सत्यमेव जयते

Chemi-Sankhya

Data Chronicles

(Status as on 31.03.2024)

Insights from Department of Chemicals & Petrochemicals

Statistics & Monitoring Division
D/o Chemicals & Petrochemicals
M/o Chemicals & Fertilizers
Shastri Bhawan, New Delhi

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1. Introduction

Ministry of Chemicals & Fertilizers formulates and implements policies for the chemical and fertilizer sectors in India. It ensures availability, affordability, and quality while promoting productivity, sustainability, and self-sufficiency. The ministry focuses on regulation, development, and innovation in these sectors.

Chemical & Petrochemical sector plays a crucial role in meeting society's daily needs, such as food, water, shelter, and healthcare. To enhance domestic production and achieve self-reliance and reduce import dependency, India has initiated perspective planning for the chemical industries, considering existing and upcoming capacities to boost the economy.

Statistics and Monitoring (S&M) Division of the Department of Chemicals & Petrochemicals (DCPC) compiles information on Production, Installed Capacity of selected chemical & petrochemical industries. Further, this Division compiles Import & Export data on basic chemical & petrochemical products from Directorate General of Commercial Intelligence and Statistics (DGCI&S), Ministry of Commerce and Industry.

The chemical industry touches every nook and cranny of the country’s economy and therefore plays an important role in shaping the lives of individuals and India’s overall chemical output.

The share of Gross Value Added (GVA) of the Chemicals Sector in the Manufacturing Sector during FY 2022-23 is about 9.8% at current prices and 1.4% of its national GVA in FY 2022-23 (as compared to 8.9% in 2018-19). GVA of the Chemical Sector has grown with an average CAGR of 9% during the period FY2017-18 to FY2022-23.

The CAGR of production of Basic Major Chemicals during FY2023-24 is 3.3% over a period of 10 years. However, the annual growth of Basic Major Petrochemicals was increased by 5% over preceding year with CAGR of 3.0% over a period of 10 years.

The installed capacity utilization rates for Basic Major Chemicals and Basic Major Petrochemicals in the FY2023-24 were 76.2% and 80.6% respectively. The overall capacity utilization rate for the same period stood at 79.5%.

2. Vision of DCPC

Sustainable Growth

To promote eco-friendly technologies, waste reduction, resource optimization, and energy efficiency.

Global Leadership

To establish India as a global leader in the CPC sector, excelling in quality, cost-effectiveness, and reliability.

Innovation & Research

To foster a culture of continuous learning and support cutting-edge research, leading to the development of novel and sustainable products, processes, and technologies.

Circular Economy

To embrace the principles of a circular economy, promoting recycling, upcycling, and waste-to-value approaches to minimize waste and resource depletion.

Skill Development and Employment

To empower the Indian workforce through comprehensive skill development programs, creating employment opportunities and enhancing industry productivity.

Inclusive Growth

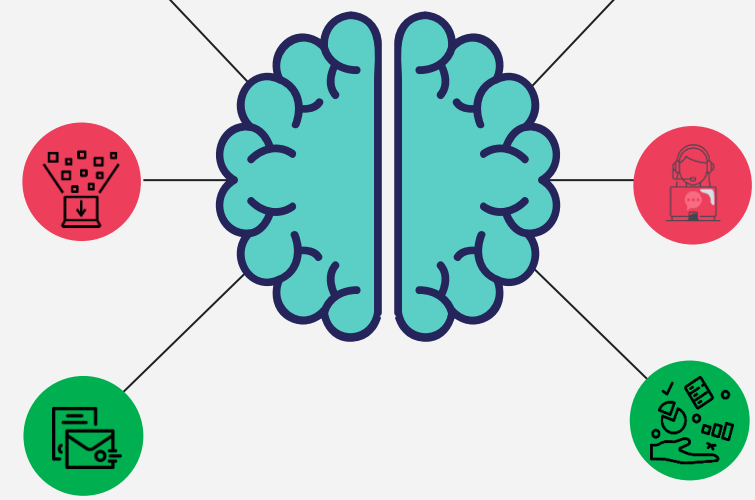
To promote inclusive growth by encouraging the participation of small and medium-sized enterprises (SMEs) and entrepreneurs, facilitating their integration into the global value chain.

3. Activities of S&M Division

ChemIndia – Chemical Inventory of India

Collection, compilation and management of Statistical data on various factors of selected CPC indicators .

Resource Mapping of CPC Industries



Publication of “Chemical and Petrochemical Statistics at a Glance.

To Provide monthly data support to NSO, MoSPI in respect of CPC Sector for the Index of Industrial Production (IIP)

To provide Data support to various Divisions in the Department for formulation of policies and programme.

4. National Industrial Classification (NIC)

NIC-2008: The Central Statistics Office (CSO), MOSPI being nodal Statistical Authority in the Country is vested with the responsibility of setting up Standards for collection, compilation and dissemination of Statistical data. The need for comparability of Statistics available from various sources, on different aspects of the economy and usability of such data for economic analysis necessitated the need of standardization of a system of classification.

CSO being responsible for coordination of statistical activities in the country and with a view to evolve and maintain statistical standards, initiated task of bringing out Standard Industrial Classification as early as in 1960 and evolved a Standard Industrial Classification (SIC) in 1962. At present, NIC-2008 is applicable.

Activities are categorized into hierarchical "activity groups." The hierarchy includes sections (alphabetically coded from A to U), divisions (2-digit numeric code), groups (3-digit numeric code), classes (4-digit numeric code), and sub-classes (5-digit numeric code).

Level		Description
Section		Manufacturing
Division 20		Manufacture of Chemicals and Chemical Products
Group	201	Manufacture of Basic Chemicals, Fertilizer and Nitrogen Compounds, Plastics and Synthetic Rubber in Primary Forms
	203	Manufacture of man-made Fibre
Class	2011	Manufacture of Basic Chemicals
	2030	Manufacture of man-made Fibre
Sub-Class	20111	Manufacture of liquefied or compressed inorganic industrial or medical gases (elemental gases, liquid or compressed air, refrigerant gases, mixed industrial gases etc.)
	20301	Manufacture of synthetic or artificial filament

Salient Features of NIC-2008

- NIC-2008 replaces sections A to Q of NIC-2004 with sections A to U. NIC-2008 has 21 sections, 88 divisions, 238 groups, 403 classes, and 1304 sub-classes.
- NIC-2008 aligns with ISIC Rev.4 up to 4-digit classes.
- The concept of shadow classes from NIC-2004 is eliminated in NIC-2008, focusing more on activity rather than operation type and scale.
- Some 5-digit sub-classes in NIC-2004 are now separate 4-digit classes in NIC-2008.
- Explanatory notes from ISIC Rev.4 are incorporated as Annexure in NIC-2008.

5. Glossaries

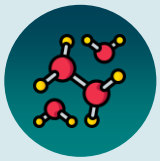
Polymer: Large molecule made up of repeating subunits (monomers) used in plastics and fibers.

Monomer: Small molecule that combines with others to form a polymer.

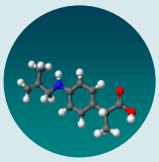
Catalyst: Substance that speeds up chemical reactions without being consumed**.**

Feedstock: Raw material used in chemical and petrochemical production.

Distillation: Process of separating liquids based on boiling points.



Olefins: Unsaturated hydrocarbons with carbon-carbon double bonds used in plastics production.



Aromatics: Chemical compounds with ring structures used in polymers and solvents.

Cracking: Cracking is the process of breaking down large hydrocarbon molecules into smaller ones.

Harmonized System (HS): Internationally standardized system for classifying traded products. It consists of six digits, with additional digits added by countries for further classification.

6. Economic Indicators

Gross Domestic Product (GDP): Measure of total economic output within a country.

GDP = C + I + G + (X - M)

Where:

C represents private consumption expenditures, including spending on goods and services by individuals and households.

I represents gross private domestic investment, including business investments in machinery, equipment, and construction of structures.

G represents government spending on goods and services.

X represents exports of goods and services.

M represents imports of goods and services.

Gross Value Added (GVA): Measure of the economic value created by a sector or entity, excluding input costs. It is used to assess productivity and is a component of GDP.

GVA = GDP - Taxes on Products + Subsidies on Products

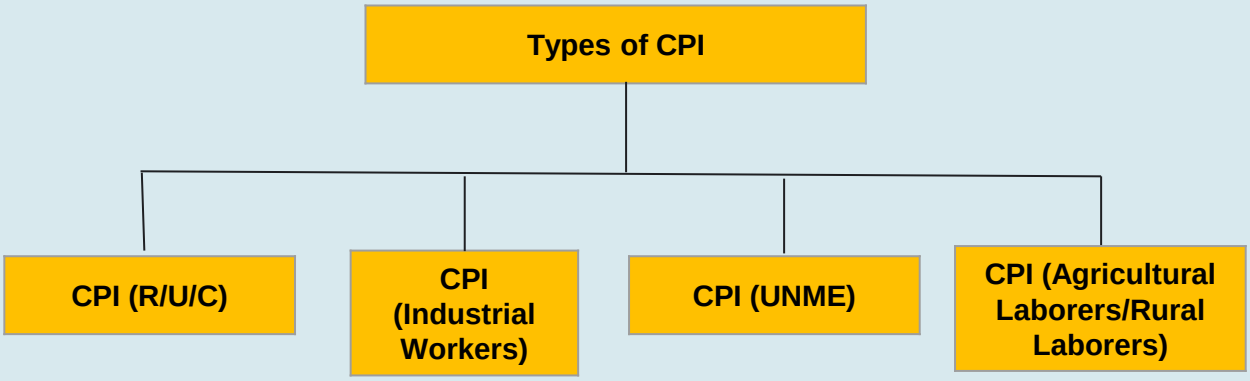
Compound Annual Growth Rate (CAGR): Measure of how an investment or business has grown over a specific period of time. It takes into account the effect of compounding, which means that the growth builds upon itself.

CAGR = ((Ending Value / Beginning Value) ^ (1 / Number of Years)) - 1

7. Indices

Index of Industrial Production (IIP): It is a key economic indicator that measures the changes in the production volume of various industrial sectors within a country over a specific period of time.

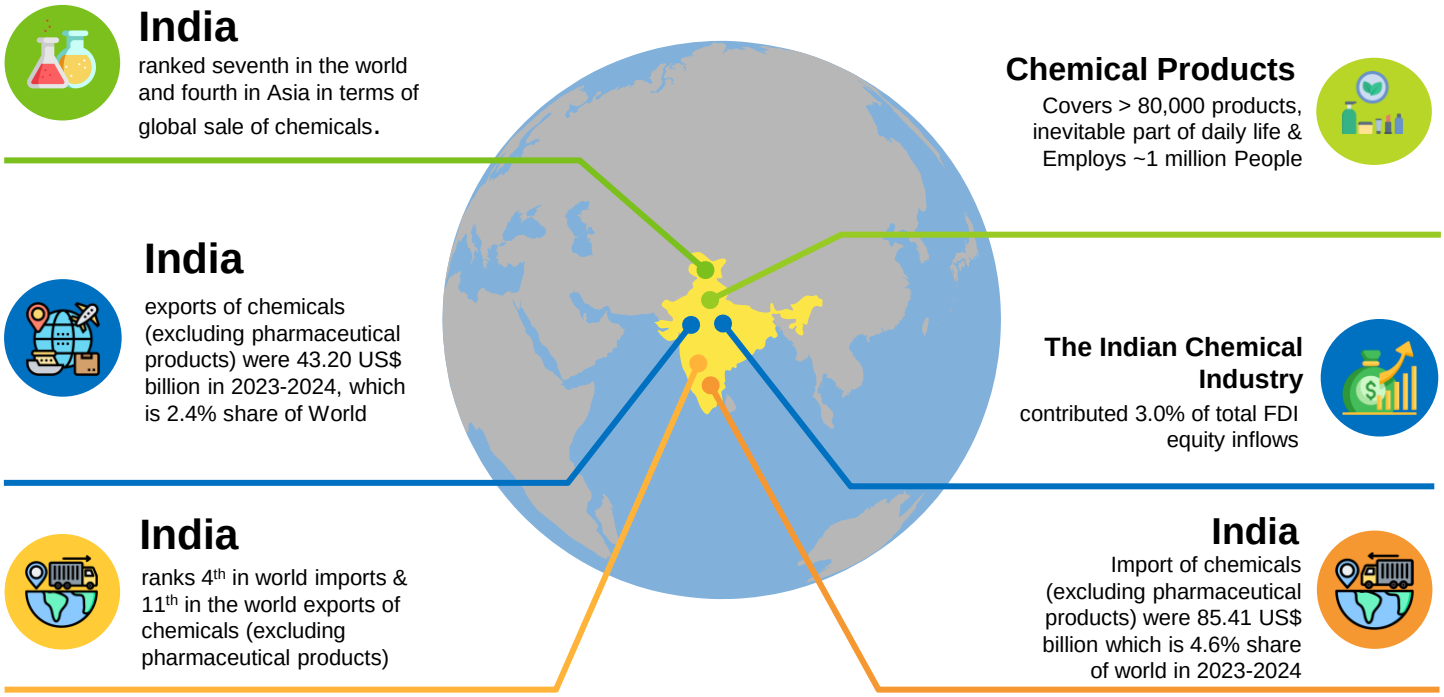
Consumer Price Index (CPI): It is a crucial economic indicator used to measure the average change in the prices of a basket of goods and services consumed by households over a period.



Wholesale Price Index (WPI): Measures price changes for goods at the wholesale level. It helps track inflation and price trends in the wholesale market.

WPI = (Current Period Price - Base Period Price) / Base Period Price x 100

8. Global Scenario



India
ranked seventh in the world and fourth in Asia in terms of global sale of chemicals.

Chemical Products
Covers > 80,000 products, inevitable part of daily life & Employs ~1 million People

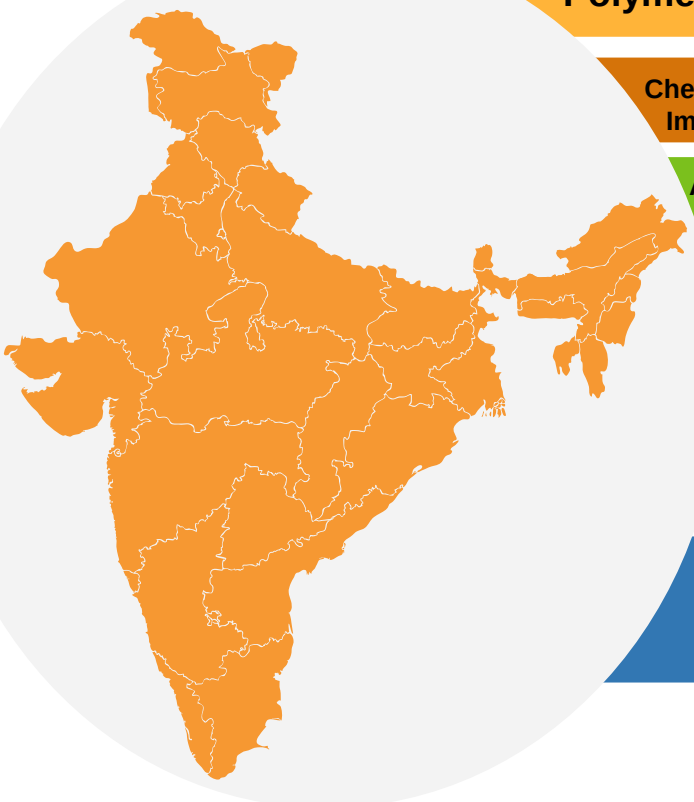
India
exports of chemicals (excluding pharmaceutical products) were 43.20 US$ billion in 2023-2024, which is 2.4% share of World

The Indian Chemical Industry
contributed 3.0% of total FDI equity inflows

India
ranks 4th in world imports & 11th in the world exports of chemicals (excluding pharmaceutical products)

India
Import of chemicals (excluding pharmaceutical products) were 85.41 US$ billion which is 4.6% share of world in 2023-2024

9. Indian Scenario



Polymer
The production of polymers has increased from 9.27 million tonne in 2017-18 to 12.55 million ton in 2023-24 (CAGR of 5.16%)

Chemical Import
India's imports of chemicals (excluding pharmaceutical products) were 85.41 US$ billion in 2023-24, which is 4.6% share of World imports of chemicals (excluding pharmaceutical products).

All Economic Activity
Chemical and Chemical products sector, excluding pharmaceuticals (Industry Division 20 of NIC 2008), accounted for 2.4% of total export in India in 2023.

GVA
GVA of Chemical Sector has grown with CAGR of 9% during the period 2017-18 to 2022-23.

