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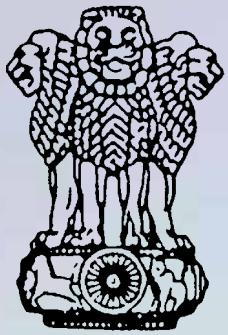
ANNUAL REPORT
2021-22

HIL (India) Ltd.

Government of India
Ministry of Chemicals & Fertilizers
Department of Chemicals and Petrochemicals



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Chapter - 1

INTRODUCTION

1.1 Department of Chemicals and Petrochemicals (DCPC) aims:

i. To formulate and implement policy and programmes for achieving growth and development of the chemical and petrochemical sectors in the country; and

ii. To foster the spirit of public-private partnership for overall development of this sector of the industry.

1.2 The Department has the mandate to deal with the following broad subject matters:

i. Insecticides (excluding the administration of The Insecticides Act, 1968 (46 of 1968);

ii. Dye-stuffs and Dye-Intermediates;

iii. All organic and inorganic chemicals, not specifically allotted to any other Ministry or Department;

iv. Planning, development and control of, and assistance to, all industries dealt with by the Department;

v. Bhopal Gas Leak Disaster-Special Laws relating thereto;

vi. Petrochemicals;

vii. Industries relating to production of non-cellulosic synthetic fibres (Nylon Polyesters, Acrylic etc.);

viii. Synthetic Rubber; and

ix. Plastics including fabrication of plastic and moulded goods.

1.3 The Department has five major divisions viz. Chemical, Petrochemical, Administration, Statistics & Monitoring (S&M) and Economic Division. The Integrated Finance Division is common to the three Departments in the Ministry of Chemicals and Fertilizers.

1.4 There are three Central Public Sector Undertakings (CPSUs) in the chemical sector namely Hindustan Organic Chemicals Ltd. (HOCL), HIL (India) Limited and Hindustan Fluorocarbons Limited (HFL), which is a subsidiary of HOCL. Two autonomous institutes namely Central Institute of Petrochemicals Engineering & Technology (CIPET) and Institute of Pesticides Formulation Technology (IPFT) functions under this Department.

1.5 Dr Mansukh Mandaviya is the Minister for Chemicals and Fertilizers. Shri Bhagwanth Khuba is the Minister of State for Chemicals and Fertilizers and Mrs. Arti Ahuja is Secretary of the Department of Chemicals and Petrochemicals.

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Chapter - 2

AN OVERVIEW OF CHEMICAL AND PETROCHEMICAL INDUSTRY

Vision Statement 2024, Department of Chemicals and Petrochemicals

2.1 To seize the opportunity to establish India as a leading chemicals & petrochemicals manufacturing hub,

- With a thrust on reduction in import dependency,
- By attracting investments for manufacturing quality products
- Using cutting-edge technologies,
- In specified clusters,
- With focus on sustainability and contribute to Manufacturing sector.

Chemical and Petrochemical Industry

2.2 The chemical industry is a knowledge intensive as well as capital intensive industry. It is an integral constituent of the growing Indian industry. It includes basic chemicals and its products, petrochemicals, fertilizers, paints, varnishes, gases, soaps, perfumes, toiletry and pharmaceuticals. The diversification within the chemical industry is large and covers more than eighty thousand commercial products. This Industry occupies a pivotal position in meeting basic needs and improving quality of life. The industry is the main stay of industrial and agricultural development of the country and provides building blocks for several downstream industries, such as textiles, papers, paints, varnishes, soaps, detergents, pharmaceuticals, etc.

2.3 As per National Industrial Classification (NIC) 2008, Chemical & Chemical products are covered under the industry division 20. The description of product groups at 4-digit level under this division is given below:

Table I: Description of product groups

Class	Description
2011	Manufacture of basic chemicals
2012	Manufacture of fertilizers and nitrogen compounds
2013	Manufacture of plastics and synthetic rubber in primary forms
2021	Manufacture of pesticides and other agrochemical products

2022	Manufacture of paints, varnishes and similar coatings, printing ink and mastics
2023	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations
2029	Manufacture of other chemical products etc.
2030	Manufacture of man-made fibers

The industry division 24 of NIC 2004 is equivalent of industry division 20 (manufacture of chemical & chemical products), 21(manufacture of pharmaceuticals, medicinal chemicals and botanical products) and 268 (manufacture of magnetic and optical media) of NIC 2008.

2.4 According to National Accounts Statistics 2021, brought out by the Central Statistics Office (CSO), Chemical and Chemical products sector (industry division 20 of NIC 2008) accounted for 1.21% of the GVA for all economic activities (at 2011-12 prices) in 2019-20, compared to 1.14% in 2018-19 at constant prices. The share of this sector in the GVA of manufacturing sector (at 2011-12 prices) was 7.08% during 2019-20 as compared to 6.25% in 2018-19. Share of Chemical and Chemical products sector including pharmaceutical sector (industry division 20 and 21 of NIC 2008) accounted for 2.28% of the GVA for all economic activities (at 2011-12 prices) in 2019-20, compared to 2.31% in 2018-19. The share of this sector in the GVA of manufacturing sector at 2011-12 prices was 13.32% during 2019-20 as compared to 12.64% in 2018-19. The size of the Indian Chemical industry (industry division 20 of NIC 2008) in terms of value of output in the year 2019-20 was Rs.9,33,042 crore at current prices & Rs.7,94,078 crore at constant prices (2011-12), while size of the Indian Chemical industry including Pharmaceutical (industry division 20 and 21 of NIC 2008) in terms of value of output in the year 2019-20 was Rs.13,22,136 crore at current prices & Rs.10,99,730 crore at constant prices (2011-12). The Index of Industrial Production (IIP) for the Chemicals and Chemicals product (industry division 20: NIC 2008) during the period 2016-17 to 2020-21 was hovered between 116 to 119.

2.5 The production of selected Major Chemicals and Petrochemicals during the years 2016-17 to 2021-22 (upto September 2021) is given in Table-II. The production of Total Major Chemicals and Petrochemicals in 2021-22 (upto September 2021) is 15,581 thousand MT. CAGR in production of Total Chemicals and Petrochemicals during the period 2016-17 to 2020-21 is 3.18%.

Table II: Production of selected Major Chemicals and Petrochemicals

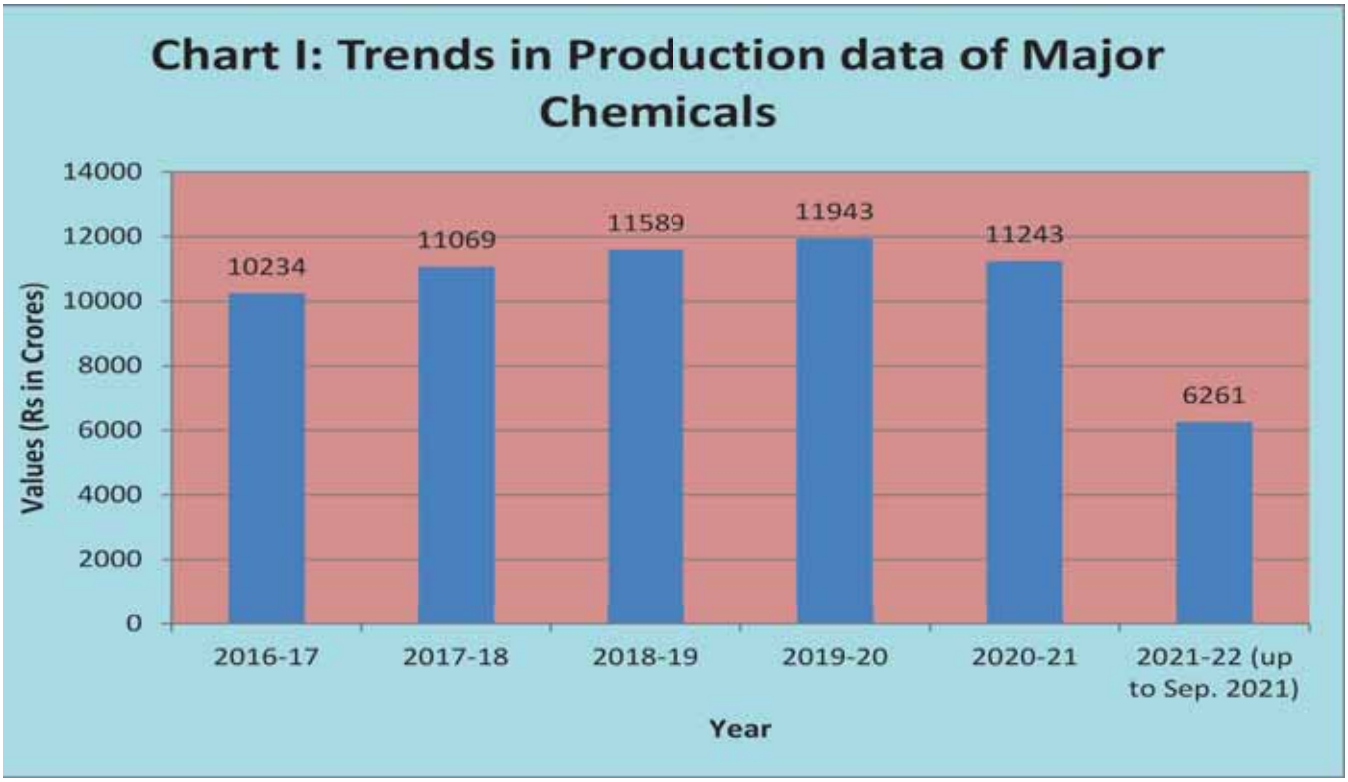
(Figures in 000'MT)

Group	2016-17	2017-18	2018-19	2019-20	2020-21	CAGR	2021-22 (up to Sep., 21)*
Alkali Chemicals	7009	7631	8043	8457	7776	**2.63**	**4438**
Inorganic Chemicals	1053	1058	1064	1063	978	**-1.83**	**512**
Organic Chemicals	1638	1799	1884	1847	1906	**3.86**	**964**
Pesticides	214	213	217	192	255	**4.52**	**154**
Dyes & Pigments	320	367	382	384	327	**0.56**	**193**
Total Basic Major Chemicals	**10234**	**11069**	**11589**	**11943**	**11243**	**2.38**	**6261**
Synthetic Fibers	3599	3625	3601	3893	3185	**-3.01**	**1981**
Polymers	9163	9276	10040	12404	12144	**7.29**	**5971**
Elastomers (S.Rubber)	285	308	351	358	353	**5.54**	**195**
Synth. Detergent Intermediates	664	743	687	715	736	**2.63**	**394**
Performance Plastics	1799	1719	1589	1672	1520	**-4.14**	**778**
Total Basic Major Petrochemicals	**15510**	**15670**	**16269**	**19041**	**17938**	**3.70**	**9319**
Total Basic Major Chemicals and Petrochemicals	**25744**	**26739**	**27858**	**30984**	**29181**	**3.18**	**15581**

Note: The total basic Chemicals and Petrochemicals production is aggregated based on monthly production returns from manufacturers under large and medium scale units only. Product- wise and Group wise details of installed capacity and production for major Chemicals and major Petrochemicals are given in Annexures - I & II respectively.

Chemical Sector- Production Trends

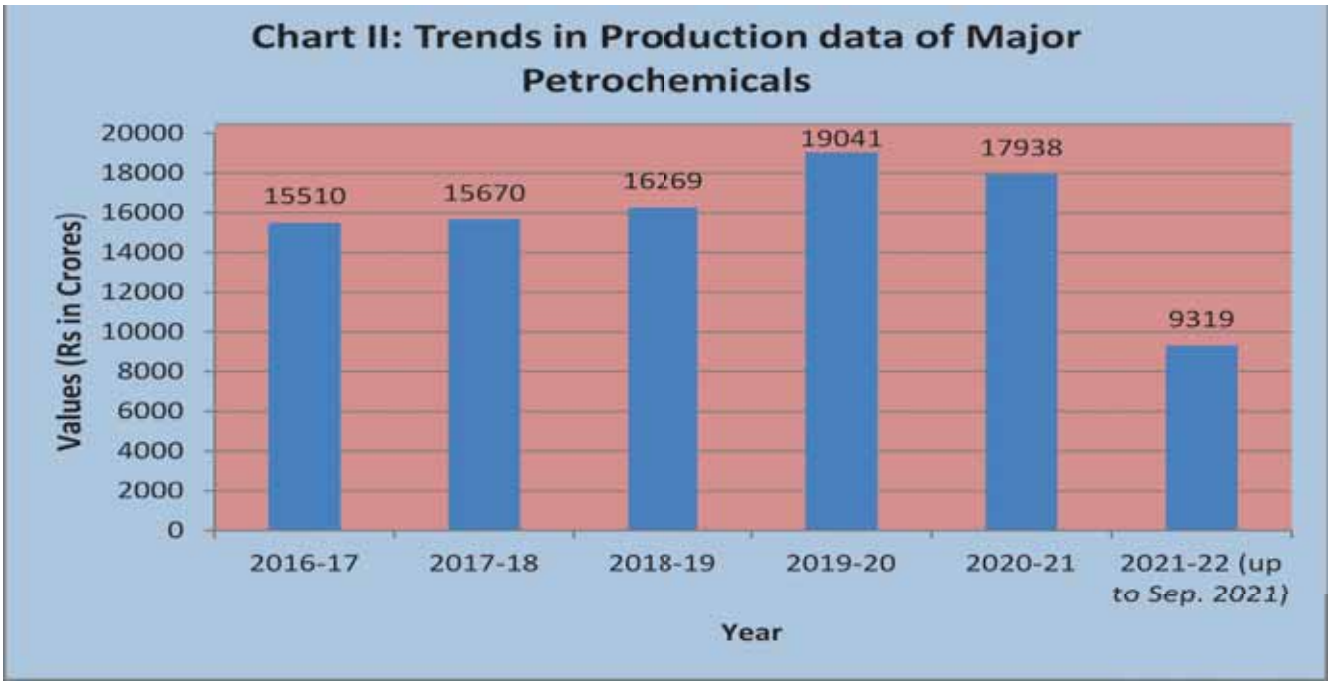
2.6 It may be seen from **Table II** that the production of **Alkali Chemicals** accounts for around 71% of the total production of Major Chemicals for the year 2021-22 (upto September, 2021). The production of Major Chemicals in 2021-22 (upto September 2021) is 6261 thousand MT. It accounted for around 69% of the total production of Major Chemicals in the year 2020-21. The production of Major Chemicals in 2020-21 was 11243 thousand MT. The CAGR in production of total basic major Chemicals during the period 2016-17 to 2020-21 was 2.38%. The trend in the production of selected major chemicals is depicted in **Chart I.**



Petrochemical Sector- Production Trends

2.7 Petrochemicals, which comprise of plastic and a host of other chemicals, are downstream hydrocarbons derived from crude oil and natural gas. The value additions in the petrochemicals chain offer immense possibilities and cater to the need of textiles and clothing, agriculture, packaging, infrastructure, healthcare, furniture, automobiles, information technology, power, electronics and telecommunication, irrigation, drinking water, construction and a host of other articles of daily and specialized usage amidst other emerging areas.

2.8 From **Table II,** it may be seen that the production of polymers account for around 64% of the total production of Basic Major Petrochemicals for the year 2021-22 (upto September 2021). The production of Basic Major Petrochemicals in 2021-22 (upto September 2021) is 9319 thousand MT. Polymers accounted for around 68% of the total production of Basic Major Petrochemicals for the year 2020-21. The production of Basic Major Petrochemicals in 2020-21 was 17938 thousand MT. The CAGR in production of major petrochemicals during the period 2016-17 to 2020-21 was 3.70%. The trend in the production of selected major petrochemicals has been depicted in **Chart II.**



Index of Industrial Production

2.9 The weight of chemical and chemical products (industry division 20 of NIC 2008) is 7.87 out of 100 in the Index of Industrial Production (Base Year: 2011-12). The General Index for the month of September, 2021 stands at 128.2, as compared to 124.1 in the same month of last year i.e. September, 2020. The General Index of Industrial Production was recorded lowest at 54 in April, 2020. Since then it started increasing and achieved highest at 145.6 in March, 2021. The Index of Industrial Production for the manufacturing sector in the month of September, 2021 stands at 130.3, as compared to 126.5 in September, 2020. The Index of Industrial Production for the Chemicals and Chemical products during September, 2021 stands at 123.2, as compared to 125.5 during September, 2020. The Index of Industrial Production in manufacturing sector was lowest at 42.1 in April, 2020 which was increased to 143.3 in March, 2021. The Index of Industrial Production of Chemical & Chemical products achieved record to 131.8 in December, 2020 as against the lowest value of 53 recorded in April, 2020. The month-wise Index of Industrial Production from October, 2019 to September, 2021 is given in **Table III.**

Table III: Index of Industrial Production

Index of Industrial Production		(Base : 2011-12=100)	
Period	**Chemicals and chemical products**	**Manufacturing**	**General**
Weight	**7.87**	**77.63**	**100.00**
Oct-19	116.2	126.3	124
Nov-19	120.2	130.6	128.8

Dec-19	123	135.4	134.5
Jan-20	124.9	137.9	137.4
Feb-20	121.7	134.2	134.2
Mar-20	101.1	111.6	117.2
Apr-20	53	42.1	54
May-20	95.9	84.4	90.2
Jun-20	117.3	107.1	107.9
Jul-20	122.2	118.5	117.9
Aug-20	118.9	118.7	117.2
Sep-20	125.5	126.5	124.1
Oct-20	128	132	129.6
Nov-20	120.4	128.5	126.7
Dec-20	131.8	139	137.4
Jan-21	131.6	136.6	136.6
Feb-21	119	129.7	129.9
Mar-21	127.9	143.3	145.6
Apr-21	118.1	124.6	126.1
May-21	109.1	111.5	115.1
Jun-21	116.3	121.2	122.8
Jul-21	128	131	131.5
Aug-21	124.7	130.5	131.3
Sep-21	123.2	130.3	128.2

Source: National Statistical Office (NSO), Ministry of Statistics and Programme Implementation

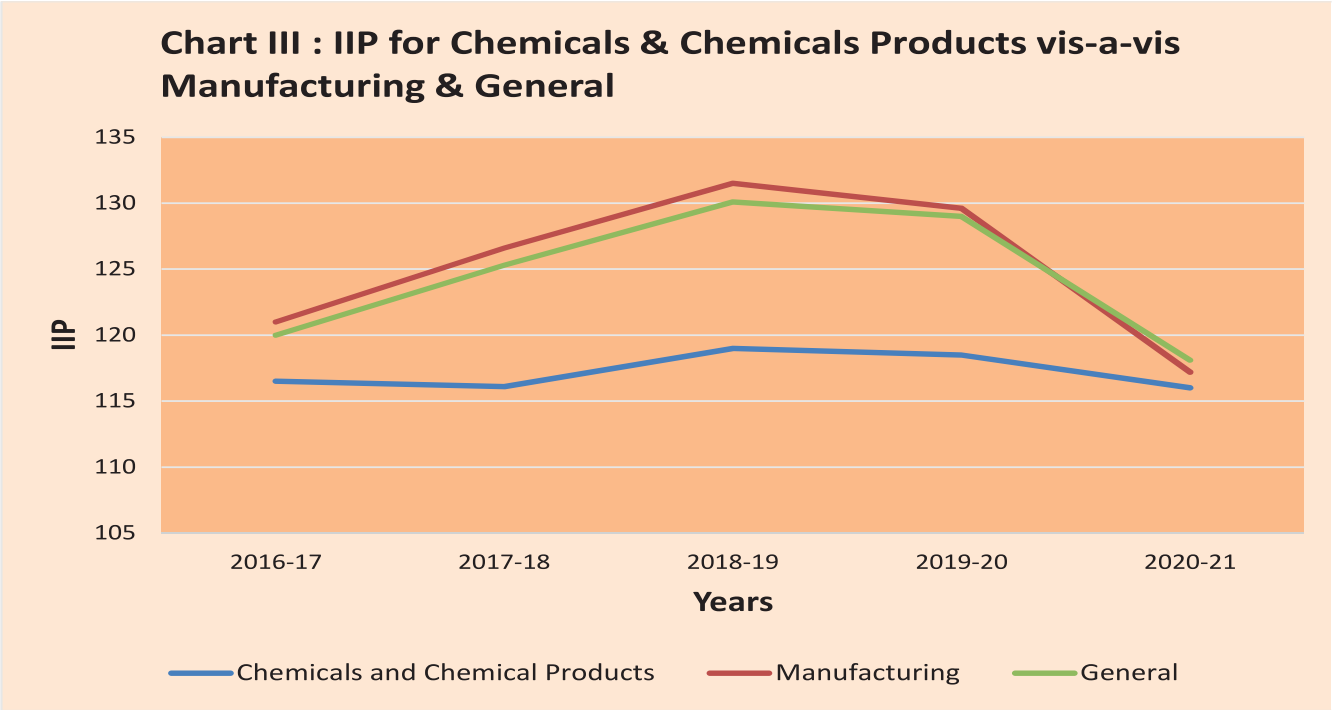
2.10 The behaviour of IIP of chemicals and chemical products vis-à-vis General IIP and IIP of manufacturing from 2016-17 to 2020-21 is depicted in **Table IV** and **Chart III.** The Average annual growth rate based on IIP during the period 2016-17 to 2019-20 is above 116 in all the three categories as Chemicals and Chemicals Products, manufacturing sector and general sector.

Table IV: Annual Average (April-March) Indices of Industrial Production

(Base: 2011-12 =100)

Particulars	**Weight**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
Chemicals and Chemical Products	**7.87**	116.5	116.1	119	118.5	116
Manufacturing	**77.63**	121	126.6	131.5	129.6	117.2
General	**100.00**	120	125.3	130.1	129	118.1

Sources: Ministry of Statistics and Programme Implementation



Whole Sale Price Index (WPI)

2.11 The annual rate of inflation based on monthly WPI (Base Year: 2011-12) released by the Office of the Economic Advisor, for 'all commodities' stood at 11.80% in the month of September, 2021 over September, 2020. The index decreased by 2.55% for 'Food Articles' group, whereas it increased by 11.57% for 'Manufactured Products' and 12.92% for 'Chemicals & Chemical products' during the same period. The weight of Chemicals & Chemical products in the WPI is 6.47 out of all commodities weight of 100. The month-wise Index of WPI from October 2019 to September 2021 is given in **Table V**.

Table V: Whole Sale Price Index

(Base Year: 2011-12 =100)

Month	All Commodities	Food Articles	Manufactured Products	Chemicals & Chemical Products
Oct-19	122.0	160.2	117.8	117.1
Nov-19	122.3	162.6	117.8	116.5
Dec-19	123.0	162.6	118.0	116.2
Jan-20	123.4	160.5	118.8	116.2
Feb-20	122.2	154.7	118.8	115.8
Mar-20	120.4	151.2	118.6	115.5
Apr-20	119.2	154.5	118.7	115.2
May-20	117.5	153.1	118.2	115.5

Jun-20	119.3	155.4	118.6	115.7
Jul-20	121.0	161.3	118.7	115.9
Aug-20	122.0	163.0	119.4	116.1
Sep-20	122.9	168.4	120.1	116.1
Oct-20	123.6	171.5	120.4	116.8
Nov-20	125.1	170.1	121.6	118.2
Dec-20	125.4	161.1	123.3	119.7
Jan-21	126.5	155.8	125.3	120.8
Feb-21	128.1	157.5	126.0	123.1
Mar-21	129.9	156.4	127.9	125.6
Apr-21	132.0	161.6	129.9	128.0
May-21	132.9	159.6	131.5	128.4
Jun-21	133.7	160.5	131.6	128.3
Jul-21	135.0	161.5	132.3	129.3
Aug-21	136.2	161.7	133.2	130.3
Sep-21	137.4	164.1	134.0	131.1

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

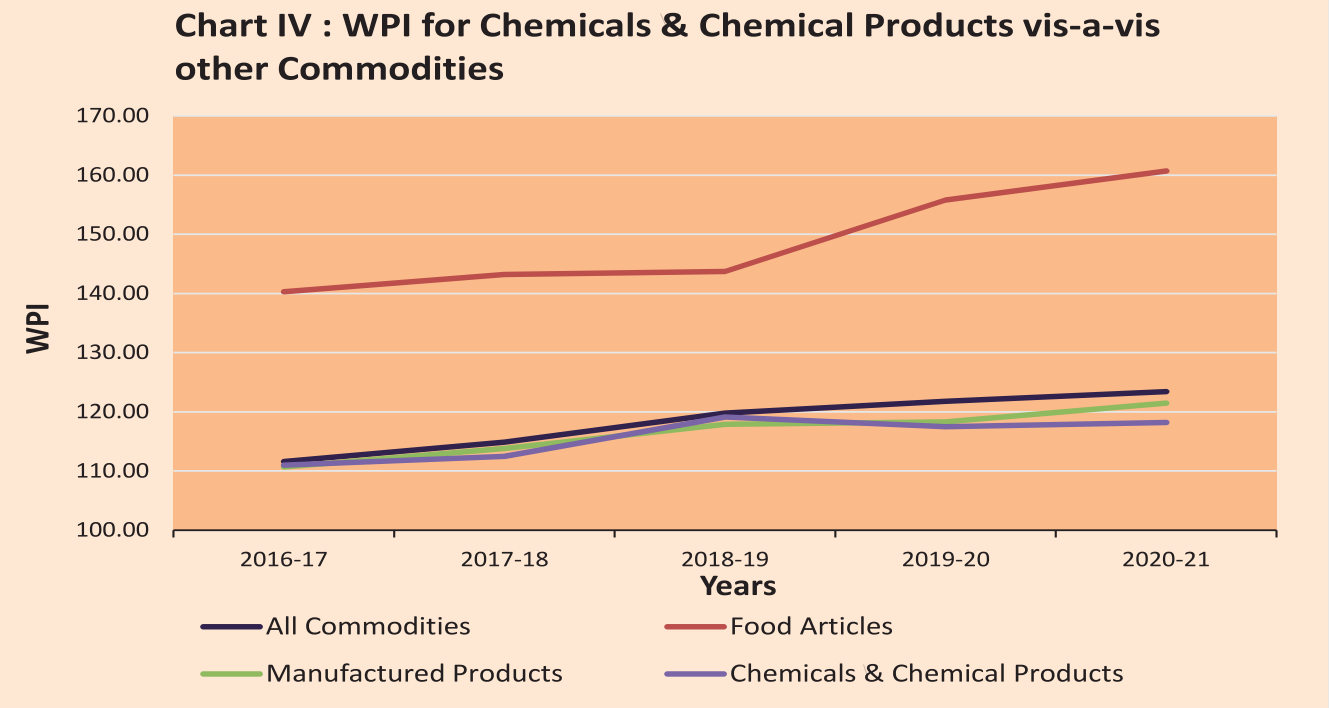
2.12 Table VI and Chart IV below show the annual WPI for Chemicals & Chemical products vis-à-vis all commodities, food articles and manufactured products during the years 2016-17 to 2020-21. The average annual growth rate during the period 2016-17 to 2020-21 was 2.35% for manufactured product based on WPI while it was 1.58% for Chemicals and Chemical Products.

Table VI: Annual Average (April - March) Indices of Wholesale Price

(Base Year: 2011-12 = 100)

Description	Weight	2016-17	2017-18	2018-19	2019-20	2020-21	CAGR (%)
All Commodities	100	111.6	114.9	119.8	121.8	123.4	**2.54**
Food Articles	15.26	140.3	143.2	143.7	155.8	160.7	**3.45**
Manufactured Products	64.23	110.7	113.8	117.9	118.3	121.5	**2.35**
Chemicals & Chemical Products	6.47	111	112.5	119.1	117.5	118.2	**1.58**

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



2.13 Table VII shows WPI of different commodity groups within Chemicals & Chemical Products group during the years 2016-17 to 2020-21.

