujarat	Makarpura, Vadodara	GIDC Rd, Industrial Estate, Makarpura, Vadodara, Gujarat 390010
21	Gujarat	Nandesari, Vadodara	GIDC, Nandesari, Vadodara, Gujarat 391340
22	Gujarat	Panoli, Bharuch	G.I.D.C, Bharuch, Panoli, Gujarat 394116
23	Gujarat	Por-Ramangamdi, Vadodara	Por-Ramangamdi, Vadodara
24	Gujarat	Savli, Vadodara	Haripura, Savli, Vadodara
25	Gujarat	Vagodiya, Vadodara	Vagodiya, Vadodara, Gujarat 390019
26	Gujarat	Vapi-Valsad	Vapi-Valsad
27	Gujarat	Vatva, Ahmedabad	Vatva, Ahmedabad
28	Haryana	Faridabad	New Industrial Town, Faridabad, Haryana
29	Haryana	Karnal	Sector-3, HSIIDC, Karnal
30	Haryana	Panchkula	Industrial Area Phase 1, Panchkula, Haryana 134113
31	Himachal Pradesh	Baddi-Barotiwala-Nalagarh, Solan	Jharmajri Baddi, Himachal Pradesh 173205
32	Himachal Pradesh	Kala Amb, Sirmour	Kala-Amb Nahan Road, Ambala-Dehradun-Haridwar Rd, Ogli, Himachal Pradesh 173030
33	Himachal Pradesh	Paonta Sahib, Sirmour	Gondpur Industrial Area, Paonta Sahib, Himachal Pradesh 173025
34	Himachal Pradesh	Parwanoo	Kalka - Shimla Rd, Parwanoo, Himachal Pradesh 173220
35	Himachal Pradesh	Sansarpur, Kangra	Industrial Area, Sansarpur, Himachal Pradesh 176501

Annexure-1: State/UT wise location of the pharma clusters			
Sr. No.	**State/ UT**	**Pharma Cluster**	**Location**
36	Himachal Pradesh	Solan	Solan, Himachal Pradesh
37	Himachal Pradesh	Una	Una, Himachal Pradesh
38	Karnataka	Bengaluru Rural & Urban	Industrial Areas in Bengaluru Rural & Urban Districts
39	Karnataka	Bidar	Kolhar and Humnabad Industrial Area/ Pharmaceutical cluster, Bidar
40	Karnataka	Hassan	Hassan Pharmaceutical SEZ & Hassan Growth Centre
41	Karnataka	Nanjangud, Mysuru	Nanjangud Industrial Area, Maysuru
42	Karnataka	Yadgir	Kadechur Industrial Area, Yadgir
43	Madhya Pradesh	Indore	Industrial Estate, Pologround, Indore, Madhya Pradesh
44	Maharashtra	Ahmednagar	Juna Mangalwar Bazar, Maliwada, Ahmednagar, Maharashtra 414001
45	Maharashtra	Akola	Ramdaspeth, Akola, Maharashtra 444001
46	Maharashtra	Ambar, Nashik	MIDC Ambar, Nashik, Maharashtra 422010
47	Maharashtra	Ambernath, Thane	Ambernath, Thane
48	Maharashtra	Amravati	Amravati Maharashtra 444601
49	Maharashtra	Andheri, Mumbai	Marol & Andheri, Mumbai
50	Maharashtra	Baramati, Pune	Baramati, Pune
51	Maharashtra	Beed	Beed Bypass Rd, Aurangabad, 431005
52	Maharashtra	Bhosari, Pune	Bhosari, Pune
53	Maharashtra	Boisar, Palgarh	Boisar, Palgarh
54	Maharashtra	Buldhana	Buldhana , Maharashtra 431136
55	Maharashtra	Chikhalthana, Aurangabad	MIDC Chikalthana, Aurangabad
56	Maharashtra	Chinchwad, Pune	Chinchwad, Pune

Annexure-1: State/UT wise location of the pharma clusters			
Sr. No.	**State/ UT**	**Pharma Cluster**	**Location**
57	Maharashtra	Chiplun, Ratnagiri	Chiplun, Ratnagiri
58	Maharashtra	Dhule	Shivaji nagar, Wadibhokar, Dhule, Maharashtra 424002
59	Maharashtra	Dombivali, Mumabi	Dombivali, Mumbai
60	Maharashtra	Hingna, Nagpur	Hingna, Nagpur
61	Maharashtra	Jalgaon	Old MIDC, Jalgaon, Maharashtra 425003
62	Maharashtra	Jalna	Dhangarpura, Jalna, Maharashtra 431203
63	Maharashtra	Kalmeshwar, Nagpur	Kalmeshwar, Nagpur
64	Maharashtra	Khed, Ratnagiri	Khed, Ratnagiri
65	Maharashtra	Kolhapur	Shahupuri, Kolhapur, Maharashtra 416001
66	Maharashtra	Latur	Moti Nagar, Latur, Maharashtra 413512
67	Maharashtra	Lote, Ratnagiri	Lote, Ratnagiri
68	Maharashtra	Mahad, Raigad	Mahad MIDC, Raigad, Pincode - 402309
69	Maharashtra	Nanded	Anand Nagar, Nanded, Maharashtra 431601
70	Maharashtra	Navi Mumbai	TC MIDC area, Thane Belapur Road, Navi Mumbai
71	Maharashtra	Paithan, Aurangabad	Paithan, Aurangabad
72	Maharashtra	Patalganga, Raigad	Patalganga, Raigad
73	Maharashtra	Pimpri, Pune	Pimpri, Pune
74	Maharashtra	Roha, Raigad	Roha, Raigad
75	Maharashtra	Sangli	MIDC Miraj, Sangali
76	Maharashtra	Satara	Chandan Nagar, Addl, MIDC, Satara, Maharashtra 415004
77	Maharashtra	Shendra, Aurangabad	Shendra, Aurangabad
78	Maharashtra	Sinnar, Nashik	Sinnar, Nashik
79	Maharashtra	Solapur	MIDC Rd, Shivaganga Nagar, Solapur,