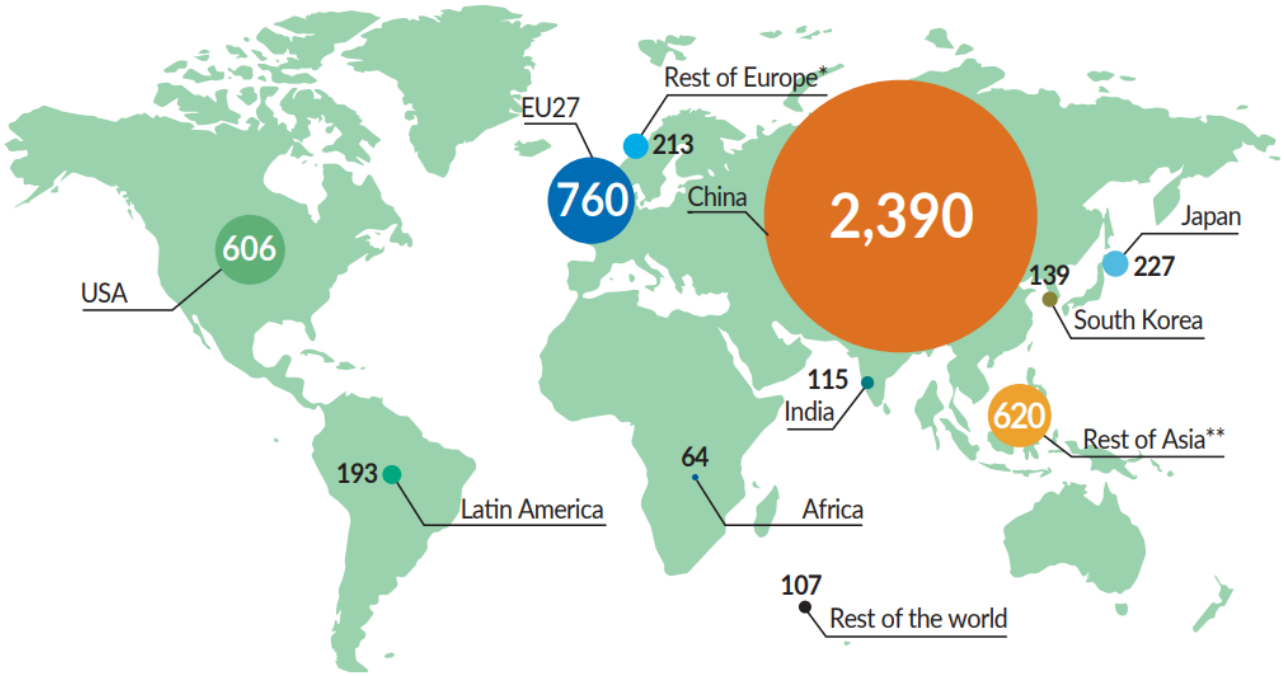
IIP
The average Indices of Industrial Production (IIP) for the Chemical and Chemical products (Industry Division 20 of NIC 2008) for the year 2023-24 stood at 127.4, which is -1.5% less as compared to the previous year

ASI
According to the Annual Survey of Industries (ASI) 2022-23 (factory sector), 10.58 lakh persons were engaged in Chemicals and Chemical Products (Industry Division 20, NIC 2008), in organized sector in medium and large-scale industries, whereas 1.84 crore persons engaged in all industries during 2022-23.

Source: DCPC, Cefic, Comtrade, MoSPI, DPIIT

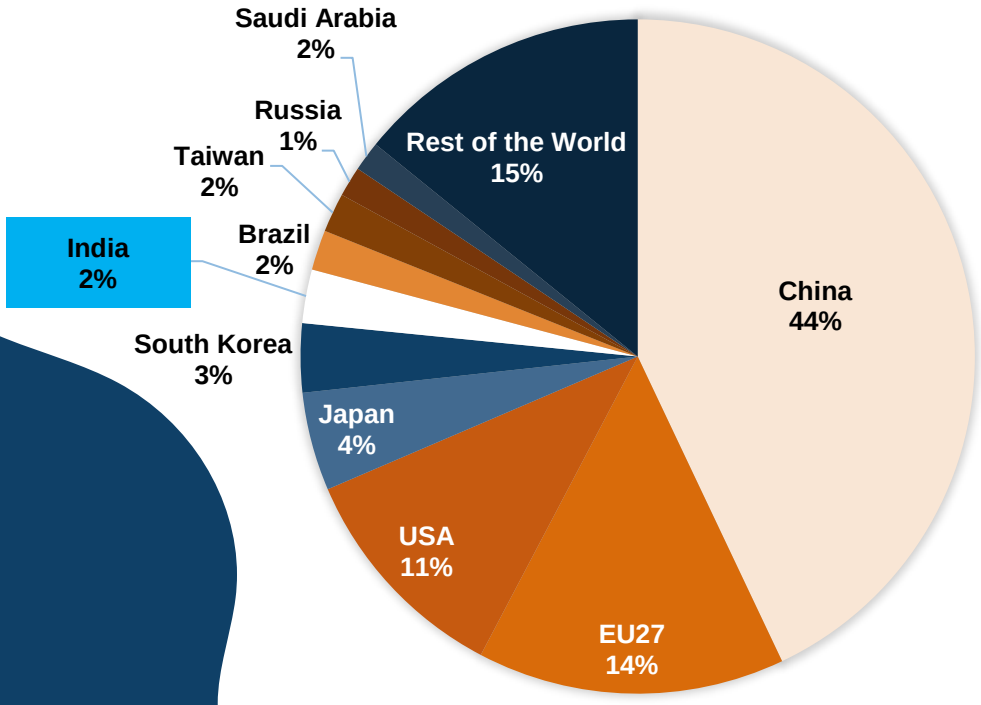
10. Market Share in the World

10.1. World Chemical Sales (2022, € 5,434 billion)



***Source**: Cefic Report 2023*

10.2. Top10: Sales - Chemicals - World Market Share (%)

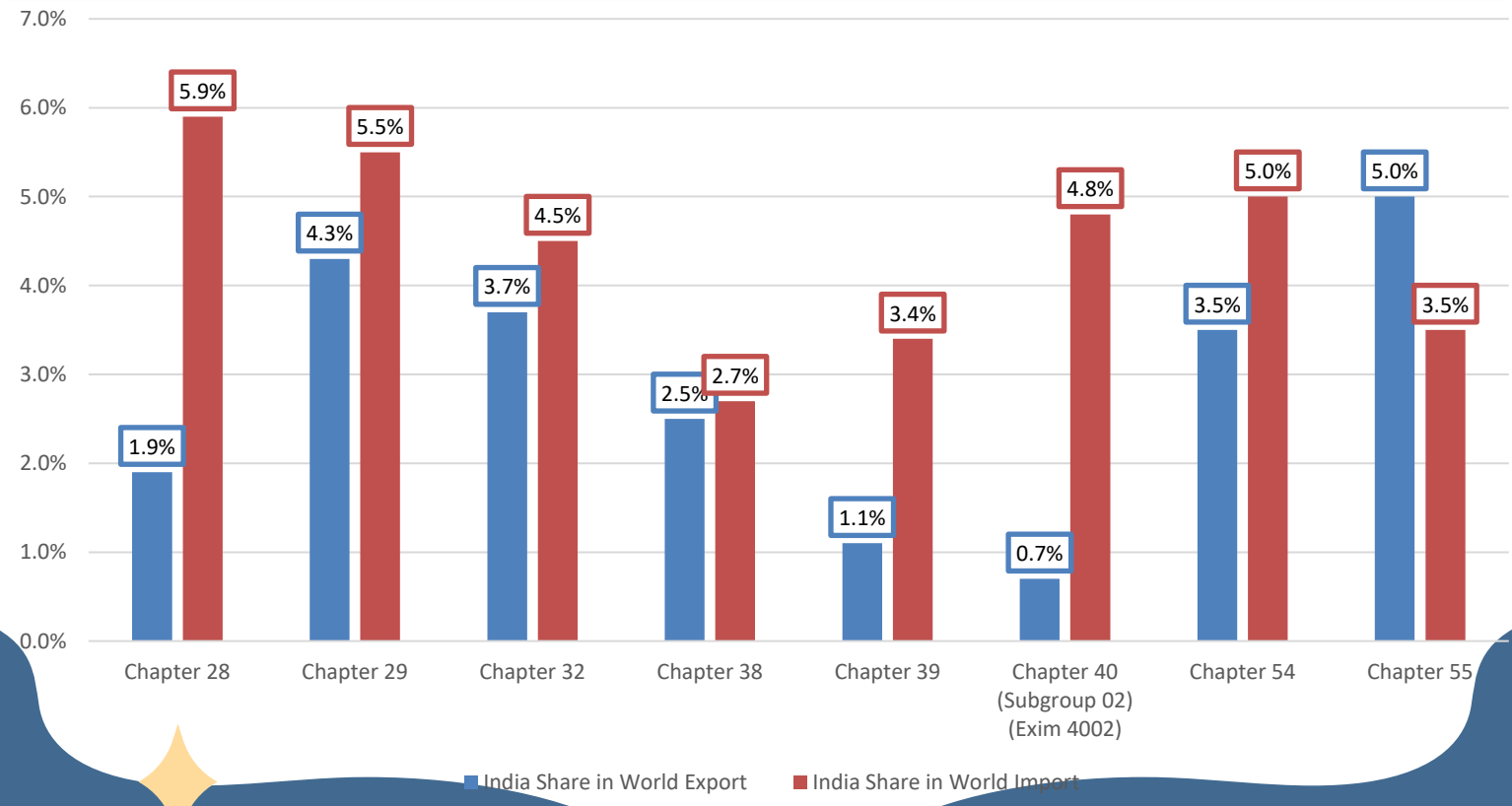


***Source**: Cefic Report 2023*

10. Market Share in the World

10.3. India's Share in World Export and Import of Chemicals – (2023-24)

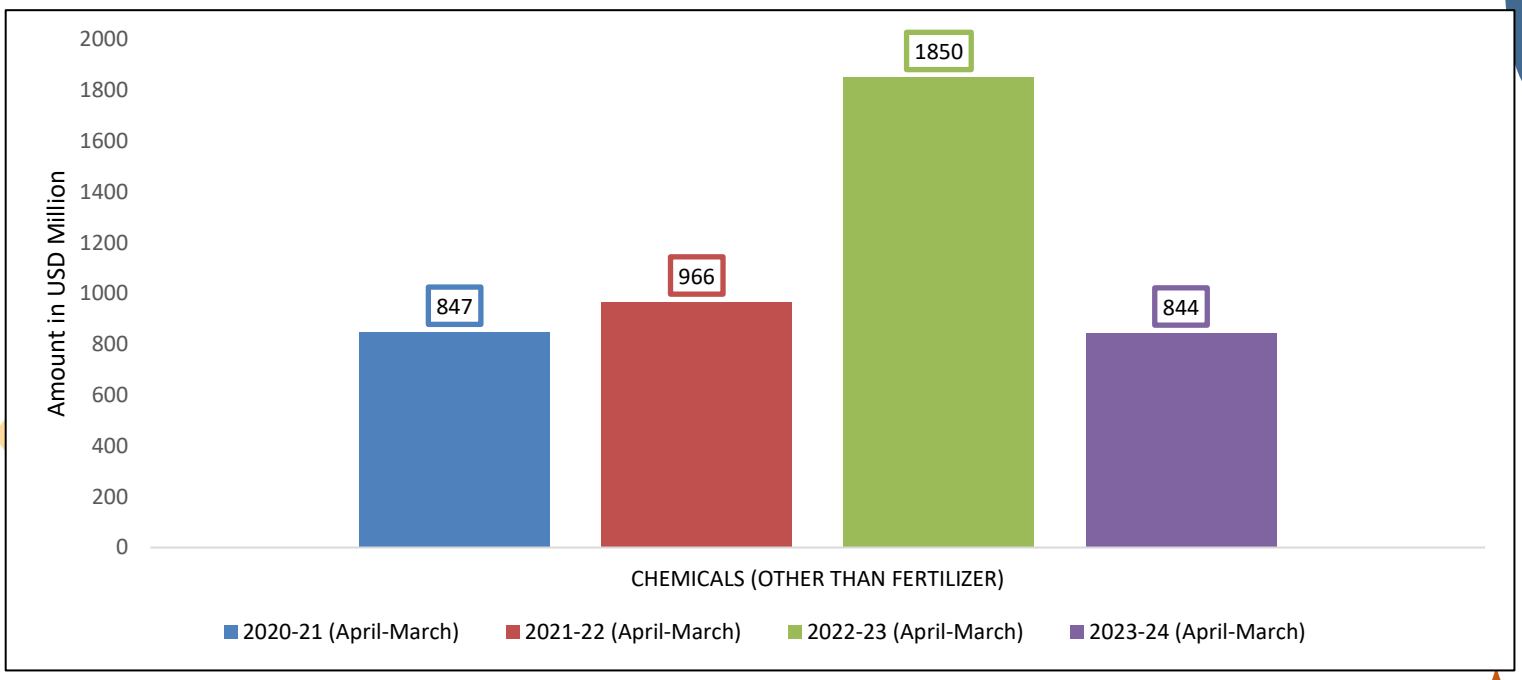
Chapters	Description	India Share in World Export	Rank	India Share in World Import	Rank
Chapter 28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare- earth metals, of radioactive elements or of; isotopes	1.9%	14	5.9%	3
Chapter 29	Organic chemicals	4.3%	7	5.5%	4
Chapter 32	Tanning Or Dyeing	3.7%	10	4.5%	5
Chapter 38	Miscellaneous chemical products	2.5%	12	2.7%	10
Chapter 39	Plastics and articles thereof	1.1%	23	3.4%	7
Chapter 40 Subgroup 02 (EXIM 4002)	Synthetic rubber and factice derived from oils, in primary Forms or in plates, sheets or strip; mixtures of any product of heading 4001 with any product of this heading, in primary forms or in plates, sheets or strip	0.7%	23	4.8%	4
Chapter 54	Man-made filaments	3.5%	5	5.0%	4
Chapter 55	Man-made staple Fibre	5.0%	4	3.5%	9



Source: http://comtrade.un.org./ (UN Comtrade Database)

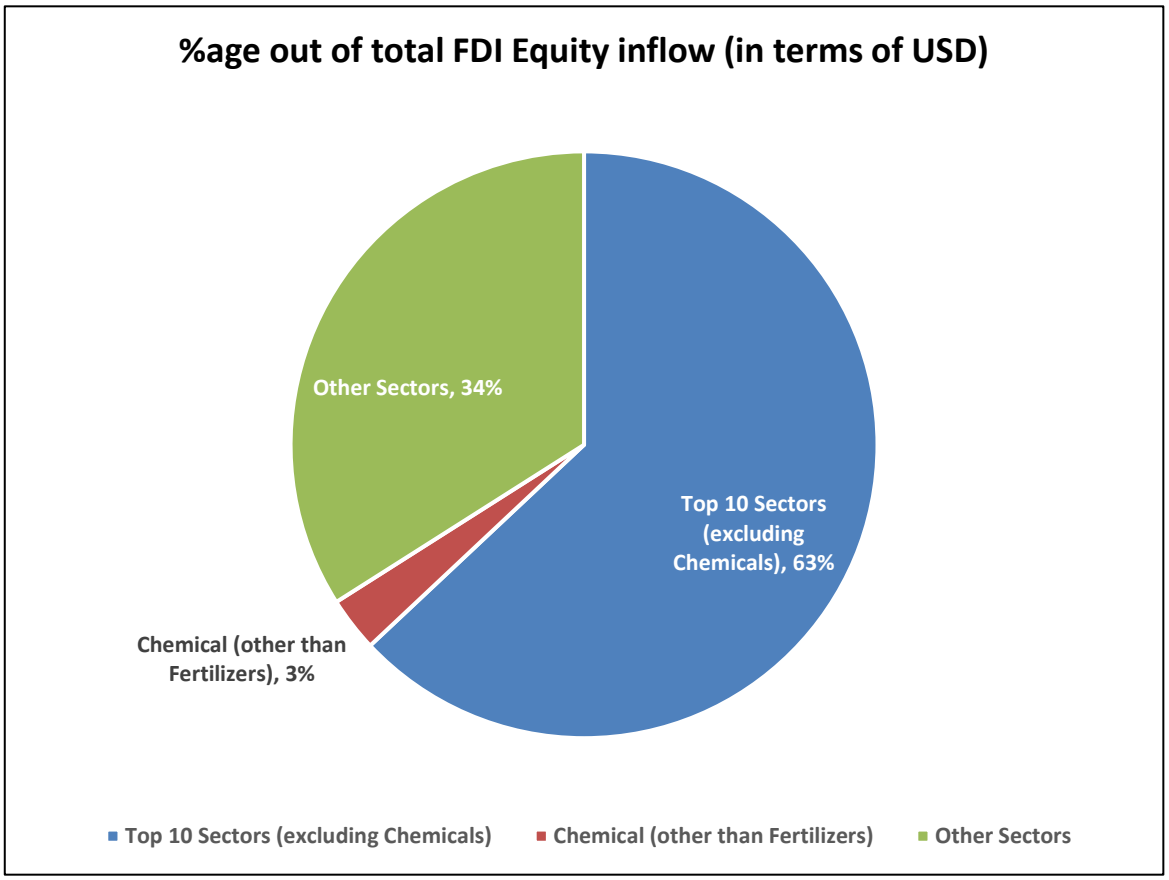
11. Market Share in India

11.1. FDI Equity inflow over the years in Chemical Industry in India (2020-2024)



Source: DPIIT

11.2. Sectors Attracting Highest FDI Equity Inflow (2023-24)

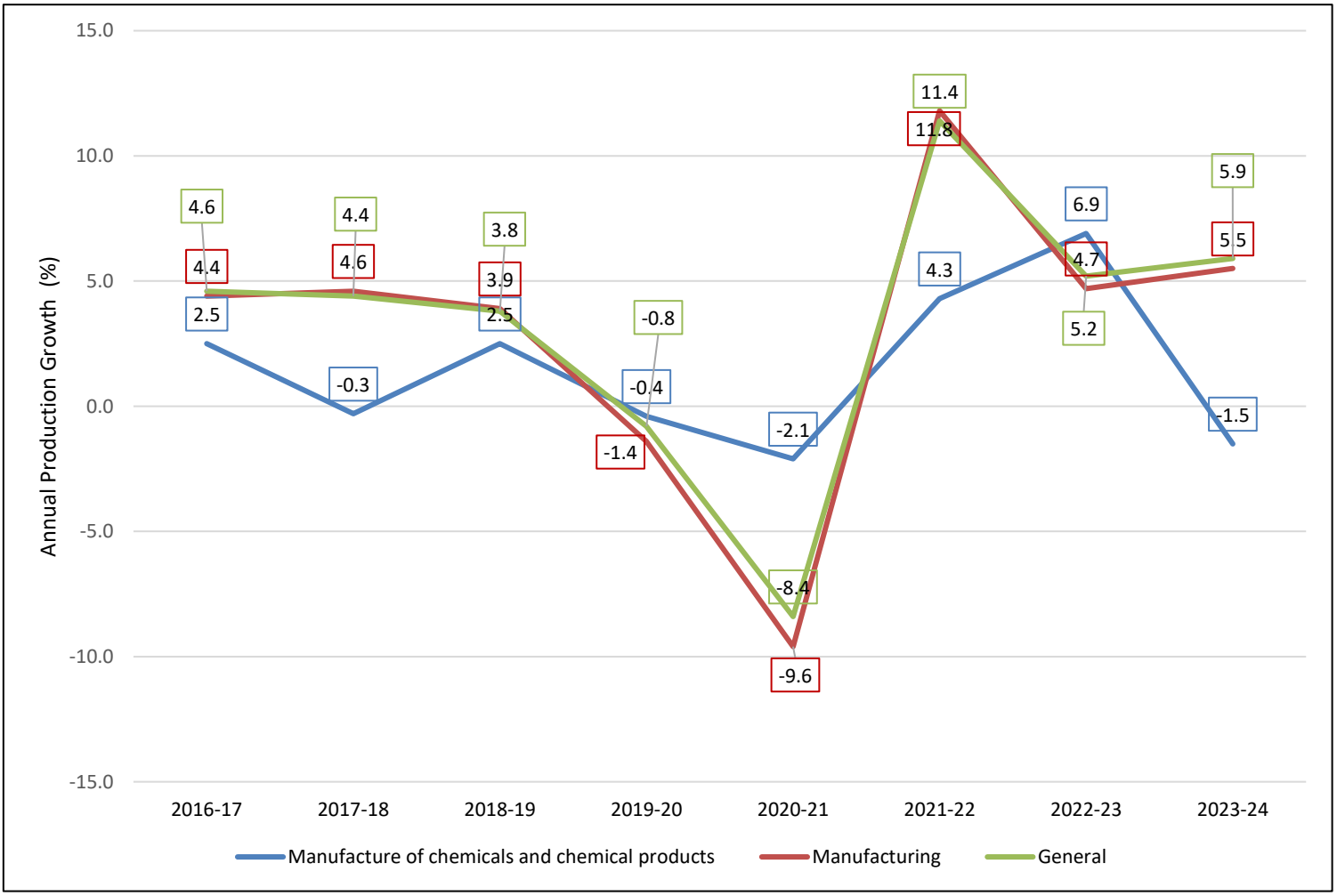


Source: (DPIIT)