Table VII: WPI of Chemicals & Chemical Products

(Base year: 2011-12=100)

DESCRIPTION	WEIGHT	2016-17	2017-18	2018-19	2019-20	2020-21
Chemicals and Chemical Products	6.47	111.0	112.5	119.1	117.5	118.2
Basic Chemicals	1.43	104.7	111.2	125.0	119.9	118.6
Fertilizers and Nitrogen Compounds	1.48	118.7	117.1	121.1	123.1	123.6
Plastic and synthetic rubber in primary form	1.00	113.7	113.0	117.6	112.4	116.7
Pesticides and Other Agrochemical Products	0.45	116.8	115.3	120.2	122.6	124.4

Paints, Varnishes and Similar Coatings, Printing Ink and Mastics	0.49	108.5	108.6	112.7	114.7	114.9
Soap and Detergents, Cleaning and Polishing Preparations, Perfumes and Toilet Preparations	0.61	113.7	115.2	116.8	118.6	120.6
Other Chemical Products	0.69	106.5	110.1	116.6	114.2	115.1
Man-Made Fibres	0.30	94.1	97.5	104.0	97.9	93.7

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

INTERNATIONAL TRADE

2.14 Trends in exports and imports of Chemicals and Chemical Products (excluding Pharmaceutical Products and Fertilizers) during 2016-17 to 2021-22 (upto September, 21 are given in Table VIII (A & B) and **Chart V** and **Chart VI**.

Table VIII: Exports and Imports– Chemicals and Chemical Products (excluding Pharmaceutical Products and Fertilizers)

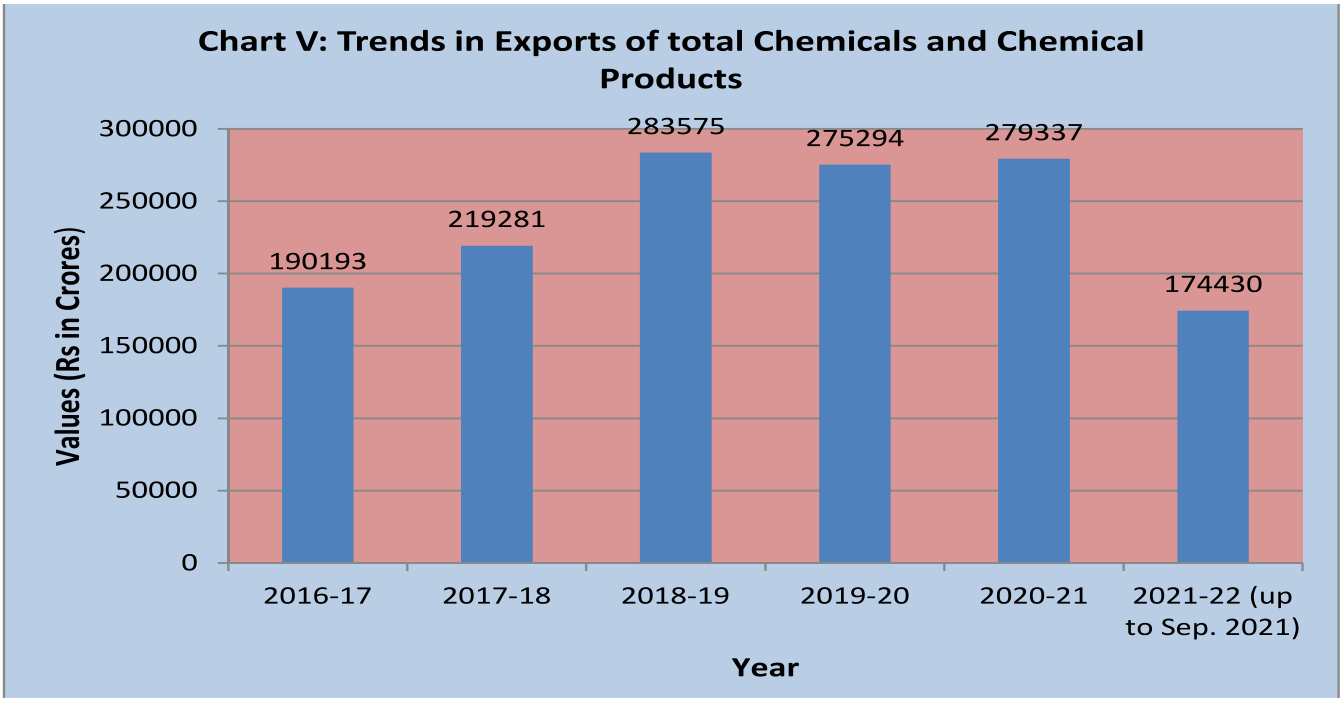
A. Exports

(*Value In Rs. crore*)

HS Code	Commodity	2016-17	2017-18	2018-19	2019-20	2020-21	CAGR	2021-22 (up to Sep 2021)
	Total National Exports	1849434	1956515	2307726	2219854	2159043	**3.95**	1465742
28	Inorganic Chemicals	9138	11175	14056	12512	12301	**7.71**	8508
29	Organic Chemicals	78386	95381	127855	124195	133637	**14.27**	79433
32	Tanning or Dyeing	17189	18951	23124	24409	22660	**7.15**	13917
38	Miscellaneous Chemical Product	21792	25080	32397	35663	37886	**14.83**	22562

39	Plastic and Articles thereof	35502	40928	56079	48970	51004	**9.48**	33410
4002	Synthetic Rubber and Factice	480	571	739	759	821	**14.36**	513
54	Man-made Filaments	13334	13984	16018	16962	11470	**-3.69**	8854
55	Man-made Staple Fibres	14373	13212	13308	11824	9559	**-9.69**	7233
A:Total Chemicals and Petrochemical Products		**190193**	**219281**	**283575**	**275294**	**279337**	**10.09**	**174430**
% share in total export		10.3	11.2	12.3	12.4	12.9		11.9

Source: Directorate General of Commercial Intelligence and Statistics (DGCIS), Kolkata.



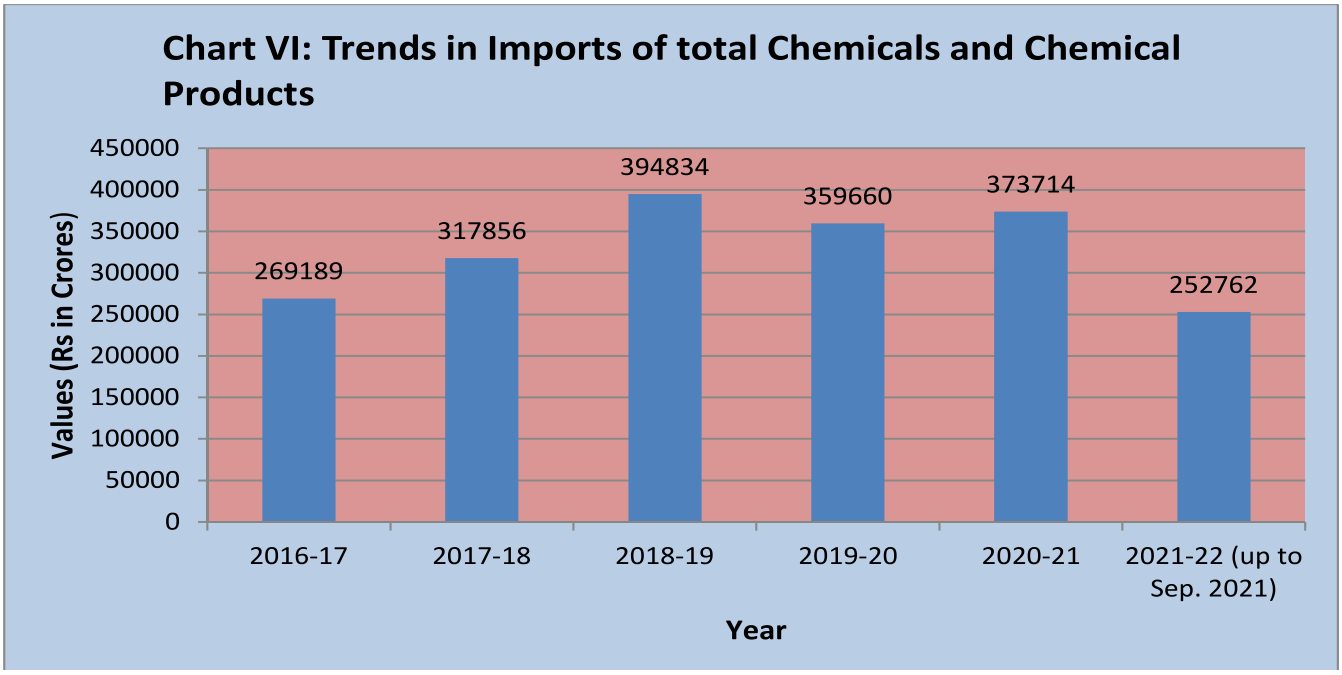
B. Imports

(*Value in Rs. crore*)

HS Code	Commodity	2016-17	2017-18	2018-19	2019-20	2020-21	CAGR	2021-22(up to Sep., 2021)
	Total National Imports of which	2577675	3001033	3594675	3360954	2915958	**3.13**	2033774
28	Inorganic Chemicals	31654	38927	53237	45045	50955	**12.64**	35894

29	Organic Chemicals	103798	123761	156552	140205	145830	**8.87**	97085
32	Tanning or Dyeing	11186	12995	15460	14518	14036	**5.84**	8627
38	Miscellaneous Chemical Products	30642	35521	41748	39069	45324	**10.28**	30781
39	Plastic and Articles thereof	77573	89768	106591	100607	98392	**6.12**	67592
4002	Synthetic Rubber and Factice	5654	6687	7896	6079	6269	**2.61**	4312
54	Mand-made Filaments	4856	5538	6843	7351	6727	**8.49**	5150
55	Man-made Staple Fibres	3826	4658	6508	6785	6180	**12.73**	3321
B: Total Chemicals and Petrochemical Products		**269189**	**317856**	**394834**	**359660**	**373714**	**8.55**	**252762**
% share in total import		10.4	10.6	11.0	10.7	12.8		12.4

Source: Directorate General of Commercial Intelligence and Statistics (DGCIS), Kolkata.



2.15 As per Export and Import figures, Exports of Chemicals and Chemical products (excluding pharmaceutical products and fertilizers) contributed 12.9% of total export in the year 2020-21 compared to 12.4% in the year 2019-20. It contributed 11.9% of total export in the year 2021-22 (upto September, 2021). Imports contributed 12.8% of total imports in 2020-21 as against 10.7% in the year 2019-20. It contributed 12.4% of total imports in 2021-22 (upto September, 2021). CAGR in Export of total Chemicals and Chemical products (excluding pharmaceutical & fertilizer products) during the period 2016-17 to 2020-21 was 10.09% while CAGR of total national export was 3.95%. CAGR in Import of total chemicals and chemicals products (excluding pharmaceutical & fertilizer products) during the period 2016-17 to 2020-21 was 8.55% while CAGR of total national import was 3.13%.

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Chapter – 3

SCHEMES OF THE DEPARTMENT

3.1 The Department of Chemicals and Petrochemicals is implementing two Central Sector Schemes namely, New Schemes of Petrochemicals (Scheme for setting up of Plastic Parks, Scheme for setting up of Centers of Excellence & National Awards Scheme) and Chemical Promotion & Development Schemes (CPDS).

3.2. In addition, the Department is also implementing other schemes for funding its Secretariat expenses; support to Central Institute of Petrochemicals Engineering & Technology (CIPET), which is engaged in academic, technology support, research and skill development activities; Institute of Pesticides Formulation Technology (IPFT) and Bhopal Gas Leak Disaster (BGLD).

3.3. The larger objective of the Plastic Parks scheme is to contribute to the economy by increasing investment, production, exports in the Petrochemicals sector along with generation of employment.

3.4. Schemes of Centers of Excellence provides Grant-in-aid to identified research institute (s) with the aim of improving the existing petrochemicals technology and research in the country and to promote development of new applications of polymers and plastics.

3.5. Under the Chemicals Promotion Development Scheme (CPDS), the Department extend 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.

3.6. The Department provides budgetary support to CIPET for strengthening its civil and technical infrastructure, research and development capacities and academic and training initiatives and also for construction of hostels and setting up new CIPET centers.

3.7. IPFT, located at Gurugram is an autonomous body under the Department of Chemicals and Petrochemicals with mandate to develop environment and user friendly pesticides formulation technologies for a safer environment and also develop methods for the detection and analysis of pesticides and their residues.

3.8. Office of the Welfare Commissioner of Bhopal is entrusted with the work of disbursement of compensation to Bhopal Gas victims. Budget is provided for settlement of ex-gratia cases.

3.9. Expenditure under Secretariat head is of contingent nature for payment of salaries and office expenses etc. of the Department.

Table No. IX: Scheme-wise Outlay

(Value in Rs. crore)

Sl. No.	Schemes	BE 2021-22	RE 2021-22	BE 2022-23
I	**Central Sector Schemes**			
1.	New Schemes of Petrochemicals	53.73	51.13	48.50
2.	Chemical Promotion & Development Schemes (CPDS)	3.00	3.60	3.00
	Total of I	**56.73**	**54.73**	**51.50**
II	**Other Central Expenditure (Sectt./BGLD/ ABs/ PSUs)**			
1.	Secretariat	20.97	19.73	21.35
2.	Bhopal Gas Lead Disaster (BGLD)	22.06	18.53	23.08
3.	Central Institute of Petrochemicals Engineering & Technology (CIPET)	117.88	102.34	100.24
4.	Institute of Pesticides Formulation Technology (IPFT)	12.00	11.50	11.50
	Total of II	**172.91**	**152.10**	**156.17**
	Total of I + II (Revenue)	**229.64**	**206.83**	**207.67**
III	**Loan to PSUs**			
1.	Hindustan Fluorocarbon Ltd.	3.50	2.17	1.33
	Total of III (Capital)	**3.50**	**2.17**	**1.33**
	Grand Total (Revenue + Capital)	**233.14**	**209.00**	**209.00**

Table X: Expenditure 2020-21 & 2021-2022

(Rs. in crore)

Sl. No.	Schemes	BE 2020-21	RE 2020-21	Exp. 2020-21	% of Exp. w.r.t. RE (2020-21)	BE 2021-22	RE 2021-22	Exp as on	% of Exp w.r.t RE (2021-22)
I Central Sector Schemes									
1.	New Schemes of Petrochemicals	53.79	22.85	22.85	100.00	53.73	51.13	37.63	73.60
2.	Chemical Promotion & Development Schemes (CPDS)	3.50	2.80	2.80	100.00	3.00	3.60	1.76	48.89
	Total of I	**57.30**	**25.65**	**25.65**	**100.00**	**56.73**	**54.73**	**39.39**	**71.97**
II Other Central Expenditure (Sectt./BGLD/ ABs/PSUs)									
1.	Secretariat	19.99	18.12	17.96	99.12	20.97	19.73	15.44	78.26
2.	Bhopal Gas Lead Disaster (BGLD)	31.80	21.43	18.93	88.33	22.06	18.53	13.57	73.23
3.	Central Institute of Petrochemicals Engineering & Technology (CIPET)	98.25	146.30	146.30	100.00	117.88	102.34	81.70	79.83
4.	Institute of Pesticides Formulation Technology (IPFT)	11.00	10.50	10.50	100.00	12.00	11.50	7.90	68.70
	Total of II	**161.04**	**196.35**	**193.69**	**98.64**	**172.91**	**152.10**	**118.61**	**77.98**
III	**Loan to PSUs**								
1.	Hindustan Fluorocarbon Ltd.		**73.70**	**73.70**	**100.00**	**3.50**	**2.17**	**0**	**0.00**
	Grand Total (I +II+III)	**218.34***	**295.70**	**293.04**	**99.10**	**233.14**	**209.00**	**158.00**	**75.60**

. ** Includes Rs. 1.00 Lakh for AGCP (Assam Gas Cracker Project)*

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Chapter – 4

PETROLEUM, CHEMICAL AND PETROCHEMICAL INVESTMENT REGIONS (PCPIRs)

Background

4.1 Four Petroleum, Chemical and Petrochemical Investment Regions (PCPIRs) are envisaged in the States of Andhra Pradesh (Vishakhapatnam), Gujarat (Dahej), Odisha (Paradeep) and Tamil Nadu (Cuddalore and Nagapattinam) to promote investment and industrial development in these sectors under the PCPIR Policy, 2007.

4.2 The PCPIRs are conceptualized in a cluster approach to promote Petroleum, Chemical and Petrochemical sectors in an integrated and environment friendly manner on a large scale. Government of India formulated the PCPIR policy in April, 2007 to give a boost to this sector.

4.3. Each PCPIR is a specifically delineated investment region having an area of about 250 sq. km (with around 40% of the area earmarked for processing activities). It is not mandatory for the concerned State Government to acquire the entire area comprising the PCPIR and also the State Government has to notify the area under the relevant area planning and zoning law.

4.4. The concerned State Governments carry out Environmental Impact Assessment (EIA) and lead the project implementation. Government of India ensures the availability of external physical infrastructure linkages to the PCPIR including connectivity through Railways, Roads, Ports, Airports and Telecom etc. through Public Private Partnership projects to the extent possible. The Central Government also provides necessary funding to make such projects viable, in the form of Viability Gap Funding (VGF), as well as budget support for creation of these linkages wherever required.

4.5. The policy provides that each PCPIR would have a refinery / petrochemical feedstock company as an Anchor Tenant.

4.6. The State Government notifies a nodal department or agency for coordinating the linkages. A management body constituted by the State Government for each PCPIR, under relevant legislation, is responsible for the development and management of the PCPIR.

4.7. Once fully established, these four PCPIRs are expected to attract investment of around Rs.7.63 lakh Crore. As per data available from State Governments, investments of Rs.2.27 lakh Crore

(approximately) have been made/committed in these regions. The four PCPIRs are expected to generate employment for around 33.83 lakh persons. Around 4.21 lakh persons have been employed in direct and indirect activities in PCPIRs.

4.8. The status of implementation and execution of these projects is as follows:

Indicator	Gujarat	Andhra Pradesh#	Odisha	Tamil Nadu
Location/ Region	Dahej, Bharuch	Vishakhapatnam – Kakinada	Paradeep	Cuddalore-Nagapattinam
Date of Approval	Feb, 2009	Feb, 2009	Dec, 2010	July,2012
Date of MoA	07.01.2010	01.10.2009	03.11.2011	20.02.2014
Total Area (Sq. kms.)	453.00	640.00	284.15	256.83
Processing Area (Sq.kms.)	248.00	270.00	123.00	104.00
Anchor Tenant	ONGC Petro Additions Limited (OPaL)	Yet to be finalized	Indian Oil Corporation Ltd. (IOCL)	TIDCO is awaiting the revival of proposed Anchor Tenant of Nagarjuna Oil Corporation Limited / new project to be set up in this location.
Refinery / Cracker capacity in MMTPA	Cracker: Ethylene: 1.1 Propylene: 0.6	Yet to be finalized	15 (Greenfield refinery).	
Anchor Project Status	Commissioned in March, 2017	Yet to be finalized	Commissioned in February, 2016.	
Amount of approved infra. Projects (Rs. crore)*	NA	18,731.00	13,634.00	13,354.00
GoI share in form of VGF (Rs. crore)	80.50	1206.80	716.00	1143.00 budgetary support-1500)
Total proposed investments (Rs. crore)	50,000.00	3,43,000.00	2,77,734.00	92,500.00
Investments made (Rs. Crore)	1,21,227	51,481.00 - Committed & 15,081.00 – Actual made so far	47,000.00	8,100.00
Projected employment (No.)*	8,00,000	11,98,000	6,48,000	7,37,200
Employment generated (No.)	2,28,000	1,39,627	40,000	13,950
Status of Master Plan notification	Development Plan sanctioned.	Field Studies, village level consultations completed. Once the Anchor unit finalizes location, configuration and capacity of the Cracker Complex etc., Master Plan will be finalized.	Preparation of Master Plan is in process.	It will be taken up after formation of PCPIR Management Board.

Status of EIA	Environmental Clearance & Coastal Region Zone (CRZ) clearance received.	Environmental Clearances, EIA Studies, Collection of Baseline Data etc completed. Once the Master Plan finalized based on location, configuration and capacity of the Cracker Complex the public hearing will be conducted and will be processed for Environmental Clearance.	The draft EIA & EMP Report has been prepared based on the fresh ToR issued by MoEF&CC and same has been submitted to Odisha SPCB for the conduct of hearing in Jagatsinghpur & Kendrapara District	Will be taken up after formation of PCPIR Management Board.

* At the approval stage of the projects.

Status of Implementation of PCPIRs

4.9 Gujarat PCPIR:

- Gujarat PCPIR has been notified under the Gujarat Special Investment Region (GSIR) Act, 2009. It is strategically positioned to the east of Delhi-Mumbai Industrial Corridor (DMIC) and near the western coastline of India.
- The Gujarat Infrastructure Development Corporation (GIDC) has made an investment of around Rs.17,317 crore for infrastructure development in the PCPIR.
- The Anchor Tenant, viz. M/s ONGC Petro additions Ltd. (OPaL), has spent around Rs.30,826 crore on the project. The project has been commissioned in 1st week of March, 2017.
- Ministry of Environment, Forest and Climate Change (MoEF&CC) has granted Environment and Coastal Region Zone (CRZ) clearance on 14.09.2017 for an area of 44445.18 hectare for development of Gujarat PCPIR.

4.10 Andhra Pradesh PCPIR:

- Special Development Authority (SDA) was formed by Government of Andhra Pradesh in May, 2008 to develop the AP PCPIR.
- AP PCPIR covers 6 existing SEZs. The committed investment in AP PCPIR is around Rs.51,481 crore. Investment of Rs.1948.61 crore appx. have been made on infrastructure development.
- Hindustan Petroleum Corporation Limited (HPCL) and GAIL have conducted pre-feasibility study. Discussions are going on between Government of Andhra Pradesh and M/s HPCL & GAIL on Viability Gap Funding and other support / incentives.
- Road, rail link, water supply, effluent treatment and marine outfall projects are under different stages from study to implementation.

4.11 Odisha PCPIR:

- Detailed Master Plan for industrial development of PCPIR area shall be prepared by PCPIR

Authority. Industrial Development Corporation of Odisha (IDCO) has selected a consultant for preparation of Master Plan of the region. Draft detailed Master Plan has already been completed.

- Indian Oil Corporation's 15 MMTPA Refinery at Paradeep was commissioned in February, 2016. IOCL has commissioned 730 Kilo Tonne per Annum (KTA) Polypropylene Unit which can be utilized in the proposed Plastic Park at the same PCPIR location. IOCL has also planned to set up Mono-ethylene Glycol, Paraxylene-PTA & Petcoke gasification units for availability of raw materials in time bound and cost effective manner in Paradeep PCPIR.
- Detailed Environmental Impact Assessment (EIA) is being undertaken by Environmental Protection Training and Research Institute (EPTRI), Hyderabad. This study will ascertain the actual number of displacement. Accordingly, rehabilitation will be taken up as per Odisha Resettlement and Rehabilitation Policy, 2006. The draft EIA & EMP Report has been prepared based on the fresh ToR issued by MoEF&CC and same has been submitted to Odisha SPCB for the conduct of hearing in Jagatsinghpur & Kendrapara District.

4.13 Tamil Nadu PCPIR:

- An area of about 246.90 Sq. Kms in Cuddalore and Nagapattinam district have been notified as PCPIR under the Tamil Nadu Town and Country Planning Act 1971 in January, 2016. Government of Tamil Nadu in its order dated 20.06.2017 has notified the PCPIR area as a Local Planning Area under the Tamil Nadu Town and Country Planning Act, 1971.
- In-principal approval was obtained from Govt. of Tamil Nadu on 15.02.2018 for formation of management board.

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Chapter – 5

NEW SCHEMES OF PETROCHEMICALS

The Department of Chemicals and Petrochemicals is implementing the following schemes under the National Policy on Petrochemicals:-

i. Setting up of Plastic Parks
ii. Setting up of Centers of Excellence in Polymer Technology
iii. National Petrochemicals Awards

Setting up of Plastic Parks

5.1 The scheme aims at setting up of need based plastic parks, an ecosystem with state-of-the-art infrastructure and enabling common facilities through cluster development approach, to consolidate and synergize the capacities of the domestic downstream Plastic Processing Industry. The larger objective of the scheme is to contribute to the economy by increasing investment, production, export in the sector and also generation of employment.

5.2 Under the scheme, the Government of India provides grant funding up to 50% of the project cost, subject to a ceiling of Rs.40 crore per project. The remaining project cost is funded by the State Government or State Industrial Development Corporation or similar agencies of State Government, beneficiary industries and loan from financial institutions.

5.3 Under the Scheme, 9 Plastic Parks have been approved in the States of Madhya Pradesh (two), Odisha, Jharkhand, Tamil Nadu, Uttarakhand, Chhattisgarh and Assam. These parks are under various stages of implementation as per following details:

S. No.	Location of Plastic park	Final Approval	Land area (Acre)	Total Project Cost (Rs cr)	Total GoI grant-in-aid approved for project (Rs cr)	Total no. of plots
1	Tamot, Madhya Pradesh	Oct 2013	122	108.00	40.00	172
2	Paradeep, Odisha	Oct 2013	120	106.78	40.00	79
3	Thiruvallur, Tamil Nadu	Sept 2019	240	216.92	40.00	65
4	Tinsukia, Assam	Feb 2014	173	93.65	40.00	104
5	Deoghar, Jharkhand	Dec 2018	93	67.33	33.67	102

6	Bilaua, Madhya Pradesh	Dec 2018	93	68.72	34.36	107
7	Sitarganj, Uttrakhand	Dec 2020	40	67.73	33.9	77
8	Sarora, Chhattisgarh	April 2021	47	42.09	21.04	55
9	Ganjimutt, Karnataka	Jan 2022	112	62.78	31.38	53
	Total		1040	834.01	314.84	814

Further, one new Plastic Parks at Gorakhpur, Uttar Pradesh has been accorded "in-principle" approval by the Department and the process of according "final approval" is in progress.

Setting up of Centers of Excellence (CoE) in Polymer Technology

5.4 The scheme aims at improving the existing petrochemicals technology and research in the country and to promote development of new applications of polymers and plastics. In phase-I of the Scheme implemented up to 2017, the Government of India provided financial support to the extent of maximum 50% of the total cost of the project subject to an upper limit of Rs.6 Crore over a period of 3 years. The Scheme was extended upto year 2020 with modified guidelines in 2016-17, which aim at promoting applied research and technology transfer from Lab to Industry and funding of Rs.5 crore per CoE.

