सत्यमेव जयते

ANNUAL REPORT 2016-17


Brahmaputra Cracker & Polymer Limited

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

CONTENTS

ANNEXURES

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 above-mentioned sectors 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. Molasses;

iii. Alcohol - Industrial and Potable from the molasses route;

iv. Dye-stuffs and Dye-Intermediates;

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

vi. Planning, development and assistance to all industries dealt with by the Department;

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

viii. Petrochemicals;

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

x. Synthetic Rubber; and

xi. Plastics including fabrication of plastic and moulded goods.

1.3 The Department has four major divisions viz. Chemicals, Petrochemicals, Planning & Personnel and Statistics & Monitoring (S&M). The Internal Finance Division is common to the three Departments in the Ministry of Chemicals and Fertilizers. There are three Central Public Sector Undertakings (CPSU) in the chemical sector namely Hindustan Organic Chemicals Ltd. (HOCL), Hindustan Insecticides Ltd. (HIL) and Hindustan Fluorocarbons Limited (HFL), which is a

subsidiary of HOCL and one CPSU in the petrochemical sector viz. Brahmaputra Cracker and Polymer Ltd. (BCPL). The autonomous institutes under this Department are Central Institute of Plastics Engineering & Technology (CIPET) and Institute of Pesticides Formulation Technology (IPFT).

1.4 Shri Ananth Kumar is the Minister of Chemicals and Fertilizers and Shri Mansukh L. Mandaviya is the Minister of State. Shri Anuj Kumar Bishnoi is the Secretary of the Department.

*****

Chapter - 2

AN OVERVIEW OF CHEMICAL AND PETROCHEMICAL INDUSTRY

Chemical and Petrochemical Industry:

2.1 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, pesticides, paints, varnishes, gases, soaps, perfumes and toiletry and pharmaceuticals. It is one of the most diversified of all industrial sectors covering thousands of 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.

2.2 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 n.e.c.
2030	Manufacture of man-made fibres

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.

2.3 According to National Accounts Statistics 2016, brought out by the Central Statistics Office (CSO), chemical and chemical products sector (industry division

20 and 21 of NIC 2008) accounted for 2.33% of the GVA (at 2011-12 prices) in 2014-15, compared to 2.34% in 2013-14. The share of this sector in the GVA of manufacturing sector at 2011-12 prices was 13.60% during 2014-15 as compared to 13.43% in 2013-14. The average Indices of Industrial Production (IIP) for the Chemical and Chemical products (industry division 24: NIC 2004) for the year 2015-16 stand at 143.5, which is 3.8% higher as compared to the previous year. The size of the Indian Chemical industry (Industry division 20 and 21 of NIC 2008) in terms of value of output in the year 2014-15 was Rs. 8,33,046 crore.

2.4 The production of selected major chemicals and petrochemicals during the years 2012-13 to 2016-17 (up to November 2016) is given in Table-II. The production of major chemicals and petrochemicals in 2016-17 (up to November 2016) was 17162 thousand MT, compared to 16255 thousand MT in 2015-16 (up to November 2015) implying growth of 5.6%.

Table II: Production of selected major chemicals and petrochemicals

Group	Production / Growth Rate	2012-13	2013-14	2014-15	2015-16	2015-16 (April 15 to Nov. 15)	2016-17 (April 16 to Nov. 16)*
Alkali Chemicals	Production	**6487**	**6481**	**6625**	**6802**	**4472**	**4636**
	Growth Rate (%)	0.1	-0.1	2.2	2.7		3.6
Inorganic Chemicals	Production	**891**	**906**	**944**	**1002**	**661**	**698**
	Growth Rate (%)	-0.4	1.7	4.2	6.1		5.6
Organic Chemicals	Production	**1686**	**1792**	**1619**	**1589**	**1075**	**1057**
	Growth Rate (%)	2.8	6.3	-9.7	-1.9		-1.7
Pesticides (Technical)	Production	**155**	**179**	**186**	**188**	**125**	**142**
	Growth Rate (%)	-0.5	15.4	4.0	0.6		13.2
Dyes & Pigments	Production	**240**	**284**	**285**	**304**	**196**	**207**
	Growth Rate (%)	-0.6	18.4	0.6	6.6		5.4
Total Major chemicals	Production	**9459**	**9643**	**9660**	**9884**	**6530**	**6740**
	Growth Rate %)	0.5	1.9	0.2	2.3		3.2
Synthetic Fibers	Production	**3124**	**3144**	**3527**	**3554**	**2362**	**2420**
	Growth Rate %)	0.6	0.6	12.2	0.8		2.5
Polymers	Production	**7509**	**7876**	**7558**	**8839**	**5720**	**6155**
	Growth Rate (%)	3.6	4.9	-4.0	17.0		7.6
Elastomers (S.Rubber)	Production	**96**	**105**	**172**	**242**	**170**	**186**
	Growth Rate (%)	-4.2	8.7	64.1	40.8		9.5