11. Market Share in India

11.3. Annual growth rate for Industrial Production (%)
(Based on Index of Industrial Production with Base year: 2011-12)

Years	Chemicals and Chemical Products	Manufacturing	General
2016-17	2.5	4.4	4.6
2017-18	-0.3	4.6	4.4
2018-19	2.5	3.9	3.8
2019-20	-0.4	-1.4	-0.8
2020-21	-2.1	-9.6	-8.4
2021-22	4.3	11.8	11.4
2022-23	6.9	4.7	5.2
2023-24	-1.5	5.5	5.9

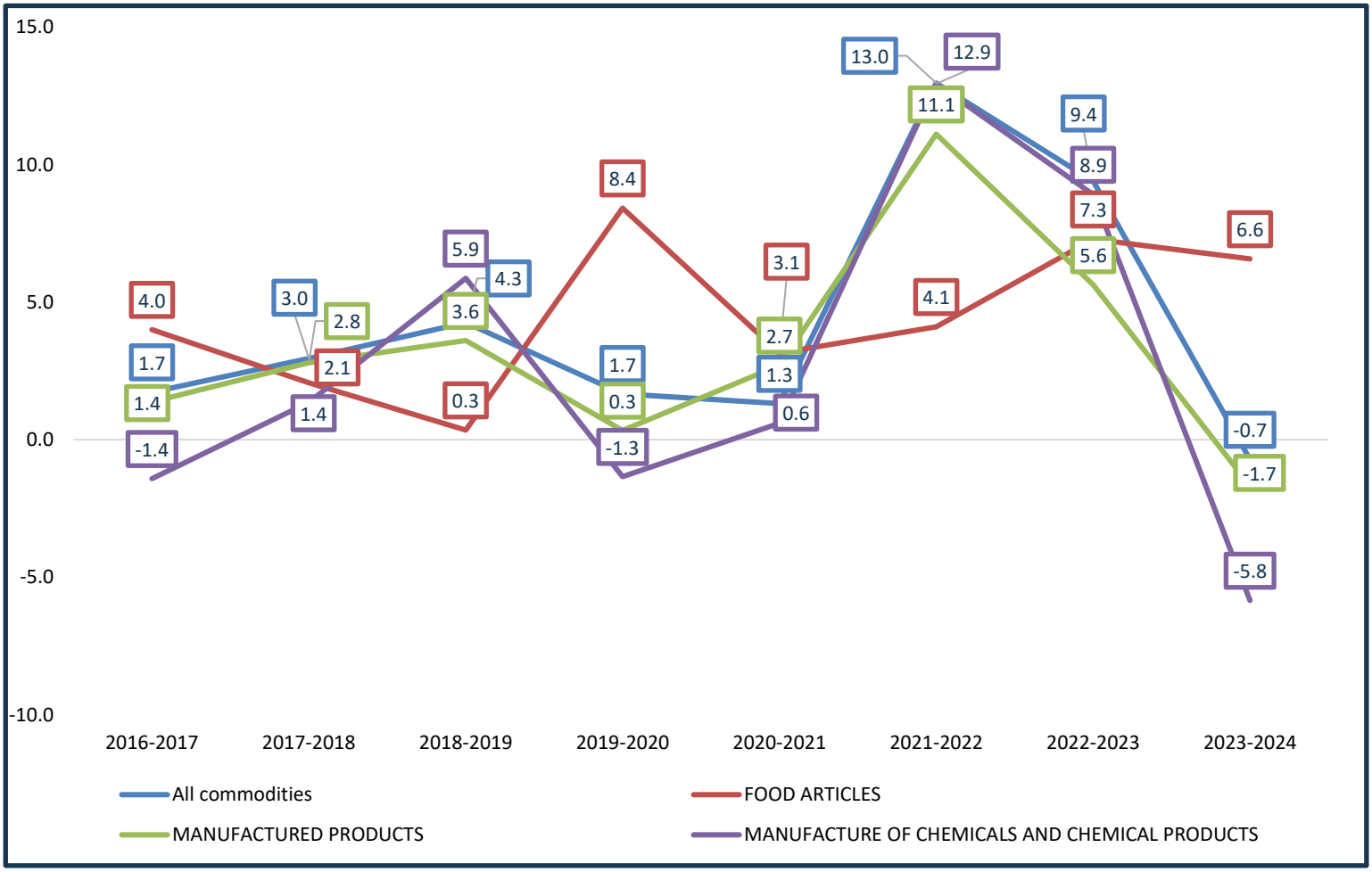


Source: MoSPI

11. Market Share in India

11.4. Annual Inflation (%)
(Based on Wholesale Price Index with Base year: 2011-12)

Year	All Commodities	Food Articles	Manufactured Products	Chemicals & Chemical Products
2016-2017	1.7	4.0	1.4	-1.4
2017-2018	3.0	2.1	2.8	1.4
2018-2019	4.3	0.3	3.6	5.9
2019-2020	1.7	8.4	0.3	-1.3
2020-2021	1.3	3.1	2.7	0.6
2021-2022	13.0	4.1	11.1	12.9
2022-2023	9.4	7.3	5.6	8.9
2023-2024	-0.7	6.6	-1.7	-5.8

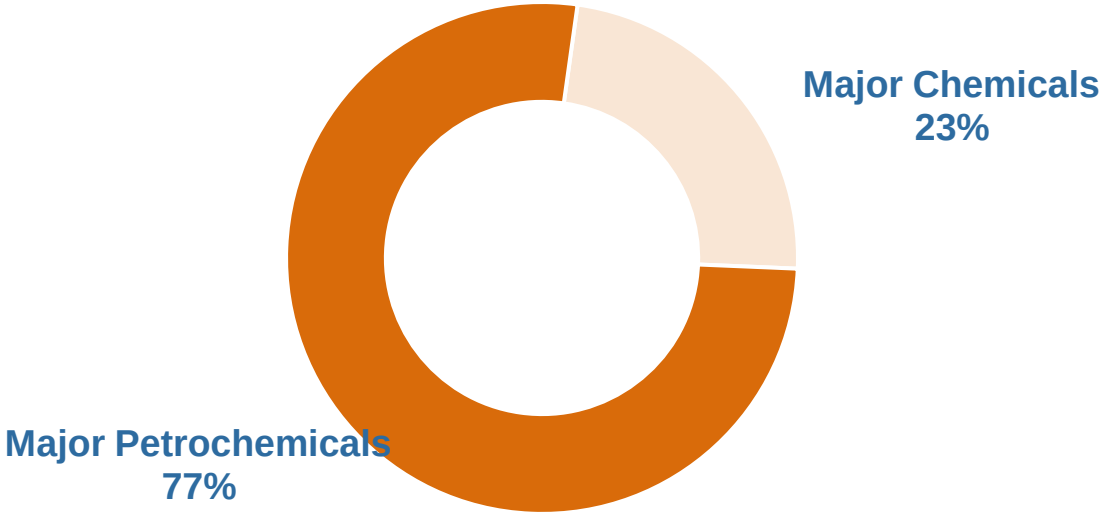


Source: Office of the Economic Advisor (http://eaindustry.nic.in)

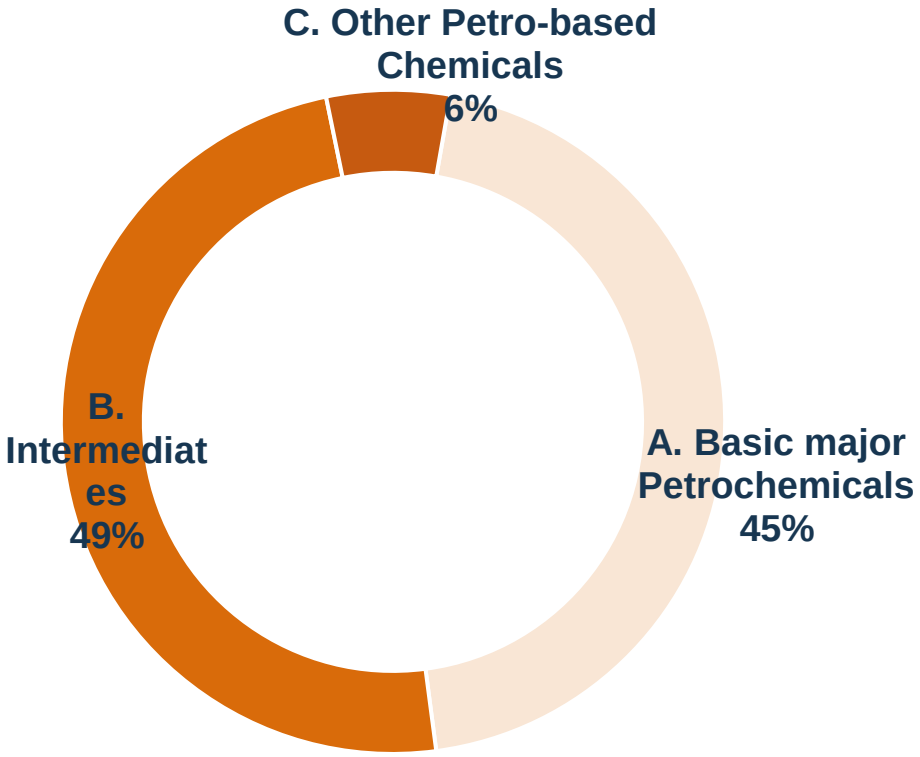
11. Market Share in India

11.5. Production of Selected Chemicals & Petrochemicals in India (2023-2024)

(i) % share of production of chemicals and petrochemicals sector:-



(ii) % share of production of different groups of petrochemicals sector:-



Source: *DCPC*

12. Group-wise Bifurcation of Chemical & Petrochemical Products and their Uses:

Chemical

Alkali Chemicals

1. Soap and detergent manufacturing

2. Water treatment to adjust pH levels

3. pH regulation in agriculture

Inorganic Chemicals

1. Fertilizers for improved crop yield

2. Pigments and dyes in paints and textiles

3. Construction materials like cement and gypsum

Organic Chemicals

1. Active ingredients in drugs.

2. Building blocks for the production of plastics, synthetic fibers, coatings, and adhesives

3. Preservatives, flavourings, and colorants in processed foods

Pesticides (Technical Grade)

1. In agriculture to protect crops from pests such as insects, weeds, and diseases.

2. For controlling parasites, such as ticks and fleas that can infest livestock and cause harm to their health.

3. Reduce the spread of diseases like malaria, dengue fever, and Lyme disease.

Dyes & Pigments

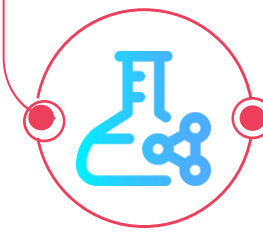
1. In the textile industry to colour fabrics and fibers, such as cotton, silk, wool, and synthetic materials.

2. In printing inks for applications like newspaper printing, packaging materials, labels, and decorative printing.

3. Essential components in paints, varnishes, and coatings

12. Group-wise Bifurcation of Chemical & Petrochemical Products and their Uses:

Petrochemical

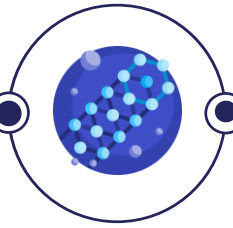


Synthetic Fibres

1. Polyester, nylon, acrylic, and spandex are widely used in the production of textiles and clothing.

2. Manufacturing of carpets, rugs, upholstery, curtains, and bedding materials.

3. Reinforcement materials in composites for construction, automotive, and aerospace industries.



Polymers

1. In a vast array of products, including packaging materials, containers, toys, automotive parts, electronics, pipes, and furniture.

2. Formulation of adhesives and sealants.

3. Binders in coatings and paints forming a protective layer on surfaces, providing durability, resistance to weathering, and aesthetic appeal.

Synthetic Rubber (Elastomers)

1. Manufacturing of automobile tires, including passenger car tires, truck tires, and motorcycle tires.

2. Production of industrial belts for power transmission and conveyor systems.

3. Production of sporting goods such as balls, grips, and protective gear.

Synthetic Detergent Intermediates

1. Production of personal care products, including shampoos, body washes, hand soaps, and facial cleansers.

2. Formulation of dishwashing detergents, including dishwashing liquids, powders, and dishwasher detergents.

3. Specialty cleaning products designed for specific applications, such as carpet cleaners, upholstery cleaners, and stain removers.

12. Group-wise Bifurcation of Chemical & Petrochemical Products and their Uses:

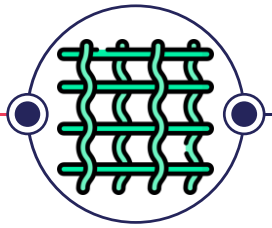
Petrochemical

Performance Plastics

1. In engine components, fuel systems, electrical connectors, interior trims, body panels, and lightweight structural parts.

2. Medical devices, implants, surgical instruments, diagnostic equipment, and pharmaceutical packaging.

3. In connectors, insulators, circuit boards, cable insulation, and electronic enclosures.

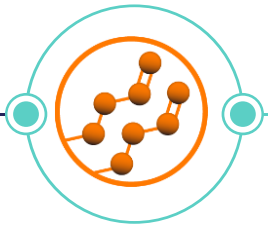


Fiber Intermediates

1. Purified Terephthalic Acid (PTA) is a key fiber intermediate used in the production of polyester fibers

2. Caprolactam is a fiber intermediate used in the production of nylon 6 fibers.

3. Production of nylon 6,6 fibers.

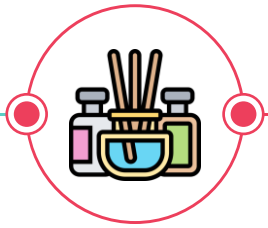


Olefins

1. Olefins, such as ropylene and butene, used as solvents in various industrial processes for dissolving or dispersing substances, cleaning surfaces, and as reaction media in chemical reactions.

2. Olefins, such as polyalphaolefins (PAO), are used as base oils in the production of lubricants.

3. Olefins, particularly ethylene and propylene, serve as important feedstock's for the production of fuels and energy sources.

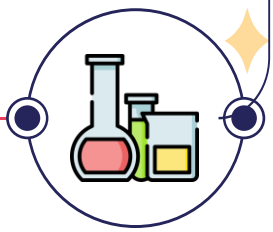


Aromatics

1. Enhance the performance of paints, varnishes, and protective coatings.

2. Building blocks in the synthesis of pharmaceutical compounds.

3. Perfumes, colognes, cosmetics, soaps, and household products to impart pleasant scents.



Other Petro-based Chemicals

1. Butanol can be used as a growth regulator in agriculture to promote fruit development and improve crop yield.

2. Polyols are utilized in the production of resins and coatings.

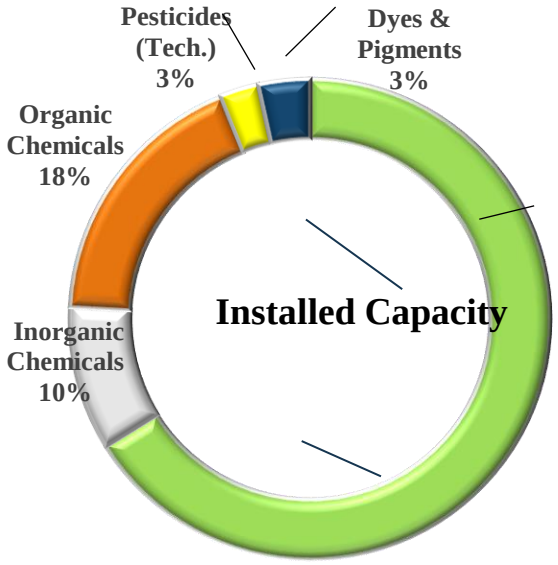
3. Production of pharmaceuticals, pesticides, and rubber chemicals.