5.5 So far, 13 Centers of Excellence (CoE) within the premises of reputed educational/research institutes approved and established as per following details:-

S. No	Name of the institute where Centre of Excellence (CoE) has been established	Title of Centre of Excellence	Total Project Cost (Rs in crore)	Total GoI grant-in-aid approved (Rs in crore)
1	National Chemical Laboratory, Pune	Sustainable Polymer Industry to research & innovation	12.00	6.00
2.	Central Institute of Petrochemicals Engineering & Technology, Chennai	Green Transport Network (GREET)	18.98	6.00
3.	Central Institute of Petrochemicals Engineering & Technology, Bhubaneswar	Sustainable Green Materials	15.04	6.00
4.	Indian Institute of Technology, Delhi	Advanced Polymeric Materials	12.00	6.00

5.	Indian Institute of Technology, Guwahati	Sustainable Polymers (Sus-Pol)	14.74	6.00
6.	Indian Institute of Technology, Roorkee	Process Development, Wastewater Management in Petrochemical Industries	13.13	4.40
7.	Central Institute of Plastics Engineering & Technology, Bhubaneswar	Bio-engineered Sustainable Polymeric Systems	10.01	5.00
8.	National Chemical Laboratory, Pune	Specialty Polymers for Customized	5.60	2.80
9	CSIR-IICT, Hyderabad	Polymer Coatings for Decorative, Protective and Strategic Applications	9.72	4.86
10	CSIR–NEIST Jorhat- Assam	Polymers, Their Composites and Polymeric Membranes for Sustainable Development of Petroleum Industries	24.75	4.99
11	CIPET, Chennai	Manufacturing of Next Generation Bio-Medical Devices	10	5
12	I I T, Guwahati	Toy design & manufacturing SUNDER (sustainable & innovative design manufactring of polymer toys	10.38	5
13	IRMRA, Thane Mumbai	Design of developement for value added Toys of rubber & allied finished product	9.87	4.93
Total			166.22	66.98

National Petrochemicals Awards

5.6 The Department is implementing an award scheme to provide incentive for meritorious innovations & inventions in various fields of petrochemicals and downstream plastics processing industry. Till, the 10th edition Central Institute of Petrochemical Engineering and Technology (CIPET) was entrusted with the task of seeking and short-listing nominations for the scheme. The Department has revised

the guidelines for the awards and has also renamed the awards as "National Petrochemicals Awards". As per the revised guidelines, the Department can nominate any of its PSU/Autonomous Body for the coordination in the implementation of the awards. The Department will provide grant-in-aid to the nominated PSU/Autonomous Body for administering the award scheme. Presently, the Scheme is being operated as sub-scheme of the Chemicals Promotion and Development Scheme.

5.7 The National Petrochemicals Awards are given in various categories for innovation in areas such as Polymeric Materials, Polymeric Products, Polymer Waste Management and Recycling Technology and related areas. In a ceremony held on 23rd February, 2021 at Vigyan Bhawan, Delhi, the Hon'ble Minister of Chemicals & Fertilizers, Sh. D. V. Sadananda Gowda presented the 10th National Awards for the year 2019-20. The Awards covered twelve categories covering fields like New Polymers, New Applications of Polymer in various fields, viz., New Polymer Processing Machines including Energy Efficiency, Innovation in Polymer Waste Management and Recycling, Green/ Bio-degradable Polymer, Innovation in Packaging etc. The prize money for winners was Rs.3 Lakhs and Rs.1 Lakh for the runner-ups respectively. For the 11th National Award for the year 2020-21 work is in-progress as per the revised guidelines.

Fig.: Sh. D.V. Sadananda Gowda, Hon'ble Minister (Chemicals & Fertilizers) along with Sh. Yogendra Tripathi Secretary (C&PC); Sh. Kashi Nath Jha, Joint Secretary (Petrochemicals); Dr. S.K. Nayak, Director General, CIPET at the 10th National Awards ceremony held on 23rd February, 2021 at New Delhi.

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Chapter – 6

INTERNATIONAL CONVENTIONS AND TREATIES

Chemical Weapons Convention (CWC)

6.1 India is a signatory and party to the Chemical Weapons Convention (CWC) administered by Organization for the Prohibition of Chemical Weapons (OPCW) with Head Quarters at The Hague, Netherlands. The Convention is a universal, non-discriminatory, multi-lateral, disarmament treaty which prohibits the development, production, stock-piling and use of chemical weapons and monitors its elimination in order to secure chemical weapons free world. India signed the treaty at Paris on 14th January, 1993. India, pursuant to provisions of the Convention enacted the Chemical Weapons Convention Act, 2000. As on date, 193 countries are parties to the Convention. India was the First State Party to secure the distinction of chemical weapon free state Party by destructing all its stockpile of its chemical weapons amongst all State Parties of the Convention.

6.2 The Department of Chemicals & Petrochemicals is the administrative Department for CWC Act, 2000. Chemical Weapons Convention Act, 2000 is in force in the country w.e.f. 1st July 2005. The National Authority for Chemical Weapons Convention (NACWC) has been set up as an office of the Cabinet Secretariat, Government of India in 1997 to fulfill, on behalf of the Government of India, the obligations under the Chemical Weapons Convention and to act as the national focal point for effective liaison with the Organization for the Prohibition of Chemical Weapons (OPCW) and other State Parties on matters relating to the Convention.

6.3 Three Schedules of the chemicals which have been mentioned to the Convention are required to be declared and are given as follows:

- Schedule-1 Chemicals (16 Chemicals) (i.e. Chemical Weapons);
- Schedule-2 Chemicals (14 Chemicals) (i.e. precursors to Chemical Weapons);
- Schedule-3 Chemicals (17 Chemicals) (i.e. dual use chemicals).

6.4 This Department has issued following gazette notifications in 2021 regarding the appointments under CWC Act 2000:

- Gazette Notification S.O. 1619 (E) dated 6th April, 2021 on appointment of Shri G.V. Venugopala Sharma as Chairman NACWC.
- Gazette Notification S.O. 3925 (E) dated 7th September, 2021 on appointment of Shri Manoj Kumar Parida as Chairman NACWC.

Rotterdam Convention

6.5 Rotterdam Convention on Prior Informed Consent Procedures (PIC) that entered into force on 24th February, 2004, is a legally binding instrument, which was adopted on 10th September 1998 by a Conference of Plenipotentiaries in Rotterdam. India acceded to the Convention on 24.05.2006.

6.6 The Convention seeks to promote shared responsibility and cooperative efforts among State Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm. It also seeks to contribute to the environmentally sound use of these hazardous chemicals by facilitating information exchange about their characteristics, providing for a national decision making process on their import and export, and by disseminating these decisions to the Parties.

6.7 Each Party is required to designate a National Authority for performing the administrative functions required under the Convention. Department of Chemicals and Petrochemicals is the Designated National Authority (DNA) for industrial chemicals and Department of Agriculture & Farmers' Welfare is the DNA for pesticides.

6.8 There are a total of 52 chemicals listed in Annex III, 35 pesticides (including 3 severely hazardous pesticide formulations), 16 industrial chemicals, and 1 chemical in both the pesticide and the industrial chemical categories. The parties are required to communicate their import policy for these chemicals to the PIC Secretariat. The exporting Party has to provide the export notification to the importing Party in respect of banned or severely restricted chemicals in the importing country. The export notifications received from other Parties for industrial chemicals are examined by Department of Chemicals and Petrochemicals, being the DNA for industrial chemicals, and acknowledgment/ reply is sent to the DNA of the exporting country. In the year 2021, Department of Chemicals and Petrochemicals has processed nearly 100 export notifications received under Rotterdam Convention.

Stockholm Convention

6.9 The Stockholm Convention, ratified by India on 13.01.2006, is a global treaty to protect human health and environment from Persistent Organic Pollutants (POPs). POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to human beings and wildlife. POPs travel globally and can cause damage wherever they travel. The Convention that entered into force of 17th May, 2004, lays down that in its implementation, Governments will take measures to eliminate or reduce the release of POPs into the environment.

6.10 The Stockholm Convention seeks the elimination or restriction of production and use of all

intentionally produced POPs (industrial chemicals and pesticides). The Convention also seeks the continuing minimization and wherever feasible, ultimate elimination of the releases of unintentionally produced POPs such as dioxins and furans. At present, 35 chemicals are covered under the Stockholm Convention, of which use of DDT is restricted in India. Use of DDT is banned for agricultural purposes; it is produced in a restricted manner for use in vector control only, as India has obtained exemption for use of DDT for vector control.

6.11 Stockpiles and wastes containing POPs must be managed and disposed of in a safe, efficient and environmentally sound manner, taking into account international rules, standards and guidelines. Each country is required to develop a plan for implementing its obligations under the Convention. A Global Environment Facility (GEF) has been set up as an interim financial mechanism, to assist the developing countries in implementation of the Convention.

6.12 For the chemicals under review of Stockholm Convention, this Department put forwards its stand to Ministry of Environment & Climate Change for further stand in Convention.

Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET)

6.13 In Foreign Trade Policy, dual-use items have been given the nomenclature of Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET). Export of dual-use items and technologies under India's Foreign Trade Policy is regulated. Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET) shall be permitted only against an export authorisation issued in this behalf unless export is prohibited or is permitted without authorisation subject to fulfillment of conditions, if any, as indicated under/against any specific category or item. Export Policy relating to SCOMET items is mentioned in Appendix 3 of Schedule 2 of ITC (HS) Classification and Paragraph 2.49 of Hand Book of Procedures Vol. –I, 2009-14.

6.14 Directorate General of Foreign Trade under Ministry of Commerce and Industry, is the nodal organization for handling the matters related to SCOMET. Department of Chemicals and Petrochemicals is amongst the Inter-ministerial Working Group members for providing inputs/ comments on applications filed under SCOMET items specifically related to Chemicals.

6.15 In the list of Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET) items as appearing in Appendix 3 of Schedule 2 of ITC (HS) Classification, SCOMET items are listed under eight (8) categories as follows:

Category 0: Nuclear materials, nuclear-related other materials, equipment and technology

0A	Prescribed Substances
0A1	Source Material
0A2	Special Fissionable Material
0A3	Other Materials

0B Prescribed Equipment
0C Technology

Category 1: Toxic chemical agents and other chemicals
1A Prohibited chemicals
1B Chemicals permitted only to States party to the Chemical Weapons convention
1C Chemicals permitted also to States not party to Chemical Weapons Convention
1D Other Chemicals

Category 2: Micro-organisms, toxins
2A Bacteria
2B Fungi
2C Parasites
2D Viruses
2E Rickettsials
2F Toxins
2G Plant pathogens
2H Genetically Modified Organisms

Category 3: Materials, Materials Processing Equipment and related technologies
3A Materials
3A1 Special materials
3A2 Structural materials
3A3 Rocket propellants and constituent chemicals
3A4 High explosives
3A5 Stealth materials
3B Materials processing and production equipment, related technology and specially designed components and accessories therefor.
3C [Reserved]
3D Chemical and biomaterial manufacturing and handling equipment and facilities

Category 4: Nuclear-related other equipment and technology, not controlled under Category 0
4A Equipment, assemblies, components including test and production equipment
4B Equipment, assemblies, components including test and measurement equipment usable in development of nuclear explosive devices
4C Technology

Category 5: Aerospace systems, equipment, including production and test equipment, related technology and specially designed components and accessories therefor.
5A Rocket systems
5A1 Systems
5A2 Production and test equipment
5A3 Technology
5B Unmanned aerial vehicles
5C Avionics and navigation systems
5D Manned-aircraft, aero-engines, related equipment and components

5E Micro-light aircraft and powered 'hang-gliders'

Category 6: Munition List

Category 7: Electronics, computers, and information technology including information security

7A Electronics

7B Electronic test equipment

7C Computers

7D Information technology including information security

7E [Reserved]

Category 8: Special Materials and Related Equipment, Material Processing, Electronics, Computers, Telecommunications, Information Security, Sensors and Lasers, Navigation and Avionics, Marine, Aerospace and Propulsion.

During the year 2021, Department of Chemicals and Petrochemicals has given its recommendations to DGFT on 75 SCOMET applications so far.

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Chapter – 7

BHOPAL GAS LEAK DISASTER

7.1 On the intervening night of 2nd and 3rd December, 1984 "Methyl lso-cynate " (MIC), a lethal gas stored in two tanks of Union Carbide Pesticide Factory at Bhopal leaked in the atmosphere resulting in industrial mass disaster unparalleled in its magnitude and causing serious injuries to a large number of population of Bhopal city, also resulting in immediate death toll of thousands of human lives. Various relief and rehabilitation measures initiated immediately after the disaster are still continuing.

Adjudication of Compensation Claims

7.2 Several suits were filed for compensation and damage in different Courts in India, Prosecution was launched. The Government of India enacted an Act known as the Bhopal Gas Leak Disaster (Processing of Claims) Act, 1985. The Act came into force on 20th February, 1985. It empowered the Union of India to take over the conduct of all litigation in regard to claims arising out of gas disaster and to award compensation to the victims and affected persons. Under this Act, the Government has framed a Scheme known as the Bhopal Gas Leak Disaster (Registration and Processing of Claims) Scheme, 1985 for registration, processing determination of compensation to each claim and appeals, if any, arising therefrom. Under this Act, the Office of the Welfare Commissioner, Bhopal Gas Victims, was set up by the Government of India for speedy adjudication and award/disbursement of compensation to the survivors and families of the victims of the gas leak disaster.

7.3 Looking to the magnitude of the human suffering that occurred due to BGLD, Hon'ble Supreme Court of India passed a settlement order dated 14th and 15th February, 1989 directing the Union Carbide Corporation to pay a sum of US$ 470 million, which was deposited by the Company with the Registrar of the Supreme Court of India, in 1989.

Original Compensation

7.4 The actual disbursement of the compensation started from 1992 and the Office of the Welfare Commissioner awarded/disbursed Rs.1549.33 Crore as compensation in settled cases of 5,74,393 claimants belonging to the categories of death, permanent disability, temporary disability, injury of utmost severity cases, minor injury, loss of property/PSU and loss of livestock till January, 2022.

Pro-rata Compensation

7.5 The Supreme Court vide order dated 19th July, 2004, had directed the Welfare Commissioner

to disburse the balance amount of approximately Rs.1,500.00 crore, which had accumulated with the Reserve Bank of India on account of accrual of interest and exchange rate variation, on pro-rata basis (in the ratio of 1:1 of Original Compensation) to the claimants whose cases had been settled. The distribution of pro-rata compensation started from November, 2004. A sum of Rs.1517.90 Crore as Pro-rata Compensation has been awarded in 5,63,127 cases till January, 2022. The work of disbursal of Pro-rata Compensation is continuing.

Disbursement of Ex-gratia

7.6 On the recommendations of the Group of Ministers (GoM) constituted on Bhopal Gas Leak Disaster, the Government took certain decisions to provide further relief and rehabilitation to the gas victims in the year 2010. One of the major decision taken by the Government was to pay Ex-gratia to the following categories of gas victims:

Categories of Ex-gratia payments to Gas victims

Category	Scale of Ex-gratia
Death	Rs.10 lakh (less amount already received)
Permanent disability	Rs.5 lakh (less amount already received)
Injury of utmost severity	Rs.5 lakh (less amount already received)
Cancer	Rs.2 lakh (less amount already received)
Total Renal Failure	Rs.2 lakh (less amount already received)
Temporary disability	Rs.1 lakh (less amount already received)

7.7 An amount of Rs.936.00 Crore has been approved by the Government for disbursement of Ex-gratia amongst the above categories of victims. The Office of the Welfare Commissioner has commenced disbursal of Ex-gratia to the Gas Victims on 19th December, 2010. 62,991 cases have been decided and an amount of Rs.863.26 Crore has been awarded to 51670 cases till January, 2022.

Rehabilitation of Bhopal Gas Victims (Action Plan)

7.8 Rs.102 Crore was sanctioned by the Government of India for relief, rehabilitation and financial assistance to victims of gas tragedy from 1985 to 1989.

7.9 In 1990, Government of India approved 5-years Action Plan of the State Government of Madhya Pradesh with a capital outlay of Rs.163.10 Crore for the Medical, Economic, Social and Environmental rehabilitation of the Bhopal Gas victims. The outlay was subsequently revised upwards to Rs.258 crores. It was decided that the amount was to be shared by the Government of India and State Government of Madhya Pradesh (GoMP) in the ratio of 75:25 and implemented by the GoMP. The Action Plan was implemented from 1990 to 1999 this involved creation of infrastructure for providing relief and rehabilitation to the gas victims against this approved plan, GoMP spent an amount of Rs.992.18 crore. The major component of the Action Plan was

Medical Rehabilitation which included establishment of six full-fledged Gas Relief hospitals and also dispensaries for free treatment of gas victims.

7.10 Further Rs.14.18 crore was provided by Government of India under Jawaharlal Nehru National Urban Renewal Mission (JNNURM), in April, 2006 for supply of piped drinking water to 14 localities around UCIL plant site where the ground water is not potable.

7.11 GoMP had submitted to Group of Ministers (GoM) in April 2008, a new Memorandum on New Plan of Action with an outlay of Rs.982.75 crore for various rehabilitation measures to be taken for Bhopal Gas Victims. The Government, on the recommendations of the GoM, approved a sanction of Rs.272.75 crore shared between the Central Government and GoMP in the ratio of 75:25 for implementation of New Plan of Action, 2010. A sanction of Rs.204.56 crore (75% of Rs.272.75) was released by the Ministry of Finance, Department of Expenditure to the GoMP on 08.07.2010 'On account' payment of Additional Central Assistance (ACA) for other projects (Grant Component) for State's Annual Plan 2010-2011.

7.12 GoMP is in the process of implementation of various rehabilitation schemes as approved in the New Plan of Action 2010. The GoMP has apprised that an amount of Rs.140.15 crore has been utilized out of the approved plan of Rs.272.75 crore.

Social Rehabilitation

7.13 Total 5000 Widows of Gas Victims was to be paid pension plan of Rs.1000 per month for a period of five years, (GoMP extended this scheme for another 2 years) for which Rs.30 crores have been allocated. An amount of Rs.43.30 crore (Excess amount of Rs.13.17 crore earned from FD's interest) has been disbursed to widows pension to 4,995 beneficiaries. GoMP has provision for Rs.5.40 crore in financial year 2021- 2022 for 1000 per month of kalyani widow pension from the State budget.

Medical Rehabilitation

7.14 Most of the essential equipment for Gas Rahat Hospitals have been procured, installed and are functioning. The work of construction and renovation of Hospital Buildings were completed out of Rs.272.75 Crore, a sum of Rs.33.55 Crore was allotted for Medical Rehabilitation. GoMP had utilized a fund of Rs.16.32 Crore and sought an administrative approval to utilize the unspent balance fund of Rs.17.23 Crore under Medical Rehabilitation for execution of certain new items of work such as (i) Renovation of Civil work for modular Operation Theater for four Hospitals namely Indira Gandhi Mahila Evam Balya Chikitsalay, Khan Shakir Ali Khan Hospital, Jawahar Lal Nehru Hospital & Kamla Nehru Hospital, (ii) establishment of central oxygen supply plant for Jawahar Lal Nehru Hospital, Shakir Ali Khan Hospital & Indira Gandhi Mahila evam Balya Chikitsalaya, (iii) reconstruction of Polyclinic/Dispensary at Rukama Bai, Ashoka garden, Ibrahim

ganj and Bagumrao Dulha, (iv) replacement of two passenger lifts at Kamla Nehru Hospital and one lift at Indira Gandhi Mahila Evam Balya Chikitsalaya, Gas Rahat, Bhopal and (v) construction of Bone Marrow Transplant centre and Procurement of equipment at Kamla Nehru Hospital.

7.15 Renovation of civil work for modular OT at Indira Gandhi Mahila Evam Balya Chikitsalava, Shakir Ali Khan Hospital and Jawahar Lal Nehru Hospital is completed. Work order for Renovation of Civil work for modular OT at Kamla Nehru Hospital has been issued.

7.16 Establishment of central oxygen supply plant at Indira Gandhi Mahila evam Balya Chikitsalaya (at 113 oxygen bed), Jawahar Lal Nehru Hospital (at 71 oxygen bed) and Shakir Ali Khan Hospital (at 60 oxygen bed) has been completed.

7.17 Work order for reconstruction of Polyclinic/Dispensary at Rukma Bai and Ashoka garden is issued. Letter of Acceptance (LOA) for reconstruction of Ibrahimganj and Bagumrao Dulha Dispensary is issued.

7.18 Out of two new lifts to be installed at Kamla Nehru Hospital, work of one lift is completed and the lift is operational. Work of another lift is under process. Installation of one lift at Indira Gandhi Mahila evam Balya Chikitsalaya is completed and the lift is in working condition.

7.19 Out of unspent amount of Rs.17.23 Crore issued under Medical Rehabilitation program, an amount of Rs 7.81 Crore is utilized in Gas Relief hospital upgradation and renovation work.

7.20 During Financial year 2021-22, Work order for reconstruction of 4(four) Polyclinic/ Dispensary at Rukma Bai and Ashoka garden is issued. Letter of Acceptance (LOA) for reconstruction of Ibrahirmganj and Bagumrao Dulha Dispensary is issued.

Economic Rehabilitation

7.21 For ensuring employment to the gas victims, the gas victims, GoMP selected 21 institutes through a transparent procedure, for providing training in different trades to the gas victims. The State Govt. has provided training to 12,355 gas victims beneficiaries under different traits. Initially, this programme was successful but later on it has not been resultant as desired. As the scheme was not attractive, GoMP has submitted a proposal seeking approval for an amount of Rs.25.12 crore from the unspent balance of Rs.85.87 crore under Economic Rehabilitation scheme, for the purpose of providing self-employment to the beneficiaries of gas victims under "Mukhyamantri Swarojgar Yojna" (Chief Minister Self Employment scheme) which include Rs.1.00 crore for component of appropriate/relevant training. Necessary administrative approval in this regard was accorded by the Government of India to the GoMP to implement the scheme. An amount of Rs.1.00 core has been disbursed to 108 beneficiaries under this scheme.

Environmental Rehabilitation

7.22 Out of Rs.50 crore allocated for providing clean drinking water to the gas victims, GoMP utilized the entire fund for providing safe drinking water in Gas affected area.

Environmental Remediation of the erstwhile Union Carbide India Ltd.(UCIL) Plant site.

7.23 As per Union Cabinet's decision taken in the year 2010, the GoMP is responsible for undertaking disposal of hazardous wastes and remediation of the erstwhile UCIL plant at Bhopal. As per cabinet's decision, an Oversight Committee was constituted in the Ministry of Environment, Forest and Climate Change to provide oversight and support to the GoMP in taking the necessary remedial actions. Hon'ble Supreme Court is seized with the issue of disposal of UCIL waste in the matter of SLP (Civil) No. 9874 of 2012 Uol Vs. Alok Pratap Singh and others. Ministry of Environment, Forest and Climate Change is complying with the orders issued by the Hon'ble Supreme Court then and there. As per the direction given by the Hon'ble Supreme Court, 10 MT of erstwhile UCIL waste was successfully incinerated at common Hazardous Waste incinerator at Pithampur, Madhya Pradesh by Central Pollution Control Board (CPCB) during August 13-18, 2015.

7.24 CPCB has been assisting GoMP in preparation of Request for Proposal (RFP) documents for inviting competitive bids for hiring operators of common Hazardous Waste incinerator (TSDF's) for disposal of remaining 337 MT (approximate) of hazardous waste lying at UCIL factory site. The tender for procurement of incineration in TSDF published on 24-09-2021 and the technical presentation of bidder in presence of committee held on 02-11-2021.

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Chapter -8

IMPROVING THE QUALITY OF CHEMICALS & PETROCHEMICALS AND TRADE INTELLIGENCE

Mandatory BIS Standards for Chemicals & Petrochemicals

8.1 Chemicals & Petrochemicals produced domestically and imported may contain impurities & may be hazardous to human health, safety & environment. These products while in use may not be meeting technical characteristics prescribed in the BIS standards, presently being voluntary in nature for most of the products. It is therefore of paramount importance to improve quality of Chemicals/Petrochemicals produced in the country as well as to monitor the imported chemicals. With this objective, Department initiated an exercise to make the standards of Chemicals/ Petrochemicals as mandatory to ensure that both the importers of such chemicals to the country and domestic manufacturers meet the BIS quality parameters. Such Chemicals/Petrochemicals shall bear the standard mark under a license to be obtained from Bureau of Indian Standard. This mechanism shall help in improving quality of these products as some countries dump poor quality and spurious Chemicals/Petrochemicals in the country, which do not meet the quality parameters laid down by BIS Standards as at present.

8.2 Hence this Department initiated steps to make standards mandatory in public interest under section 16 of the Bureau of Indian Standard Act 2016 for:

(i) Protection of human, animal or plant health
(ii) Safety of the environment
(iii) Prevention of unfair trade practices
(iv) Protection of National Security

8.3 With these measures manufacturers and importers have to comply BIS (Conformity Assessments) Regulation, 2018. Any person who contravenes the provisions of this Order is punished under the provisions of section 29 of the BIS Act, 2016. As per the provisions of mandatory standards, the manufacturers of above chemicals must conform to BIS standards and bear the Standard Mark under license from BIS. This includes any imported material, for which the exporter based on foreign country has to apply for BIS license under Foreign Manufacturers Certification Scheme (FMCS).

8.4 Accordingly D/o Chemicals & Petrochemicals has notified 54 Quality Control Orders (QCOs) so far to make BIS standards as mandatory under Bureau of Indian Standards Act, 2016.

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Chapter – 9

PUBLIC SECTOR UNDERTAKINGS

HINDUSTAN ORGANIC CHEMCIALS LIMITED (HOCL)

9.1. Hindustan Organic Chemicals Limited (HOCL) was incorporated on 12th December, 1960 as a Government company with the objective of setting up manufacturing capacities for chemicals / intermediates required for production of dyes, dyes–intermediates, rubber chemicals, pesticides, drugs and pharmaceuticals, laminates, etc. The company had two manufacturing units located at Rasayani (Maharashtra) and at Kochi (Kerala). The Rasayani unit (Chemical Complex) started production from 1970-71 and the Kochi Unit (Phenol Complex) commenced production from 1987-88. The Kochi unit has plants to manufacture Phenol, Acetone and Hydrogen Peroxide. After the implementation of restructuring plan for HOCL that was approved by the Government of India on 17.05.2017, Rasayani unit has been closed down except the strategically important Concentrated Nitric Acid (CNA)/ Di-nitrogen Tetroxide (N_2O_4) plant which has been transferred to the Department of Space/ISRO. The CNA/ N_2O_4 plant is the only facility for production of N_2O_4 in India which is used exclusively by ISRO in its rocket launching programme. HOCL has a subsidiary company, namely Hindustan Fluorocarbons Limited (HFL), located at Rudraram, Telangana, details regarding which are given further in this chapter.

9.2 HOCL's authorised and paid up share capital is Rs.370 crore and Rs.337.27 crore [comprising of Rs.67.27 crore equity and Rs.270 crore preference shares] respectively. Govt. of India holds 58.78% of the equity of the company and the preference shares in full. HOCL is listed on the Bombay Stock Exchange (BSE).

9.3 Following globalization and liberalisation of the Indian economy in the early 1990's resulting in competition from international players, HOCL incurred losses for the first time in 1997-98. Due to continued losses leading to negative net worth by 2003-04, the company was referred to erstwhile Board for Industrial & Financial Reconstruction (BIFR) in February, 2005. Based on the recommendations of Board for Reconstruction of Public Sector Enterprises (BRPSE), Govt. approved a revival package for the company in 2006.

9.4 However, the company again suffered losses in 2008-09 and 2009-10 mainly due to recessionary trend in the market as an effect of global meltdown. Though it earned profit during 2010-11, the situation worsened thereafter with losses during 2011-12 and 2012-13 mainly due to withdrawal of anti-dumping duties on its main products phenol and acetone. In order to enable the company to tide over its liquidity problems, the Govt. on 1st August, 2013 approved postponement of redemption of Rs.270 crore preference shares issued to the Govt. of India (date of allotment 24.01.2008), which was due for redemption from 2011-12 onwards, to 2015-16 onwards. The Govt. guarantee of Rs.100 crore was also further extended up to August, 2017.

9.5 Further, Govt. guarantee of Rs.150 crore was provided to HOCL in July, 2014 for issue of bonds by the company for meeting its working capital requirement and payment of liabilities towards raw material suppliers, employee dues, etc. This enabled the company to restore manufacturing operations at its Kochi and Rasayani units. However, the global fall in the prices of petroleum products at that time caused severe crash in the prices of Phenol and Acetone and the company faced difficulties in selling the products at profitable rates and generating adequate working capital. This led to frequent shutting down of operations at both Kochi and Rasayani units thereby further aggravating the financial crisis of HOCL. Due to continuous losses and shortage of working capital, the company was not able to pay regular salary and statutory dues to the employees during 2015 to 2017. Following implementation of restructuring plan for HOCL, the plant operations of Rasayani unit have been closed down. The Phenol/Acetone plant at Kochi unit resumed operations from July, 2017 and is being operated regularly since then. HOCL Kochi unit received Suraksha Puraskar from National Safety Council Kochi among the large chemical industries category for the year 2020.