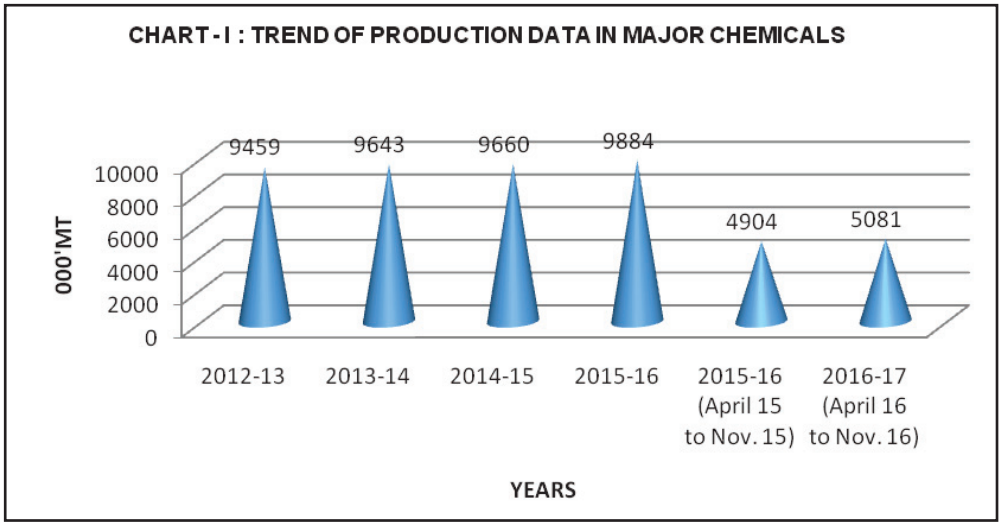
Synth. Detergent Intermediates	Production	**627**	**597**	**596**	**566**	**372**	**458**
	Growth Rate (%)	0.7	-4.8	-0.1	-5.1		23.2
Performance Plastics	Production	**1691**	**1685**	**1591**	**1700**	**1100**	**1203**
	Growth Rate (%)	0.8	-0.4	-5.5	6.9		9.4
Total Basic Major Petrochemicals	Production	**13047**	**13406**	**13443**	**14900**	**9725**	**10423**
	Growth Rate %)	2.3	2.7	0.3	10.8		7.2
Total Major Chemicals and Petrochemicals	Production	**22507**	**23048**	**23103**	**24783**	**16255**	**17162**
	Growth Rate	1.5	2.4	0.2	7.3		5.6

*Provisional

Note: Production is aggregated based on Monthly Production Returns from manufacturers under large and edium scale. Product- wise and Group wise details of installed capacity and production for major chemicals and major petrochemicals are given in Annexure-I & Annexure-II respectively.

Chemical Sector- Production Trends

2.5 It may be seen from Table II that the production of Alkali Chemicals accounts for around 69% of the total production of major chemicals. The production of major chemicals in 2016-17 (up to November 2016) was 6740 thousand MT, compared to 6530 thousand MT during the same period in 2015-16 (up to November 2015) implying a growth of 3.2%. The trend in the production of selected major chemicals is depicted in Chart I.