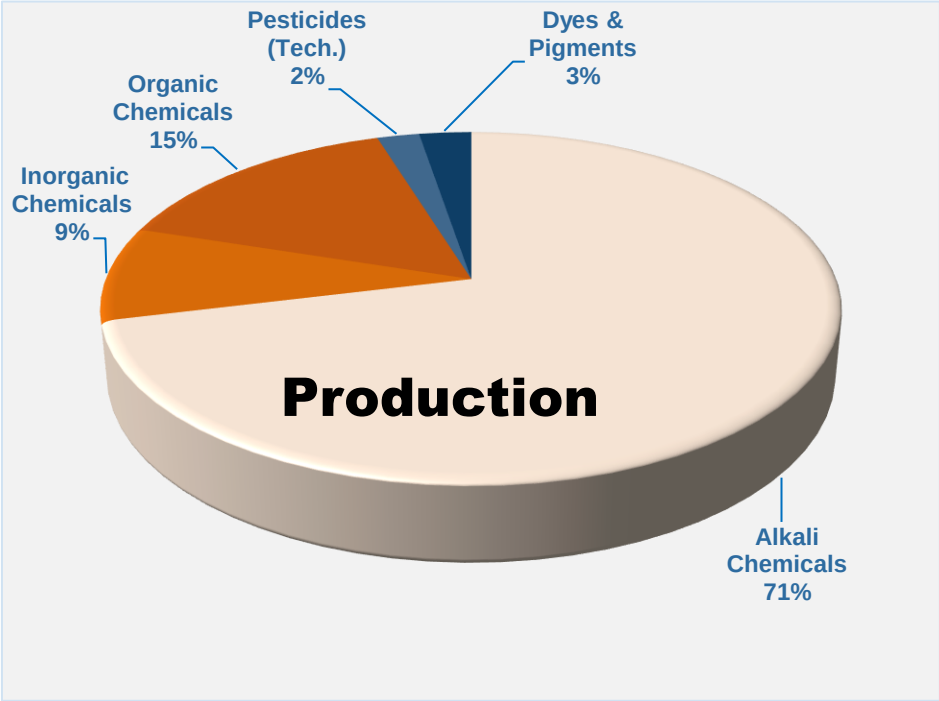
13. Current Scenario

13.1. Major Chemicals and their share in Installed Capacity & Production during 2023-2024

Group	Capacity*	Production
		(Figures in 000'MT)
Alkali Chemicals	11260	9234
Inorganic Chemicals	1650	1127
Organic Chemicals	3076	1980
Pesticides (Tech.)	444	280
Dyes & Pigments	590	345

Note: Installed capacity for 2023-2024 is provisional





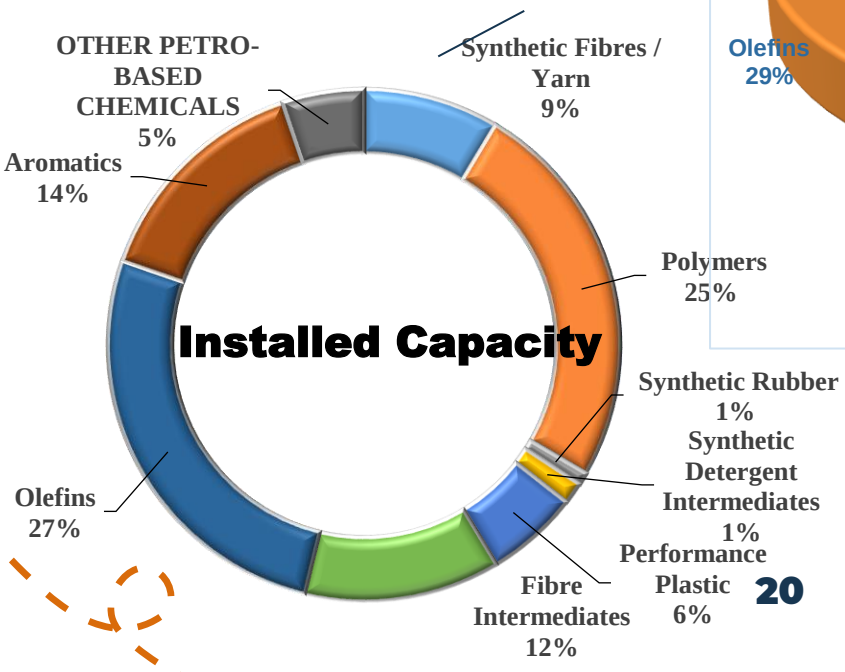
Source: DCPC

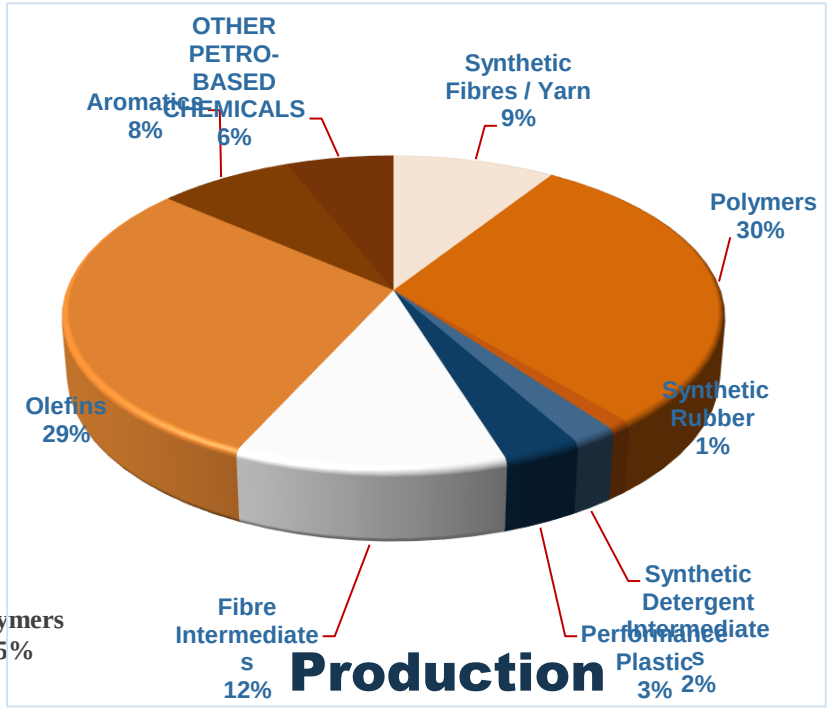
13. Current Scenario

13.2. Major Petrochemicals and their share in Installed Capacity and production during 2023-2024

Groups	Installed Capacity*	Production
		(Figures in 000'MT)
Synthetic Fibres / Yarn	4498	3853
Polymers	12950	12548
Synthetic Rubber	403	395
Synthetic Detergent Intermediates	722	808
Performance Plastic	3060	1425
Fibre Intermediates	6500	4956
Olefins	13880	12401
Aromatics	7560	3237
OTHER PETRO-BASED CHEMICALS	2714	2538

**Note: Installed capacity for 2023-2024 is provisional*





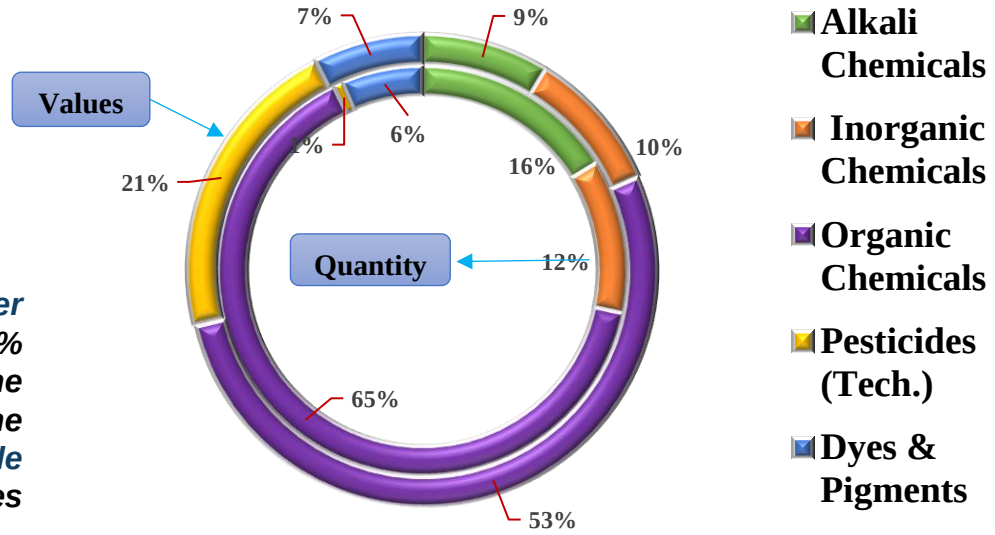
Source: DCPC

13. Current Scenario

13.3. Major Chemicals and their share in Import and Export quantity and value during 2023-2024

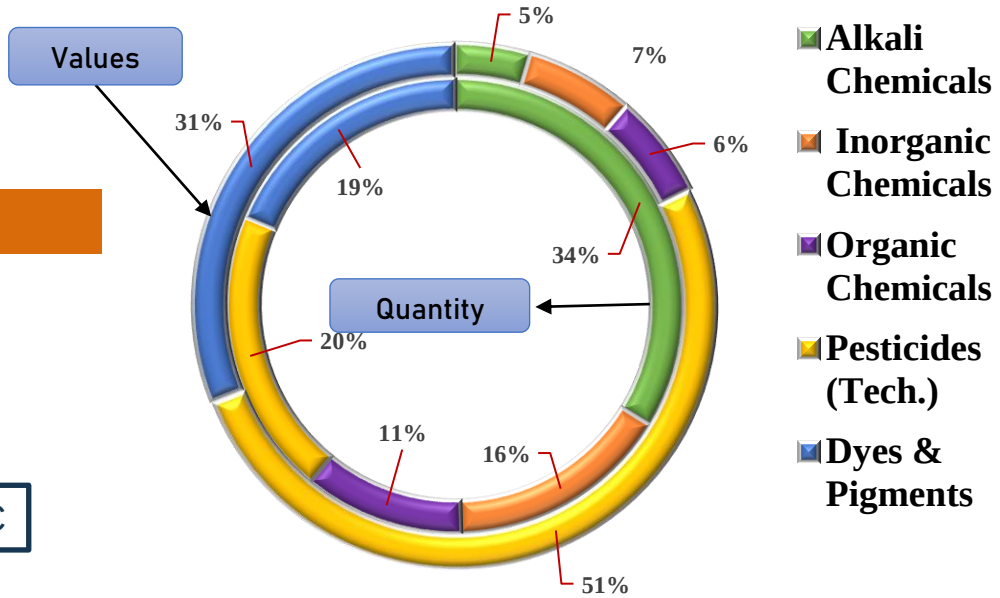
Group	Import		Export	
	Quantity	Values	Quantity	Values
				(Quantity in MT, Values in Rs. Lakh)
Alkali Chemicals	1262504	329564	893112	274679
Inorganic Chemicals	941784	365743	416978	396158
Organic Chemicals	5017641	1997048	300783	376865
Pesticides (Tech.)	61986	802037	538624	3048362
Dyes & Pigments	496343	284741	492682	1842026

Import



* Note: *Inner Circle denotes % Quantity of the groups while the outer circle denotes % values of the groups*

Export



Source: DCPC

13. Current Scenario

13.4. Groups of Major Petrochemicals in import and export quantity and value during 2023-2024

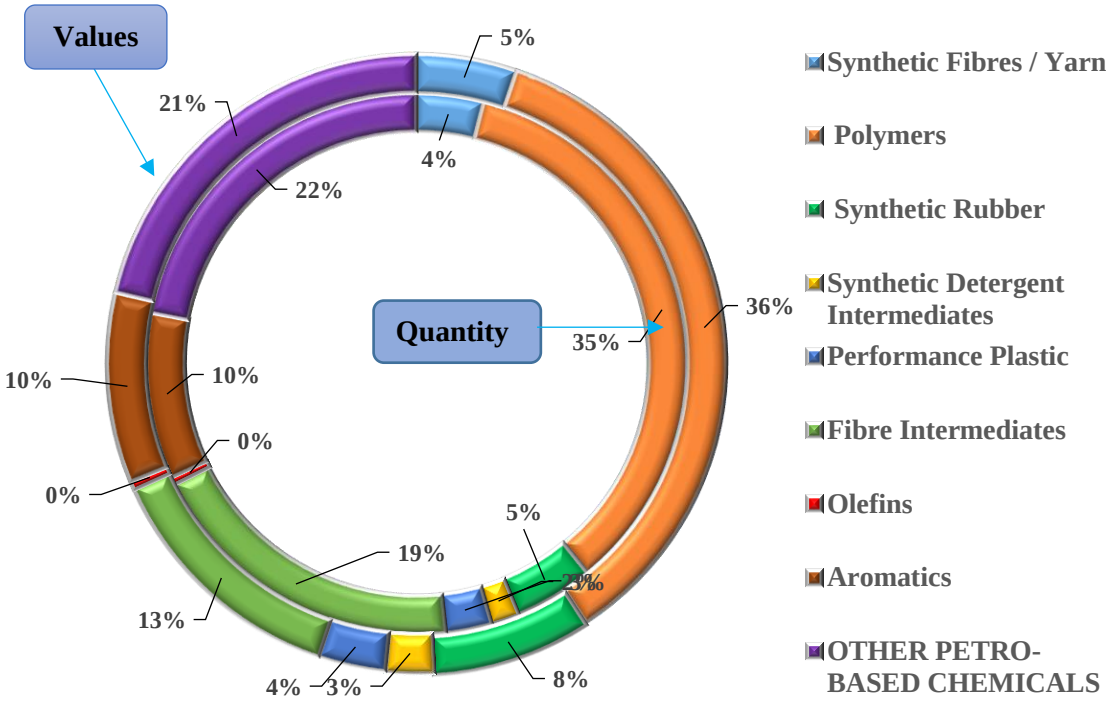
Groups	Import		Export	
	Quantity	Values	Quantity	Values
	(Figures in MT; Values (Rs.) in lakh)			
Synthetic Fibres / Yarn	610797	704902	683488	889562
Polymers	5312985	4757153	705292	689804
Synthetic Rubber	723837	1112058	92441	103915
Synthetic Detergent Intermediates	251536	338929	3686	5704
Performance Plastic	417879	470823	157418	231371
Fibre Intermediates	2929291	1771593	35761	38224
Olefins	68159	57346	189106	127559
Aromatics	1509211	1327413	1774952	1346591
OTHER PETRO-BASED CHEMICALS	3326576	2852163	208633	212881

Source: DGCIS; DCPC

13. Current Scenario

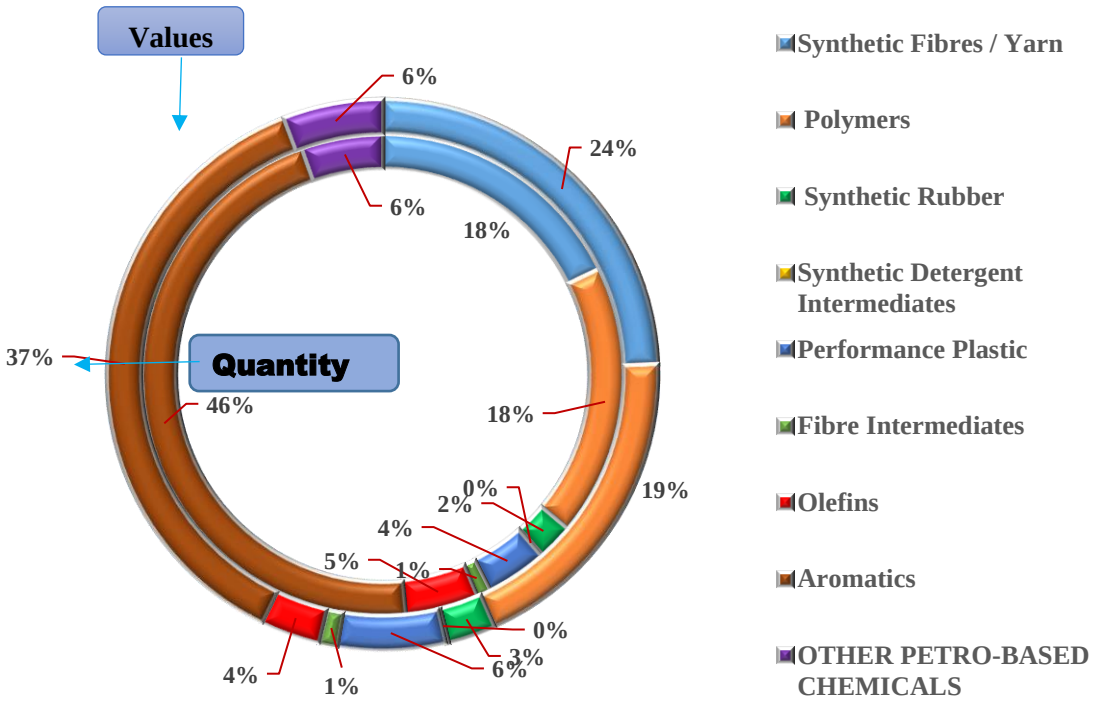
13.4. Share of Major Petrochemicals in import and export quantity and value during 2023-2024

Import



* Note: *Inner Circle denotes % Quantity of the groups while the outer circle denotes % values of the groups*