Financial Performance

9.6 Financial performance of HOCL in terms of turnover and net profit / loss for the last 5 years and net worth as on 31.3.2021 are given below:

(Rs. In crore)

Year	Turnover (Gross)	Net Profit / (Loss)
2016-17	158.21	(255.57)
2017-18	242.33	(203.45)
2018-19	471.99	70.88**
2019-20	300.01	(94.68)
2020-21	411.57	15.47

Net-Worth (as per new accounting standard Ind AS which includes revaluation of land and other assets) as on 31.03.2021: ***(+) Rs.59.85 Crore.***
Net-Worth as per the Companies Act (excluding revaluation of land and other assets) as on 31.03.2021: ***(-)Rs.879.31 Crore***

** Net Profit for the year 2018-19 restated to Rs.70.88 crore after rectification of deferred tax expenses during the year 2019-20.

During the year 2020-21 the Company registered an increase of 73% in Revenue compared to last year. The Phenol Plant at Kochi achieved a capacity utilization of 90% during the year, as against 67% achieved in the previous financial year 2019-20. During 2021-22 (up to September, 2021), the company achieved turnover of Rs.134.98 crore and incurred loss of Rs.38.65 crore, as per provisional unaudited results. The Phenol & Acetone plant was under shutdown from 27th March 2021 to 25.07.2021 for replacement of catalyst.

Covid-19 Impact

9.7 During the financial year 2020-21, operation of the company was scaled down for 3 weeks during the month of April 2020 due to lock down resulting decrease in production of Phenol,

Acetone, Hydrogen Peroxide and other by-products. The Company was quick in restoring the operations by ensuring the health safety and well-being of all employees after obtaining necessary permissions.

Restructuring plan for HOCL

9.8 The Government of India on 17.05.2017 approved a restructuring plan for HOCL involving closing down operations of all the non-viable plants at Rasayani unit of HOCL, except N_2O_4 plant to be transferred to ISRO on 'as is where is' basis, with about 20 acres of land and employees associated with the plant. The N_2O_4 plant is of strategic importance as it is the only indigenous source of N_2O_4 which is used as liquid rocket propellant by ISRO in the space launch vehicles. Financial implication of the restructuring plan is Rs.1008.67 crore (cash) which is to be met partly from sale of 442 acres HOCL land at Rasayani to Bharat Petroleum Corporation Ltd. (Rs.618.80 crore) and the balance through bridge loan from the Govt. The funds are to be used to liquidate the various liabilities of the company, including payment of outstanding salary and statutory dues of employees and repayment of Govt. guaranteed bonds of Rs.250 crore, and for giving VRS/VSS to the Rasayani unit employees except those retained as skeletal staff. The bridge loan amount, along with other Govt. liabilities of the company, is to be repaid to the Govt. from the disposal of remaining unencumbered land and other assets of Rasayani unit.

9.9 Status of implementation of restructuring plan of HOCL (as on 15.10.2021) is as follows:

- All plants of Rasayani unit, except N_2O_4 plant, have been closed down and disposed of. Closure of the unit under the provisions of Industrial Disputes Act, 1947 has also been approved by the Ministry of Labour & Employment.
- N_2O_4 plant has been transferred to ISRO along with 20 acres land and 131 employees associated with plant. The plant is being entirely operated by ISRO.
- Out of 442 acres land at Rasayani to be sold to BPCL, 289.69 acres have been sold for which HOCL received Rs.401.50 crore (net of TDS).
- Sale of 85.27 acres out of the additional 242 acres (+/- 10%) land approved by the Govt. for sale to BPCL has also been completed for consideration of Rs.135.81 crore (net of TDS).
- Lease transfer of 0.25-acre plot at Kharghar to NALCO completed for consideration of Rs.12.96 crore (net of TDS).
- Sale of 0.386 acre of land at Rasayani to IOCL for its Petrol Pump for consideration of Rs.74.25 lacs (net of TDS)
- BPCL has submitted Expression of Interest for the remaining 250+ acres unencumbered land at Rasayani but final offer is awaited. Mumbai Metropolitan Region Development Authority (MMRDA) vide their letter dated 9th September, 2020 have submitted their EoI for purchase of land at Rasayani and Panvel.
- Panvel land (7acres) was put up for e-auction on 24.4.2019 but no bid/offer was received.

Further action will be taken by HOCL after NOC for sale of the land is received from State Govt.

- All the 10 flats at Nestle Apartments (Mumbai), closed down plants and utility blocks have been successfully e-auctioned through MSTC.
- Partially completed tank farm at JNPT has been handed over to JNPT and HOCL has received Rs.16.38 crore from JNPT.
- All the Rasayani unit employees have been separated through VRS/VSS except skeletal staff (7) for HOCL's corporate office. 23 employees who did not opt for VRS were transferred to the Kochi unit. The outstanding salary and statutory dues of the employees of both Rasayani and Kochi unit have been cleared.
- Bridge loan of Rs.360.26 released by the Govt. in Aug.-Sept. 2017 has been utilized by HOCL to redeem the two Govt. guaranteed bonds totalling Rs.250 crore and for part payment of priority statutory dues (Rs.110.26 crore).

9.10 After implementation of restructuring plan, phenol / Acetone plant at Kochi unit, resumed regular operations from July 2017. This enabled HOCL Kochi unit to achieve net turnover of around Rs.472 crore (Rs.223 crore in 2017-18) an net profit of Rs.22 crore (net loss of Rs.65.24 crore in 2017-18) during 2018-19. HOCL has repaid outstanding Govt. of India loans (principal) of Rs.26.85 crore during 2019-20 and Rs.15.56 crore during 2020-21.

9.11 However, the reduction in selling price of phenol and acetone (main revenue earing products of Kochi unit) due to huge imports / dumping of both these products in to India adversely impacted the company's financials in 2019-20 resulting in reduced turnover of Rs.300 crore and net loss of Rs.94.68 crore. In order to prevent dumping, the domestic phenol manufacturers, including HOCL, have represented to the DGTR, M/o Commerce & industry, for imposition / continuation of levy of anti-dumping duty / safeguard duty as per WTO Guidelines. Ministry of Commerce vide Gazette Notification ADD-(OI)02/2020 dated 20th August, 2020 has recommended imposition of provisional anti-dumping duty on import of phenol from USA and Thailand. However, it is informed that Ministry of Finance have not considered levying of provisional anti-dumping duty on import of phenol from USA and Thailand. After completion of final hearing, Ministry of Commerce vide Gazette Notification dated 28th January, 2021 had recommended landed value of products from Thailand to be 990.83 US $ and no Anti-dumping Duty against imports from USA. However, Ministry of Finance have rejected the recommendation of Ministry of Commerce regarding Anti-dumping Duty on imports from Thailand. The Anti-dumping Duty on Acetone imports from Singapore, South Africa, USA and European Union has been extended upto 24th March, 2024.

9.12 It may be seen while Rasayani unit has been successfully closed down under HOCL's restructuring plan, significant progress has also been made in the implementation of other aspect of the restructuring plan as given above. However, disposal of unencumbered land assets of HOCL at

Rasayani has been delayed to various reasons. So far out of total of approx. 684 acres of land approved by the Govt. for sale to BPCL, sale & registration of only about 374 acres have been completed. Sale of balance approx. 310 acres land has been affected by law & order situation due to protests by the local villagers to fencing of the purchased land by BPCL and their demand for compensation. The Committee under Divisional Commissioner, Konkan, constituted by the Maharashtra Govt. to address the concerns and demands of villagers in respect of HOCL land sale to BPCL has submitted its report to State Government. Further meetings of local villagers and farmers were held by the Dy. Chief Minister of Government of Maharashtra and it was informed to the villagers and farmers that based on the report of the Konkan Divisional Commissioner the matter regarding compensation for land and scattered houses will be taken up by the State Government in the Cabinet and will be informed to HOCL for seeking necessary approval from Government of India. Accordingly, Govt of Maharashtra had granted permission for construction of compound wall on the land registered in favour of BPCL. It has been informed by BPCL that they have completed 95% of the work related to construction of compound wall till July 2021. Sale of balance land approx. 250 acres will be taken up only after the above issues are resolved. NOC for the sale of 7 acre of Panvel land is awaited from Maharashtra Government. The Department is closely following up the matter with the State Govt. at the highest levels for expediting resolution of the issues delaying disposal of HOCL's land.

HINDUSTAN FLUOROCARBONS LTD (HFL)

9.13 Hindustan Fluorocarbons Ltd. (HFL), a subsidiary company of Hindustan Organic Chemicals Ltd. (HOCL), was incorporated on 14.07.1983. It is located at Rudraram, P.O, Kandi Mandal, District Sangareddy, Telangana. The company started production in the year 1987 and is engaged in the manufacture of Poly Tetra Fluoro Ethylene (PTFE) and Chloro Di Fluoro Methane (CFM-22). PTFE is extensively used in chemical, mechanical, electrical and electronic industries and has strategic applications in defence and aerospace sectors.CFM-22 is sold directly as a refrigerant gas and also as feed stock for production of PTFE.

9.14 Authorized and paid up share capital of HFL is Rs.21 crore and Rs.19.61 crore respectively. HOCL (Promoter Company) holds 56.40% of the equity share capital and balance is held by the public (39.11%) and Andhra Pradesh Industrial Development Corporation (4.43%). HFL is listed on the Bombay Stock Exchange (BSE).

9.15 HFL started making losses from its inception in 1987-88 resulting in erosion of its net worth and reference to erstwhile BIFR in 1994. A rehabilitation package for HFL under the operating, agency M/s IDBI was approved by BIFR on 03.12.2007. Total cost of rehabilitation package was Rs.19.28 crore which did not involve infusion of any Govt. funds. Following implementation of the rehabilitation package, HFL made marginal profits from 2007-08 to 2012-13. However, the company did not come out of BIFR as its net worth remained negative. HFL again suffered loss of Rs.24.82 crore in 2013-14 mainly on account of provisioning for 1997 and 2007 wage revision

arrears and reduction in sales realization. Thereafter, the company has continued to suffer losses mainly on account of reduction in sales realisation. Despite the 2007 rehabilitation package, net worth of the company has remained negative.

Financial Performance

9.16 Financial performance of HFL in terms of turnover and net profit/loss for the last 5 years and net worth as on 31.3.2021 are given below:

(Rs. In crore)

Year	Turnover	Net profit / (Loss)
2016-17	38.06	(6.33)*
2017-18	43.08	(4.82)*
2018-19	45.86	(4.78)*
2019-20	36.96	(4.12)*
2020-21	4.33	(25.32)#
Net worth (as per Ind AS which includes revaluation of land and other assets as on 31.3.2021. (Rs.72.64) crore		

*As per the new accounting standard Ind AS

This amount includes an amount of Rs.18.05 Cr for VRS expenditure during the year

9.17 During the year 2021-22 (up to September, 2021), the company had no Sales turnover and suffered loss of Rs.1.71 crore as per the provisional unaudited balance sheet. The reduced turnover and increase in losses is due to the shutting down of plant/unit as per the CCEA decision dated 22.01.2020 for closure of the company as given in the following paragraphs.

Closure of HFL

9.18 HFL was earlier manufacturing CFM-22/HCFC-22 and sold most of it directly as refrigerant gas since its conversion to PTFE is not financially viable for the company due to uneconomic plant capacity and old technology. For the calendar year 2020, HCFC-22 production quota of only 283 MT was allotted by Ministry of Environment, Forest & Climate Change (MoEFC) as per the requirements of Montreal Protocol, with the reduced HCFC-22 quota in 2020, HFL's operations would have become unsustainable and it would have been forced to shut down the plant after April-May, 2020.

9.19 In view of the poor financial situation and non-viability of HFL's existing operations, the CCEA at its meeting on 22.01.2020 approved this Department's proposal for shutting down the operations of the plant/unit of HFL and closure of the company. In brief, salient features of the approved closure plan of HFL are as follows:

- All employees (except skeletal staff) to be separated through VRS/VSS as per DPE guidelines; non-VRS opting employees to be retrenched as per Industrial Disputes Act.

- GoI interest free loan of Rs.77.20 crore to be given to HFL for settling immediate closure related liabilities, including VRS/VSS expenditure, and to meet administrative expenses of skeletal staff.
- Appointment of NBCC as Land Management Agency to facilitate land disposal subject to Telangana Govt.'s decision to purchase the land.
- Appointment of MSTC for disposal of plant/machinery and movable assets through e-auction.
- Loan of Rs.77.20 Cr. and other GoI dues of HFL are to be repaid from sale proceeds of land and other assets; loans/dues remaining unpaid due to insufficient sale proceeds to be written off/ waived.
- Tentative timeline for completing all closure related formalities is 400 days. The timelines are delayed due to Covid-19, non-receipt of NOC from TSIIC/ TS Government.

9.20 After receipt of interest free loan of Rs.73.70 crore as advance from the Contingency Fund of India (CFI) sanctioned by the Ministry of Finance in May, 2020, for settlement of immediate closure related liabilities of HFL, necessary action was initiated for closing down the company's operations. As on 30.09.2021, total of 65 employees have been relieved through VRS/VSS after payment of their terminal and outstanding dues. At present the remaining manpower in the company is 11 regular employees, Non regular employees - 18 Nos and Consolidated employees. The Separation of 18 non-regular employees is pending as a case filed by them in 2010 in Labour Court for regularization of their services and matter is subjudice. The company has cleared the outstanding sum in the cash credit account with SBI and also settled water supply dues. The Settlement of other dues of suppliers/contractors/electricity is under progress. While regular plant operations have been stopped since July, 2020, final shut down was undertaken during December, 2020 and plant was cleaned and kept ready for disposal.

9.21 For disposal of HFL's land at its plant site (approx. 126 acres), it was decided in a joint meeting held between this Department and Telangana Govt. on 18.10.2019 that feasibility of transfer of the land to TSIIC at the rate/value determined by Collector, Sangareddy, will be considered by the State Govt./TSIIC. If TSIIC is not interested in taking over the land, then State Government will give NOC to HFL for disposal of the land as per GoI guidelines for industrial purposes only. It is understood that valuation of HFL's land has been submitted by the District Collector to the State Government in November, 2019. However, despite DO letters written by Hon'ble Minister of Chemicals & Fertilizers to Hon'ble Chief Minister Telangana and from Secretary (C&PC) to the Chief Secretary, Telangana for expediting the State Government's decision, no reply has been received with reference to State Government of Telangana decision for disposal of HFL Land.

In this connection it is further mentioned that Chairman HFL, had also met Principal Secretary to Chief Minister and regular follow-ups by officials of HOCL and HFL is made with the State authorities concerned, however, no response has so far been received from the State Government. In this regard Secretary(C&PC) had a meeting with Principal Secretary to Hon'ble Chief Minister

on 9th April, 2021 in Hyderabad and subsequently a DO letter dated 12-Jul-2021 was sent by Hon'ble Secretary (C&PC) to Hon'ble Chief Secretary, TS and Principal Secretary, Hon'ble Chief Minister, Telangana State and requested for NOC for sale of land of HFL. Decision of the State Govt. is awaited. Matter is being followed up by this Department at the highest levels with the Telangana Govt. for expediting their decision.

9.22 In the case of Rockwell Industries Limited vs. HFL, the High Court vide Order Dated: 04.11.2020 (Case No. COM.C.A. 16/2020) has directed HFL (Appellant) not to dispose or transfer or to create a third party right with regard to its assets. HFL is in the process of vacating the stay on disposal of assets. Subsequently plant and machinery and Land will be disposed of through MSTC (E-Auction).

9.23 MoEFCC had indented for "The Environment Statements under Environment (Protection) Act, 1986 for the year 2019-2020 and 2020-2021 for HFL w.r.t the Ozone Depleting Substances and the information sent to MoEFCC by HFL on 07-Sep-2020 for grant of MLF (Multi-Lateral Funding) for closure of HFL. Various communications and audits happened with MoEFCC and World Bank for MLF. However, MoEFCC vide DO letter No.42/31/2017-PMU-OC dated 28-Sep-2021 informed that MLF funding will not be provided to HFL since closure decision was taken by GoI. It was also informed that no further intervention from MoEFCC is admissible as per the rules and procedures of Ex-Com of the MLF. Therefore, MoEFCC funding may not be available to HFL.

HIL (INDIA) Ltd.

9.24 HIL (India) Ltd., formerly known as Hindustan Insecticides Limited (HIL), was incorporated in 1954 in New Delhi for manufacturing and supply of DDT (Dichloro Diphenyl Trichloroethane) for Malaria Eradication Programme of Government of India. In the year 1957, the company set up a factory at Udyogamandal, Kerala, for manufacturing of DDT. HIL set up another factory in 1977 at Rasayani, Maharashtra, for manufacturing DDT and Malathion, an insecticide. The third manufacturing unit of the company for product formulation was set up at Bathinda, Punjab, in 2003 by shifting its erstwhile Delhi factory. Rasayani and Udyogmandal Plants have both DDT and agrochemical manufacturing facilities while Bathinda has only formulations manufacturing and packaging facility. The company has also diversified its business in to seeds and fertilizers sectors also. The company has 7 Regional Sales Offices across India and a wide network of dealers for marketing and distribution of its products across India.

9.25 The company acquired the new name of HIL (India) Ltd. with effect from 20.03.2018 as the old name viz. Hindustan Insecticides Ltd., was not reflecting the entire gamut of diversified business activities of the company. At the same time, the new name retains the association with its established brand name of HIL.

9.26 The authorized and paid up share capital of HIL is Rs.100 crore and Rs.91.33 crore respectively. 100% of its shares are held by the Govt. of India.

9.27 HIL is the sole supplier of DDT to the National Vector Borne Disease Control Programme (NVBDCP) of the Ministry of Health and Family Welfare, Government of India. The company diversified into agrochemicals in the late 1970s to ensure supply of quality pesticides at reasonable prices to the agricultural sector. Today it has a range of technical and formulation grade pesticides to meet the varied requirements of the farming community.

9.28 To further consolidate its position, HIL in 2012-13 ventured into seed production and marketing business. The company has been recognized as a national level seed agency by the Ministry of Agriculture and Farmers Welfare for production and marketing of certified seeds for crops and vegetables. The company actively participated in seed production and supply of seed minikits of high yielding varieties under National Food Security Mission (NFSM), National Mission on Oil Seeds and Oil Palms (NMOOP) and Mission on Integrated Development of Horticulture (MIDH) as National Level Seed Agency. With the sincere efforts of the management and support from Ministry of Agriculture & Farmer's Welfare, company could achieve a seed turnover of Rs.54.90 Cr. in 2020-21. To further increase the seed production & distribution share of the company, the company is exploring new market for seed supply in the States like Tripura & Sunderban Delta Development Board.

9.29 In order to strengthen the seed infrastructure, HIL has set up a seed testing laboratory at its R&D complex, Gurugram, and is constructing seed godowns and seed processing plant at Bhatinda unit with financial assistance from Ministry of Agriculture & Farmers Welfare, which will be additional income avenue for the company in near future. In near future, the seed testing laboratory will be upgraded for commercialized benefits apart from in house seed testing.

9.30 In 2015-16, with a vision to become one stop shop for all the agricultural inputs needs of farmers, HIL further diversified into fertilizers trading business. It has been inducted by the Department of Fertilizers as an agency to import fertilizers under Nutrient Based Subsidy Scheme. After the successful commissioning of water soluble fertilizer (NPK 19:19:19) plant of 1800 MTPA at Bathinda in 2016-17 under brand name 'HILGOLD', the company has started commercial production of HILGOLD at the other two units (Rasayani and Kochi) also with capacity of 3000 MTPA each. During the financial year 2020-21, the Company has done business of about Rs.145 Crore and expanded the network to North East States also. The decline in sale in comparison to 2019-20 is mainly due to COVID-19 pandemic, which has affected the fertilizer supply chain.

Financial Performance

9.31 Financial performance in terms of turnover and net profit /loss for the last 5 years and net worth

as on 31.03.2021 are given below, (2020-21 figures based on unaudited financials):

(Rs. In crore)

Year	Gross Turnover	Net profit / (Loss)
2016-17	372.94	3.26
2017-18	432.66	3.41
2018-19	478.24	3.62
2019-20	417.71	0.59
2020-21 (provisional)	402.49	4.50
Net worth as on 31.03.2021of HIL is : ***Rs.99.93 Cr.***		

9.32 The company's operations were adversely affected during 2019-20 due to production loss following COVID-19 related nationwide restrictions which resulted in reduced turnover and profitability. The decline in net profit for 2019-20 was also due to almost 47% reduction in DDT order quantity by NVBDCP and reduction in seed sales. During FY 2020-21, gross turnover of Rs.402.49 crore and net loss of Rs.4.50 crore, as per provisional unaudited result. The performance of the Company has been impacted due to COVID-19 lockdown related restrictions.

Exports

9.33 HIL achieved exports of Rs.12.68 crore in FY 2019-20 as against Rs.10.12 crore during the year 2018-19. The company exported DDT, Malathion Technical and Agrochemicals to countries in Africa and Latin America during the year. In the FY 2020-21, HIL has achieved exports of around Rs.25 crore. HIL is striving to give more emphasis to exports in the coming years.

New initiatives and projects of HIL

9.34 With a view to widen the product profile and reduce the company's dependence on DDT revenue, several new initiatives and projects have been taken up / planned by HIL to diversify its operations. Some of these initiatives/projects are given below:

i. HIL has signed MoUs with other public sector fertilizer companies namely National Fertilizers Limited (NFL), FACT, BEC Fertilizers and IFFCO for supply of neem coated UREA, DAP and NPK to HIL's business network across the country. The company has also entered into marketing tie-ups with Single Super Phosphate (SSP) manufacturers in the country for the supply of SSP to the company's business network.

ii. HIL has entered into MoU with UNIDO and IPFT for scaling up the commercial production of neem based products like coil, cream, suspension concentrate etc. with the financial support of UNIDO (USD 1.33 million i.e. Rs.9.78 Crore). During the FY 2020-21, technology transfer was completed and demonstration of pilot plant production was also accomplished. Now, HIL is looking forward to start the commercial production.

iii. Board has approved the BT Larvicide under UNIDO assistance of USD 1.83 million (Rs.13.7 crore). Commercial production of "Bio Pesticide Trichodermaviride" and Bio Pesticides Pseudomonas fluorescens" will be commissioned soon as the Technology transfer of large scale commercial production for these Bio-Pesticides has been completed during the FY 2020-21.

iv. The company has set up a Long Lasting Insecticidal Nets (LLIN) manufacturing facility at its Rasayani Unit with an initial capacity of 50 lakh nets per annum under the UNIDO's project "Development and Promotion of Non-POP alternative to DDT", which shall be scaled up to 10 million per annum by the year 2021-22.

v. The company carried out 20 numbers of training programs in 2020-21 for farmers in different part of the country on safe and judicious use of pesticides and adoption of integrated pest management practices. Around 6840 farmers has participated and benefitted under this programme during the FY 2020-21.

vi. The company has taken initiative to set up Kisan Samadhan Kendras (KSKs) in various states to provide all agro inputs to farmers like agrochemicals, seed & fertilizers, along with advisory services on crop solutions & management, agribusiness opportunities, awareness & guidance to avail Govt. subsidy & welfare schemes etc., to enhance their economic status. The Company has opened 48 KSKs upto FY 2020-21.

vii. In view of the COVID-19 pandemic, HIL has launched products for hand hygiene like alcohol based sanitizers and is in process of further diversifying into sanitization activities and long-term disinfectant/anti-microbial solutions in the market.

viii. HIL is making efforts to enter into Joint Venture with Indian agrochemical companies for making the industry self-reliant and self-dependent in line with the GoI's "MAKE IN INDIA" initiative and "ATMANIRBHAR BHARAT ABHIYAN" through indigenous production of intermediates and agrochemicals and to reduce import dependency and dependence on any single market.

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Chapter-10

AUTONOMOUS INSTITUTIONS

Central Institute of Petrochemicals Engineering & Technology (CIPET)

10.1 Central Institute of Petrochemicals Engineering & Technology (CIPET) (formerly known as Central Institute of Plastics Engineering & Technology) is a centrally funded technical higher education institution under the Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India fully devoted to Skill development, Technology Support, Academic & Research (STAR) activities for the growth of Petrochemical & allied industries in the country. CIPET has 44 centers spread across the country which includes 8 Institute of Plastics Technology (IPTs), 30 Centers for Skilling and Technical Support (CSTS), 03 School for Advanced Research in Polymers (SARP), 3 sub-centers.

10.2 Apart from the above, CIPET is also in the process of establishing 3 more Centers at Ayodhya, Bhagalpur & Sanand. CIPET Centers have state-of-the-art infrastructural facilities in the area of Design, CAD/CAM/CAE, Tooling & Mould manufacturing, Processing, Testing and Quality Control to cater to the needs of polymer and allied industries.

I. ACADEMIC AND SKILL DEVELOPMENT PROGRAMS

(a) Long term Professional Skill development Programs:-

10.3 CIPET conducts the following long term training programs (i.e., Diploma, Post Diploma, Post Graduate Diploma, Undergraduate and Post Graduate) with varying level of entry qualification and Ph.D. program.

- Ph.D in Material science & Engineering, Polymer Science & Technology, Plastics Engineering, Physics & Chemistry.
- M.Tech. in Plastics Engineering/Technology (2 years)
- M.Tech. in Polymer Nanotechnology (2 years)
- M.E. in CAD/CAM (2 years)
- M.Sc.in Bio Polymer Science (2 years)
- M.Sc.in Polymer Science (2 years)
- M.Sc. in Applied Polymer Science (2 years)
- M.Sc. (Tech.) in Material Science Engineering (5 years, integrated program)
- B.Tech. in Plastics Engineering/Technology (4 years)
- B.E./B.Tech. in Manufacturing Engineering/Technology (4 years)
- B Tech in Petrochemicals Engineering (4 Years)
- Post Graduate Diploma in Plastics Processing & Testing (PGD-PPT) (2 years)
- Post Diploma in Plastics Mould Design with CAD/CAM (PD-PMD)(1 ½ years)

- Diploma in Plastics Technology (DPT) (3 years)
- Diploma in Plastics Mould Technology (DPMT) (3 years)

10.4 The Undergraduate, Postgraduate & Doctoral programs are offered at CIPET : IPTs in affiliation with respective State Technical Universities. Admission to UG/PG/Ph.D programs are carried out as per the norms and guidelines of respective state affiliating university. Diploma level programs are offered at CIPET:CSTSs and students for these programs are admitted through all India CIPET Admission Test 2021 (CAT-2021).

10.5 It is stated to commence new academic program i.e., B Tech in Petrochemicals Engineering (4 Years) at CIPET: IPT: Jaipur from the academic session 2021-22

10.6 Due to Covid-19, online classes were conducted to complete the syllabus of 2019-20 & 2020-21 batch students of UG/PG and Diploma/Post Diploma/Post Graduate Diploma courses and semester examinations for final year and running batches of Diploma/Post Diploma/Post Graduate Diploma courses were conducted through online mode and results were declared. The orientation classes have been started for Diploma/Post Diploma/Post Graduate Diploma courses from 15th September 2021.