Annexure-1: State/UT wise location of the pharma clusters			
Sr. No.	**State/ UT**	**Pharma Cluster**	**Location**
			Maharashtra 413005
80	Maharashtra	Taloja, Raigad	Taloja, Raigad
81	Maharashtra	Tarapur, Palgarh	Tarapur, Palgarh
82	Maharashtra	Waluj, Aurangabad	MIDC, Waluj, Aurangabad, Maharashtra 431133
83	Maharashtra	Wardha	MIDC, Wardha, Maharashtra 442001
84	Odisha	Cuttack-Bhubaneswar	Cuttack-Bhubaneswar, Odisha
85	Puducherry	Puducherry	Pipdic Industrial Estate, Mettupalayam, Marie Oulgaret, Puducherry, 605009
86	Punjab	Amritsar	Mall Rd, Kennedy Avenue, Amritsar, Punjab 143001
87	Punjab	Daerabassi, SAS Nagar	Daerabassi, SAS Nagar
92	Rajasthan	Ajmer	Shanti Ashram, Hathi Bhata, Ajmer, Rajasthan 305001
94	Rajasthan	Bhiwadi Industrial Area, Alwar	Bhiwadi Industrial Area, Alwar
89	Rajasthan	Jaipur Rural	Chimanpura, Amer, Jaipur, Rajasthan 303102
88	Rajasthan	Jaipur Urban	Kartarpura, Ashok Nagar, Jaipur, Rajasthan 302006
90	Rajasthan	Jodhpur	ITI Circle, Kewal Raj Singhvi Marg, Jodhpur, Rajasthan 342003
91	Rajasthan	RIICO Industrial Area, Alwar	Old Industrial Area, Alwar, Rajasthan 301001
93	Rajasthan	Udaipur	Seth Ji Ki Badi, Madhuban, Udaipur
95	Sikkim	East Sikkim	Mamring Forest Block, Sikkim 737132
100	Tamilnadu	Ambattur, Chennai	Ambattur Industrial Estate, Chennai
99	Tamilnadu	Guindy, Chennai	Guindy Industrial Estate, Chennai
96	Tamilnadu	Kanchipuram	SIDCO Industrial Estate, Alathur, Thiruporur, Kanchipuram

Annexure-1: State/UT wise location of the pharma clusters			
Sr. No.	**State/ UT**	**Pharma Cluster**	**Location**
97	Tamilnadu	Thiruvallur	Kakkalur Industrial Estate, Thiruvallur
98	Tamilnadu	Tiruvannamalai	Tiruvannamalai, Tamil Nadu 606601
107	Telangana	Bontapally, Medak	Bontapally, Medak
102	Telangana	Jeedimetla, Hyderabad	IDA Jeedimetla, Hyderabad, Telangana 500055
106	Telangana	Kazipally, Medak	Kazipally, Medak
104	Telangana	Nacharam, Secunderabad	IDA Nacharam Nacharam, Secunderabad, Telangana 500076
105	Telangana	Pashamylarm, Medak	Pashamylarm, Medak
103	Telangana	Patancheru, Sangareddy	Patancheru, Sangareddy
101	Telangana	Turkapally, Shamirpet, Hyderabad	Genome Valley, Turkapally, Shamirpet, Hyderabad, Telangana
108	Uttar Pradesh	Agra	Alok Nagar, Goalpura, Agra, Uttar Pradesh 282010
111	Uttar Pradesh	Kanpur	Model Town, Pandu Nagar, Kanpur, Uttar Pradesh 208005
112	Uttar Pradesh	Lucknow	Transport Nagar, Lucknow, Uttar Pradesh 226012
113	Uttar Pradesh	Meerut	Mohkampur, Delhi Rd, Phase -1, Meerut, Uttar Pradesh 250002
109	Uttar Pradesh	Noida, Gautam Budh Nagar	Dadri Main Rd, Noida, Uttar Pradesh 201305
110	Uttar Pradesh	Sahibabad, Ghaziabad	Sahibabad, Uttar Pradesh 201011
114	Uttarakhand	Dehradun	Shriram Puram Colony, Dehradun, Uttarakhand 248001
115	Uttarakhand	Haridwar	Haridwar Integrated Industrial Estate, BHEL Township, Haridwar, Uttarakhand 249403

Annexure-1: State/UT wise location of the pharma clusters			
Sr. No.	**State/ UT**	**Pharma Cluster**	**Location**
116	Uttarakhand	Udham Singh Nagar	Rudrapur, Udham Singh Nagar, Uttarakhand 263153
117	West Bengal	Behala, Kolkata	Behala Industrial Estate, Kolkata
118	Jharkhand	Ranchi	Bijupara Barhe, Ranchi, Jharkhand