Export

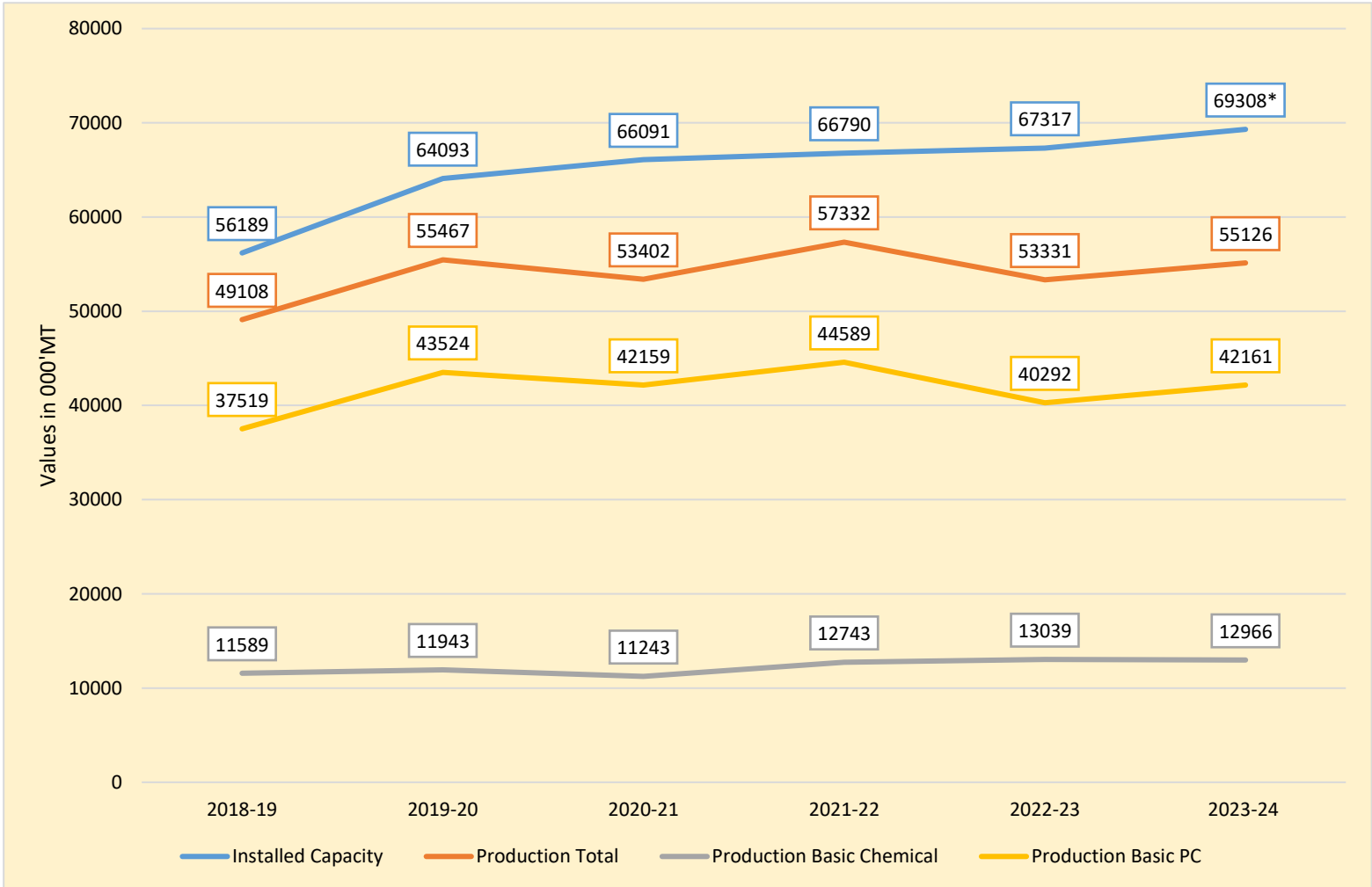


Source: DGCIS; DCPC

14. Status of Selected CPC Sector (Installed Capacity, Production, Chemical, PC)

(Figures in 000'MT)

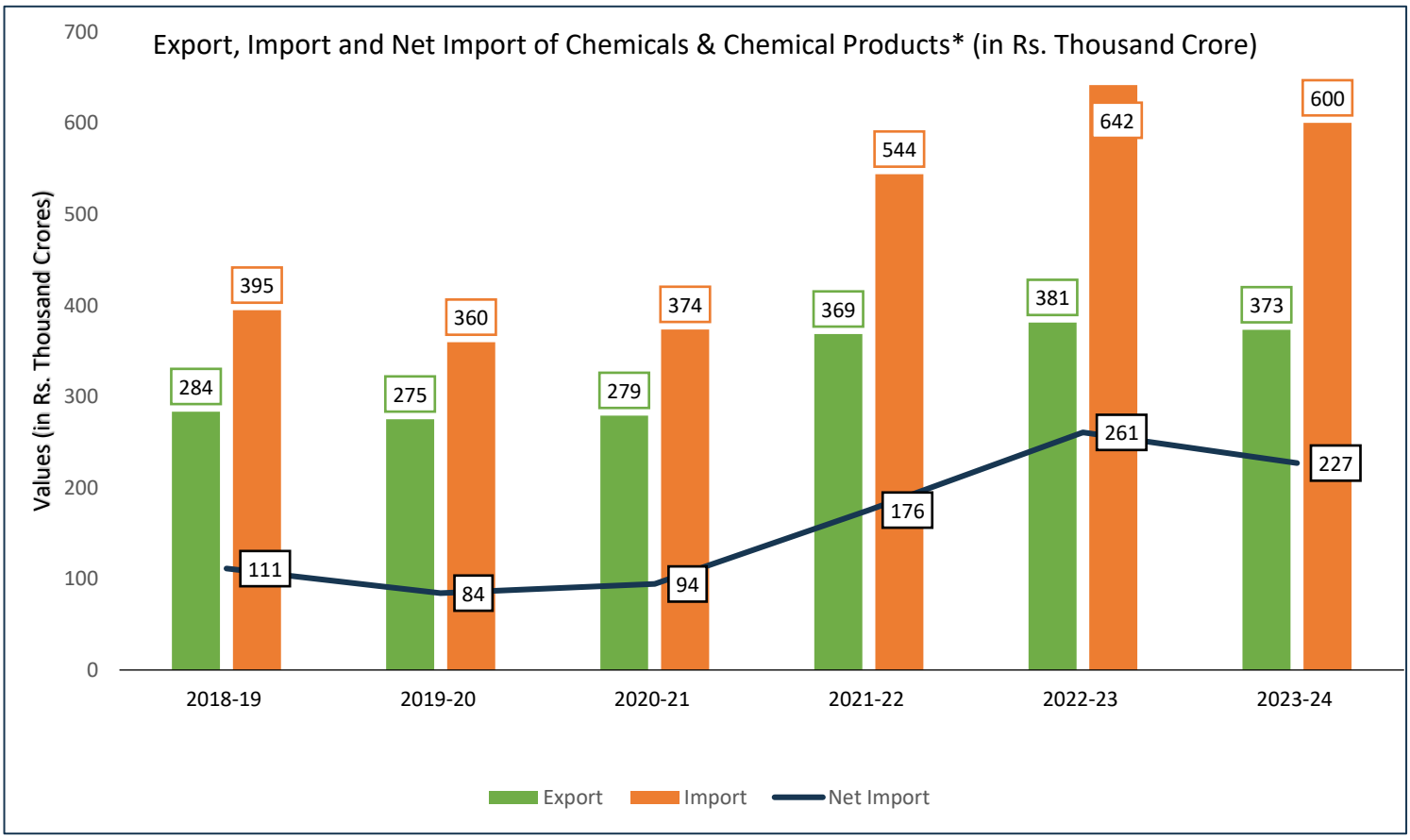
Year	Installed Capacity	Production		
		Total	Basic Chemical	Basic PC
2018-19	56189	49108	11589	37519
2019-20	64093	55467	11943	43524
2020-21	66091	53402	11243	42159
2021-22	66790	57332	12743	44589
2022-23	67317	53331	13039	40292
2023-24	69308*	55126	12966	42161

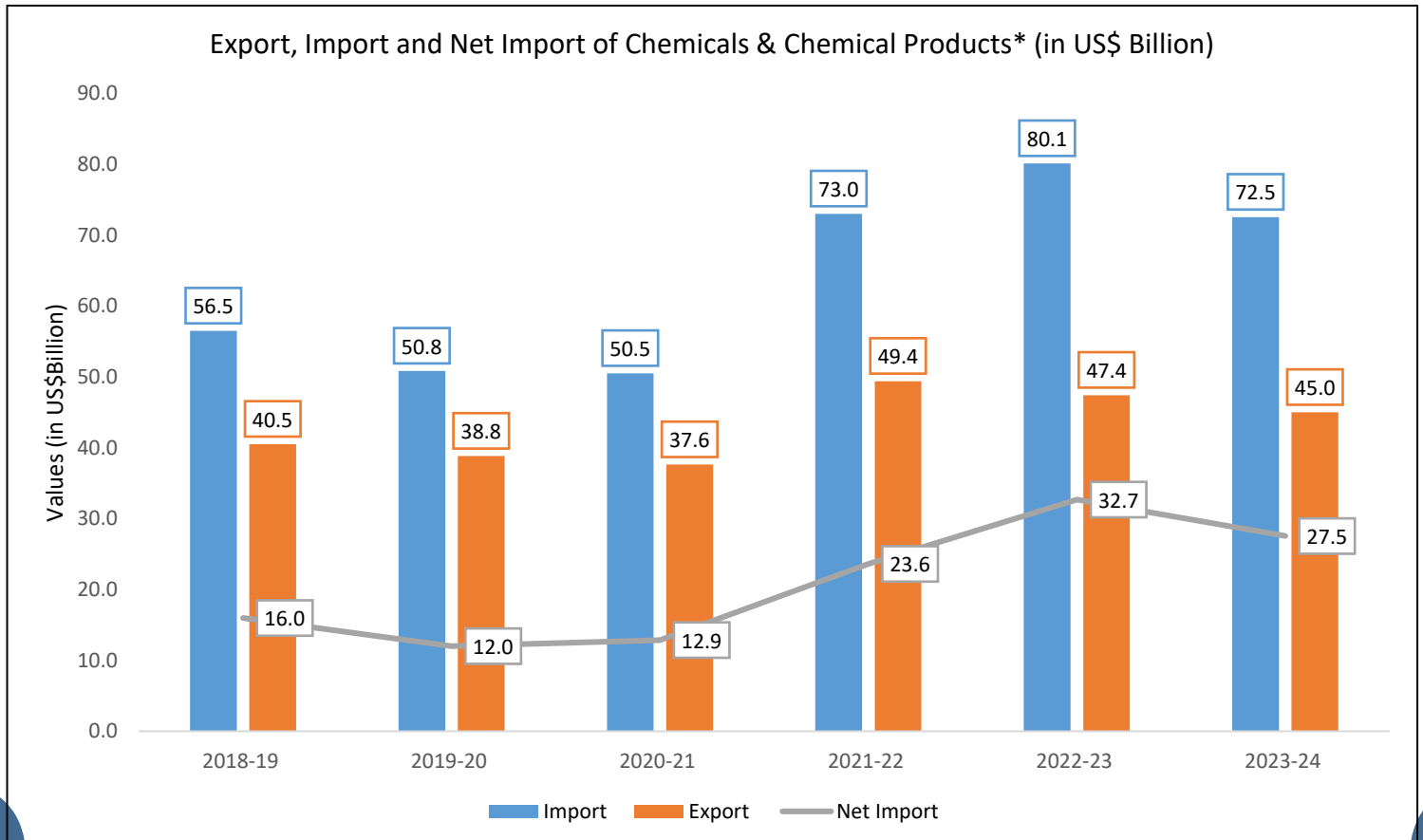


** Installed Capacity Data for 2023-24 is Provisional*

Source: DCPC

15. Indian Selected CPC Industry Scenario



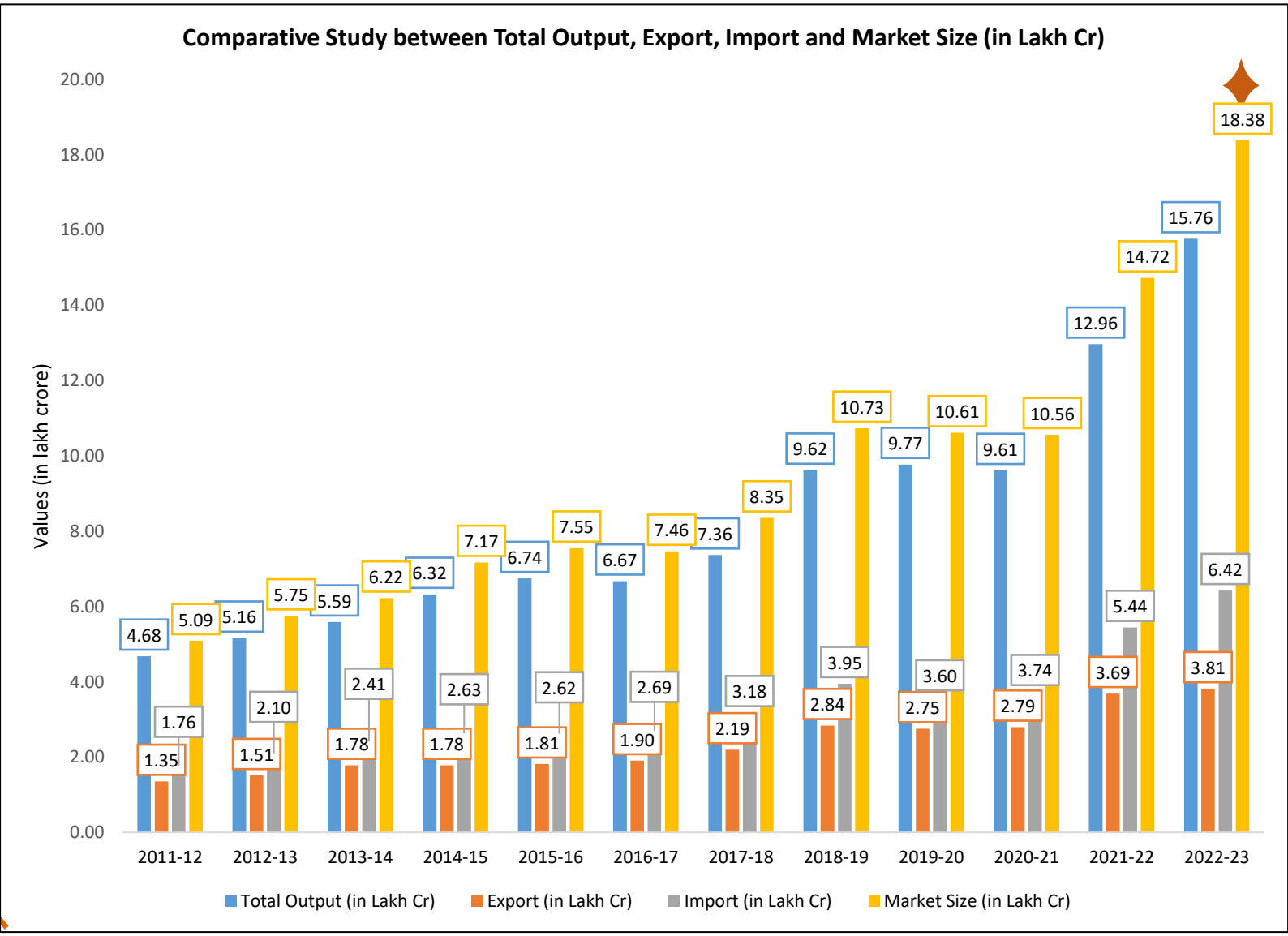


*(Chapter wise including HS Code at 2 digit level i.e. 28, 29, 32 , 38, 39, 54, 55 and 4-digit 4002)

Source: DGCIS

16. Comparative Study between Total Output, Export, Import and Market Size (in Crore)

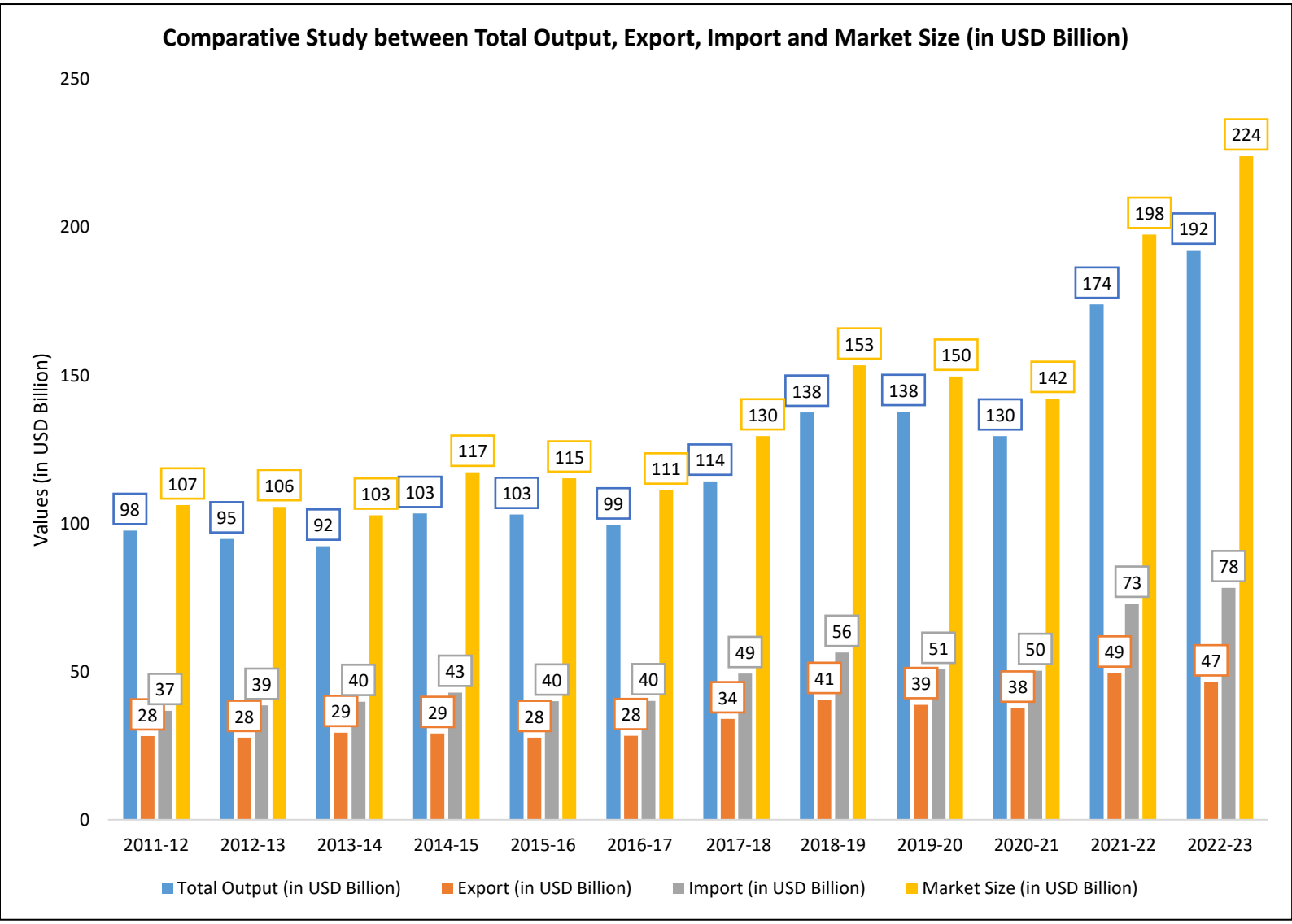
Year	Total Output (in Lakh Cr)	Export (in Lakh Cr)	Import (in Lakh Cr)	Market Size (in Lakh Cr)
FY 2011-12	4.68	1.35	1.76	5.09
FY 2012-13	5.16	1.51	2.10	5.75
FY 2013-14	5.59	1.78	2.41	6.22
FY 2014-15	6.32	1.78	2.63	7.17
FY 2015-16	6.74	1.81	2.62	7.55
FY 2016-17	6.67	1.90	2.69	7.46
FY 2017-18	7.36	2.19	3.18	8.35
FY 2018-19	9.62	2.84	3.95	10.73
FY 2019-20	9.77	2.75	3.60	10.62
FY 2020-21	9.61	2.79	3.74	10.56
FY 2021-22	12.96	3.69	5.44	14.71
FY 2022-23	15.76	3.81	6.42	18.38