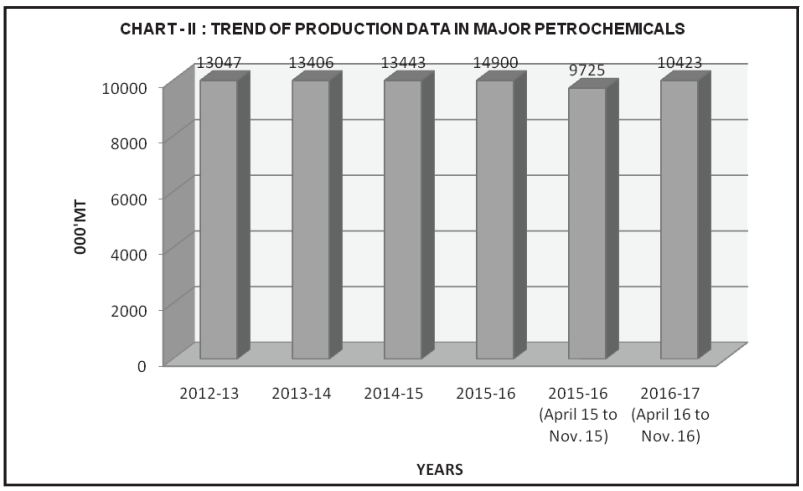
Petrochemical Sector- Production Trends

2.6 Petrochemicals, which comprise of plastic and 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.

2.7 There are four naphtha and four gas based cracker complexes in the country with a combined annual ethylene capacity of 4.00 million MT. There are six aromatic complexes with a combined Xylene capacity of 4.45 million MT. Besides, there are six Petro Fluid Catalytic Cracking Units with a combined propylene capacity of 1.7 million MT.

2.8 From Table II, it may be seen that the production of polymers account for around 59% of the total production of basic major petrochemicals. The production of basic major petrochemicals in 2016-17 (up to November 2016) was 10423 thousand MT, compared to 9725 thousand MT in 2015-16 (up to November 2015) implying a growth of 7.2%.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 24 of NIC 2004) is 100.59 out of 1000 in the Index of Industrial Production (Base Year: 2004-05). The General Index for the month of November, 2016 stands at 175.8, which is 5.7% higher as compared to the level in the month of November, 2015. The cumulative growth for the period April-November, 2016-17 over the

corresponding period of the previous year stands at 0.4%. The Index of Industrial Production for the Manufacturing sector for the month of November, 2016 stands at 181.2, which is 5.5% higher as compared to the level in the month of November 2015, whereas the Index of Industrial Production for the Chemicals and Chemical products for the month of November 2016 stands at 139.5 which is 0.9% higher as compared to the level in the month of November, 2015. The cumulative growth in manufacturing sector during April-November, 2016-17 over the corresponding period of 2015-16 has been (-) 0.3%, as against the growth 2.6 % in respect of Chemical & Chemical products. The month wise Index of Industrial production during 2015-16 and 2016-17 (up to November, 2016) is depicted in Table III.

Table III: Index of Industrial Production

(Base: 2004-05 =100)