ANNEXURE-2

LIST OF SURVEYED PHARMA UNITS

S.No	State	Cluster	Name of the unit/ company:	Address of the unit/ company:
1	Uttarakhand	Dehradun	Sidmak laboratories (India) Pvt. Ltd.	Plot No. 20, Pharma City Selaqui india Area vikas Nagar Dehradun
2	Uttarakhand	Dehradun	Suncare Formulations Pvt Ltd	E-20, UPSIDC Industrial Area, Selaqui, Dehradun
3	Uttarakhand	Dehradun	India Glyuls Limited	Plot - 2.5, Pharmacity Selaqui
4	Uttarakhand	Dehradun	Hema Laboratories Pvt. LTD	Plot No. 29 Pharmacity, Selaqui Industrial Area, Dehradun 248011
5	Uttarakhand	Dehradun	Ban LABS (P) LTD.	Plot No. 29 Pharmacity, Selaqui Industrial Area, Dehradun 248011
6	Uttarakhand	Dehradun	M.G Shahani &co. Pvt.Ltd.	30 Pharma City industrial Area Selaque Dehradun 248197
7	Uttarakhand	Dehradun	Verve Human Care Labratories	15 - A Pharma City Selaqui Industrial Area Dehradun (U.K) 248011
8	Uttarakhand	Dehradun	UNI Mediculars	Plot No.21-22d 25-26 Pharmacity Selaqui Dehradun 248011 Uttarakhand
9	Uttarakhand	Dehradun	Karnani Pharmcity Pvt. Ltd.	38 Pharmacity Selaqui Dehradun(U.K)
10	Uttarakhand	Dehradun	HAB Pharmaceuticals & Research Ltd.	10 Pharmacity, Sidcul, Selaqui Dehradun
11	Haryana	Faridabad	M/s Talwar Pharma	Flat No:- 817, Building:- Green Field Colony, Road/Street:- Near NHPC Chowk, Block:- B, Faridabad
12	Haryana	Faridabad	M/s Vetivo Pharma Pvt. Ltd	C - 3188 1st Fbor Green Field
13	Haryana	Faridabad	M/s Positron Biogenics Pvt. Ltd	H.No. - 1, Block - 18 Spring Field Colony Sector - 30/31, Faridabad
14	Haryana	Faridabad	Jointcare Pharmaceuticals Pvt. Ltd	A - 7529, Gram Field Febcl. Faridabad
15	Maharastra	Thane	Bajaj Healthcare Ltd	602-606, Bhoomi Velocity Infotech Park, Plot No. B-39, B-39/A, B-39 A/1, Above ICICI Bank Road No. 23, Wagle Industrial Estate, Thane (West), Thane – 400 604.
16	Maharastra	Thane	Rubicon Research Pvt Ltd	Plot No B-75, Medone House, Road No.33 Wlagle Estate Thane - West 400604
17	Maharastra	Thane	Piramal Health Care	Dr. Kushwaha 159 A Wagle Industrial Estala 25th Road MIDC

18	Maharastra	Bhiwandi	Progress Lisesciences Pvt. Ltd	Gala No D4 Capin No 3, Grflor Global Park Complev Anjur Rd, Rahnal - Bhiwandi
19	Maharastra	Pune	Sujlam Chemical Unit - 11	Plot No 4, A - 61 MIDC Kurkubh Pune
20	Maharastra	Pune	Badrivishal Chemicals & Pharmaceuticals	Plot no 13, Revenue Colony, Talegaon - Chakan Road,, Talegaon Dabhade, Pune, Maharashtra 410507
21	Maharastra	Nashik	Dhanshree Surjuse Dr. Sheetal Enterprise	622/2 2nd Heon Laxmi Chembers Gole Colony Nashik
22	Maharastra	Pune	Certitude Pharmaceutical Private Limited	KUNAL ESTATE BLG-A/1 FL-28 KESHAV NAGAR , CHINCHWAD PUNE Pune MH 411033
23	Maharastra	Nashik	Muharvi Halthcare Ope. Pvt Ltd Mr.Vinod Musle	Flat no. 04 Prhmesh Apt, Bhadrpod Sec - 1 Sinhast Nager Cidco Nashik
24	Maharastra	Nashik	Samrudh Biotech Sachin Jodhav	07 Sai Anand Residency Umberkhed Road Pimpal Baswart Nashik
25	Haryana	Faridabad	PIL Pharmaceutical Ltd	P.No - 7 PIL House Sec - 20A Faridabad
26	Punjab	Dera Bassi, Mohali	ABRYL Laboratories	Village – Bhagwanpura, Dera Bassi, Mohali
27	Punjab	Dera Bassi, Mohali	Taksa Life Seience	Village - Bhagwanpura Focal Point Dera Bassi, Mohali
28	Punjab	Dera Bassi, Mohali	VV Life Care Ltd	Plote Munjor B - 2 Focal Point Industrial Area Dera Bassi, Mohali
29	Maharastra	Navi Mumbai	Sangeeta Pharma	106, Sion - Panvel Expy, Jawahar Co-op Ind, Kamothe, Panvel, Navi Mumbai, Maharashtra 410206
30	Maharastra	Nashik	Bareearth Global Pvt. Ltd. Yash Ashwin Shah	Plot .ASG 87 Surabh Banglow Ashwin Nagar Cidco
31	Maharastra	Nashik	Hitesh Dhadauni (Admin.)	Plot No. 95/6 MIDC Satpur Nashik
32	Maharastra	Ambernath Thane	Wincote Colour's Coating Mr - Pradeep Jamhnkar	Kollwada, P - 2411 D24 MIDC Ambarnath ES.
33	Uttarakhand	Dehradun	Modhike Pvt. Ltd.	Plot No. 24&24A Phamacity, Selaqui Dehradun
34	Uttarakhand	Dehradun	Biological E Ltd.	Plot No. 31&32 Pharmacity Selaqui Dehradun
35	Uttarakhand	Dehradun	Premier Mutraceticals Pvt. Ltd.	Plot No. 33 Phamacity Selaqui Dehradun
36	Uttarakhand	Dehradun	Vamso Biotech Pvt. Ltd.	C - Sara Ind. Estate Village Rampur Salagui, Dehradun
37	Uttarakhand	Dehradun	Dr. Mittal Laboratories	C-10/2 Sara Ind. Estate