Source: DGCIS; MoSPI

16. Comparative Study between Total Output, Export, Import and Market Size (in USD Billion)

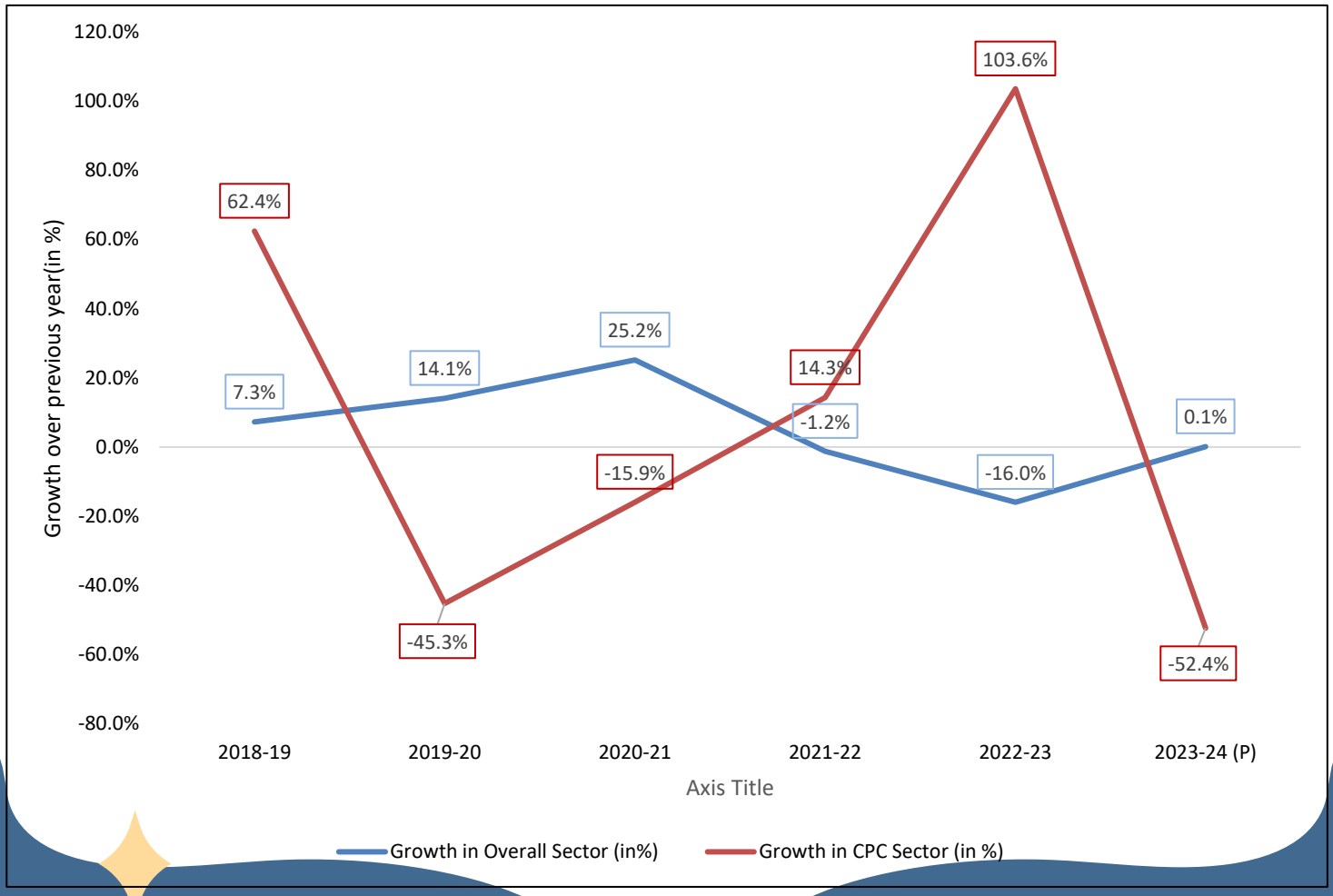
Year	Total Output (in USD Billion)	Export (in USD Billion)	Import (in USD Billion)	Market Size (in USD Billion)
FY 2011-12	98	28	37	107
FY 2012-13	95	28	39	106
FY 2013-14	92	29	40	103
FY 2014-15	103	29	43	117
FY 2015-16	103	28	40	115
FY 2016-17	99	28	40	111
FY 2017-18	114	34	49	130
FY 2018-19	138	41	56	154
FY 2019-20	138	39	51	150
FY 2020-21	130	38	50	142
FY 2021-22	174	49	73	198
FY 2022-23	192	46	78	224



Source: DGCIS; MoSPI

17. Comparative study on FDI of Growth Rate of CPC Sector vis-a-vis all sector

Year	Overall Sector (Rs. in Crore)	CPC Sector (Rs.in Crore)
2017-18	288889	8425
2018-19	309867	13685
2019-20	353557	7492
2020-21	442569	6300
2021-22	437188	7202
2022-23	367435	14662
2023-24 (P)	367899	6985

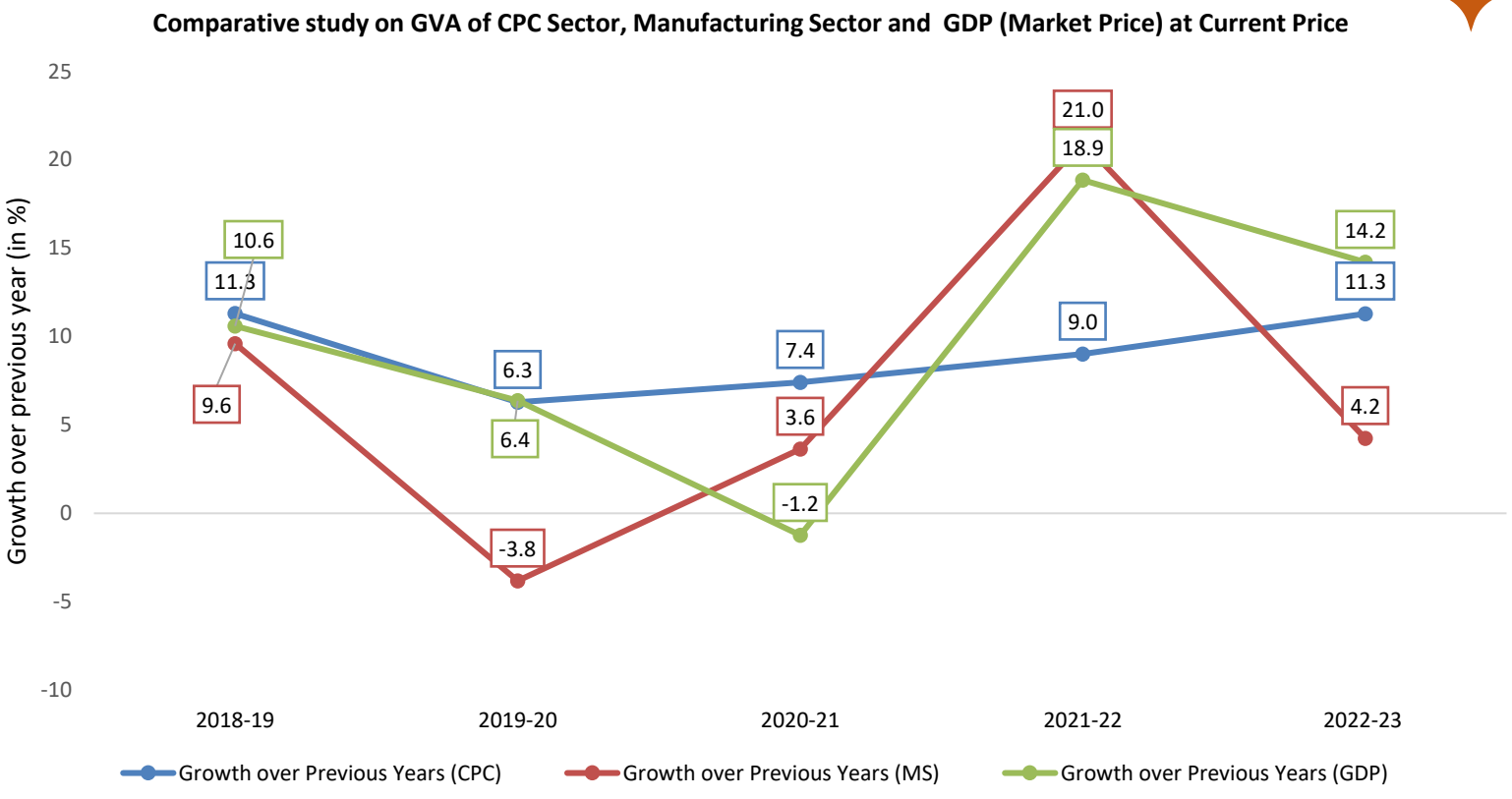


Source: DPIIT
(P) : Provisional Estimates

18. Comparative study on GVA of CPC Sector, Manufacturing Sector and GDP (Market Price) at Current Price

(Rs.in Crore)

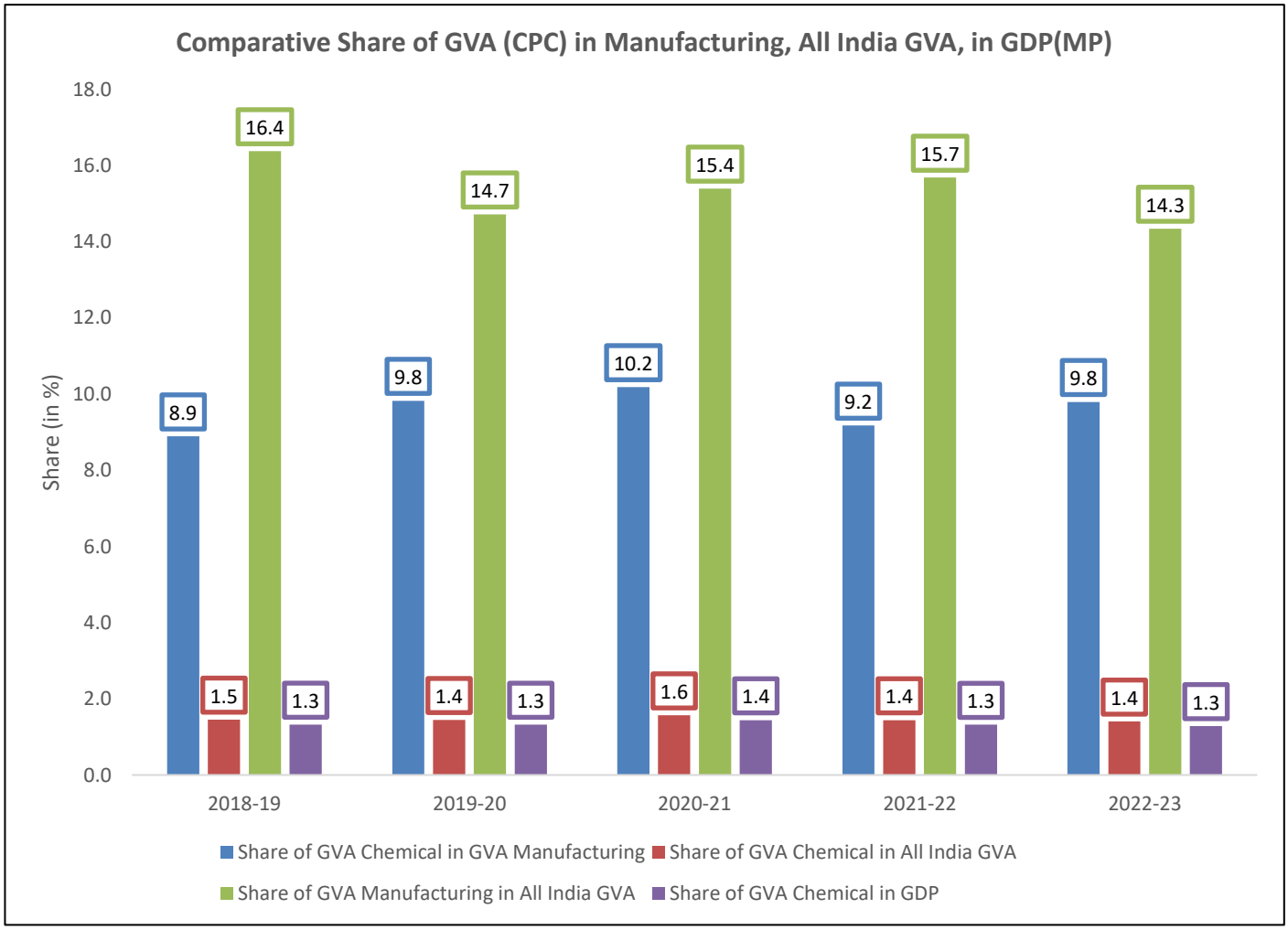
Year	GVA(CPC)	GVA(MS)	GDP (MP)
2018-19	2,50,032	28,12,560	1,88,99,668
2019-20	2,65,747	27,05,101	,201,03,593
2020-21	2,85,458	28,03,495	1,98,54,096
2021-22	3,11,203	33,92,605	2,35,97,399
2022-23	3,46,336	35,36,461	2,69,49,646



Source: MoSPI

19. Comparative Share of GVA (CPC) in Manufacturing, All India GVA & GDP(MP)

Year	Share of GVA (CPC) in GVA Manufacturing	Share of GVA (CPC) in All India GVA	Share of GVA (MS) in All India GVA	Share of GVA (CPC) in GDP (MP)
2018-19	8.9%	1.5%	16.4%	1.3%
2019-20	9.8%	1.4%	14.7%	1.3%
2020-21	10.2%	1.6%	15.4%	1.4%
2021-22	9.2%	1.4%	15.7%	1.3%
2022-23	9.8%	1.4%	14.3%	1.3%

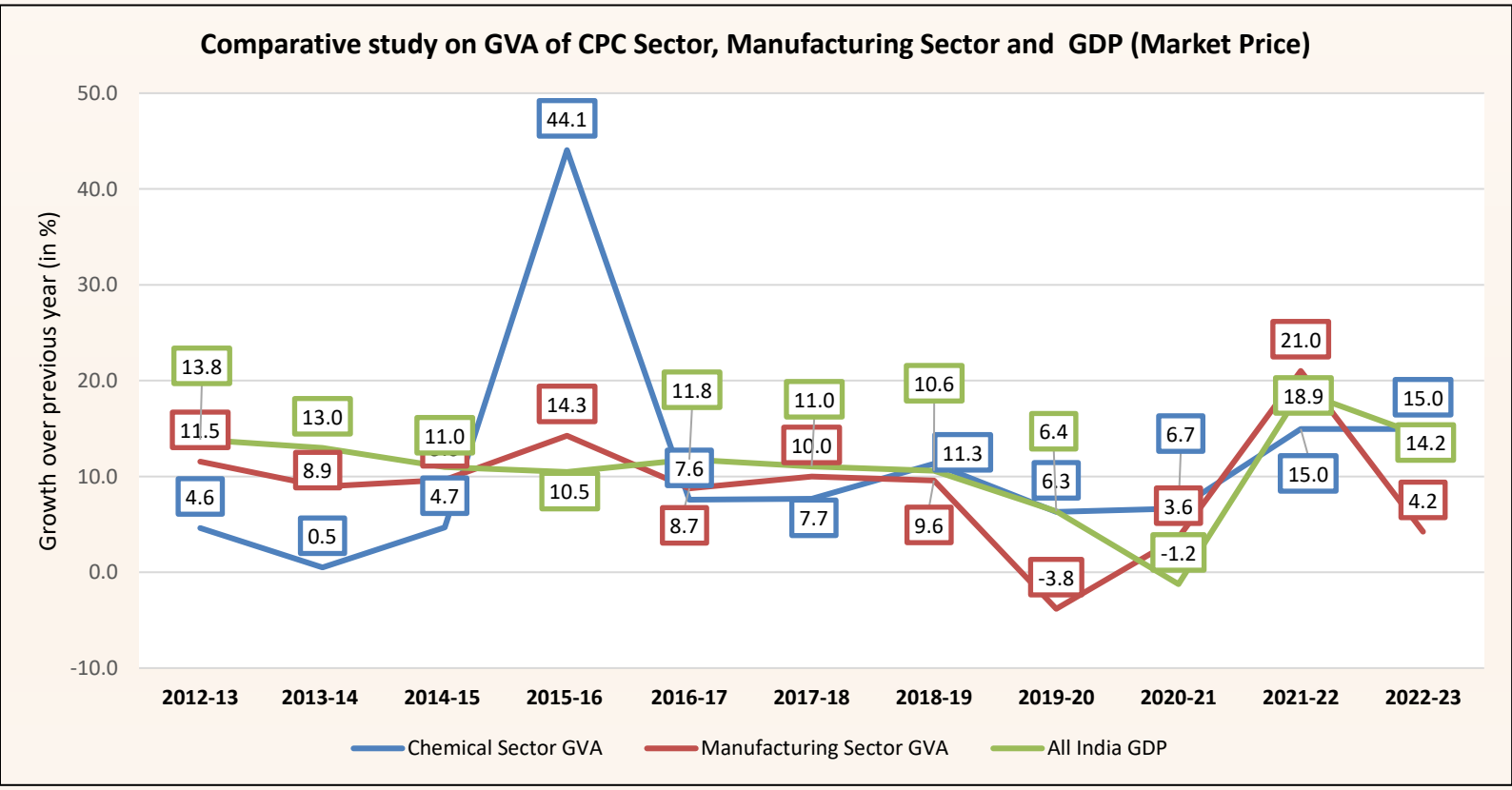


Source: MoSPI

20. Comparative study on GVA of CPC Sector, Manufacturing Sector and GDP (Market Price)

(Rs.in Crore)