(b) <u>Short Term Vocational Skill development Training Programs</u>

10.7 In line with the "Skill India Mission" of Govt. of India, CIPET also focuses on Skill development training programs in the entire gamut of Plastics Engineering & Technology. In line with National Skills Qualifications Framework (NSQF) norms & guidelines, at present CIPET is conducting 37 National Skills Qualifications Committee (NSQC) approved programs in the field of Plastics Engineering & Technology. The broader range of programs offered at CIPET includes:

- Employment linked, sponsored skill development programs
- Up-skilling and re-skilling programs
- Short term industry specific programs
- Tailor made programs for industries
- In plant training for students from various colleges and universities.

10.8 These programs with duration ranging from 16 hours to 960 hours are aimed at enhancing skill and competency level of participants in the relevant domains of plastics.

10.9 Majority of the skill development programs are sponsored by various State / Central Govt. departments / agencies with the sole objective of uplifting the living standards of underprivileged / unemployed youth through gainful employment in leading plastics & allied industries in India and abroad. During the year 2021-22 (upto September, 2021), CIPET has trained 9,302 candidates through short term skill development programmes.

10.10 CIPET received the Excellence Award from the Hon'ble Union Minister (MSJE) and Hon'ble

MoS (MSJE), Govt. of India on 7th August, 2021 for outstanding performance in implementation of Skilling Programs under PM-DAKSH Yojana supported by Ministry of Social Justice and Empowerment, Govt. of India through their corporations i.e., NBCFDC & NSFDC for the benefit of their target group. The function was organized by MSJE at Dr. Ambedkar International Centre, New Delhi.

II TECHNOLOGY SUPPORT SERVICES

10.11 DCIPET offers Technology Support Services (TSS) in the entire spectrum of Petrochemical Engineering & Technology. TSS forms an integral portfolio of CIPET and highlights its core competency by offering high quality services to customers in the areas of Design and Manufacturing of Moulds & Dies, CAD/CAM/CAE services, Tooling, Plastics processing & Testing, inspection & quality control.

10.12 During the year 2021-22 (upto September, 2021) 42,587 nos. of technical support assignments were undertaken which include job works, mould orders, testing and consultancy services. Pre delivery inspection (PDI) of Plastics products as well as metallic pipes (CI/DI/ GI/ MS etc.) and fittings are also undertaken by CIPET.

10.13 The Major Activities / Assignments undertaken by CIPET- Technology Support Services (TSS):-

Development of the component Pin Gauge and Go Gauge – CIPET: IPT-Raipur;

Development of Switching piece for Landline telephone and Reel by CIPET Mysuru

Development of Spray Pump Body for Agriculture Usage - M/s. Aditya Enterprises, Aurangabad by CIPET: CSTS, Aurangabad

Spray pump body

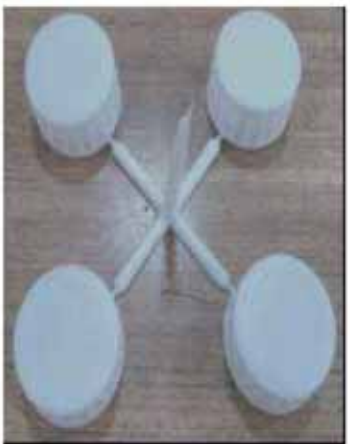
Development of Key, Ring Connector used in Tatra Engine - M/s. Bharat Earth Movers Limited (BEML), Mysuru by CIPET: CSTS, Mysuru

Development of Carbon Fibre Tue used in Drone Assembly - M/s. Eagle eye Drones, Mysuru; by CIPET: CSTS, Mysuru

Design & Development of Bird Feeder for M/s SIG Perumbavoor, by CIPET:IPT, Kochi

Development of Spray Handle for M/s Agrima International, Kottayam by CIPET: IPT, Kochi

Design & Development of Injection moulds for Inner cap, Outer Cap & Measuring Cup for Plastic Bottle used for agricultural Chemical packaging – M/s. HIL India Ltd. Bhathinda by CIPET: CSTS, Aurangabad



Design & Development of extrusion blow moulds for 250ml, 500ml & 1000 ml bottle used for agricultural Chemical packaging – M/s. HIL India Ltd., Bhathinda by CIPET: CSTS, Aurangabad

Design & Development of MGB Frame LH, Eye end Fitting, Locating Pin and Pin for Helicopter Component - M/s. BEML Aerospace, Mysuru By CIPET: CSTS, Mysuru

Development of Injection Moulded product 16'' Talsa - for M/s. Shree Krishna Plastic, Gwalior by CIPET: CSTS, Gwalior

Development of Poultry Feeder Parts for M/s South Indian Poultry Equipments, Perumbavoor, Kerala by CIPET: IPT, Kochi

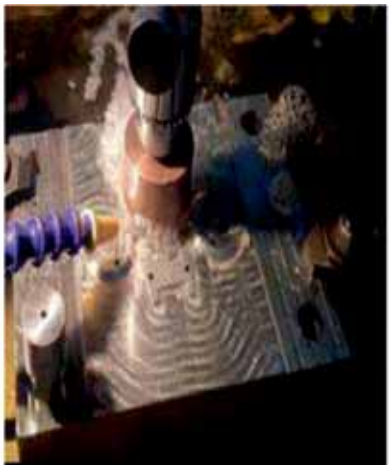
Development of cutter blade (70T) in spring steel for the application of rubber piercing blade for M/s. Southern Cogen Pvt Ltd, Mysuru, Karnataka by CIPET:CSTS, Mysuru.

Design & Development of Four cavity injection Mould for M/S TMKI PVT. LTD, Jaipur by CIPET: IPT, Jaipur

Development of product 22'' Planter - Roto Moulding for M/s. A.P. Plastic, Gwalior by CIPET: IPT, Gwalior


Design & Development of (i) Panel Box Top, Bottom (ii) TPMS Box Top & Bottom for M/S FLEECA INDIA LTD., Jaipur by CIPET: IPT Jaipur


Fabrication of Core & Cavity Plate family mould for SBA-2 Cavity Side, SBA-2 Core Side and SBA-2 Component - M/s. Steel Bird Hitech India Ltd. Baddi by CIPET: CSTS, Baddi


10.14 Exposure training on Metallic Pipes has been given to CIPET Officials in-line to expanding the scope of inspection in the field of metallic products. Total 19 Nos. Officials have been trained.

Sl. No.	Nos. of Officials	Duration
1	10 Nos.	13.09.2021 to 17.09.2021
2	9 Nos.	27.09.2021 to 01.10.2021

CIPET is recognized as third party inspection authority by Jal Jeevan Mission (JJM), U.P. and Municipal Corporation of Thoothukudi Smart City, Tamil Nadu.

III RESEARCH & DEVELOPMENT ACTIVITIES:

10.15 Three well established R&D wings of CIPET: School for Advanced Research in Petrochemicals (SARP) viz., (i) Advanced Research School for Technology & Product Simulation (ARSTPS) at Chennai, (ii) Laboratory for Advanced Research in Polymeric Materials (LARPM) at Bhubaneswar and (iii) Advanced Polymer Design & Development Research Laboratory (APDDRL) at Bengaluru have been consistently contributing in applied research for industries.

10.16 During the year 2021-22 (upto September, 2021), 33 nos. of Research Projects have been undertaken and 38 Research Publications in scientific peer-reviewed have been published in International Journals; 03 New Innovative Technologies have been patented and Technologies have been transferred.

10.17 The major Research & Developmental projects undertaken are given below:

- Technology for 3D printing of Bifunctional, Biomimetic Bone Scaffolds for Tumor Therapy and Bone Regeneration - DST, New Delhi (Scheme: SEED).
- High performance nanofiber based Zwitter ionic polymer electrolytes for safe all solid state lithium ion battery applications -DST, New Delhi (Scheme: INSPIRE – Faculty).
- Device Architecture for Improved Optoelectronic Properties of Polymer Light Emitting Diode (PLED) – DST, New Delhi (Scheme: INSPIRE – Fellow).
- Development of new generation Acetabular Socket Liner and Femoral Head Prototypes with unique 3D microstructures and better fracture resistance for Osteoporosis and Osteoarthritis treatment, DST-SERB, New Delhi (Scheme: IMPRINT).
- Development of Paper based Colorimetric Device to Detect Pathogen for the Diagnosis of Urinary Tract Infection (UTI) – DST, New Delhi (Scheme: BDTD)
- Design & Development of Water Valves – Metal to Plastic Conversion (Valve, Cover & Upper Part). M/s. Danfoss Industries Pvt. Ltd., Chennai.
- Development of Colour Tuning Polymer Blends (Red, Green and Blue Emission) for Display Applications, DST-Inspire Fellow, New Delhi.

- Translational Research on Biomaterials for orthopedic and Dental Application, DBT, New Delhi.
- Development of high performance polypropylene for engineering application in automobile sector -MRPL, Bengaluru
- Technology for Aberration free Polymer Bi-aspheric lens for Indirect Ophthalmology – CRG, DST-SERB, New Delhi
- Technology for Efficient Power Generation through Floating Solar Photovoltaics at High Latitude Locations - DST-SERD, New Delhi
- Molecularly Imprinted Polymers (MIPs) based Electrochemical Biosensors for Selective Bio-analyte Detection – DBT, New Delhi
- Flexible Piezoelectric Composites Foams - DST-SYST, New Delhi.
- Capacity Building for reducing Plastic & Chemical Pollution in India (INOPOL) - NIVA, Norway
- Centre of Excellence on "Additive Manufacturing" – MeitY, Govt. of India, New Delhi
- Aqueous Electrolytes in Super capacitors - SERB-SRG, New Delhi.
- Centre of Excellence on "Manufacturing of Next generation Biomedical Devices" - DCPC, Govt. of India, New Delhi.
- Development of Corrosion Resistant and Anti-Fouling Based Smart Zeolite Coatings for Marine Vehicles - SERB-NPDF, New Delhi.
- Competency enhancement of System houses and Micro, Small and Medium Enterprises in the Foam Manufacturing Sector for ensuring smooth and sustainable phase out of HCFC141b – UNDP, New York City
- Development of functionalized gamma irradiated guar gum based biodegradable films for improved mechanical and high barrier packaging applications – BRNS, Mumbai
- Process Development for Effective Utilization of Lignocellulosic Natural fibres Based Thermoplastics Hybrid Composites for high end structural application – DST, Govt. of India, New Delhi
- To study the fire retardancy of nano-ATH in polymers - Ministry of Mines, Govt of India, New Delhi

Patents:

- Design & Development of Outdoor Weatherometer with Automated Sun Tracking System for Effective Ageing (Filed)
  Application No. 202141019905
- Biobased Superabsorbent Composition and its Preparation thereof (Filed)
  Application No. 202131039905
- Method for Vapour Phase Growth of Binder-Free 3DCarbon Doped Metal Nitride Porous Architecture Electrode for Supercapacitor and Thereof (Filed)
  Application No: 20213103990

Accreditation:

10.18 CIPET: SARP ARSTPS is accredited by NABL as per ISO: IEC 17025:2017 for Mechanical & Chemical Testing of Biomedical Devices and Sandwich Composite Structures.

10.19 **Conference /Webinars Details:**

i) Oral Presentation on National Conference on PRAKALP 2021 organized by MIT Academy of Engineering on 13th & 14th September 2021
Shubasmita Rout, Sukanya Pradhan & Smita Mohanty

ii) International Conference on Nanomaterials (ICN-2021) at Mahatma Gandhi University, Kottayam, April 9-11, 2021.
Neethu V G, Nilima Priyadarsini Swain, Ankita Mohanty, Smita Mohanty, Sanjay K Nayak, Ananthakumar Ramadoss,*
Fabrication and Electrochemical Characterization of 3D- Iron Nitride Materials for Supercapacitors.

iii) International Online conference on Nano Materials (ICN 2021), 9-11 April 2021, organized by Mahatma Gandhi University Kottayam, Kerala, India.
Flexible PVDF-TrFE/BFO Nanocomposite Films for Piezoelectric Energy Harvesting

iv) Fabrication and Characterization of Nylon12-Graphite Composite: A Novel Step towards 3D Printing of Functional Device
Frontiers in Materials for Technological Applications (FIMTA),CSIR-IMMT, Bhubaneswar, 04-06 August 2021
Jyotiprakash Das, Manoj TP, Smita Mohanty, Ananthakumar Ramadoss,

v) International Conference on Nano materials (ICN), M.G University, Kerla, 09-11 April 2021
Jyotiprakash Das, Manoj TP, Sudheer Kumar,Smita Mohanty, Sanjay K Nayak, Ananthakumar Ramadoss
Bismuth Oxide Reinforced Nylon-12 Composite Filament for 3D Printing of Multifunctional Semiconducting Devices

IV FINANCIAL PERFORMANCE:

10.20 During the financial year 2021-22 (Upto September, 2021), CIPET has generated income of Rs.95.23 crore. CIPET has enriched the civil & technical infrastructure facilities which has resulted in ensuring consistent growth in all the domains of Petrochemicals Engineering & Technology viz., Skill Development, Technology Academic and Research & Development and had been operating on self-sustainable mode since 2008-09 onwards.

V SEMINAR / WORKSHOPS

Awareness Program on "Responsible Use of Plastics and Plastics Waste Management Rules 2021":

10.21 On the occasion of inauguration of Central Institute of Petrochemicals Engineering & Technology (CIPET): Institute of Petrochemicals Technology (IPT), Jaipur by Hon'ble Prime Minister of India on 30th Sept, 2021, CIPET has conducted an awareness program on "Responsible Use of Plastics and Plastics Waste Management Rules 2021" at 10 Nos. CIPET Centers located across the country from 10:00 A.M onwards. The program was organized at CIPET: IPT Ahmedabad, CIPET: IPT Chennai, CIPET: IPT Bhubaneswar, CIPET: IPT Murthal,

CIPET: IPT Lucknow, CIPET: IPT Raipur, CIPET: CSTS Aurangabad, CIPET: CSTS Hyderabad, CIPET: CSTS- Jaipur & CIPET: CSTS Guwahati. Speakers from State Pollution Control Board, Indian Institute of Packaging, Plastics Manufacturing Association and CIPET Faculties delivered talk covering the following topics:

- ❖ Challenges & Issues in PWM
- ❖ PWM Rules – 2016 and amendments in 2019 & 2021
- ❖ Single Use Plastics (SUP) and its alternatives
- ❖ Opportunities for effective utilization of plastic waste

Total 6575 participants consist of CIPET Employees/ Scientists/ Research Scholars Staffs/ Faculties, students, alumni and industrial personnel have participated in the program through physically as well as virtually.

VI INAUGURATIONS

1. Inauguration of CIPET, IPT – Jaipur:

10.22 CIPET:IPT Jaipur has been inaugurated & dedicated to the nation on 30.09.2021 by Shri Narendra Modi, Hon'ble Prime Minister of India, in the august presence of Shri Manshukh Mandaviya, Hon'ble Minister of Chemicals & Fertilizers and Minister of Health & Family Welfare, Shri Bhagwant Khuba, Hon'ble Minister of state for Chemicals & Firtilizers and New & Renewable Energy, Shri Ashok Gehlot, Hon'ble Chief Minister, Govt. of Rajasthan and Dr. Raghu Sharma, Hon'ble Minister of Health, Govt of Rajasthan.

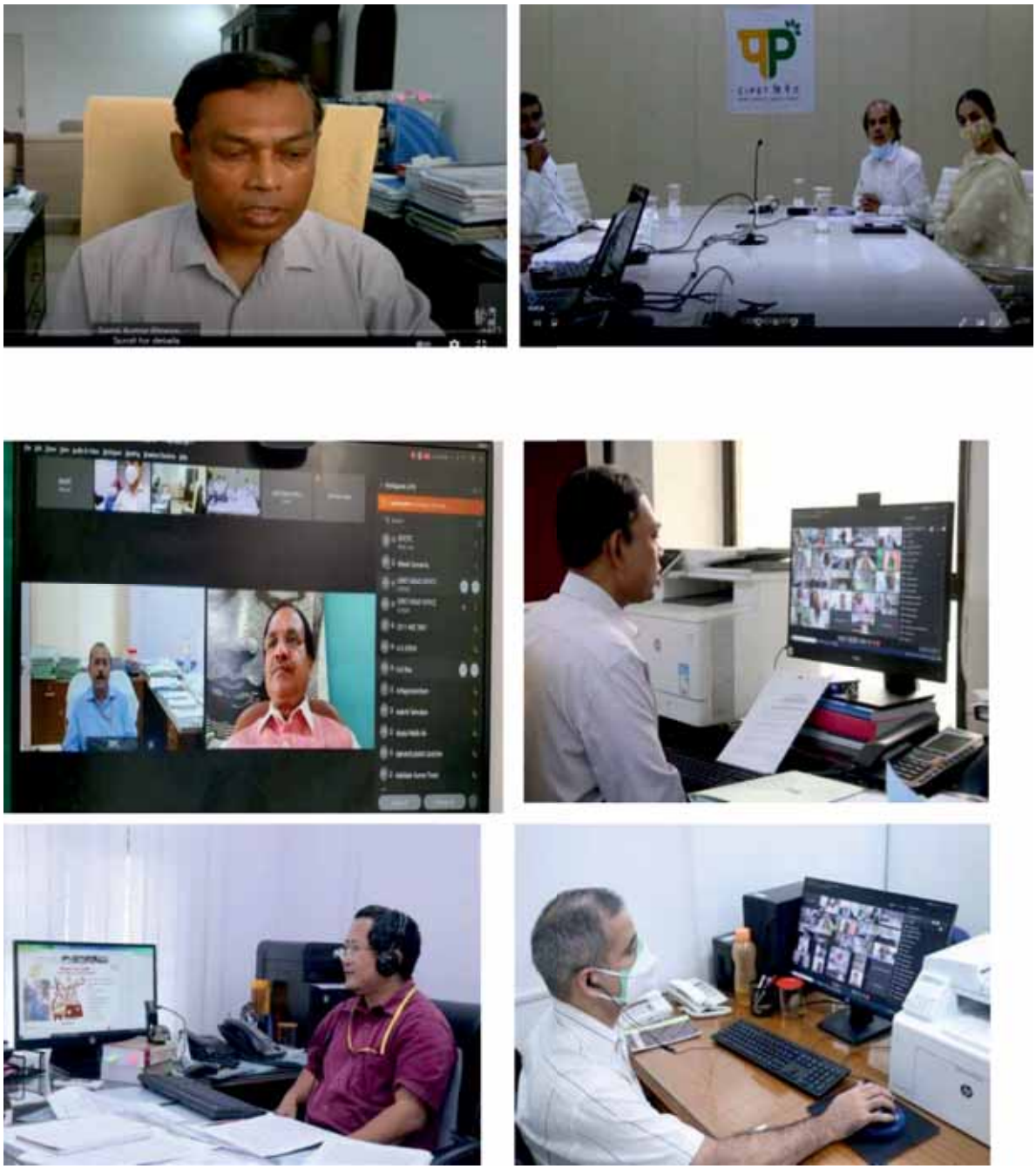
2. Foundation Stone Laying of CIPET : CSTS – Varanasi

10.23 Foundation Stone of CIPET: CSTS – Varanasi was laid by Shri Narendra Modi, Hon'ble Prime Minister of India on 15th July 2021 at 11:00 AM in a function held on BHU Techno-ground in the august presence of Smt. Anandiben Patel, Governor of Uttar Pradesh, Shri Yogi Adityanath, Hon'ble Chief Minister, Govt. of Uttar Pradesh and other dignitaries of Govt. of Uttar Pradesh.

VII SWACHH BHARAT ABHIYAN

Webinar on "Swachhta":

10.24 In accordance with the observance of 'Swachhta Pakhwada', CIPET has organized a webinar on 'Swachhta' on behalf of Dept. of Chemicals & Petrochemicals (DCPC) on 8th September 2021 it was inaugurated by Shri Bhagwanth Khuba, Hon'ble Minister of State in the Ministry of Chemicals & Fertilizers and Ministry of New & Renewable Energy, Govt. of India. Around 470 participants participated in the webinar. 648 viewers were watching live webinar through YouTube from Public Sector Undertakings and Autonomous Bodies under the Department of Chemical & Petrochemicals, Govt. of India.



Glimpse of the Participants attending Swachtta Webinar

VIII AAZADI KA AMRIT MAHOTSAV (@75 years of India's Independence)

10.25 In line with the directives from the Govt. of India, Central Institute of Petrochemicals Engineering and Technology (CIPET), is celebrating "Azadi Ka Amrit Mahotsav" to commemorate the 75th Anniversary of India's Independence. As part of this program CIPET has conducted several activities some of them are described below:

1. National Webinar: on the topic of "To spread awareness among public about the struggle of the freedom fighters"

10.26 With the guidance, encouragement and support from the Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Government of India, CIPET: IPT - Murthal, organized a National Webinar on the topic: "To spread awareness among public about the struggle of the freedom fighters" on 8th April 2021 from 3:00 PM to 4:30PM. This webinar is part of the ongoing Programme titled "AAZADI KA AMRIT MAHOTSAV" being organized by the Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Government of India in commemoration of 75th Anniversary of India's Independence.

Glimpse of the Event

2. National Webinar: on the topic of "Plastic Waste Management and Amendment Rules 2021 and its Implications"

10.27 In the endeavour of Azadi Ka Amrit Mahotsav, CIPET Bhopal has organized a National webinar on "Plastic Waste Management and Amendment Rules 2021 and its Implications"

to incorporate the spirit of Janandolan and Jan Bhagidari among CIPET's staffs, students, participants from various plastics industries and Govt. officials on 04.10.2021 at 2.00 PM to 5.30 PM. The webinar programme was inaugurated by Shri P. Narhari, Secretary, Department for M.S.M.E., Govt. of M.P. & Chairman – RAC-CIPET: CSTS – Bhopal.

10.28 Total registered participants were 572 nos. including 431 students, 66 industriy representatives and 96 Govt. Officials in the webinar. More than 800 viewers attended the webinar through YouTube.

10.29 To address the participants of the webinar, few distinguished speakers having experience in the field of plastics waste management were invited to deliver the talk on the topics related to plastic waste management.

Inaugural address by Shri P. Narhari, Secretary, Department for M.S.M.E., Govt. of M.P. & Chairman – RAC-CIPET:CSTS – Bhopal

Welcome address by Dr. Sandesh Kumar Jain – Principal Director & Head, CIPET: CSTS, Bhopal

Presentation on *"Single Use Plastics (SUP) – Reduce, Prohibition & Phasing out and latest scenario of Plastic Waste Management"* by Dr. Sandesh Kumar Jain – P.D & Head, CIPET: Bhopal

Presentation on *"Solid waste Management"* by Dr. Mangalam Balasubramanian, Founder and Managing Trustee, Exnora Green Pammal, Chennai

Presentation on *"Plastic Waste Management - Indore Model"* by Dr. Syed Asad Ali Warsi, Environmentalist cum Sustainability Advisor Project Management Consultant to Municipal Corporation Indore

Presentation on *"Plastic Waste Management and Best Practices"* by Mr. Rajesh Kumar Saxena, Superintendent Engineer, Municipal Corporation Bhopal

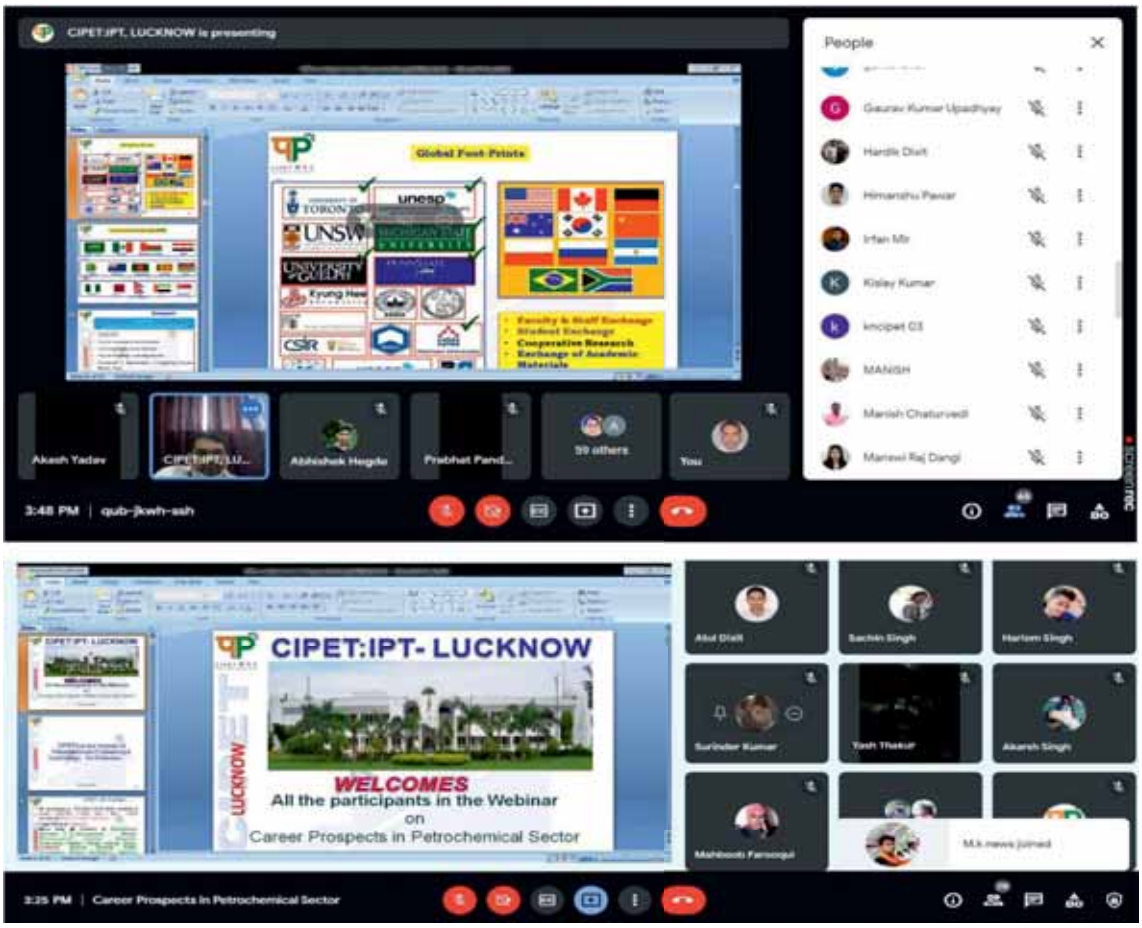
3. Blood Donation Camp

10.30 Blood Donation Camps were organized by CIPET on 3rd October, 2021 on the occasion of 75th Azadi ka Amrit Mahotsav. Students and employees have participated in the noble venture. The blood units so collected were used to provide lifesaving components of blood through the various blood banks near to the CIPET centers to needful patients. All volunteers who have donated their blood were provided with participation certificate from the hospitals.

Glimpse of the Event

4. Webinar on "Career Prospectus in Petrochemical Sector"

10.31 CIPET has conducted webinar on the theme of "Career Prospectus in Petrochemical Sector" on 01.10.2021 at various CIPTE centers for students. The sessions started with brief introduction about the activities of CIPET and current scenario of Petrochemical sector. The participants were informed about the gross nature of activities in this sector and potential of the sector in future. Participants were briefed about courses being run at CIPET centers and placement statistics.



At CIPET: IPT- Lucknow

At CIPET: CSTS - Jaipur

At CIPET: CSTS – Bhubaneswar

At CIPET: CSTS – Bhopal

5. Distribution of Books:

Shri. Mahatma Gandhi Autobiography Books Distributed at various government schools by CIPET:IPT- Kochi.

6. CIPET has organized Drawing Competition, Essay Writing and Quiz competitions at various CIPET Centers as a part of celebration of Azadi Ka Amrut Mahotsav:

Drawing Competition at CIPET:CSTS-Hyderabad

Essay Competition

At CIPET:CSTS - Bhopal

At CIPET:CSTS - Chandrapur

IX Swachhta Pakhwada

10.32 CIPET, Head Office and its centers have organized Swachh Bharat Abhiyan activities every month. The students and staff have undertaken cleanliness activities in the Institute premises

including shop floor, hostel premises & surrounding areas and also, organized awareness rallies in the adjoining areas highlighting the importance of hygiene and cleanliness.