			Pvt. Ltd.	Village Rampur Salagui Dehradun
38	Uttarakhand	Dehradun	Rusan Pharma Ltd.	Khasra No. 122 M.I b/n Pharmacity Selagui Dehradun
39	Uttarakhand	Dehradun	Windla Biotech Limited	40/1, Mohabewala Industrial Area Dehradun - 248110
40	Maharastra	Ambernath	Amar Products (Promod Sharrma) Director	Plot No F-5A /7/8 MIDC Anand Nager Ambernath
41	Maharastra	Ambernath Thane	Anant Pharmaceulicals Pvt.Ltd. Ajit Godbole Manging Director	W57/A MIDC Anand Nager Ambernath
42	Maharastra	Ambarnath	Cureworth Drugs &Infranediates pvt ltd Sandeep Tonalpurkar	Plot no. 49 Additional Ambarnath MIDC
43	Himachal Pradesh	Baddi Dist-Solan (HP)	Admed Pharma Pvt. Ltd	Plot No - 87, HPSIDC Industriac Area Baddi (HP)
44	Himachal Pradesh	Baddi Dist-Solan (HP)	All Kind Health Crae Pvt Ltd	SIC Sector Industrial Area Baddi
45	Himachal Pradesh	Baddi Dist-Solan (HP)	Dallas Formulations Pvt Ltd	# 144 - DIC- Industrial Area B/h Sai road (HP)
46	Maharastra	Ambarnath	V & V Pharma Industries Swapoul Patil Sunesh Jadhal	Plont No. 48 Add. MIDC Anand Nagar Ambernath
47	Maharastra	Dombivali	Herbert Brown Dr. V.K Kannan	W 256/A 258 MIDC Phase II Shlvaji Udyogoagar Dombives
48	Maharastra	Thane	J.B Chemical & Pharmaciticall Ltd	Charge Unit A 8 Appasanep mahare Road Wagle Wstate
49	Maharastra	Ambarnath	Rubicon Reserch	Plot K/3k, Add, Ambernath Anand nager Ambernath E
50	Maharastra	Ambarnath	Watson Pharma Pvt. Ltd.	Plot N- 15 MIDC Add. Ambernath Anand Nager Ambernath
51	Maharastra	Ambarnath	Kremoint Pharma Pvt. LTD.	B/8 (W77) Additional Ambarnath
52	Maharastra	Ambarnath	Poly Peptide Leburatories Pvt Ltd.	K 24 Additional Ambarnath MIDC Anand Ambarnath
53	Maharastra	Thane	VIVAN Pharma Pvt. Ltd. Ramesl Chordekov Admin	511 Lodh Suprare
54	Maharastra	Thane	Yash Pharma laboratories Pvt. Ltd. Dinesh K. Mhalre	Unit 1001, 10th Floor Dosti pinnacle Plot no. E -7 Road No. 22, Wagle Industrial Estate Thane
55	Maharastra	Thane	Vitane Pharmaceuticals Pvt.	601 Bhoomi Velocity Plot no 39 Wagle industrial estate thane
56	Himachal Pradesh	Solan	M/s Peren nial Medicare Shamti.	Rajgarh Road, Shamti,DIC Solan
57	Himachal Pradesh	Solan	M/s.Zeta Lab.Chambaghat	Chambaghat, Solan Dist, Solan Ho, Solan - 173212

58	Himachal Pradesh	Solan	M/s Pharma Chemico Lab.	N. H. 22, Near Baba Balak Nath Mandir, Deonghat P. O. Saproon, Solan-173211
59	Himachal Pradesh	Solan	M/s Lenus Life Care Pvt. Ltd.	Plot no. I, Ind. Estate Chambaghat Distt. Solan
60	Haryana	Faridabad	M/S Medsource Ozone Biomedicals Private Limited	Flat No:- Plot 109 Sector 31, Building:- Medsource Ozone Biomedicals, Road/Street:- HSIIDC, Village/Town:- Faridabad, Block:- Sector 31, City:- Faridabad
61	Haryana	Faridabad	Sahaj Pharmaceuticals	Flat No:- 239, BASEMENT, Building:- HUDA MARKET, SECTOR 45, Road/Street:- SECTOR 45, Village/Town:- FARIDABAD, Block:- SECTOR 45, City:- FARIDABAD
62	Haryana	Panchkula	Rohini Distributors	Flat No:- SCO-82, SECOND FLOOR, Building:- ROHINI DISTRIBUTORS, Road/Street:- SECTOR-5, Village/Town:- PANCHKULA, Block:- SECTOR-5, City:- PANCHKULA
63	Haryana	Panchkula	M/S Namo Drugs And Devices	Flat No:- S.C.O. NO 2, Building:- 2ND FLOOR, Road/Street:- CABIN NO 3, Village/Town:- Sector 11, Block:- -, City:- PANCHKULA
64	Haryana	Panchkula	M/S Mother Sparsh Baby Care Private Limited	Flat No:- 330, Building:- -, Road/Street:- Industrial area, Village/Town:- -, Block:- Phase-I,, City:- 16. PANCHKULA
65	Haryana	Panchkula	Rayworld Pharma	Flat No:- PLOT NO. 48, Building:- SHOP NO. 18, Road/Street:- RAILLY, Village/Town:- PANCHKULA, Block:- SECTOR 12-A, City:- PANCHKULA
66	Haryana	Panchkula	M/S Iva Healthcare Private Limited	Flat No:- PLOT NO 400,, Building:- IVA HEALTHCARE PVT LTD, Road/Street:- PHASE-1,, Village/Town:- INDUSTRIAL AREA,, Block:- PHASE-1,, City:- PANCHUKULA
67	Gujarat	Ankleshwar	Alphard Pharma	Plot No. C-1/433, Ankleshwar GIDC, Ankleshwar, Gujarat 393001
68	Gujarat	Ankleshwar	ICPA Health Products	286/287, GIDC,