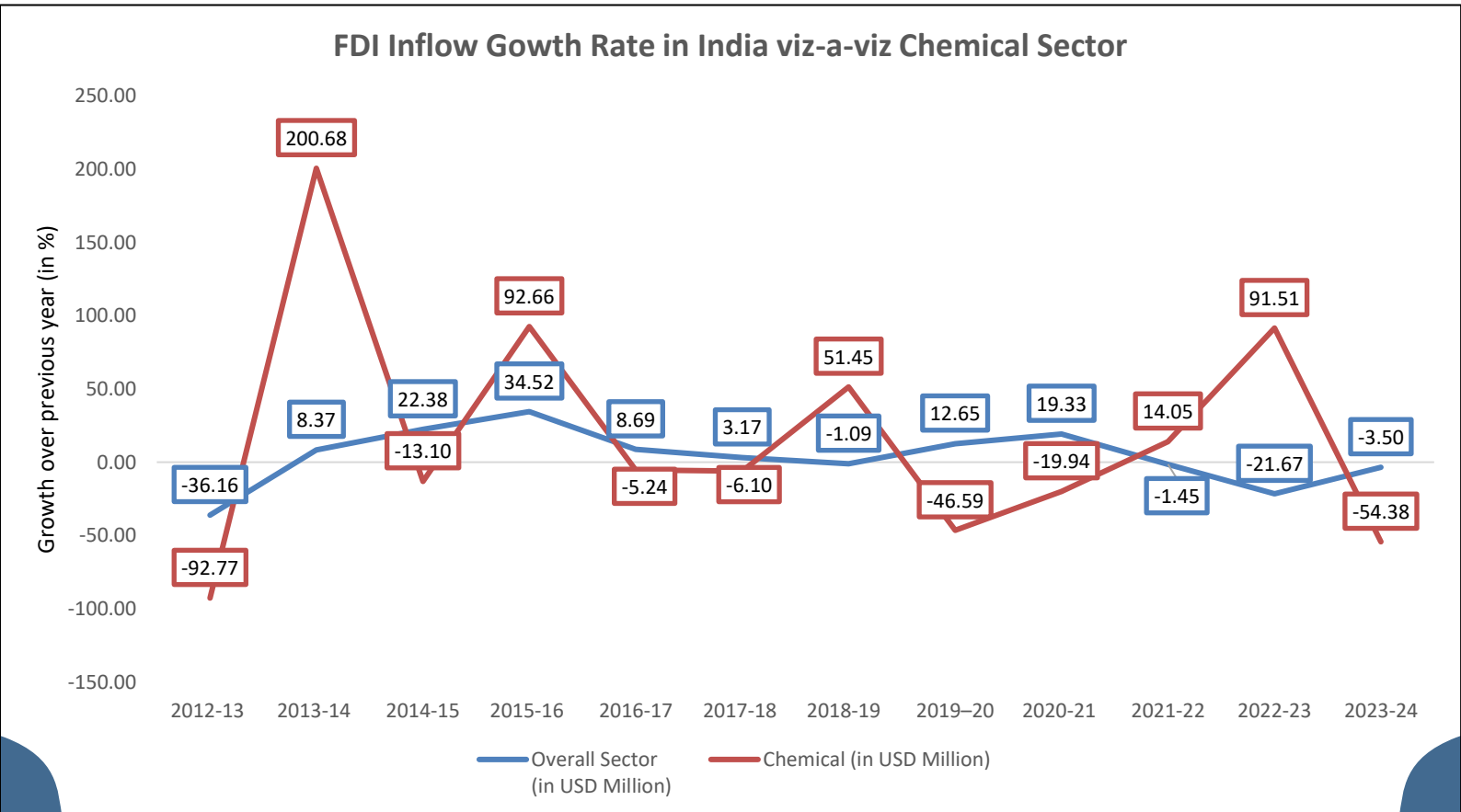
Year	GVA(CPC)	GVA(MS)	GDP(MP)
2011-12	122304	1409985	8736329
2012-13	127931	1572837	9944013
2013-14	128573	1713452	11233522
2014-15	134588	1878369	12467959
2015-16	193890	2146189	13771874
2016-17	208593	2333721	15391669
2017-18	224595	2566623	17090042
2018-19	250032	2812559	18899668
2019-20	265747	2705101	20103593
2020-21	283440	2803495	19854096
2021-22	325832	3392605	23597399
2022-23	374563	3536461	26949646



Source: MoSPI

21. FDI Inflow Growth Rate in India viz-a-viz Chemical Sector

Year	Overall Sector (in USD Million)	Chemical (in USD Million)	Growth over previous Year (Overall)	Growth over previous Year (Chemical)
2011-12	35121	4041		
2012-13	22423	292	-36.16	-92.77
2013-14	24299	878	8.37	200.68
2014-15	29737	763	22.38	-13.10
2015-16	40001	1470	34.52	92.66
2016-17	43478	1393	8.69	-5.24
2017-18	44857	1308	3.17	-6.10
2018-19	44366	1981	-1.09	51.45
2019-20	49977	1058	12.65	-46.59
2020-21	59636	847	19.33	-19.94
2021-22	58773	966	-1.45	14.05
2022-23	46034	1850	-21.67	91.51
2023-24(P)	44423	844	-3.50	-54.38

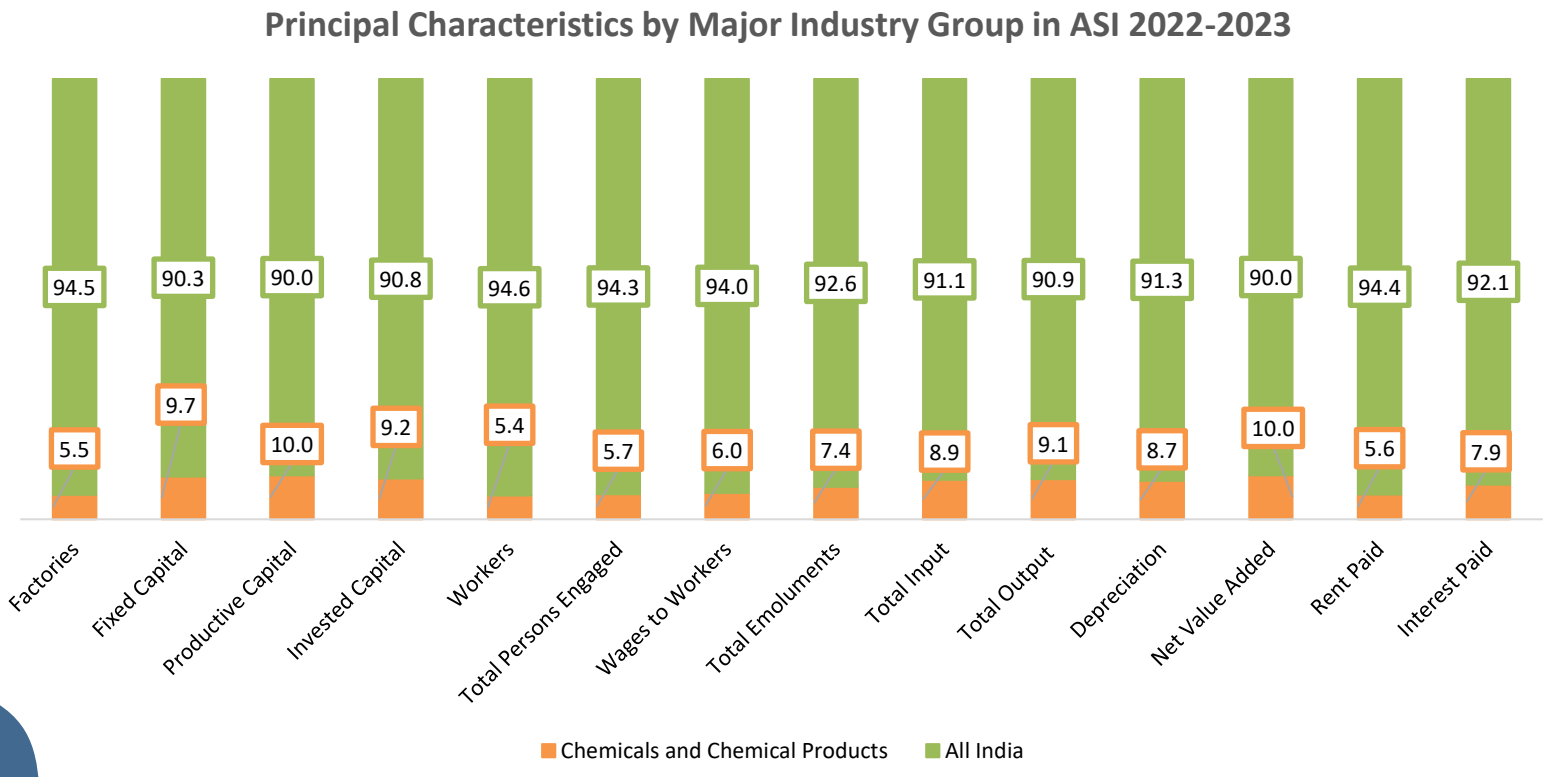


Source: DPIIT
(P) : Provisional Estimates

22. Principal Characteristics by Major Industry Group in ASI 2022-2023

(Value Figures in Rs. Lakh & Others in Number)

Description	Chemicals and Chemical Products	All India
Factories	13979	253334
Fixed Capital	40015893	412179458
Productive Capital	57046604	571738389
Invested Capital	56751115	613921255
Workers	785558	14616971
Total Persons Engaged	1058217	18494962
Wages to Workers	1797442	29990380
Total Emoluments	4718005	64049070
Total Input	109965969	1228954623
Total Output	131560303	1448660228
Depreciation	2765640	31664493
Net Value Added	18828694	188041113
Rent Paid	31903	565777
Interest Paid	1429067	18192715



Source: MoSPI

23. Total Import of Chemical and Chemical Products viz-a-viz Other Category (2023-24)

Source: DGCIS

24. Forecasting

24.1. Production of Chemical and Petrochemical products

(A) Chemicals

Group	2014-15	2018-19	2023-24	2027-28	2032-33	2037-38	2042-43	2047-48
								(QTY in 000'MT)
Alkali Chemicals	6625	8043	9234	13035	20056	30858	47479	73052
Inorganic Chemicals	944	1064	1127	1591	2448	3767	5795	8917
Organic Chemicals	1619	1884	1980	2794	4299	6615	10178	15660
Pesticides (Tech.)	186	217	280	395	608	936	1440	2216
Dyes & Pigments	285	382	345	487	749	1152	1772	2727
Total (Chemical)	**9660**	**11589**	**12966**	**18302**	**28160**	**43328**	**66665**	**102572**

- *Projected based on CAGR @ 9.0%*

Source: DCPC

24. Forecasting

24.1. Production of Chemical and Petrochemical products

(B) Petrochemicals

Group	2014-15	2018-19	2023-24	2027-28	2032-33	2037-38	2042-43	2047-48
								(QTY in 000'MT)
Synthetic Fibre	3532	3601	3853	5438	8367	12874	19808	30478
Fibre Intermediate	4877	4657	4956	6996	10765	16563	25484	39210
Polymers	7558	10040	12548	17712	27253	41932	64517	99268
Synthetic Rubber	172	351	395	557	857	1319	2029	3122
Synthetic Detergent Intermediates	596	687	808	1141	1756	2701	4156	6395
Performance Plastics	1591	1589	1425	2011	3094	4761	7325	11270
Olefins	7301	8857	12401	17505	26934	41441	63762	98105
Aromatics	4638	5543	3237	4570	7031	10818	16645	25610
Other Petrochemicals	1963	2192	2538	3583	5512	8481	13050	20078
TOTAL (Petrochemical)	**32227**	**37519**	**42161**	**59513**	**91568**	**140889**	**216775**	**333536**

- *Projected based on CAGR @ 9.0%*
- *Source: DCPC*

24. Forecasting

24.2. Export of Chemical and Petrochemical products

(A) Chemicals

Group	2014-15	2017-18	2022-23	2027-28	2032-33	2037-38	2042-43	2046-47
								(QTY in 000'MT)
Alkali Chemicals	74	239	893	1261	1940	2985	4592	7065
Inorganic Chemicals	164	177	417	589	906	1393	2144	3299
Organic Chemicals	241	233	301	425	653	1005	1547	2380
Pesticides (Tech.)	230	405	539	760	1170	1800	2769	4261
Dyes & Pigments	353	525	493	695	1070	1646	2533	3898
Total (Chemicals)	**1061**	**1579**	**2642**	**3730**	**5739**	**8829**	**13585**	**20902**

- *Projected based on CAGR @ 9.0%*
- *Source: DCPC;DGCIS*

24. Forecasting

24.2. Export of Chemical and Petrochemical products

(B) Petrochemicals

Group	2014-15	2018-19	2023-24	2027-28	2032-33	2037-38	2042-43	2047-48
								(Qty in 000'MT)
Synthetic Fibre	887	1016	683	965	1484	2284	3514	5407
Fibre Intermediates	73	457	36	50	78	120	184	283
Polymers	903	1934	705	996	1532	2357	3626	5580
Synthetic Rubber (Elastomers)	26	64	92	130	201	309	475	731
Synthetic Detergent Intermediates	28	1	4	5	8	12	19	29
Performance Plastics	409	1080	157	222	342	526	809	1245
Olefins	72	369	189	267	411	632	972	1496
Aromatics	1888	4551	1775	2505	3855	5931	9126	14042
Other Petro-based Chemicals	124	147	209	295	453	697	1073	1651
Total (Petrochemicals)	**4412**	**9619**	**3851**	**5436**	**8363**	**12868**	**19799**	**30464**

- *Projected based on CAGR @ 9.0%*
- *Source: DCPC;DGCIS*

24. Forecasting

24.3. Import of Chemical and Petrochemical products

(A) Chemicals

Group	2014-15	2018-19	2023-24	2027-28	2032-33	2037-38	2042-43	2047-48
								(Figures in 000'MT)
Alkali Chemicals	1134	1049	1263	1782	2742	4219	6491	9988
Inorganic Chemicals	912	1580	942	1329	2045	3147	4842	7451
Organic Chemicals	2886	3645	5018	7083	10898	16768	25799	39695
Pesticides (Tech.)	41	49	62	87	135	207	319	490
Dyes & Pigments	52	56	50	70	108	166	255	393
Total (Chemicals)	**5025**	**6379**	**7334**	**10352**	**15928**	**24507**	**37707**	**58016**

- *Projected based on CAGR @ 9.0%*
- *Source: DCPC;DGCIS*

24. Forecasting

24.3. Import of Chemical and Petrochemical products

(B) Petrochemicals

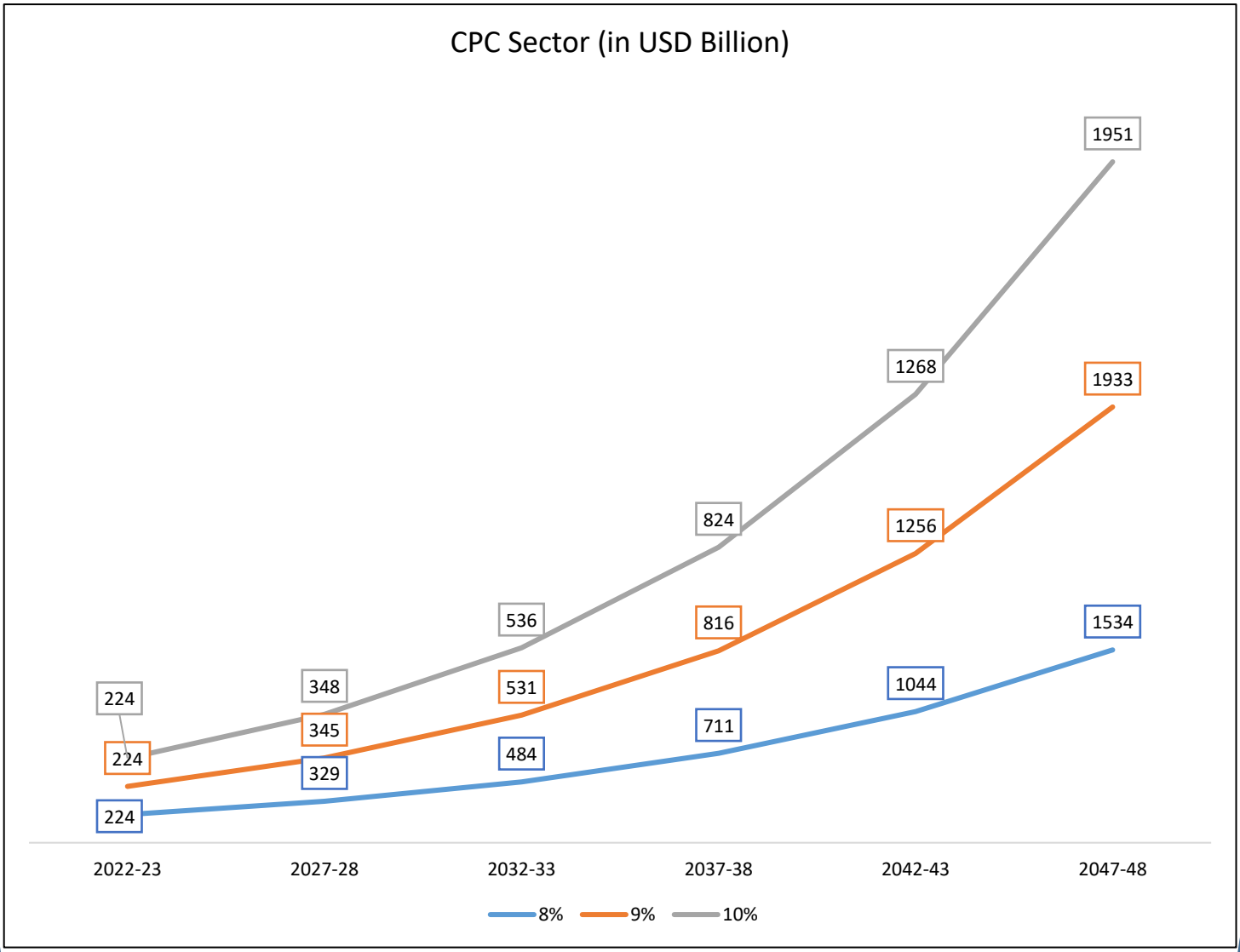
Group	2014-15	2018-19	2023-24	2027-28	2032-33	2037-38	2042-43	2047-48
								(Qty in 000'MT)
Synthetic Fibre	236	276	611	862	1327	2041	3141	4832
Fibre Intermediates	2180	1455	2929	4135	6362	9789	15061	23174
Polymers	3737	4479	5313	7500	11539	17755	27318	42031
Synthetic Rubber (Elastomers)	578	619	724	1022	1572	2419	3722	5726
Synthetic Detergent Intermediates	134	227	252	355	546	841	1293	1990
Performance Plastics	395	684	418	590	908	1396	2149	3306
Olefins	49	70	68	96	148	228	350	539
Aromatics	1023	1320	1509	2130	3278	5043	7760	11939
Other Petro-based Chemicals	2373	3227	3327	4696	7225	11117	17104	26317
Total (Petrochemicals)	**10705**	**12356**	**15150**	**21386**	**32905**	**50628**	**77898**	**119855**