10.33 CIPET Head Office and its Centers observed Swachhta Pakhwada from 01.09.2021 to 15.09.2021. During Swachhta Pakhwada, the following activities / programs were organized by CIPET:

- Administering of Swachh Pledge.
- Pledge taken for creating awareness among the employees about cleanliness.
- Display of Swachhta message on the CIPET website
- Displayed Banners / Posters at prominent places of Institute Premises as well surrounding areas nearby Institute. Also distributed Dustbins (solid / Liquid Waste).
- Distribution of Mask, Sanitizers, Soap and other safety products towards the Preventive measures to control COVID-19.
- Curb the use of Single-Use Plastic (SUP) and discourage the use of plastic in the office viz:-
  (a) Avoiding plastic carry bags, plastic / thermocol disposable cutlery, cups, bowls spoons etc. at office.
  (b) Discourage use of artificial flowers, flex banners, flags, flower pots, PET bottles and other plastic material at office.
- Use of Social Media (Facebook, Twitter, Instagram, YouTube etc.) to generate awareness on Swachhta.
- Material prepared and sent to DCPC on "Develop Information, Education and communication (IEC) dissemination on better hygiene related to COVID-19"
- Tagging the Swachh Bharat handles when posting over Social Media.
- Twitter: @Swachhbharat, Facebook: SBMGramin,
  Instagram: Swachhbharatgrameen.
- Upkeep and cleaning of inside & outside of Institute premises.
- Online Competition for students viz. Slogan writing & Essay writing Competition for students on Swachhta.
- Upkeep and cleaning of inside & outside of Hostel premises and surrounding areas for the importance of hygiene and cleanliness.
- Webinar on 'Swachhta' organized by CIPET in association with DCPC, GOI.
- Organized online Competition for students viz. Debate & Drawing Competition for students on Swachhta.
- Sapling of trees at Institute premises for clean and green environment.

GLIMPSE

Dissemination of massages on " Free Vaccination for All"

10.34 As per the directions received from Administrative Ministry vide their e-mail dated 21.06.2021, the Heads / In-Charge CIPET Centers are requested to display of Photos / pictures of banners in the office premises as well as prominent places of Institute in r/o dissemination of messages on "Free Vaccination for All". Accordingly, CIPET Head Office and its Centers have been made compliance: -

X IMPLEMENTATION OF OFFICIAL LANGUAGE

Hindi Pakhwada:

10.35 Hindi Diwas on 14.09.2021 and Hindi Fortnight (Pakhwada) from 14.09.2021 to 28.09.2021 was organized at CIPET Head Office and at its Centers. During the Pakhwada various competitions were organized i.e. Vocabulary Competition, Slogan Writing Competition, Debate Competition & Quiz Competition. Further, Essay Writing Competition was also organized at CIPET Level – Subject:- "CIPET: Yesterday, Today and Tomorrow". Prizes were distributed among the winners on the concluding day of Hindi Pakhwada i.e. on 28.09.2021.

Institute of Pesticide Formulation Technology (IPFT)

Introduction:

10.36. Institute of Pesticide Formulation Technology (IPFT) located at Gurugram Haryana, is a registered Society under the Societies Registration Act - 1860 under the Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Government of India. IPFT is the only Institute of its kind devoted to the development of state-of-the-art user & environment friendly new generation pesticide formulation technologies. The institute has established a healthy rapport with the Indian Agrochemical Industries and has been able to successfully transfer technologies for safer, efficient and environment friendly formulations. IPFT is also helping the industries in data generation as per CIB/RC guidelines for bio-efficacy, phytotoxicity and pesticide residue analysis for both agriculture and house hold formulations. IPFT undertakes both in-house and external funded R & D projects.

Objectives of the Institute

- Development and production of the state-of-the-art user and environment friendly new generation pesticide formulation technology.
- Promotion of efficient application technologies suiting the existing requirements of the newer formulations.
- Information dissemination of safe manufacturing practices, quality assurances, raw material specification and sources.
- Analytical and consultancy services.
- Fostering the improvement in the qualification and usefulness of pesticide scientists working in the agrochemical area.
- Continuing education through specialized training for pesticide personnel.

Purpose to Setup

10.37 To minimize the risks and disadvantages of conventional formulations, IPFT was set-up to develop various user & environment friendly new generation pesticide formulations and related activities for safety of user, farmers and environment. IPFT is the only Institute of its kind in the country for helping the Indian Agro-chemical Industries in the field of pesticide formulations development. It has emerged as a reputed institute among the pesticide formulation and analytical R & D Centers of India. IPFT has always been at the forefront of developments in pesticide formulations and analytical technologies.

10.38 Pesticides in pure chemical form (technical grade) cannot be applied directly because of very high toxicity and complex physico-chemical properties. The technical grade pesticides are converted into a ready to use state (formulation), in which they can be diluted with water and small quantity may be homogeneously distributed over large target area. The formulated products are suitably applied by practical methods to produce desired efficacy on the target pests.

Organizational Setup

10.39 IPFT has a well defined organizational structure comprising of a Governing Body which is the supreme decision taking body. Governing Body meets annually and takes critical policy decisions related to the Projects, Budget, Manpower and General Management of the Institute. Governing Body is headed by Secretary, DCPC, New Delhi. For day-to-day financial and administrative control, the Institute has a Finance & Administrative Committee (F&AC) headed by Additional Secretary & Financial Advisor, Ministry of Chemicals & Fertilizers. The Committee meets as and when required to clear the issues related to Finance & Administration of the Institute. The Institute has a Research Advisory Board to undertake new projects and it is headed by ADG(PP), DAC, New Delhi.

Functional Division

10.40 IPFT is served by four major Functional Divisions, namely, Formulation Division, Analytical Division, Bio-Science Division and a Pilot Plant Division. The Institute carries out In – house, Grants–In–Aid and industry sponsored projects.

Formulation Division Activities

10.41 The main objective of this Division is to develop user & environment friendly new generation pesticide formulations. Having the required expertise and infrastructural facilities, Formulation Division is working on the advancement of pesticide formulation technology development. This Division has developed more than 80 formulation technologies, most of which have been successfully transferred to pesticide industries in India and abroad for commercialization.

10.42 The Division assists the pesticide industry personnel in producing safe and environment friendly pesticide formulations by enhancing their knowledge through training and seminars. The Division provides consultancy services to the industries on pesticide formulations. Division also has developed various bio-botanical pesticide formulations as a safe alternative to synthetic pesticides.

Analytical Division Activities

10.43 The Analytical Division is an accredited laboratory under ISO/IEC 17025:2005 and is a core division associated with all the activities of the institute. The Division is accredited for chemical testing of pesticides (Technical & Formulations), Pesticide residues in various food matrices and chemical warfare agents and their precursors and degradation products.

10.44 The Laboratory is fully equipped with the state-of-the-art analytical instrument such as GC, HPLC, GC-MS, LC-MS/MS, UV-VIS, GC-MS/MS and Semi-Preparative HPLC for undertaking the analysis of pesticides, their formulations and residues in various matrices. The Laboratory is

also recognized/certified by BIS for the testing of pesticide formulations as per IS specifications. The institute participates in the Proficiency testing programmes for the analysis of CWC related compounds conducted by the OPCW (Organization for the Prohibition of Chemical Weapons), The Hague, The Netherlands.

Biosciences Division Activities

10.45 The major thrust of the division is to evaluate the different pesticide formulations developed by this institute for their commercial viability, as in house services, through well equipped bio-assay laboratory and experimental field trials. Additionally, the division is also actively engaged in developing registration data packages of various pesticides as per Central Insecticide Board- Registration Committee protocols for the pesticide industry for their new formulations through sponsored projects. The division is recognized by Central Insecticide Board-Registration Committee for generation of data on bio-efficacy, phytotoxicity, compatibility, effect of pesticides on natural enemies of pests and residual aspects of pesticides.

PILOT PLANT DIVISION ACTIVITIES

10.46 The Pilot plant division has the infrastructure and equipments to scale-up the process of the pesticide formulations to semi commercial level production. The process of formulations developed by Formulation Division is scaled up in Pilot Plant.

TECHNOLOGY DEVELOPED

Botanical Anti- microbial Agents Based Hand Sanitizer:

10.47 Hands are major route for transmitting microbes to the individuals through touching of various objects, surfaces and shaking hands etc. The hand hygiene is very important to prevent many communicable diseases. Hand sanitizers are used for prevention from pathogenic microorganisms. Several available hand sanitizers contain chemical ingredients. The long term use of these sanitizers containing chemical antimicrobial agents may pose the hazards like development of resistance in microbes, adverse effect on human skin. To minimize the shortcomings of chemical based products, IPFT has developed Hand Sanitizer using botanical antimicrobial based formulations under a project sponsored by United Nations Industrial Development Organization (UNIDO). The process has been scaled up to Pilot Plant level. This formulation has been developed for prevention from various communicable diseases and COVID-19.

Grant-in-Aid Projects

Monitoring of Pesticide Residues at National Level, sponsored by Department of Agriculture & Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare, Government of India

10.48 IPFT is serving as one of the 32 centers of the above entitled national level project. As per the mandate of the project a total no. of 62 samples comprising of Cereals, Vegetables, Fruits, Milk and Water are collected from three locations of Haryana (Faridabad, Bahadurgarh and Palwal) in monthly frequency. Analysis results show an average contamination percentage of 10.5%, out of which approximately, 1.5% of samples are found to be above the Maximum Residue Limits (MRL).

Monitoring of Pesticide Residues at various districts of Rajasthan, sponsored by Govt. of Rajasthan

10.49 In this project, MOU has been signed between IPFT and RSSOCA for execution of the project. RSSOCA, Jaipur is involved in sampling and IPFT is involved in sample analysis and interpretation. Samples of fruits, vegetables, seed spices, cereals and oil seeds etc. are sent by RSSOCA to IPFT for pesticide residue analysis. Till date more than 21,213 samples have been analysed in the project. Out of 21213 samples, pesticides were detected in 13.11% samples and 1.44% samples were above MRL (FSSAI). Total 64 types of different commodities like spices, cereals, fruits and vegetables were analysed for the presence of pesticide residues. The pesticides were detected [above the MRL (FSSAI)] in 26.85% of spices, 17.27 % of fruits and vegetables, 11.81% of oil seeds, 10.76% cereals and 9.78% of pulses. 2.06% samples of pulses, 1.60% of spices, 1.42% of cereals and 0.65% of oil seeds. In case of fruits and vegetables samples monitored, pesticides detected were below the MRL and safe to the consumers. Chlorpyriphos, Malathion, Deltamethrin and Cypermethrin were most frequently detected pesticides in the samples.

In House R&D

(i) Development of Pyriproxyfen slow release Nano-encapsulated formulation for mosquito larvae control

10.50 Pyriproxyfen is an effective insecticide, which disrupts the growth and affects mostly young insects, mosquitoes and their eggs. The conventional Emulsifable concentrate (EC) formulation of Pyriproxyfen large amounts of organic solvents and pose the risk of contamination of water bodies. The development of slow release formulation of the Pyriproxyfen is on progress to control the mosquitoes at egg and larvae stage with minimal doses for reduction of contamination of water bodies and to minimize adverse effects on non-target organisms. This formulation will be suitable to control the mosquito population in stagnant water bodies like catch basins, water-based air cooler, poorly maintained drains, gardens and pools at construction sites.

(ii) Development of Penconazole Microemulsion Formulation

Penconazole is applied to fruit plants by foliar spray to control powdery mildew in apples, crab apple, pears, blackcurrants and grapes. Conventionally available EC formulation is petroleum solvent based, and poses the risk of flammability, phytotoxicity. The development

of microemulsion formulation of Penconazole is in progress. The active ingredient in sub-micron size droplets in microemulsion will reduce the dose and enhances the efficacy of the product.

(iii) Development of Bio-botanical pesticide formulation for controlling pest of Seed Spices

The formulation development work for controlling pest of seed spices in collaboration with ICAR- National Center for Seed Spice Research (NRCSS), Ajmer is in progress. The bio-pesticide formulations from Gaur seed (Cluster Beans) extract and Aak (Calotropis gigantean) extract, Trarmira seeds extract, and Hirsutella thompsonii have been developed for controlling pests of seed spices like Aphis craccivora- pest of fenugreek; Myzus persicae and Aphis gossypii pest of cumin; Hyadaphis pest of coriander. The bio-efficacy of developed formulations is being carried out at NRCSS.

(iv) Development of Calamus oil based formulation for controlling stored grain pests

The experimental work for development of granular formulation of Calamus oil as botanical based formulation for controlling stored grain pests was initiated. The formulation is being developed as safer alternative to synthetic chemical pesticides.

(v) Monitoring of residues of pesticides and heavy metals

The experimental work is continued on "Baseline survey of Residues of Pesticides and Heavy metals in Fruits, Vegetables, Cereals, Pulses, Sugarcane, Field soil, Ground water and Surface water of various regions of India". Samples from various locations are being collected and analyzed.

R & D SUPPORT SERVICES TO THE AGROCHEMICAL INDUSTRIES:

Bio-efficacy Field Trials:

10.51 The following Industry sponsored projects were conducted at IPFT Experimental Research Farm and experimental data were analysed and reports are under preparation. Some of the study reports have already been submitted to the sponsoring industry.

a) **Evaluation of Bio-efficacy, Phyto-toxicity and Effect on natural enemies of Acetamiprid 20 SP on Cotton.** The project was sponsored by M/s. Rainbow Agro science Pvt. Ltd. The major objective of the project was to evaluate the insecticide formulation of Acetamiprid 20% SP in respect of its bio-efficacy.

b) **Evaluation of Bio-efficacy and Phyto-toxicity and Effect on natural enemies of Bifenthrin l0 EC on Cotton.** The project was sponsored by M/s. Rainbow Agro science Pvt. Ltd. The major objective of the project was to evaluate the insecticide formulation of Bifenthrin l0% EC in respect of its bio-efficacy.

c) **Evaluation of Bio-efficacy and Phyto-toxicity of Pyraclostrobin 20 WG on Cotton.** The project was sponsored by M/s. Rainbow Agro science Pvt. Ltd. The major objective of the project was to evaluate the fungicide formulation of Pyraclostrobin 20% WG in respect of its bio-efficacy.

d) **Bio-efficacy and Phyto-toxicity evaluation of Quinalphos + Deltamethrin EC formulation on Chilli**. The project was sponsored by M/s. Krishi Rasayan Export India Pvt. Ltd. The major

objective of the project was to evaluate the mix insecticide formulation of Quinalphos + Deltamethrin EC in respect of its bio-efficacy.

e) **Evaluation of Bio-efficacy and Phyto-toxicity of Azoxystrobin 23 SC on Chilli.** The project was sponsored by M/s. Rainbow Agro science Pvt. Ltd. The major objective of the project is to evaluate the fungicide formulation of Azoxystrobin 23% SC in respect of its bio-efficacy.

f) **Evaluation of Bio-efficacy, Phyto-toxicity and Effect on natural enemies of Acetamiprid 20 SP on Chilli.** The project was sponsored by M/s. Rainbow Agro science Pvt. Ltd. The major objective of the project was to evaluate the insecticide formulation of Acetamiprid 20% SP in respect of its bio-efficacy.

g) **Evaluation of Bio-efficacy, Phyto-toxicity and Effect on natural enemies of Acetamiprid 20% SP on Okra.** The project was sponsored by M/s. Rainbow Agro science Pvt. Ltd..The major objective of the project was to evaluate the insecticide formulation of Acetamiprid 20% SP in respect of its bio-efficacy.

h) **Bio-efficacy evaluation of INOVEXIA against Aphids, Jassids, Thirps, White fly and fruit & shoot borer in Okra crop.** The project was sponsored by M/s. Willowood Ltd. The major objective of the project was to evaluate the insecticide formulation of INOVEXIA in respect of its bio-efficacy.

i) **Evaluation of Bio-efficacy and Phyto-toxicity of Azoxystrobin 23 SC on Cucumber.** The project was sponsored by M/s. Rainbow Agro science Pvt. Ltd. The major objective of the project is to evaluate the fungicide formulation of Azoxystrobin 23% SC in respect of its bio-efficacy.

j) **Evaluation of Bio-efficacy, Phyto-toxicity and Effect on natural enemies of Acetamiprid 20% SP on Cabbage.** The project was sponsored by M/s. Rainbow Agro science Pvt. Ltd. The major objective of the project was to evaluate the insecticide formulation of Acetamiprid 20% SP in respect of its bio-efficacy.

k) **Evaluation of Bio-efficacy and Phyto-toxicity of Pyraclostrobin 20% WG on Tomato.** The project was sponsored by M/s. Rainbow Agro sciencePvt. Ltd. Bio–efficacy of fungicide Pyraclostrobin 20% WG was evaluated against early blight (Alternariasolani) disease in tomato crop.

l) **Evaluation of Bio-efficacy and Phyto-toxicity of Azoxystrobin 23% SC on Tomato.** The project was sponsored by M/s. Rainbow Agro science Pvt. Ltd.. Bio – efficacy of a fungicide, Azoxytrobin 23% SC was evaluated under field condition against early blight (Alternariasolani) and late blight (Phytopthorainfestans) diseases in tomato crop.

m) **Evaluation of Bio-efficacy and Phytotoxicity of Azoxystrobin 23% SC on Potato.** The project was sponsored by M/s. Rainbow Agro science Pvt. Ltd. A field trial was conducted to evaluate the bio-efficacy of Azoxystrobin 23% SC against late blight disease of Potato.

n) **Bio-efficacy & Phytotoxicity of IIL 718 against early blight and late blight in Potato crop.** The project was sponsored by M/s. Insecticides India Ltd.. The major objective of the project was to evaluate the fungicide formulation of coded product in respect of its bio-efficacy.

o) **Bio-efficacy & phytotoxicity of IIL 818 against early blight and late blight in Tomato**

crop. The project was sponsored by M/s. Insecticides India Ltd. The major objective of the project was to evaluate the fungicide formulation of coded product in respect of its bio-efficacy.

p) **Evaluation of Bio-efficacy and Phytotoxicity of WCPL 1550 formulation against the wheat Rust (brown, Leaf, Stem, stripe) and powdery mildew.** The project was sponsored by M/s. Willowood Ltd.. for bio-efficacy and phyto-toxicity studies.

q) **Evaluation of Bio-efficacy, Phytotoxicity and Residue analysis of WCPL 3535 formulation against the early & late blight of Potato.** The project was sponsored by M/s. Willowood Ltd.. for bio-efficacy and phyto-toxicity studies

Residue studies and Pesticide sample analysis:

10.52 Pesticide formulation and R&D samples are being received from industries on regular basis for their analysis. More than fifty different products have been tested and test reports have been issued.

10.53 Patents Filed

S. No.	Title	Inventors	Filing No.	Applications of invention
1	Bio-pesticide Nano-emulsion compositions of plant resin for insect control	Smriti Kala, Chetan K.D. Jawaale, Amrish Agrawal, Jitendra Kumar, Krishna Kant, B. K. Mishra	202011030373	Water based Nano Emulsion formulation of Pinewood resin is effective in controlling wide range of Agricultural insects, particularly for spices crops. The formulation minimizes pesticide residue problem in crop products. This botanical based formulation is effective & safer alternative to synthetic chemical pesticides

Accreditation, Certification and Recognitions

10.54 NABL Accreditation (as per ISO/IEC: 17025: 2017):

Analytical labs of IPFT are continued to maintain its NABL accreditation with 168 no. pesticides residues in cereals, pulses, food grains, fruits, vegetables, spices, milk etc. Analytical labs are also accredited for pesticide formulation analysis and CWC related chemicals analysis. Application for Surveillance Audit has been evaluated and accepted by NABL. Validity of NABL accreditation has been extended till June, 2022.

Bureau of Indian Standards (BIS) recognition:

10.55 The laboratory is recognized by the Bureau of Indian Standards (BIS) as per Lab Recognition Scheme for the testing of pesticide formulations.

CIB & RC Recognition:

10.56 IPFT is continued to maintain its recognition status from CIB & RC for conducting Bio-efficacy field trials, bio-efficacy studies on household pesticides and pesticide residue analysis.

Recognition of IPFT as GLP certified laboratory:

10.57 Pesticide Industries are in need of GLP laboratories for generating several data on their molecules. At present in India, only toxicological data for pesticide generated from a GLP facility is mandatory. Other data like chemistry of pesticides, residue data, bio-efficacy & phyto-toxicity data are acceptable from non-GLP facility also. At present no Government lab is GLP certified for Physico-Chemical testing of pesticides. Only two Government labs namely National Institute of Pharmaceutical Education and Research (NIPER), Mohali and Indian Institute of Toxicology Research (IITR), Lucknow are GLP certified for toxicological studies. In addition, as nanotechnology is the emerging area of research, testing and characterization of nanotechnology based products with improved efficacy will be the future requirement. Therefore, establishment of GLP facilities for pesticides and heavy metals is the need of the hour. Establishment of GLP laboratory at IPFT will be beneficial for the Indian industries especially for small and medium scale and also for multinationals industries. Besides the data generated from public sector laboratory will be reliable and acceptable. Therefore, to cater the need of Indian industries as well as multinationals companies, IPFT has submitted application with Quality Council of India for recognition of its laboratory as GLP Certified Laboratory. IPFT is in the process of implementation of OECD compliant quality management systems and preparing for the Pre-assessment by National GLP Compliance Monitoring Authority (NGCMA).

Skill Development & Training:

10.58 IPFT conducts skill development and other training courses for various stakeholders in chemical and agrochemical sector. Some of the courses offered at IPFT are: Basic Techniques of Pesticide Formulations; QA/QC of pesticides and their formulations; pesticide application technology; pesticide residue analysis; basic principles of GC, HPLC, GC-MS, GC-MS/MS, LC-MS/MS; Advanced Training on GC, HPLC, GC-MS, GC-MS/MS, LC-MS/MS, LCHR-MS, Biotech application in biological pesticides, laboratory and field evaluation of new molecules and pesticides for agriculture and public health sectors; and integrated pest management. IPFT contributes towards farmer's field days and farmers meetings with significant impact under development of rural agriculture and intensive crop management. Research scholars, students and executives from Indian universities, pesticide industries come to IPFT for taking

hands on training in the above mentioned areas. During the period of report, four executives from Haryana Horticulture Department attended training course on pesticide analysis.

Awareness and Extension Activities:

Workshops for farmers

10.59 Workshop for farmers on Use of botanical pesticides for crop protection, Integrated pest management, Organic farming, good agriculture practices, use of locally available materials for management of pests and safe & judicious use of pesticides were organised by IPFT in association with Department of Agriculture, Karnataka at three villages in Bidar District in Karnataka, from 20-09-2021 to 22-09-2021. The workshops were inaugurated by Union Minister of State for Chemicals & Fertilizers and New & Renewable Energy Shri Bhagwanth Khuba through V.C. in these workshops scientists educated the local farmers. Around eight Hundred farmers attended the workshop to learn the use of locally available botanicals for crop protection, GAP, IPM and safe & judicious use of pesticides.

IPFT has been creating awareness and doing extension activities for farmers through the following activities:

- Identifying and adopting villages for educating the farmers in Pesticide Application Technologies.
- Conducting survey and obtaining feedback on latest pests problems.
- Educating farmers about organic farming and propagating the use of indigenous techniques/ traditional knowledge.
- Dissemination of information among farmer community for judicious use of pesticide through various platforms.

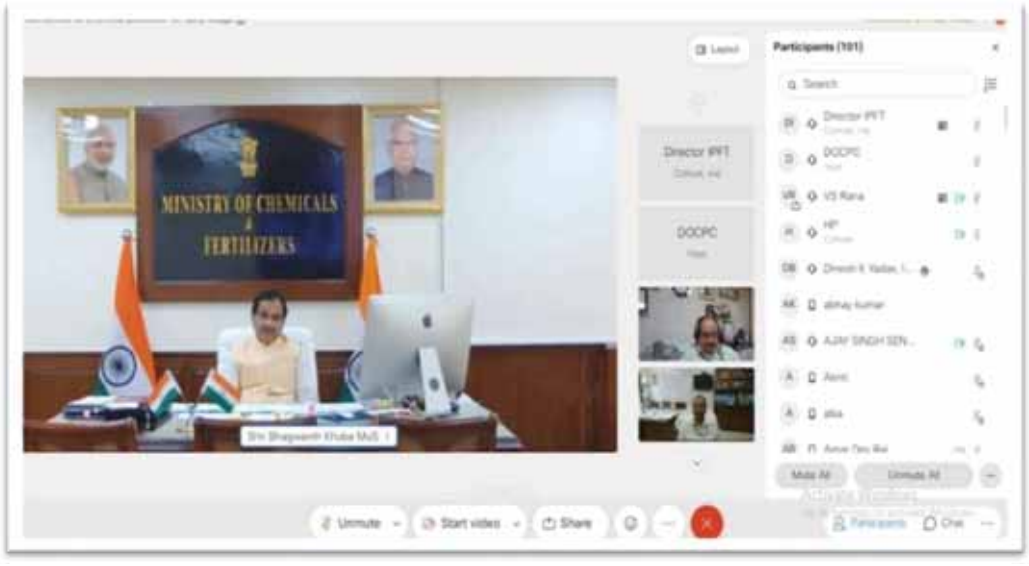
Activities under Swachh Bharat Mission:

Swachhta Pakhwada

10.60 Swachhta Pakhwada was celebrated by IPFT from 1-9-2021 to 15-9-2021 Director- IPFT, Dr. Jitendra Kumar administered Swachhta Oath to officers & staff. Cleanliness Drives were conducted and all officers & staff participated in cleaning activities at surrounding areas of IPFT. Covid-19 Safety Kit were also distributed to people in need around Udyog Vihar, Gurugram area to encourage safety & hygiene

Webinar on "Alternatives to Chemical Pesticides for Daily Use"

10.61 Under Swachh Bharat activities, IPFT organized a webinar on "Alternatives to Chemical Pesticides for Daily Use" on 13.09.2021. The inaugural address was given by Union Minister of State for Chemicals & Fertilizers and New & Renewable Energy Shri Bhagwanth Khuba. Director & Scientists of IPFT, Invited Scientists from ICAR gave presentations on different topics related to the alternatives to chemical pesticides. Participants discussed about their thoughts on the topics. The webinar was participated by around 200 scientists, researchers & experts from DCPC, UNIDO Vienna, Austria, Academia and R&D organisations.



Rajbhasha activities :

Celebration of Hindi Divas

10.62 Hindi Divas was celebrated by IPFT on 14th September 2021. Dr. Jitendra Kumar, Director, Prof. Rakesh Kumar from Delhi University delivered lectures on importance of Hindi to motivate the employees and promote the use of Hindi in the office. Hindi quiz was organised on the occasion. The staff members participated in the quiz and cash prizes were given to the top 5 contestants.

Chapter-11

PROMOTIONAL ACTIVITIES AND MAJOR EVENTS

INDIA CHEM 2021

11.1 To promote the Indian Chemicals and Petrochemicals Industry, Department of Chemicals and Petrochemicals in collaboration with FICCI has been organising the "India Chem" event biennially since 2000. These events provide a platform to the Indian Chemical and Petrochemical Industry to showcase its potential to an international audience.

11.2 Chemical industry in India is a diversified industry, covering more than 80,000 commercial products. The chemical industry is the mainstay of industrial and agricultural development of the country and provides building blocks for several downstream industries such as textiles, papers, paints, soaps, detergents, pharmaceuticals, vanish etc.

11.3 The most important objective behind organizing the India Chem series is to highlight the investment possibilities in the country's chemical industry and to promote "Make in India" initiative of the Government of India. Leading companies from all over the world predominantly from Iran, China, Japan, United Kingdom, Spain, USA, Germany, Italy, Brazil, Turkey and South East Asian countries are participating as exhibitors, delegates and visitors in the event.