			Limited-	Ankleshwar – 393002 Gujarat
69	Gujarat	Ankleshwar	Norris Medicines Ltd	Plot No 901/4, Gidc Estate, Ankleshwar, Gujarat 393002
70	Gujarat	Ankleshwar	Rivson Pharma	Opposite Shubh Laxmi Petroleum, Rajpipla Chokdi, NH 8, Ankleshwar, Bharuch-393002, Gujarat
71	Gujarat	Ankleshwar	Skylark Pharmaceuticals Pvt. Limited	Plot no 7910, Ankleshwar GIDC, Ankleshwar, Gujarat 393001
72	Gujarat	Ankleshwar	Surmount Laboratories Pvt. Ltd	A-2, 4003, GIDC, Estate, Anklesvar INA, Gujarat 393001
73	Himachal Pradesh	Baddi, Solan	Galpha Laboratories Pvt. Ltd	Baddi, Himachal Pradesh 173205
74	Telangana	Jeedimetla Pharma Cluster	Seutic Pharma Pvt Ltd.	Plot No.D-73/P,D-74/P,TS IIC, IDA Jeedimetla, Hyderabad, Telangana 500055
75	Telangana	Jeedimetla	GLS PHARMA LIMITED	PLOT NO.10, IDA Jeedimetla, Jeedimetla, Hyderabad, Telangana 500055
76	Telangana	Jeedimetla	SMS Pharmaceuticals Ltd.	Plot No. 66, B-D, Phase 1, IDA Jeedimetla, Chinthal, Jeedimetla, Hyderabad, Telangana 500055
77	Telangana	Jeedimetla	Kopalle Pharma Chemicals Pvt Ltd	D-133,130,127,124, Road No: 43,Phase-3, IDA Jeedimetla, Jeedimetla, Hyderabad, Telangana 500055
78	Telangana	Jeedimetla	Vasudha Pharma Chem Ltd Unit-1	Plot No. 39 A & B, Phase I, I.D.A, Jeedimetla, Hyderabad, Telangana 500055
79	Telangana	Jeedimetla	Handq Pharma Pvt Ltd	D69, IDA Jeedimetla, Chinthal, Jeedimetla, Hyderabad, Telangana 500055
80	Telangana	Jeedimetla	Sreepathi Pharmaceutical Private Limited	IDA, Phase-1, Shapur, Chinthal, Hyderabad, Telangana 500055
81	Karnataka	Bengaluru Rural & Urban	MICRO LABS LIMITED	31, RACE COURSE ROAD, BANGALORE-560 001, INDIA
82	Karnataka	Bengaluru Rural & Urban	Strides Pharma Science Limited	Strides House, Bilekahalli, Bannerghatta Road, Bangalore – 560076, India
83	Karnataka	Bengaluru Rural & Urban	Vidya Herbs Private Limited	Vidya Building, N3-3, 24th Main Rd, 1st Phase, J. P. Nagar, Bengaluru, Karnataka 560078
84	Karnataka	Bengaluru Rural & Urban	Apotex Research Private Limited	Plot No 1 & 2, Bommasandra Industrial Area, 4th Phase, Jigani Link Road, Bengaluru,

				Karnataka 560099
85	Karnataka	Bengaluru Rural & Urban	Jubilant Biosys Limited	96, Industrial Suburb 2nd Stage, Yeshwantpur, Bengaluru – 560 022, Karnataka, India
86	Karnataka	Bengaluru Rural & Urban	Global Calcium Private Limited	No.1, Hundred Feet Road, 5th Block, Koramangala, Bangalore -560 095
87	Andhra Pradesh	JNPC, Parawada	Aurobindo Pharma Limited,	Aurobindo Pharma Limited, Plot no. 2, Maitrivihar, Ameerpet, Hyderabad-500038
88	Andhra Pradesh	JNPC, Parawada	Gland Pharma Ltd.	27-11, 1st Ln, Dwaraka Nagar, Visakhapatnam, Andhra Pradesh 530016
89	Andhra Pradesh	JNPC, Parawada	Granules Omnichem Pvt. Ltd.	Plot No. 121 & 122, Jawahar Lal Nehru Pharma City, Andhra Pradesh 531019
90	Andhra Pradesh	JNPC, Parawada	Kanoria Chemicals & Industries Limited (KCI)	Plot No.32, Jawaharlal Nehru Pharma City Parwada, Vishakhapatnam – 531 021
91	Andhra Pradesh	JNPC, Parawada	Pharmazell Vizag Private Limited	Ramky Pharma City (India) Ltd 115 Parawada, SEZ, Visakhapatnam, Andhra Pradesh 531021
92	Andhra Pradesh	JNPC, Parawada	Porus Laboratories Private Limited	: 64, JNPC, Pharma City, Thanam Village, Visakhapatnam Dist., Parwada Mandal - 531019
93	Andhra Pradesh	JNPC, Parawada	Raks Pharma Pvt. Limited	Plot No.: 68, Survey No.: 60, 62 & 63, Jawaharlal Nehru Pharma City, E-Bonangi Revenue Village, Parawada, Visakhapatnam. Andhra Pradesh
94	Rajasthan	Bhiwadi	Gracure Pharmaceuticals Ltd	E, II05, RIICO Industrial Area, Bhiwadi, Rajasthan 301019
95	Rajasthan	Bhiwadi	Ahlcon Parenteral India Ltd.	SP-917 & 918, Phase II, RIICO Industrial Area, Bhiwadi, Rajasthan 301019
96	Rajasthan	Bhiwadi	Lark Laboratories (India) Ltd.	Phase-lll, RIICO Industrial Area, Bhiwadi, Rajasthan 301019
97	Rajasthan	Bhiwadi	Medicament Biotech Limited	RIICO Industrial Area, Bhiwadi, Rajasthan 301001
98	Rajasthan	Bhiwadi	Karnani	F-67, Phase-I, Industrial