- *Projected based on CAGR @ 9.0%*
- *Source:DCPC;DGCIS*

25. Projected Market Size of CPC Sector at different CAGR (in next 25 Years)

(in US$ Billion)

Year	8%	9%	10%
2022-23	224	224	224
2027-28	329	345	348
2032-33	484	531	536
2037-38	711	816	824
2042-43	1044	1256	1268
2047-48	1534	1933	1951

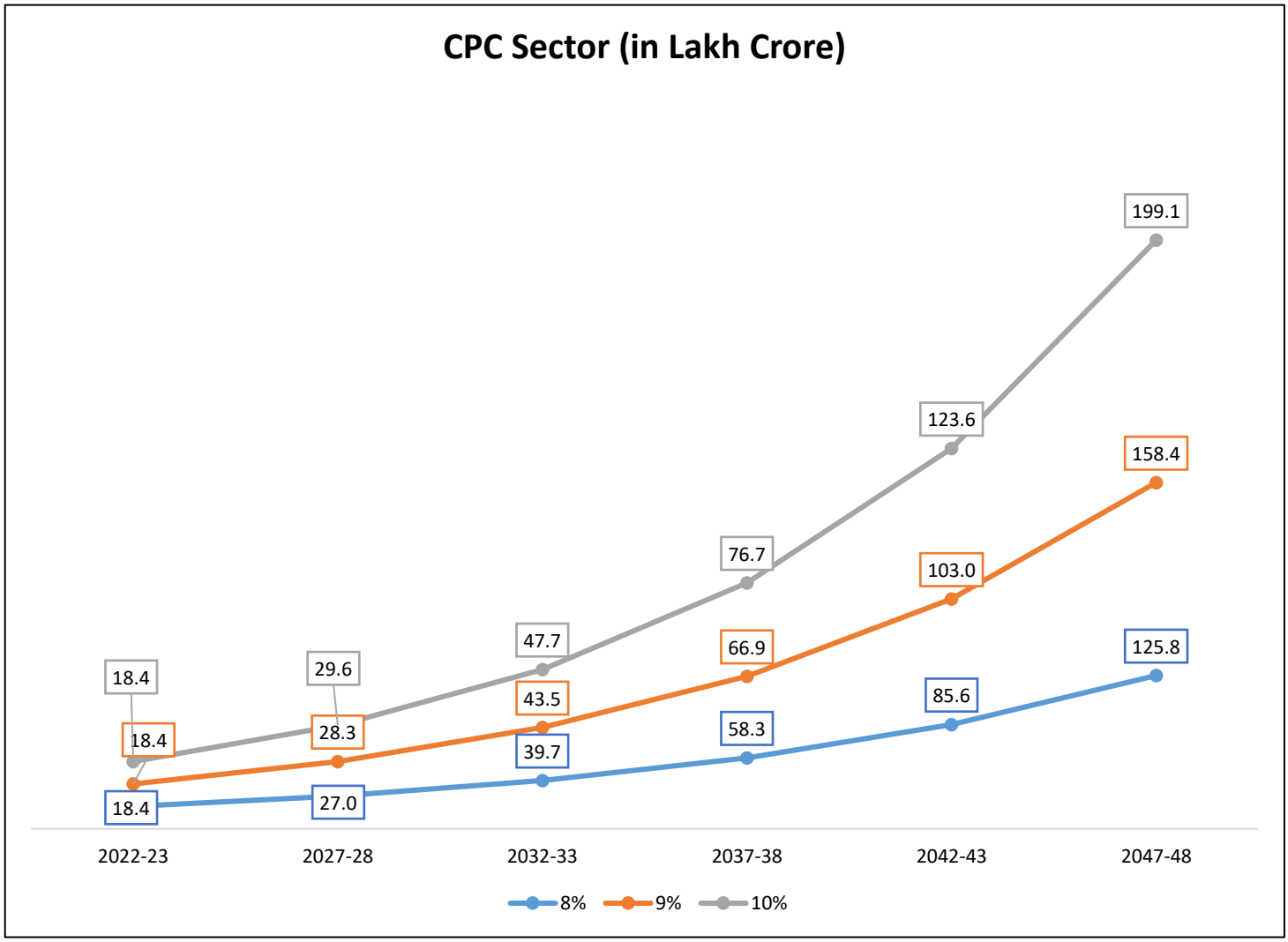


Source: *MoSPI, DGCIS & RBI*
Note: Projected based on CAGR @ 10%, 9% and 8%

25. Projected Market Size of CPC Sector at different CAGR (in next 25 Years)

(Rs. in Lakh Crore)

Year	8%	9%	10%
2022-23	18.4	18.4	18.4
2027-28	27.0	28.3	29.6
2032-33	39.7	43.5	47.7
2037-38	58.3	66.9	76.7
2042-43	85.6	103.0	123.6
2047-48	125.8	158.4	199.1

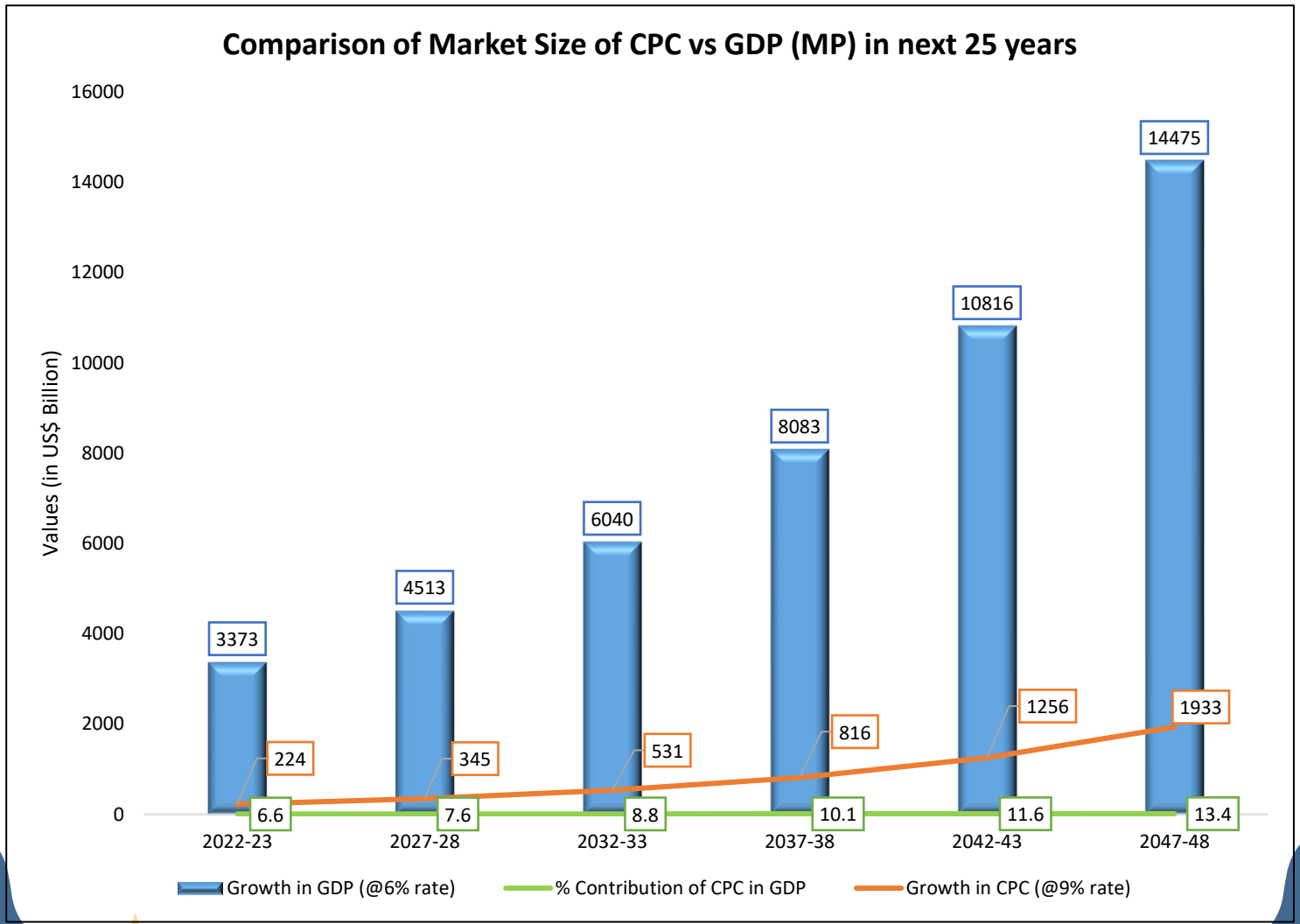


Source: *MoSPI, DGCIS & RBI*
Note: Projected based on CAGR @ 10%, 9% and 8%

26. Projected Market Size of CPC vs GDP (in next 25 Years)

(US$ Billion)

Year	% Contribution of CPC in GDP	Growth in CPC (@9% rate)	Growth in GDP (@6% rate)
2022-23	6.6	224	3373
2027-28	7.6	345	4513
2032-33	8.8	531	6040
2037-38	10.1	816	8083
2042-43	11.6	1256	10816
2047-48	13.4	1933	14475

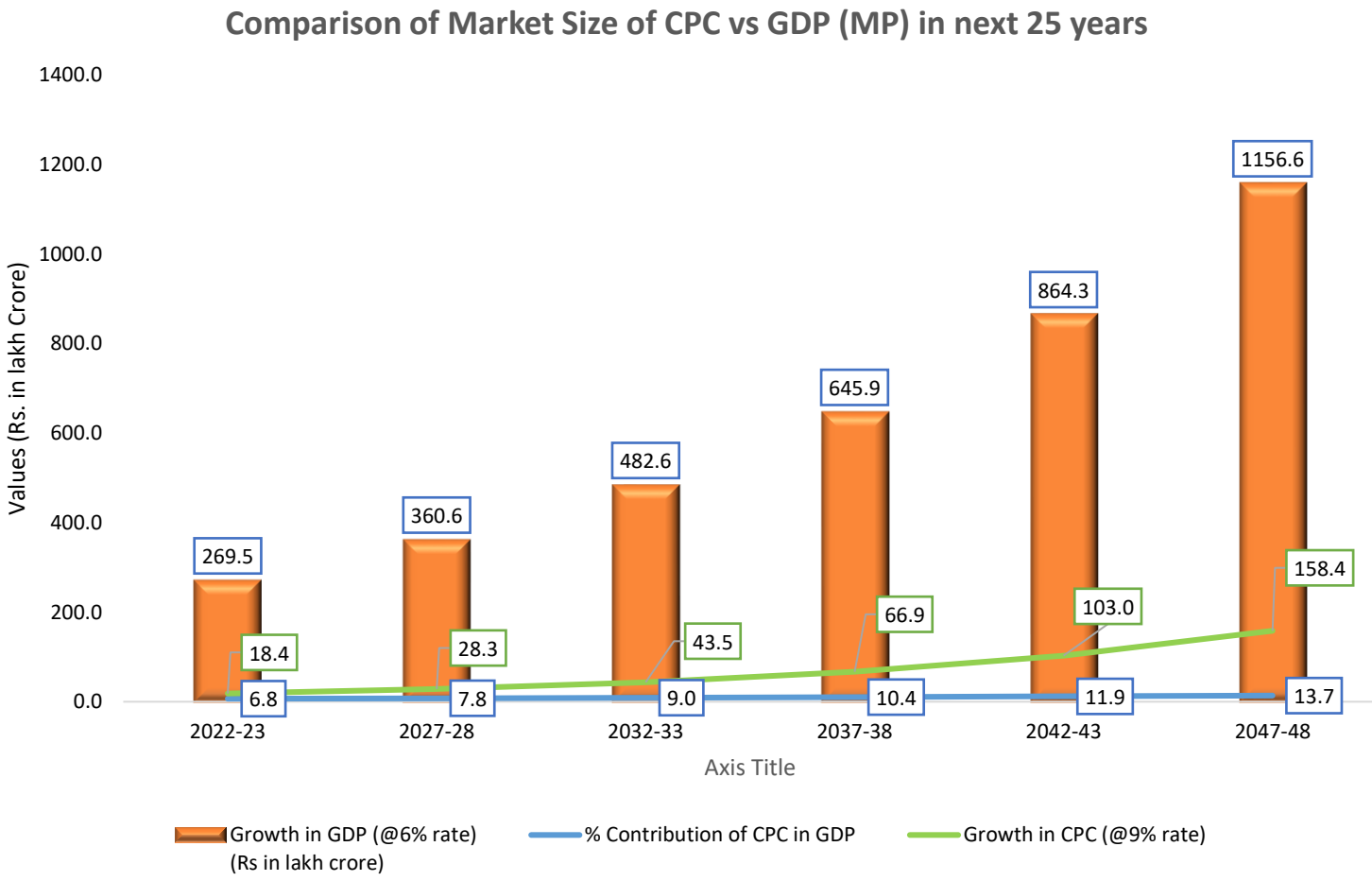


Source: MoSPI, DGCIS & RBI

26. Projected Market Size of CPC vs GDP (in next 25 Years)

(Rs. in Lakh Crore)

Year	% Contribution of CPC in GDP	Growth in CPC (@9% rate)	Growth in GDP (@6% rate)
2022-23	6.8	18.4	269.5
2027-28	7.8	28.3	360.6
2032-33	9.0	43.5	482.6
2037-38	10.4	66.9	645.9
2042-43	11.9	103.0	864.3
2047-48	13.7	158.4	1156.6



Source: MoSPI, DGCIS & RBI

27. Government Initiatives

PCPIRs	❖ Petroleum, Chemical and Petrochemical Investment Regions (PCPIRs) is a hub of high-class infrastructure, which creates a competitive environment conducive to setting up new firms. ❖ Three PCPIRs have been establishing in the country to promote and attract investment ❖ Regions equipped a dedicated investment with necessary infrastructure for establishment of manufacturing facilities for domestic and export-led production of petrochemicals. ❖ Till now four PCPIRs have been notified by the Government: • Gujarat (Dahej) in 2009, • Andhra Pradesh (Vishakhapatnam) in 2009 • Odisha (Paradeep) in 2010 • Tamil Nadu (Cuddalore and Nagapattinam) in 2012
Training Programme on Industrial Safety	❖ As part of the government's action plan for Viksit Bharat@2047, the DCPC launched the first-ever training programme focused on "Chemical and Petrochemical Industrial Safety."
Plastic Parks	❖ It aims at contributing more to the economy by increasing investment, production, and exports in the petrochemical sector along with the generation of employment. ❖ Specifically, it creates a supportive ecosystem through a cluster development approach, accumulating and synergizing the capacities of the domestic plastic processing industry. ❖ Grants-in-Aid: 50% of the project cost or up to Rs. 40 Cr, whichever is less. ❖ So far 10 plastic parks have been approved.
Center of Excellence	❖ Center of Excellence's provide grants in aid to recognized research institutes with the aim of improving the existing technology and promoting the development of new applications of polymers and plastics ❖ Grant up to Rs.5 Cr each to premier public research institutions ❖ 18 CoEs have been approved so far.

Source: DCPC

27. Government Initiatives

Quality Control Orders (QCOs)	❖ Quality Control Orders (QCOs) issued by DCPC mandates compliance with specified quality standards (e.g., BIS standards) for manufacturing, importing, and selling chemical and petrochemical products. Their purpose is to ensure product safety, enhance quality, protect consumer interests, and promote environmental sustainability.
Duty rationalisation	❖ Duty rationalization inputs and reccommendation are given by the DCPC as the line department of the Ministry to the Customs and Excise Department involves adjusting customs and excise duties on chemical and petrochemical products. The objective is to promote domestic manufacturing, reduce dependency on imports, enhance export competitiveness, and support the growth of the sector in line with national economic goals.
Chemical Promotion Development Scheme (CPDS)	❖ CPDS is being implemented since 1997 in the Chemical Division of DCPC under Plan Head of Account. ❖ The aim of the Scheme is basically to extend soft support in the form of Grants-in-Aid (General) to various organisations / industry associations, etc. to conduct workshops, seminars, studies, etc. to obtain necessary inputs for enabling the Department to firm its views on various policy matters relating to the Chemical and Petrochemical sector.
ChemIndia Web-Portal	❖ DCPC has taken initiative to establish the online data management system for the coverage of more than 13000 chemical and petrochemical industries located across the country. The ChemIndia Portal was launched to serve as a central hub for gathering data related to production, installed capacity, exports, imports, purchases, and sales.

Source: DCPC