11.4 With initiatives like "Make in India" program gaining steam, investments, innovation and infrastructure are going to be the major thrust areas for chemical industry players. The current per capita consumption of chemical products in India is about 1/10th of the world average, indicating that the demand potential is yet to be realized. It is expected that with growth in per capita income, the chemical industry will grow at even a faster rate.

11.5 Keeping in view the growth & potential of export in the specialty chemicals and petrochemical, Department of Chemicals and Petrochemicals, Government of India and Federation of Indian Chambers of Commerce and Industry (FICCI) jointly organized the 11th edition of INDIA CHEM 2021 during 17-19 March, 2021 at New Delhi. The theme of the event was "India: Global Manufacturing Hub for Chemicals and Petrochemicals".

11.6 India Chem, the flagship event of the Department, is one of the largest composite events of the industry in the Asia-Pacific region and this comprises of an International Conference and Exhibition. In line with the previous edition, concurrent events during India Chem 2021 included Global CEOs Round Table, Conclaves on Indian Chemical; Petrochemical Industry; Agro-chemical

Industry, Process, Plant Machinery, Pumps & Valves, Forum of India – EU; India – US; India – Japan on Chemicals & Petrochemicals and Buyer-Seller Meet. The event witnessed participation from 43 countries including Argentina, Bangladesh, Belgium, Brazil, Chile, China, Dubai, Germany, Iran, Israel, Kuwait, Malaysia, Portugal, Qatar, Saudi Arabia, Singapore, South Korea, Trinidad & Tobago, Turkey, United Kingdom, USA, Vietnam, and Japan. The event also witnessed participation from Bihar, Telangana, Uttar Pradesh, Tamil Nadu, Kerala, Punjab, Haryana and West Bengal. A total of 103 virtual exhibitors and 42 physical exhibitors, 2485 Business delegates, 366 International Buyers participated and 645 physical B2G/B2B meetings were organized.

11.7 This event showcases tremendous potential and supportive government policy for sustainable growth in the sector and provide a platform for investors, both domestic and international and other stakeholders to interact and forge alliances. This mega event highlighted the investment potential in Indian Chemicals & Petrochemicals Industry especially in Petroleum, Chemical and Petrochemical Investment Regions (PCPIRs) to transform India into a global manufacturing hub.

India: Global Chemicals & Petrochemicals Manufacturing Hub 2021

11.8 The second edition of the Summit on "India: Global Chemicals & Petrochemicals Manufacturing Hub" 2021 (GCPMH 2021) was organised by Department of Chemicals & Petrochemicals jointly with the Federation of Indian Chambers of Commerce and Industry (FICCI), during 25th- 26th November 2021 in New Delhi in Phygital format (Physical and Digital).

11.9 It is one of the important events in the Chemical and Petrochemical Industry and it highlights the true potential of the Indian Chemicals and Petrochemicals Sector to the world. This edition of the GCPMH provided a grand overview of this fast-surging major sector of the Indian economy and was a platform for investors and other stakeholders to interact and forge alliances, highlighting and promoting segment-wise investment opportunities in respective investment regions, thereby providing immense potential for trade and investment, in a mutually beneficial way.

11.10 Dr. Mansukh Mandaviya, Hon'ble Minister for Health & Family Welfare and Chemicals & Fertilizers inaugurated the event on 25th November, 2021 in the presence of Shri Bhagwanth Khuba, Hon'ble Minister of State, Ministry of Chemicals & Fertilizers and Minister of State, Ministry of New & Renewable Energy and Thiru Thangam Thennarasu, Hon'ble Minister for Industries, Government of Tamil Nadu. Andhra Pradesh, Gujarat, Odisha, Rajasthan and Tamil Nadu participated as Partner States in the Summit.

11.11 During the GCPMH 2021, discussions were held on the important issues such as (i) Exploring the potential of PCPIRs and Paving way for inclusive growth in Region, Sector and Economy; (ii) Strategic Global Partnerships(iii) Evolving opportunities in Chemical & Petrochemical Industry in Post COVID Era (iv)Importance of Environmental, Social and Corporate Governance and

Circular Economy in shaping the future of Chemical and Petrochemical Industry; (v) Dynamics of Feedstock; (vi) Supply Chain Disruptions in the Chemicals & Petrochemicals Industry; (vii) Sustainable Green Chemistry etc..

CHEMICAL PROMOTION DEVELOPMENT SCHEME (CPDS)

11.12 Chemical Promotion Development Scheme (CPDS) is being implemented since 1997 in the Chemical Division of DCPC under Plan Head of Account. The objective of CPDS is to facilitate growth and development of Chemicals and Petrochemicals Industry by creation of knowledge products through studies, survey, data banks, promotional material etc. and dissemination of knowledge through conduct of seminars, conferences, exhibition etc. to facilitate development of these sectors. The Scheme also aims to incentivize research and innovation by awarding outstanding efforts in the field of chemicals and petrochemicals.

11.13 The aim of the Scheme is 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.

11.14 Industry Associations, PSUs and Autonomous Bodies viz. DMAI, AMAI, FICCI, CII, ICC, CIPET, IPFT, HIL etc. organise small events on the themes which are useful for the development of Indian Chemical & Petrochemical Industry. Few small programmes periodically organised on Plastic Waste Management, Green Chemistry, chemical safety and security rating system, safe handling of Chlorine and Chlorine containers, status of implementation of Health, Safety, Security and Environment in MSME sector, Chlor-Alkali Industry etc. are some of the noteworthy events. Mega events such as India Chem, Conference on Advancements in Polymeric Materials (APM), National Awards, PCPIR Conference are organised under CPDS.

11.15 The funds utilized under CPDS during last four years is as under:

(Rs. in Crore)

Year	BE	RE	Fund Utilized
2017-18	1.99	2.00	1.35
2018-19	3.00	2.50	2.38
2019-20	3.00	3.00	2.93
2020-21	3.50	2.80	2.80
2021-22	3.00	3.60	1.76*

**upto January, 2022*

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Chapter – 12

GENERAL ADMINISTRATION

Organisational Set Up of the Department

12.1 The main activities of the Department are policy making, sectoral planning, promotion and development of chemical and petrochemical industries. The administrative and managerial oversight of Public Sector Undertakings engaged in the manufacture of various chemicals and petrochemicals, as well as Autonomous Bodies engaged in these sectors are some of the other major functions of the Department.

12.2 The Department is headed by a Secretary to the Government of India who is assisted by an Additional Secretary & Financial Adviser, one Additional Secretary, One Joint Secretary, One Economic Adviser (presently vacant), one Deputy Director General and one Chief Controller of Accounts (Organisation chart at Annexure IV).

Employment of Scheduled Castes/ Scheduled Tribes/ Physically Handicapped in the Main Secretariat of the Department

12.3 The status of employment of Scheduled Castes/Scheduled Tribes/Physically handicapped in the main Secretariat of the Department, as on 30.11.2021 is as under:

Group	Total No. of posts	Scheduled Castes	Scheduled Tribes	Physically Handicapped
A	35	3	2	0
B	68	8	1	0
C	78	10	3	1
TOTAL	**181**	**21**	**6**	**1**

12.4 Officers in Group 'A' include officers on deputation from All India Services, Central Services, officers belonging to Central Secretariat Service and Technical posts of the Department. Placements in posts of Group B and C is done on the basis of nominations made by the Department of Personnel & Training, Department of Official Language and Ministry of Statistics & Programme Implementation.

Record Management

12.5 The Parliament has enacted "The Public Records Act, 1993" to regulate the management,

administration and preservation of public records of the Central Government. The Central Government has also made rules to carry out the provisions of the Act. In terms of the provisions contained in Section 6(1) of the Act, the Under Secretary in-charge of General Administration has been nominated as Records Officer in the Department. A modernized Record Room of the Department is located in Udyog Bhawan.

Use of Hindi in Official Work

12.6 To ensure compliance with the Statutory Provisions & Presidential Orders on the Official Language Policy of the Union in the Department & in its' attached & subordinate offices, there is a Hindi Section. The work of Hindi Section is supervised by Deputy Director (OL) under the overall guidance of Joint Secretary (Petrochemicals).

12.7 Hindi Pakhwada was organized in the Department from 14th to 28th September, 2021. During the Pakhwada, five competitions on Hindi Essay Writing, Noting & Drafting, Translation, Hindi Poetry Recitation & Hindi Essay Writing exclusively for MTSs were held. Prize distribution ceremony was organised on 28.09.2021, wherein prizes were given to the winners by Hon'ble Minister of State for Chemicals and Fertilizers.

Hon'ble Minister of State for Chemicals and Fertilizers and Secretary (Chemicals and Petrochemicals) with all the award winners of Hindi Pakhwada competitions

12.8 Also on 28.09.2021, first edition of Hindi in-house magazine 'Rasayan Darpan' was unveiled by the Hon'ble Minister of State for Chemicals and Fertilizers in the presence of Secretary (Chemicals & Petrochemicals), Additional Secretary (Chemical), Joint Secretary (Petrochemical), Deputy Director General and other senior officers of the Department.

Hon'ble Minister of State for Chemicals and Fertilizers unveiling the first edition of the Department's Hindi in-house magazine 'Rasayan Darpan'

Use of Hindi in Official Work

12.9 Departmental Official Language Implementation Committee's meetings were held under the chairpersonship of Joint Secretary (Petrochemical) on 22.07.2021 and 30.09.2021. The progress made in the use of Hindi in the Department was reviewed in these meetings and suggestions for further improvement were adopted for implementation. In these meetings status of Hindi correspondence including noting in Hindi were also discussed.

12.10 Official Language related inspection of all Sections/Divisions were carried out within the Department & suggestions were given to the Officers/Officials present during the inspections for increasing the use of Hindi & also to overcome the difficulties being faced by them in use of Hindi.

12.11 Documents like Annual Report, Performance Budget, Demand-for-Grants, Parliament Questions & Assurances, Papers of Department related Parliamentary Standing Committee & Report of Comptroller and Auditor General, Cabinet notes, papers of updating the Departmental website etc. were issued in bilingual form as per the Section3(3) of the Official Language Act, 1963. All letters received in Hindi were replied to in Hindi as per the Rule 5 of the Official Language Rules, 1976. Efforts were made to progressively increase the use of Hindi in day-to-day official work as laid out in the Annual Programme of the Department of Official Language.

12.12 During the year, Quarterly Progress Reports of Hindi were compiled on the basis of the inputs received from different Sections of the Department & were sent to the Department of Official Language for inclusion in their database. Reports received from attached and subordinate offices were reviewed and shortcomings found therein were suggested for rectification.




Hon'ble Minister for Chemicals & Fertilizers distributing the awards on Hindi Pakhwada

Activities of the Vigilance Set up

12.13 The Department has a Chief Vigilance Officer (CVO) to look into the complaints against the employees of the Department as well as Board Level Officers of the Public Sector Undertakings (PSUs) and organisations under its administrative control. Presently, the Additional Secretary (Chemicals) is holding the charge of CVO in the Department and assisted by a Director, Under Secretary and a Vigilance Section.

12.14 'Vigilance Awareness Week' 2021 was organised during the period 26th October, 2021 to 1st November, 2021 with the theme **"Independent India @75: Self Reliance with Integrity;** स्वतंत्र भारत @75: सत्यनिष्ठा से आत्मनिर्भरता". The observance of the Vigilance Awareness Week commenced with the administering the Integrity Pledge at 1100 hrs on 26th October, 2021 by the Additional Secretary (Chemicals) & Chief Vigilance Officer, DCPC to the Officers of and above the level of Under Secretary in the Chamber of Secretary (C&PC) and by the respective Section Officers to the staff of their Sections in view of the Covid-19 guidelines/SOPs in vogue.

12.15 To encourage Officers and staff of the Department as well as general public to take e-pledge, a hyperlink was provided for the relevant link on the CVC website, on the Departmental website.

12.16 For Awareness Week, Department focused on three main areas as under:

i. To bring greater awareness on complaints under PIDPI.
ii. Special Clearance Campaign in the months of September and October to clear all outstanding vigilance matters.
iii. Housekeeping Activities.

12.17 PSUs and Autonomous Organisations under the administrative control of the Department also organized 'Vigilance Awareness Week' starting with undertaking the Integrity Pledge by their officers and staff.

Gender Equality

12.18 In compliance of The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 the Department has constituted an Internal Complaints Committee for redressal of complaints relating to sexual harassment of women. The Committee is functional since June 2002. Constitution of the ICC on Sexual Harassment of Women at Workplace was uploaded on the website of the department in order to spread awareness about the Committee. One complaint box has been placed at 2nd Floor, A Wing near Gate No. 2 for the convenience of women employees.

Rights of Persons with Disabilities

12.19 The Rights of Persons with Disabilities Act, 2016 aims to uphold the dignity of every person in the society and prevent any kind of discrimination. All efforts are made that persons with disabilities have easy access to the physical environment and other facilities and services. The Information and Facilitation Centre of the Department has been set up specifically on the ground floor in Shastri Bhawan enabling easy and obstacle free accessibility for such persons. Senior officers of the Department are available to attend to the problems of persons with disabilities.

12.20 Department of Chemicals & Petrochemicals is the cadre controlling authority in respect of 06 Technical posts in Group 'A', 5 posts of Staff Car Driver, 2 posts of Sr. Gestetnor Operator, 1

post of Dispatch Rider and 48 posts of Multi Tasking Staff (MTS) in Group 'C'. The post of MTS Group 'C' in this Department has been identified for the post suitable for following categories of disabilities covered under Section 34(1) of the RPWD Act, 2016:

a. Blindness and low vision
b. Deaf and Hard of hearing
c. Locomotor Disability (OA, OL, OAL, BL, BA) including leprosy cured, cerebral palsy, dwarfism, acid attack victims and muscular dystrophy.
d. Autism, Intellectual Disability, specific learning disability and mental illness.
e. Multiple Disabilities from amongst (a) to (d) including deaf-blindness

Observance of 'Swachhata Pakhwada' in the Department

12.21 During the 'Swachhata Pakhwada 2021 which was observed from 1.9.2021 to 15.9.2021, the Department of Chemicals & Petrochemicals and the CPSEs/ Autonomous Bodies under its administrative control undertook various swachhata activities like cleaning of office complexes / factories / labs / toilets / premises as well as displaying banners and posters on cleanliness. Due to the situation of pandemic, while observing the swachhata activities every care was taken of including maintaining of social distancing. Four Webinars on the subject (i) Responsible Use of Plastics (ii) Cleanliness and Hygienic Environment for Safer Plant (iii) Safe Usage of Insecticides at Home and (iv) Alternatives to Chemical Pesticides for Daily Usage were organised during observation of Swachhata Pakhwada. The officers / officials of the Department and the officials of all PSUs / ABs took active participation in the Webinars. Photographs of the events carried out during the Pakhwada were uploaded on daily basis on website of the Department and on social media handles like Facebook and twitter and were tagged on Swachh Bharat handles.

12.22 As per the advice of the Department of Drinking Water & Sanitation, a committee was constituted in the Department to evaluate the performance of participating organisations based on their reports, photos, visibility on social media etc. covering events held during Swachhata Pakhwada and select winners for award. On the recommendation of the Committee constituted for the purpose CIPET, HOCL and IPFT were awarded First, Second and Third prize respectively. Hon'ble Minister of State Shri Bhagwanth Khuba awarded the Prize to the winning organizations.

Cleaness drive during spl. campaign programme

Celebration of International Day of Yoga

12.23 On the occasion of International Day of Yoga, 2021 held on 21-6-2021 an online interactive and experimental training session on Rajyoga Meditation and its benefits was organised for the officers and staff members of the Department of Chemicals & Petrochemicals and PSUs / ABs under the administrative control of DCPC. Sister B K Husain, Faculty has attended the session from Prajapita Brahma Kumaris Ishwariya Vishwavidyalaya and imparted training on Rajyoga Meditation.

Celebration of Constitution Day

12.24 26th November is celebrated as Constitution Day to commemorate the adoption of the Constitution of India. On this occasion the officers and staff members of Department of Chemicals & Petrochemicals and PSUs/ABs under its administrative control took active participation in celebration of Constitution Day. Preamble of the Constitution was read collectively offline. There was active participation in the online events viz. "Reading preamble to the Constitution" and Online Quiz on Constitutional Democracy". Webinar organized by the Department of Administrative Reforms and Public Grievances on the subject "Kartavya and Jan Bhagidari under

Indian Constitution" was also attended by the officials. Visuals of the activities were shared on social media handles suitably.

Workshop on Cyber Security

12.25 Department of Chemicals & Petrochemicals has organised a Workshop on Cyber Security on 29.10.2021 during observation of October 2021 as the National Cyber Security Awareness month. A document on "Cyber Security Best Practices was duly circulated among the employees for making them aware about the Cyber Security related issues.

12.26 The following days/week were observed in the Department on the respective dates. Secretary of the Department administered pledge to the officers on these occasions:

Sadbhavana Day Pledge	19th August 2021
Swachhta Pakhwada	1st-15th September 2021
Hindi Pakhwada	14th – 28th September 2021
Swachhta Hi Sewa	2nd October 2021
Vigilance Awareness week	26th October- 1st November 2021
Rashtriya Ekta Divas	31st October 2021
Constitution Day	26th November 2021

Procurement Through Government E-Market (GEM):

12.27 The Department made full utilization of the Government's E-procurement platform by procuring items it consumes through GeM. As a result, the value of goods procured through Gem for the period from 01.04.2021 till 30.11.2021 is Rs.114.75 Lakh against the procurement value of Rs.156.13 Lakh during the previous Financial Year.

Automation of Office

12.28 With effect from May 1, 2020 the Dept has discontinued processing on physical file and works on E-office only. This has enabled the Dept to work mostly from home even during the strictest Lockdown period due to Covid19 pandemic. In this regard, the Dept has also prepared a detailed SoP for Work from Home. Towards implementation of digital India, e-HRMS has been implemented in this Department. The digitization of service records have been completed and the leave module is fully operational in this Department. Further, w.e.f. 09.09.2021, e-File Version 6 has been implemented in DCPC which will be further updated to e-File Version 7.

Fight Against the Spread of Covid19 Pandemic

12.29 The Department has put in place effective measures to fight the further spread of global pandemic known as Covid19 while also ensuring that the work of the department continues even during the strictest Lockdown period.

12.30 In order to break the chain of Covid-19 infection, Administration Division is providing Masks, sanitizers and gloves to all officers and staff regularly since the start of the pandemic. 5 Big size hand sanitizers dispensers are also placed at different locations of the Department in Shastri Bhawan, New Delhi.

12.31 Sanitization of all the offices of the Department located at Shastri Bhawan and Janpath Bhawan is carried out regularly by reputed firm/vendor on daily basis. In addition to offices, vehicles of the Department are also regularly sanitized.

12.32 To ensure maintaining social distancing amongst the staff, the Department vigorously follows instruction issued by DoPT from time to time including rotational attendance and biometric attendance records.

Departmental Dashboard

12.33 The dashboard of the D/o of Chemicals & Petrochemicals has been created with individual User – ID and Password for all the officials of the Department and its Public Sector Undertakings (PSUs) & Autonomous Bodies (ABs) for respective indicators so that monthly information may be updated for each indicator by the concerned Divisions/ABs/PSUs. To avoid the delay in updating the data by the concern divisions the dashboard is technically linked with the websites of PSUs and ABs with the help of web – services so that the monthly updating will be reflected automatically on the Departmental dashboard.

MAKE IN INDIA

12.34 The Cabinet in its meeting held on 24th May, 2017 approved the "Policy of Provide Preference to Make in India in Public Procurement". Department for Promotion of Industry and Internal Trade (DPIIT) has issued a Public Procurement (Preference to Make in India) Order, 2017 which mandates all Government Agencies to accord Preferences to Make in India in Public Procurement. The policy aims to boost domestic value addition by providing preferential market access and reliable demand to the domestic manufactures in public procurement. The Department of Chemicals & Petrochemicals has been identified as the Nodal Department for implementing the provisions related to procurement of goods and services related to 'Chemical' sector.

12.35 In pursuance of DPIIT order dated 16.09.2020, in respect of the 28 chemicals and petrochemicals indicated below, based on the available data, this Department has concluded that there is

sufficient local capacity and local competition and only Class-I local suppliers will be eligible to bid in respect of the following 28 items irrespective of the purchase value:
(i) Soda Ash (ii) Caustic Soda (iii) Carbon Black (iv) Formaldehyde (v) Liquid Chlorine (vi) Acetic Anhydride (vii) Nitrobenzene (viii) Acetaldehyde (ix) Ethyl Acetate (x) Polyester Filament Yarn (xi) Polyester Staple Fibre (xii) Expandable Polyestyrene (xiii) Polyester Chips/PET Chips (xiv) Butadiene (xv) Benzene (xvi) D.D.V.P. (xvii) Monocrotophos (xviii) Fenvalerate (xix) Cypermethrin (xx) Chlorpyriphos (xxi) Lambda Cyhalothrin (xxii) Glyphosate (xxiii) Azo Dyes (xxiv) Acid Direct Dyes (other than Azo) (xxv) Disperse Dyes (xxvi) Optical Whitening Agents (xxvii) Organic Pigment (xxviii) Reactive Dyes.

Redressal of Public Grievances

12.36 Internal grievances redressal machinery functioning under the Department, attends all the public grievances. During the period between 01.01.2021 to 31.10.2021, 975 public grievances were received and they all were attended promptly. The rate of redressal of Public Grievances in this Department is about 99.5%. The Deputy Director General has been nominated as Nodal officer of Public Grievances of the Department. The name, designation, room number, telephone number, etc. of the Nodal Officer in Public Grievances has been displayed on the website of the Department (http://chemicals.gov.in). A public Grievance Officer has been nominated in each Division as the Nodal Officer to monitor the Progress of the redressal of public grievances in respective Divisions.

Right to Information Act, 2005

12.37 Under the provisions of the Right to Information Act, 2005, a RTI Cell has been set up in the Department to coordinate the RTI-related work. This Section collects, transfers the application seeking information under the RTI Act, 2005 to the Central Public Information Officers / Public Authorities concerned with the subject matter and submits quarterly returns regarding receipt and disposal of the RTI applications/appeals to the Central Information Commission.

a) All Under Secretary/ Section Officer level officers have been designated as Central Public Information Officers (CPIOs) under section 5(1) of the Act, according to the subjects being handled by them.

b) All Director /Deputy Secretary level officers have been designated as Appellate Authorities in terms of section 19(1) of the Act, in respect of Under Secretaries/Section Officers working as CPIOs with them.

c) To facilitate the receipt of applications under the RTI Act, 2005, a provision has been made to receive the applications at the Reception Counter of the Department. The applications so received are further forwarded by the RTI Cell to the CPIOs/Public Authorities concerned.

d) During the year 2020-21 i.e., from 01.01.2021 to 31.12.2021, 244 RTI applications and 6 RTI First Appeals were received in this Department. These were promptly transferred / forwarded to the concerned public authorities/CPIOs for providing information to the applicants.

e) As per para 1.4.1 of DoPT's guidelines issued vide their O.M. No. 1/5/2011-IR dated 15.4.2013, this Ministry has been disposing all RTI applications, appeals and replies of CPIOs and appellate authorities through the portal.

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Annexure – I

PRODUCT-WISE INSTALLED CAPACITY & PRODUCTION OF MAJOR CHEMICALS

(Figures in 000'MT)

Major Groups / Products	Installed Capacity			Production					CAGR
	2018-19	2019-20	2020-21	2016-17	2017-18	2018-19	2019-20	2020-21	
1	2	3	4	5	6	7	8	9	10
1. Alkali Chemicals									
SODA ASH	3489.00	3614.00	3614.00	2613.42	2989.57	3048.19	3069.43	2638.12	**0.24**
CAUSTIC SODA	3397.34	3700.34	3898.20	2594.50	2742.31	2925.35	3136.94	2964.08	**3.39**
LIQUID CHLORINE	2535.25	2774.73	2961.23	1800.67	1899.41	2069.11	2250.43	2174.26	**4.83**
Total	**9421.59**	**10089.07**	**10473.43**	**7008.58**	**7631.30**	**8042.65**	**8456.80**	**7776.46**	**2.63**
2. Inorganic Chemicals									
ALUMINIUM FLUORIDE	25.60	25.60	25.60	8.14	7.51	5.70	5.05	3.70	**-17.91**
CALCIUM CARBIDE	112.00	112.00	112.00	85.02	87.30	83.17	81.34	86.78	**0.51**
CARBON BLACK	696.00	696.00	696.00	535.27	530.36	546.39	500.15	384.78	**-7.92**
POTASSIUM CHLORATE	4.60	28.60	28.60	0.01	0.35	0.70	16.18	17.08	**514.21**
SODIUM CHLORATE	0.00	0.00	22.32	0.00	0.00	0.00	0.00	17.92	
TITANIUM DIOXIDE	82.50	82.50	82.50	58.46	57.82	57.06	49.49	51.22	**-3.25**
RED PHOSPHORUS	1.68	1.68	1.68	0.77	0.88	1.03	1.03	1.07	**8.44**
HYDROGEN PEROXIDE	145.85	218.63	218.63	148.87	157.02	156.45	122.84	139.90	**-1.54**
POTASSIUM IODATE	0.00	1.20	1.20	0.00	0.00	0.00	0.56	0.54	
CALCIUM CARBONATE	231.55	371.55	371.55	216.33	217.25	213.33	286.83	274.79	6.16
Total	**1299.78**	**1537.75**	**1560.07**	**1052.87**	**1058.48**	**1063.83**	**1063.47**	**977.78**	**-1.83**
3. Organic Chemicals									
ACETIC ACID	141.62	142.05	142.05	158.51	157.07	153.80	167.86	154.76	**-0.60**
ACETIC ANHYDRIDE	113.33	119.18	119.18	94.82	97.09	95.47	74.15	75.09	**-5.67**
ACETONE	47.14	47.14	47.14	26.79	32.87	40.74	36.27	39.03	**9.86**
PHENOL	76.75	76.75	76.75	43.57	53.45	65.39	57.85	61.27	**8.90**
METHANOL	474.30	474.30	474.30	176.96	260.49	271.93	176.05	234.03	**7.24**
FORMALDEHYDE	411.30	411.30	397.80	244.19	248.23	226.61	260.41	244.66	**0.05**
NITROBENZENE	112.05	129.45	126.45	69.71	71.41	68.80	61.14	76.09	**2.21**
MALEIC ANHYDRIDE	6.40	7.66	7.66	3.53	3.31	4.56	5.02	5.38	
PENTAERYTHRITOL	15.76	15.76	15.76	14.01	14.10	14.99	15.21	11.65	**-4.51**
ANILINE	54.10	54.10	54.10	41.45	41.88	37.85	25.44	33.53	**-5.17**
CHLORO METHANES	279.25	279.25	279.25	221.51	222.43	285.53	296.91	326.95	**10.22**

(Figures In 000' MT)