			Pharmaceuticals Pvt Ltd	Area, RIICO Industrial Area, Bhiwadi, Rajasthan 301019
99	Rajasthan	Bhiwadi	Angstrom Biotech Private Limited.	Plot No G1, 1035, RIICO Industrial Area, Bhiwadi, Rajasthan 301019
100	Rajasthan	Bhiwadi	Titan biotech ltd	A-902A, Phase II, RIICO Industrial Area, Bhiwadi, Rajasthan 301019

ANNEXURE-3

SURVEY QUESTIONNAIRES

Government of India
Ministry of Chemicals & Fetilizers
Department of Pharmaceuticals

Survey of Pharma Clusters

This survey is being conducted by the Center for Market Research and Social Development as a part of the study to evaluate contribution of Pharma Clusters to overall production, supplies and exports, and assess the infrastructure and logistics framework. The data gathered will be used to provide appropriate suggestions to the Department. Your cooperation will help us gain valuable insights and provide recommendations that may benefit the sector in the future.

STATE SCHEDULE

1	**Particulars**		
1.1	State:		
1.2	Name of the Expert:		
1.3	Department:		
1.4	Designation:		
1.5	Address:		
1.6	Phone:	1.7	Mobile:
1.8	Email:		

2	**Pharma Clusters and Units in the State**									
2.1	Please provide the details of Pharma Clusters in your state.									
Sl. No.	Location	Number of Units	Name of the Units	Category (Organised/ Unorganised)	Size (Micro/ Small/ Medium/ Big)	No. of WHO-GMP Certified Units	No. of Export Oriented Units	Major products of the units	Production Output of the cluster (in % to the total output of the state)	Details of supplies and exports by the cluster

(Use separate Sheet)

3	**Assessment of infrastructure & facilities the Pharma units have in your state** Rank: Excellent-1 Good-2 Average-3 Poor-4 Very poor-5	
3.1	Common effluent treatment plants	
3.2	Accreditation labs	
3.3	Research & Development	
3.4	Any other facility	
3.5	Major common facilities and infrastructure that the Pharma units lack in your state 1. 2. 3. 4.	
3.6	Problems the units face due to lack of above common facilities in your state.	
3.7	Suggestions to boost infrastructure of the Pharma units in your state.	

4	**Business & Government Support**
4.1	What are the business services that the Pharma industries locally avail in your state? (Rating Scale: 1-Excellent 2-Very Good 3-Good 4-Satisfactory 5-Bad)

Particulars	Business services availed	Rating
Infrastructure		
Credit		
Marketing		
Technology / quality/ IT		
Specify, if any other……		

4.2	What State Government schemes / assistance/ interventions are available for the Pharma industries in your state? 1. 2. 3. 4.

4.3	What issues and challenges the Pharma industries face in availing these State Government schemes/ assistance/ interventions?	
4.4	In your opinion, how much these government schemes / assistance/ interventions have helped the pharma industries to boost their efficiency? 1-Significantly 2- Somewhat 3- Not at all	
4.5	Please add recommendation or suggestion for improvement of pharma sector at POLICY level.	

5	**Suggestions**	
5.1	What are the major gaps in various Pharma clusters in comparison to Role Model Clusters in the country?	
5.2	Suggestions to mitigate the above gaps.	
5.3	Please provide suggestions to boost efficiency of Pharma sector at ENTERPRISE level.	
5.4	Please provide suggestions to promote cost competitiveness of Pharma sector at ENTERPRISE level.	

6	**Cost Analysis**	
6.1	What is the cost of land lease rent for Pharma unit under the Cluster? Is there are any increase the land lease rent and utility charges per year? (Yes/No) If Yes, what is the increasing percentage per annum?	

6.2	Is State/Central Government has provided necessary infrastructure such as access road, power, water supply, etc. up to the cluster? (Please provide the details of Infrastructure and the charges applicable on units for Electricity supply (Per unit), Water supply etc.)	
6.3	Please provide details on support under specific schemes of GoI / State / any SC/ST corporations.	
6.4	Please provide details on Financial support/assistance provided to pharma units through banking support System.	

7	**Approvals**	
7.1	List of approvals/permissions/licences given to pharma units	
7.2	Number of Pharma clusters present in the state.	
7.3	Any other relevant information	

Name of the Researcher **Signature** **Date**

Government of India
Ministry of Chemicals & Fetilizers
Department of Pharmaceuticals

Survey of Pharma Clusters

This survey is being conducted by the Center for Market Research and Social Development as a part of the study to evaluate contribution of Pharma Clusters to overall production, supplies and exports, and assess the infrastructure and logistics framework. The data gathered will be used to provide appropriate suggestions to the Department. Your cooperation will help us gain valuable insights and provide recommendations that may benefit the sector in the future.

UNIT SCHEDULE

1	Particulars	Code
1.1	State:	
1.2	City:	
1.3	Location/ Address of the Pharma Cluster:	
1.4	Number of Pharma industries in this Cluster:	

Small	Medium	Big	Total

2	Unit/ Company Particulars		
2.1	Name of the unit/ company:		
2.2	Address of the unit/ company:		
2.3	Phone:	2.4	Mobile:
2.5	Email:		

3	Ownership and Company Details	
3.1	Type of ownership 1- Proprietorship 2- Partnership 3- Private Ltd. 4- Public Ltd. 5- Cooperative society 6- LLP 7- Any other (specify)……..	
3.2	Name of the Proprietor/Managing Director/Managing Partner:	
3.3	Is your unit registered with the Ministry of MSME? 1-Yes 2-No	
3.4	Is your unit registered with DIC? 1-Yes 2-No	
3.5	Are you a member of any Association? 1-Yes 2-No	
3.6	If Yes, please furnish details:	

3.7	Is your unit WHO-GMP certified? 1-Yes 2-No	
3.8	Is your unit an export-oriented unit (EOU)? 1-Yes 2-No	

4	**Size of the Unit**	
4.1	What is the average Annual Turn Over of the unit? Rs. in crore_____	
4.2	What is your average Turnover from local, regional markets and exports? (in % terms)	

Local market (in %)	Regional (in %)	Exports (in %)

4.3 Human resource of the firm

No. of Permanent Employees	No. of Temporary Employees	Total No. of Employees

4.4	What is the percentage of skilled manpower to the total human resources of the unit?	%

5	**Assessment of infrastructure & facilities** Rank: Excellent-1 Good-2 Average-3 Poor-4 Not having-5	
5.1	Common effluent treatment plants	
5.2	Accreditation labs	
5.3	Research & Development	
5.4	Other facilities	
5.5	Major common facilities and infrastructure that the unit does not have. 1. 2. 3. 4.	
5.6	Problems the unit faces due to lack of above common facilities.	
5.7	Suggestions to boost infrastructure of the unit and how it could help the unit in its business?	

6	**Production & Business**	
6.1	What are the main products of the unit? (Please rank the products 1, 2, 3, ……. on the volume of production and production value of each product)	
6.2	Are you importing raw materials / products? 1-Yes 2-No	
6.3	Do you export your products? 1-Yes 2-No	
6.4	If Yes, please tell about the annual average quantity of export and value of export done by the unit.	
6.5	What are the products do you export? (Please rank the products 1, 2, 3, ……on the volume of exports, quantity and value)	
6.6	What percentage of your total products do you export?	%

7	**Government support**	
7.1	What Central Government schemes / assistance/ interventions are available for the industries of your sector? 1. 2. 3. 4.	
7.2	What State Government schemes / assistance/ interventions are available for the industries of your sector? 1.	

	2. 3. 4.	
7.3	Have you been supported under any Central or State government scheme/ intervention? 1-Yes 2-No	
7.4	If yes, please provide the following details.	

Name of the scheme/ assistance/ support	Central Govt./ State Govt./ Any other	Department / Agency by which you have been supported
1.		
2.		
3.		

7.5	Please add recommendation or suggestion for improvement of Pharma sector at POLICY level.	

8	**Suggestions**	
8.1	What are the gaps in your cluster in comparison to Role Model Clusters in this sector?	
8.2	Suggestions to mitigate the above gaps.	
8.3	Please provide suggestions to boost efficiency of pharma sector at ENTERPRISE level.	
8.4	Please provide suggestions to promote cost competitiveness of pharma sector at ENTERPRISE level.	

9	**Industry-academia collaboration**	
9.1	Is your unit had done any **Industry-academia linkage program** in the sector? 1-Yes 2-No	
9.2	If your unit had done any Industry-academia linkage program, then what type of programme is organized? (details to be specified)	
9.3	If your unit had not done any Industry-academia linkage program, then reason to be provided in details?	
9.4	What type of support is needed to encouragement for Industry-academia linkage program?	

10	**Type of approval needed to start the firm/ unit**	
10.1	List the number of approval needed from Central Government.	
10.2	List the number of approval needed from State Government.	
10.3	List the number of approval needed from Licencing authority.	
10.4	List any other approval needed to start the firm/ unit.	

Name of the Researcher **Signature** **Date**

Government of India
Ministry of Chemicals & Fetilizers
Department of Pharmaceuticals

Survey of Pharma Clusters

This survey is being conducted by the Center for Market Research and Social Development as a part of the study to evaluate contribution of Pharma Clusters to overall production, supplies and exports, and assess the infrastructure and logistics framework. The data gathered will be used to provide appropriate suggestions to the Department. Your cooperation will help us gain valuable insights and provide recommendations that may benefit the sector in the future.