ISOBUTYLBENZENE	13.80	16.80	16.80	6.92	8.95	9.70	9.44	12.72	**16.44**
ONCB	30.00	30.00	30.00	22.55	24.90	23.70	19.84	23.27	**0.79**
PNCB	48.40	48.40	48.40	34.19	37.78	36.07	31.90	38.89	**3.27**
MEK	10.00	10.00	10.00	6.54	6.40	7.00	9.83	8.00	**5.17**
ACETALDEHYDE	151.01	151.01	151.01	60.46	65.74	61.89	77.10	55.97	**-1.91**
ETHANOLAMINES	17.76	17.76	27.00	13.11	13.20	16.70	15.39	16.70	**6.25**
ETHYL ACETATE	517.83	562.06	562.06	371.27	411.49	440.56	473.39	453.13	**5.11**
MENTHOL	33.65	33.65	33.65	14.54	13.68	6.24	7.44	7.48	**-15.31**
ORTHO NITRO TOLUENE	20.69	44.80	44.80	13.80	14.39	16.89	25.98	27.67	**18.99**
Total	**2575.12**	**2671.41**	**2664.15**	**1638.44**	**1798.85**	**1884.42**	**1846.62**	**1906.27**	**3.86**
4. Pesticides and Insecticides									
D.D.T.	3.14	6.34	6.34	2.26	1.27	1.37	1.10	0.57	**-29.19**
MALATHION	3.20	3.80	3.80	2.26	3.29	4.39	3.79	3.84	**14.22**
DIMETHOATE	1.45	1.45	1.45	1.37	1.18	1.26	1.45	1.45	**1.43**
D.D.V.P.	33.62	33.62	33.62	8.13	8.13	9.14	0.00	0.94	**-41.77**
QUINALPHOS	2.20	2.20	3.40	1.29	1.18	0.89	0.86	1.06	**-4.86**
MONOCROTOPHOS	13.84	13.94	13.94	6.58	5.50	5.30	5.82	7.92	**4.74**
PHOSPHAMIDON	2.00	2.00	2.00	0.09	0.11	0.00	0.00	0.00	**-100.00**
PHORATE	12.40	12.40	12.40	5.91	7.02	5.85	0.00	0.00	**-100.00**
ETHION	2.20	2.80	2.80	2.11	2.38	1.32	2.13	2.22	**1.25**
FENVALARATE	3.60	4.96	4.96	0.53	0.74	0.70	0.67	0.49	**-1.75**
CYPERMETHRIN	25.10	23.83	23.83	7.88	8.25	10.95	10.87	12.29	**11.77**
ACEPHATE	17.50	20.50	20.50	16.27	18.27	19.63	21.08	29.59	**16.14**
CHLORPYRIPHOS	18.08	13.60	13.80	5.87	7.98	7.14	6.50	8.53	**9.80**
TRIAZOPHOS	3.36	3.36	3.36	2.37	1.54	0.89	0.00	0.00	**-100.00**
TEMEPHOS	0.25	0.25	0.25	0.08	0.10	0.08	0.15	0.15	**15.21**
DELTAMETHRIN	0.73	0.79	0.79	0.37	0.55	0.68	0.69	0.59	**12.22**
ALPHAMETHRIN	0.49	0.48	0.50	0.10	0.32	0.34	0.44	0.54	**51.78**
PROFENOFOS TECHNICAL	10.50	10.50	10.50	10.50	9.95	12.45	12.36	16.08	**11.23**
PRETILACHLOR TECHNICAL	4.24	4.24	4.24	2.58	3.60	3.63	3.07	3.59	**8.58**
LAMBDA CYHALOTHRIN	2.60	2.85	3.20	0.74	1.14	0.62	2.30	1.68	**22.69**
PHENTHOATE	0.90	0.90	0.90	1.14	1.32	1.53	1.41	1.35	**4.37**
PERMETHRIN TECH	1.67	1.80	1.80	1.10	1.53	1.86	1.22	1.66	**10.67**

(Figures In 000' MT)

IMIDACALOPRID TECH	0.20	0.15	0.15	0.18	0.34	0.10	0.02	0.03	**-36.20**
CAPTAN & CAPTAFOL	3.43	3.43	3.43	1.79	1.76	1.93	1.46	1.46	**-4.85**
ZIRAM(THIO BARBAMATE)	0.70	0.70	0.70	0.60	0.72	0.76	0.63	0.88	**10.03**
CARBENDZIM(BAVISTIN)	0.98	0.78	0.78	0.13	0.03	0.02	0.00	0.00	**-100.0**
MANCOZAB	84.70	84.70	119.80	78.48	70.25	69.33	60.88	97.43	**5.56**
HEXACONAZOLE	1.20	1.70	1.70	0.46	0.59	0.50	0.75	0.81	**15.03**
METCONAZOLE	0.75	0.75	0.75	0.35	0.40	0.34	0.21	0.20	**-13.30**
2, 4-D	27.00	27.00	27.00	23.36	25.83	24.24	22.56	27.05	**3.74**
BUTACHLOR	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	
ETHOFUMESATE TECHNICAL	1.43	1.65	1.65	1.04	1.29	1.04	0.79	0.43	**-19.60**
THIAMETHOXAM TECHNICAL	3.75	4.55	5.10	2.51	3.28	5.57	6.15	5.21	**20.07**
PENDIMETHALIN	4.70	6.00	5.80	4.04	3.78	2.82	2.75	3.64	**-2.57**
METRIBUZIN	1.35	1.95	2.52	1.12	0.88	1.92	2.65	3.19	**29.92**
TRICLOPYR ACID TECH	0.30	0.30	0.30	0.28	0.15	0.13	0.13	0.00	**-100.00**
ISOPROTURON	6.25	6.00	6.00	0.13	0.00	0.00	0.00	0.00	**-100.0**
GLYPHOSATE	12.87	12.92	12.92	6.35	6.29	6.68	5.91	6.13	**-0.89**
DIURON	3.72	6.00	6.00	3.68	3.26	3.62	3.40	3.42	**-1.79**
ATRAZIN	0.50	1.20	1.20	1.90	2.25	1.48	1.73	1.61	**-3.98**
ZINC PHOSPHIDE	1.92	1.92	1.92	1.31	1.40	1.26	1.32	1.47	**2.89**
ALUMINIUM PHOSPHIDE	4.74	4.74	4.74	6.40	4.77	4.91	4.91	7.61	**4.43**
DICOFOL	0.10	0.15	0.15	0.09	0.08	0.05	0.01	0.00	**-100.00**
Total	**324.16**	**333.69**	**371.48**	**213.72**	**212.70**	**216.70**	**192.15**	**255.09**	**4.52**
5. Dyes and Pigments									
AZO DYES	21.14	21.14	21.14	9.98	11.04	9.05	8.54	6.62	**-9.74**
ACID DIRECT DYES(OTHER THAN AZO)	40.90	40.90	40.90	19.86	21.15	24.13	22.75	20.22	**0.45**
DISPERSE DYES	67.21	75.01	77.93	41.35	46.72	55.24	61.94	51.79	**5.79**
INGRAIN DYES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
OIL SOLUBLE (SOLVENT DYES)	3.60	3.60	3.60	2.23	2.07	2.29	2.41	0.44	**-33.34**
OPTICAL WHITENING AGENTS	41.16	67.68	67.68	23.77	23.21	29.30	20.74	18.18	**-6.49**
ORGANIC PIGMENT	87.04	88.36	88.36	63.74	73.34	73.94	75.08	67.27	**1.36**
PIGMENT EMULSION	5.41	5.41	5.41	10.61	10.16	9.78	9.69	8.60	**-5.12**

(Figures In 000' MT)

REACTIVE DYES	194.69	195.73	196.33	120.96	151.91	151.38	156.71	132.13	**2.23**
SULPHUR DYES (SULPHUR BLACK)	8.25	8.25	8.25	10.07	7.32	7.54	7.45	5.09	**-15.67**
VAT DYES	3.04	2.86	2.86	1.52	1.65	1.78	2.13	1.99	**6.86**
SOLUBILISED VAT DYES	0.13	0.13	0.13	0.02	0.02	0.00	0.00	0.00	**-100.00**
FOOD COLOURS	0.00	0.00	0.00	0.75	0.78	0.79	0.67	0.49	**-9.96**
NAPTHOLS	0.90	0.90	0.90	0.00	0.00	0.00	0.00	0.00	
INORGANIC PIGMENTS	18.05	18.05	18.05	15.41	17.88	16.29	16.12	14.64	-1.28
Total	**491.52**	**528.02**	**531.54**	**320.27**	**367.25**	**381.51**	**384.22**	**327.46**	**0.56**
TOTAL CHEMICALS (1+2+3+4+5)	**14112.17**	**15159.94**	**15600.67**	**10233.88**	**11068.57**	**11589.11**	**11943.25**	**11243.05**	**2.38**

Source: The source of Production and Installed Capacity of Chemicals and Petrochemicals products (which are monitoring by Statistics & Monitoring Division (S&M) of DCPC) is MPRs received from manufacturers under large and medium scale units only.

Note: Some Pesticides and Dyes manufacturing units supply combined Installed Capacity.

Annexure-II

PRODUCT-WISE INSTALLED CAPACITY & PRODUCTION OF MAJOR PETROCHEMICALS

(Figures in 000'MT)

Major Groups / Products	Installed Capacity			Production					CAGR
	2018-19	2019-20	2020-21	2016-17	2017-18	2018-19	2019-20	2020-21	
1	2	3	4	5	6	7	8	9	10
A : BASIC MAJOR PETROCHEMICALS									
1. SYNTHETIC FIBRES / YARN									
ACRYLIC FIBRE (AF)	107.00	107.00	107.00	95.39	90.97	99.45	102.90	77.02	**-5.21**
POLYESTER STAPLE FIBREFILL	69.00	69.00	69.00	53.65	51.33	52.99	49.89	40.30	**-6.91**
NYLON FILAMENT YARN	24.62	58.52	58.52	40.91	40.01	46.62	48.29	33.27	**-5.03**
NYLON INDUSTRIAL YARN/TYRE CORD	90.50	152.02	152.02	103.56	107.59	109.55	99.75	90.29	**-3.37**
POLYESTER FILAMENT YARN	2827.42	2719.79	2727.37	2200.91	2283.41	2316.43	2520.33	1997.93	**-2.39**
POLYESTER STAPLE FIBRE	1256.56	1350.46	1350.46	1056.00	1005.30	931.44	1027.49	909.38	**-3.67**
POLYPROPYLENE FILAMENT YARN	3.60	3.60	3.60	3.39	3.15	2.36	2.52	2.17	**-10.60**
POLYPROPYLENE STAPLE FIBRE	30.93	30.93	30.93	24.56	22.24	20.74	18.82	15.34	**-11.11**
POLYSTER INDUSTRIAL YARN	21.50	21.50	21.50	16.33	15.04	14.83	14.73	12.36	**-6.72**
Elastomeric/ Spandex Filament Yarn	8.50	8.50	8.50	4.70	6.18	7.08	8.06	6.60	**8.86**
Group Total	**4439.63**	**4521.31**	**4528.88**	**3599.40**	**3625.20**	**3601.48**	**3892.78**	**3184.65**	**-3.01**
2. POLYMERS									
Linear Low Density Polyethylene (LLDPE)	No separate Capacity			1318.26	1290.05	1581.22	2994.03	2958.92	**22.40**
High Density Polyethylene (HDPE)	No separate Capacity			1520.04	1578.38	1597.68	1897.57	1910.04	**5.88**
LLDPE/HDPE (Combined) *	**3348.10**	**5158.10**	**5158.10**	**2838.30**	**2868.42**	**3178.90**	**4891.59**	**4868.96**	**14.44**
LOW DENSITY POLYETHYLENE	160.00	560.00	610.00	201.76	185.66	193.05	613.29	616.61	**32.22**

(Figures in 000'MT)

POLYSTYRENE (PS)	471.00	471.00	471.00	311.35	301.58	292.86	291.72	217.45	**-8.58**
POLYPROPYLENE (PP)	4514.00	4933.80	4933.80	4253.39	4350.20	4779.02	4982.82	4919.10	**3.70**
EXPANDABLE POLYSTYRENE	128.70	133.30	133.30	96.77	103.91	108.27	110.68	87.39	**-2.52**
POLY VINYL CHLORIDE (PVC)	1493.00	1498.00	1493.00	1461.53	1466.08	1488.40	1513.59	1434.12	**-0.47**
Group Total	**10114.80**	**12754.20**	**12799.20**	**9163.10**	**9275.85**	**10040.50**	**12403.69**	**12143.62**	**7.29**
3. SYNTHETIC RUBBER									
STYRENE BUTADIENE RUBBER	271.00	271.00	277.00	167.33	193.97	228.64	227.83	212.91	**6.21**
POLY BUTADIENE RUBBER	114.00	100.00	100.00	117.09	113.63	122.23	130.25	128.55	**2.36**
ETHYL VINYL ACETATE	15.00	15.00	15.00	0.00	0.00	0.00	0.00	0.00	**#DIV/0!**
NITRILE BUTADIENE RUBBER	25.30	25.30	13.70	0.35	0.05	0.00	0.00	11.88	**140.69**
GROUP TOTAL	**425.30**	**411.30**	**405.70**	**284.78**	**307.66**	**350.87**	**358.08**	**353.34**	**5.54**
4. SYNTHETIC DETERGENT INTERMEDIATES									
LINEAR ALKYL BENZENE (LAB)	547.40	544.79	544.79	447.65	451.53	454.82	413.50	457.07	**0.52**
ETHYLENE OXIDE (EO)	140.00	135.00	135.00	216.06	291.30	232.34	301.18	279.37	**6.63**
GROUP TOTAL	**687.40**	**679.79**	**679.79**	**663.71**	**742.82**	**687.16**	**714.68**	**736.44**	**2.63**
5. PERFORMANCE PLASTIC									
NYLON-6	No separate Capacity			20.37	19.47	20.50	40.84	55.39	**28.40**
NYLON 6,6	No separate Capacity			1.17	1.08	1.02	0.73	0.00	**-100.00**
NYLON-6/ NYLON 6,6 (Combined) **	**28.20**	**68.50**	**83.50**	**21.54**	**20.56**	**21.52**	**41.57**	**55.39**	**26.63**
ABS RESINS	156.00	210.00	213.00	117.77	145.23	148.18	136.46	121.94	**0.87**
POLYMETHYL METHACRYLATE	3.50	3.90	3.90	0.29	0.02	0.00	0.00	0.00	**-100.00**
STYRENE ACRYLONITRILE (SAN)	148.00	148.00	167.00	99.24	114.69	131.76	133.79	118.61	**4.56**
POLYESTER CHIPS/PET CHIPS	2607.66	2468.50	2558.55	1548.70	1424.60	1271.09	1344.70	1208.99	**-6.00**

(Figures in 000'MT)

POLYTETRA-FLUORO-ETHYLENE (PTFE)	19.80	20.30	20.30	11.73	13.72	16.24	15.11	14.64	**5.70**
GROUP TOTAL	**2963.16**	**2919.20**	**3046.25**	**1799.27**	**1718.81**	**1588.79**	**1671.63**	**1519.57**	**-4.14**
TOTAL BASIC MAJOR PETRO-CHEMICALS (I+II+III+IV+V)	**18630.29**	**21285.80**	**21459.82**	**15510.25**	**15670.34**	**16268.79**	**19040.86**	**17937.61**	**3.70**
B : INTERMEDIATES									
1. FIBRE INTERMEDIATES									
ACRYLONITRILE (ACN)	41.00	24.00	24.00	0.00	0.00	0.00	0.00	0.00	
CAPROLACTUM	120.00	120.00	120.00	86.96	85.97	92.56	84.06	80.41	**-1.94**
MONO ETHYLENE GLYCOL (MEG)	1153.40	1868.10	2210.60	1110.50	1132.65	1159.76	2007.78	1981.98	**15.58**
PURIFIED TEREPHTHALIC ACID (PTA)	3873.00	3873.00	3873.00	3390.56	3492.44	3404.93	3267.07	2996.76	**-3.04**
GROUP TOTAL	**5187.40**	**5885.10**	**6227.60**	**4588.01**	**4711.06**	**4657.25**	**5358.91**	**5059.15**	**2.47**
2. BUILDING BLOCKS									
Olefins									
BUTADIENE	433.00	552.00	552.00	347.36	332.38	385.76	481.01	458.80	**7.20**
ETHYLENE	4446.50	7147.30	7147.30	4021.73	4222.68	3831.89	6466.75	6364.89	**12.16**
PROPYLENE	4803.38	5190.38	5190.38	4425.21	4457.91	4639.53	4887.62	5215.76	**4.19**
GROUP TOTAL	**9682.88**	**12889.68**	**12889.68**	**8794.29**	**9012.97**	**8857.18**	**11835.39**	**12039.45**	**8.17**
Aromatics									
BENZENE	1566.35	1721.35	1884.35	1332.04	1318.03	1414.56	1346.24	1407.87	**1.39**
MIXED XYLENE	898.33	898.33	898.33	296.03	271.35	249.05	269.63	146.68	**-16.10**
ORTHOXYLENE	420.00	420.00	511.00	444.88	447.76	406.30	386.39	522.12	**4.08**
TOLUENE	288.27	288.27	288.27	126.76	106.94	141.14	140.16	113.99	**-2.62**
PARAXYLENE (PX)	3131.70	3131.70	3821.70	3161.30	3194.52	3331.81	2782.33	2614.21	**-4.64**
GROUP TOTAL	**6304.65**	**6459.65**	**7403.65**	**5361.02**	**5338.60**	**5542.87**	**4924.74**	**4804.86**	**-2.70**
TOTAL INTERMEDIATES FIBRE INTERMEDIATES AND BUILDING BLOCKS (1+2)	**21174.93**	**25234.43**	**26520.93**	**18743.32**	**19062.62**	**19057.29**	**22119.04**	**21903.46**	**3.97**

(Figures in 000'MT)

C : OTHER PETRO-BASED CHEMICALS									
DIETHYLENE GLYCOL	83.30	132.90	170.90	108.24	105.70	107.41	167.74	172.33	**12.33**
DIACETONE ALCOHOL	9.50	9.50	9.50	0.00	0.21	4.07	6.04	2.93	
ETHYLENE DICHLORIDE	593.20	593.20	593.20	282.57	282.35	339.20	345.29	326.24	**3.66**
BUTANOL	26.00	26.00	26.00	12.47	17.39	21.69	16.44	20.29	**12.95**
2-ETHYL HEXANOL	55.20	55.20	55.20	45.59	56.64	58.89	48.75	49.67	**2.17**
VINYL CHLORIDE MONOMER	541.30	541.30	541.30	791.26	777.98	803.62	874.47	799.22	**0.25**
PBT**	0.00	0.00	0.00	0.61	0.58	1.29	6.25	6.09	**78.02**
POLY-CARBONATE**	0.00	0.00	0.00	0.15	0.09	0.12	0.11	0.00	**-100.00**
PROPYLENE OXIDE	36.00	36.00	51.00	29.34	36.00	35.12	34.56	44.42	**10.92**
PROPYLENE GLYCOL	20.00	20.00	22.00	16.35	17.64	19.13	19.51	19.71	**4.78**
POLYVINYL ACETATE RESIN	17.34	17.34	12.00	0.00	0.00	0.00	0.00	2.96	
UNSATURATED POLYSTER RESIN	0.00	34.00	34.00	0.00	0.00	0.00	16.44	8.79	
METHYL METHACRYLATE	4.38	4.38	4.38	0.54	2.83	3.99	1.71	0.00	**-100.0**
ISO-BUTANOL	2.80	2.80	2.80	1.96	2.23	2.21	1.71	2.07	**1.35**
C4-RAFFINATE	291.60	291.60	291.60	437.17	339.20	380.26	413.33	433.42	**-0.22**
PHTHALIC ANHYDRIDE	349.05	401.91	401.91	296.07	290.01	275.07	269.64	292.96	**-0.26**
VINYL ACTATE MONOMER	30.00	30.00	30.00	0.00	0.00	0.00	0.00	0.00	
ISOPROPANOL	70.20	70.20	70.20	72.47	71.83	58.27	60.51	55.31	**-6.53**
POLYOL	141.63	146.76	142.03	78.72	79.43	82.13	81.75	77.83	**-0.28**
GROUP TOTAL	**2271.49**	**2413.09**	**2458.01**	**2173.50**	**2080.10**	**2192.46**	**2364.23**	**2314.22**	**1.58**
TOTAL PETRO-CHEMICALS (A+B+C)	**42076.70**	**48933.31**	**50438.76**	**36427.08**	**36813.06**	**37518.55**	**43524.13**	**42155.29**	

*Note: * Combined Installed Capacity of both LLDPE & HDPE.*

*Note : **Combined Installed Capacity of N-6, N6,6, PBT and Poly carbonate*

Source: The source of Production and Installed Capacity of Chemicals and Petrochemicals products (which are monitoring by Statistics & Monitoring Division (S&M) of DCPC) is MPRs received from manufacturers under large and medium scale units only.

Annexure-III

Chemicals Under Rotterdam Convention

There are a total of 52 chemicals listed in Annex III, 35 pesticides (including 3 severely hazardous pesticide formulations), 16 industrial chemicals, and 1 chemical in both the pesticide and the industrial chemical categories.

S. No.		
1.	2,4,5-T and its salts and esters	Pesticide
2.	Alachlor	Pesticide
3.	Aldicarb	Pesticide
4.	Aldrin	Pesticide
5.	Azinphos methyl	Pesticide
6.	Binapacryl	Pesticide
7.	Captafol	Pesticide
8.	Carbofuran	Pesticide
9.	Chlordane	Pesticide
10.	Chlordimeform	Pesticide
11.	Chlorobenzilate	Pesticide
12.	DDT	Pesticide
13.	Dieldrin	Pesticide
14.	Dinitro-ortho-cresol (DNOC) and its salts (such as ammonium salt, potassium salt and sodium salt)	Pesticide
15.	Dinoseb and its salts and esters	Pesticide
16.	1,2-dibromoethane (EDB)	Pesticide
17.	Endosulfan	Pesticide
18.	Ethylene dichloride	Pesticide
19.	Ethylene oxide	Pesticide
20.	Fluoroacetamide	Pesticide
21.	HCH (mixed isomers)	Pesticide
22.	Heptachlor	Pesticide
23.	Hexachlorobenzene	Pesticide
24.	Lindane (gamma-HCH)	Pesticide
25.	Mercury compounds including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds	Pesticide
26.	Monocrotophos	Pesticide
27.	Methamidophos	Pesticide

28.	Parathion	Pesticide
29.	Pentachlorophenol and its salts and esters	Pesticide
30.	Phorate	Pesticide
31.	Toxaphene (Camphechlor)	Pesticide
32.	Tributyl tin compounds	Pesticide/ Industrial
33.	Trichlorfon	Pesticide
34.	Dustable powder formulations containing a combination of : benomyl at or above 7 per cent, carbofuran at above 10 per cent, thiram at or above 15 per cent	Severely hazardous pesticide formulation
35.	Methyl-parathion (Emulsifiable concentrates (EC) at or above 19.5% active ingredient and dusts at or above 1.5% active ingredient)	Severely hazardous pesticide formulation
36.	Phosphamidon (Soluble liquid formulations of the substance that exceed 1000 g active ingredient/l)	Severely hazardous pesticide formulation
37.	Actinolite Asbestos	Industrial
38.	Anthophyllite asbestos	Industrial
39.	Amosite Asbestos	Industrial
40.	Crocidolite asbestos	Industrial
41.	Commercial octabromodiphenyl ether (including Hexabromodiphenyl ether and Heptabromodiphenyl ether)	Industrial
42.	Commercial pentabromodiphenyl ether (including tetrabromodiphenyl ether and pentabromodiphenyl ether)	Industrial
43.	Hexabromocyclododecane	Industrial
44.	Perfluorooctane sulfonic acid, perfluorooctane sulfonates, perfluorooctane sulfonamides and perfluorooctane sulfonyls	Industrial
45.	Polybrominated biphenyls (PBBs)	Industrial
46.	Polychlorinated biphenyls (PCBs)	Industrial
47.	Polychlorinated terphenyls (PCTs)	Industrial
48.	Short Chain Chlorinated Paraffins (SCCP)	Industrial
49.	Tetraethyl lead	Industrial
50.	Tetramethyl lead	Industrial
51.	Tremolite asbestos	Industrial
52.	Tris (2,3 dibromopropyl) phosphate	Industrial

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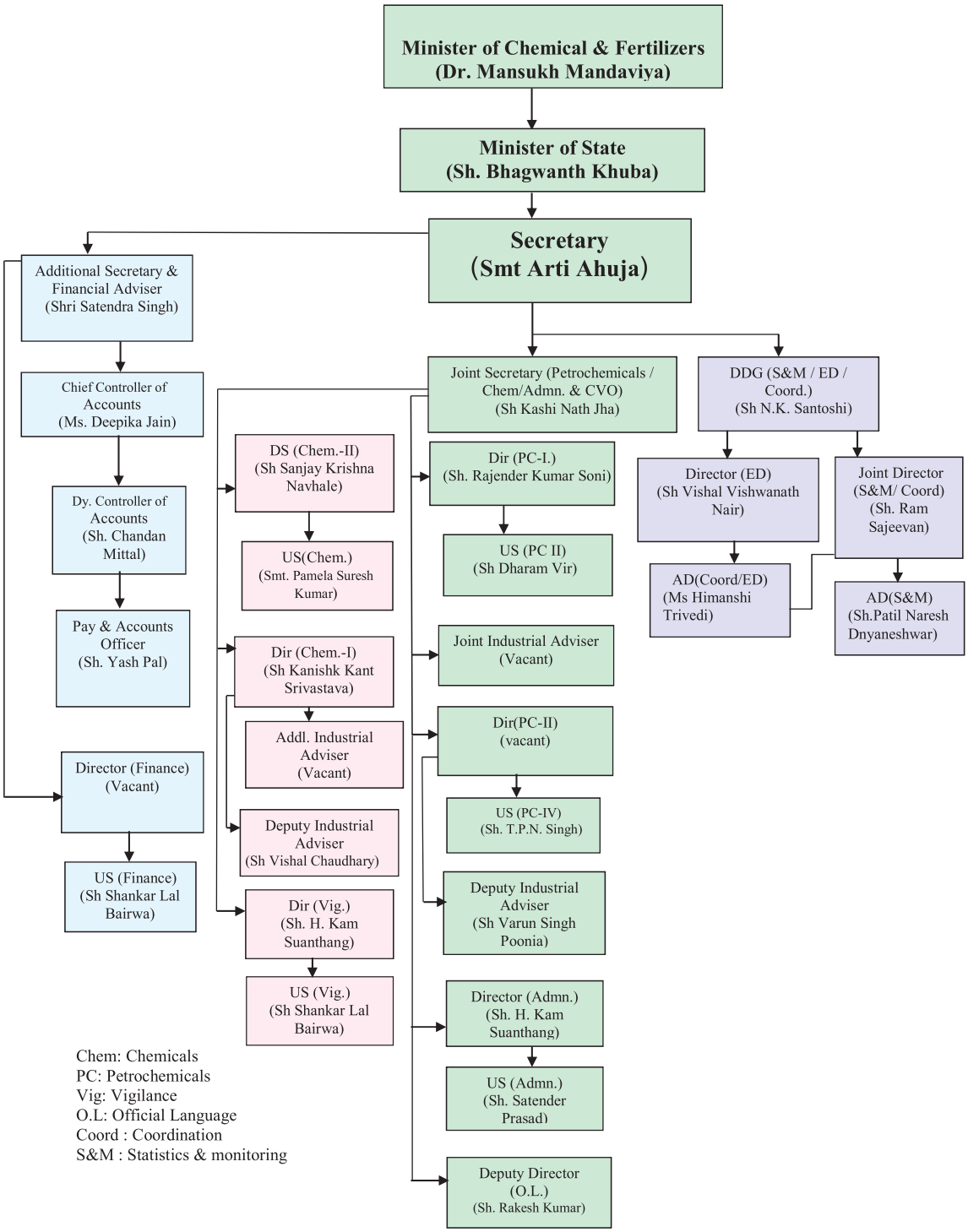
Annexure-IV

ORGANISATIONAL CHART OF DEPARTMENT OF CHEMICALS & PETROCHEMICALS (As on 15.02.2022)



Chem: Chemicals
PC: Petrochemicals
Vig: Vigilance
O.L: Official Language
Coord : Coordination
S&M : Statistics & monitoring

Notes

Notes

सत्यमेव जयते

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