STAKEHOLDER SCHEDULE

1	**Particulars of the Expert/ Stakeholder/ Association Member**		
1.1	Name of the Stakeholder / Expert/ Association Member:		
1.2	Address:		
1.3	Phone:	1.4	Mobile:
1.5	Email:		
1.6	Years of engagement in this sector		

2	**Assessment of infrastructure & facilities the pharma units have in the country** Rank: Excellent-1 Good-2 Average-3 Poor-4 Very poor-5	
2.1	Common effluent plants	
2.2	Accreditation labs	
2.3	Research & Development	
2.4	Any other facility	
2.5	Major common facilities and infrastructure that the units lack in this sector 1. 2. 3. 4.	
2.6	Problems the units face due to lack of above common facilities.	

2.7	Suggestions to boost infrastructure of the pharma units.	

3	**Business & Government Support**
3.1	What are the business services that the pharma industries locally avail? (Rating Scale: 1-Excellent 2-Very Good 3-Good 4-Satisfactory 5-Bad)

Particulars	Business services availed	Rating
Infrastructure		
Credit		
Marketing		
Technology / quality/ IT		
Specify, if any other……		

3.2	What Central Government schemes / assistance/ interventions are available for pharma industries? 1. 2. 3. 4.	
3.3	What State Government schemes / assistance/ interventions are available for pharma industries? 1. 2. 3. 4.	
3.4	What issues and challenges the pharma industries face in availing the schemes / assistance/ interventions?	
3.5	In your opinion, how much these government schemes / assistance/ interventions have helped the medical device industries to boost their efficiency? 1-Significantly 2- Somewhat 3- Not at all	
3.6	Please add recommendation or suggestion for improvement of medical device sector at POLICY level.	

4	**Suggestions**	
4.1	What are the major gaps in various pharma clusters in comparison to Role Model Clusters in the country?	
4.2	Suggestions to mitigate the above gaps.	
4.3	Please provide suggestions to boost efficiency of pharma sector at ENTERPRISE level.	
4.4	Please provide suggestions to promote cost competitiveness of pharma sector at ENTERPRISE level.	

5	**Market/Sector information from Expert/ Stakeholder/ Association Member**	
5.1	What is the market size of pharmaceuticals in the country? (Relevant data to be provided)	
5.2	List the number of pharmaceutical clusters in the country. (Bulk Drugs (APIs/KSMs/DIs), Formulation Drugs)	
5.3	EXIM data of pharmaceutical industry. (Authenticate data be collected)	
5.4	Please narrate the importance of clusters in the pharmaceutical sector.	

6	**Raw material information from Expert/ Stakeholder/ Association Member**	
6.1	What are the Raw Materials imported in pharmaceutical sector of the country? (Relevant data to be provided)	
6.2	Top 10 countries from where raw material is imported in pharmaceutical sector of the country?	

7	**Industry information from Expert/ Stakeholder/ Association Member**	
7.1	Details of domestic manufacturers within the pharmaceutical clusters in the country? (Relevant data to be provided)	
7.2	Any other relevant information.	

Name of the Researcher **Signature** **Date**

Government of India
Ministry of Chemicals & Fetilizers
Department of Pharmaceuticals

Survey of Pharma Clusters

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FGD GUIDELINE / QUESTIONS

<table>
<tr><th>1</th><th>Particulars</th><th>Code</th></tr>
<tr><td>1.1</td><td>State:</td><td></td></tr>
<tr><td>1.2</td><td>City:</td><td></td></tr>
<tr><td>1.3</td><td>Location/ Address of the Pharma Cluster:</td><td></td></tr>
<tr><td>1.4</td><td colspan="2">Number of Pharma industries in this Cluster:
<table>
<tr><th>Small</th><th>Medium</th><th>Big</th><th>Total</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>1.5</td><td colspan="2">Details of Participants</td></tr>
</table>

2	**Assessment of infrastructure & facilities**
2.1	Common effluent treatment plants: Accreditation labs: Research & Development: Other facilities:

2.2	What are the major common facilities and infrastructure that the units do not have in this cluster?
2.3	What type of problems the units of this cluster face due to lack of these facilities?
2.4	Suggestions to boost infrastructure and common facilities in this cluster and how it could help the units in their business?

3	**Production & Business**
3.1	What are the main products of the cluster? (Use extra sheet)
3.2	What are the raw materials / products imported by the industries of this cluster?
3.3	What are the products of this cluster being exported?
3.4	What percentage of total products of this cluster are being exported?

4	**Government support**	
4.1	What Central Government schemes / assistance/ interventions are available for the industries of your sector? 1. 2. 3. 4.	
4.2	What State Government schemes / assistance/ interventions are available for the industries of your sector? 1. 2. 3. 4.	
4.3	Central or State government scheme/ intervention under which the industries of this cluster are benefitted and how?	
4.4	In the recent past, is there any change(s) in policy framework for the growth of this sector?	
4.5	Suggestions for improvement of pharma sector at POLICY level.	

5	**SWOT Analysis of the Cluster**
	Strength, Weakness, Opportunities and Threats of the industries of this cluster today Strength: Weakness: Opportunities: Threats:

6	**Suggestions**	
6.1	What are the gaps in your cluster in comparison to Role Model Clusters in this sector?	
6.2	Suggestions to mitigate the above gaps.	
6.3	Suggestions to boost efficiency of pharma sector at ENTERPRISE level.	
6.4	Suggestions to promote cost competitiveness of pharma sector at ENTERPRISE level.	

7	**Industry Information**	
7.1	How many companies register under MSMEs as per cluster details?	
7.2	How many MSMEs (Pharma) uses the Common Facilities of Cluster as per details?	
7.3	What are the charges paid by MSMEs (Pharma) for using the Common Facilities of Cluster as per details?	
7.4	Suggestions to promote cost competitiveness of pharma sector at Cluster level?	

Name of the Researcher **Signature** **Date**