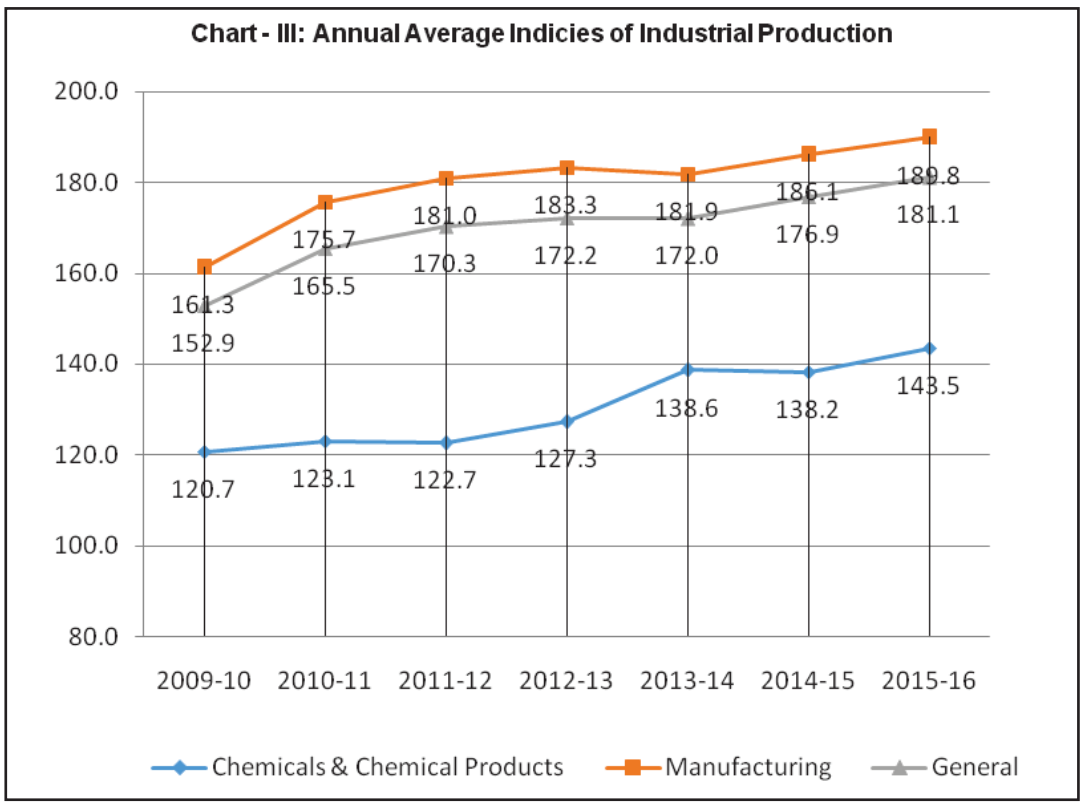
Period	Chemicals and chemical products	Manufacturing	General
Weight	100.59	755.27	1000
Apr'15	138.6	188.5	177.9
May'15	144.4	187.3	179.7
Jun'15	145.2	189.5	179.3
Jul'15	145.2	190.9	180.5
Aug'15	142.0	184.8	176.6
Sep'15	147.5	186.9	178.2
Oct'15	144.6	188.1	181.4
Nov'15	138.3	171.7	166.3
Dec'15	148.8	193.1	184.2
Jan'16	139.8	194.8	186.2
Feb'16	138.3	193.9	184.5
Mar'16	148.8	208.1	198.7
Apr'16	138.7	181.7	175.5
May'16	149.4	188.7	182.0
Jun'16	152.0	191.4	183.2
Jul'16	153.4	184.2	175.9
Aug'16	148.9	184.3	175.3
Sep'16	146.4	188.5	179.4
Oct'16	147.0	183.6	178.1
Nov'16	139.5	181.2	175.8

2.10 The behaviour of IIP of chemicals and chemical products vis-à-vis General IIP and IIP in respect of manufacturing from 2009-10 to 2015-16 is depicted in Table IV and Chart III.

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

(Base: 2004-05 =100)

Particulars	**Weight**	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Chemicals & Chemical Products	**100.59**	120.7	123.1	122.7	127.3	138.6	138.2	143.5
Manufacturing	**755.27**	161.3	175.7	181.0	183.3	181.9	186.1	189.8
General	**1000**	152.9	165.5	170.3	172.2	172.0	176.9	181.1



Source: Ministry of Statistics and Programme Implementation. Data accessed from http://www.mospi.gov.in/time-series-indices-industrial-production-2004-05 as on 26.12.2016

Whole Sale Price Index (WPI)

2.11. The annual rate of inflation based on monthly WPI (Base Year: 2004-05) released by the Office of the Economic Advisor, for 'all commodities' stood at 3.15% for the month of November 2016 over November 2015. The index for 'Food Articles' group rose by 1.54%, for 'Manufactured Products' by 3.2% and for 'Chemicals & Chemical products' by 0.47% during the same period. The weight of Chemicals & Chemical products in the WPI is 12.02 out of all commodities weight of 100. The month-wise Index of WPI from April 2015 to November 2016 isgiven in Table V.

Table V: Whole Sale Price Index

(Base Year: 2004-05 =100)

Month	All commodities	Food Articles	Manufactured Products	Chemicals & Chemical products
April-15	176.4	253.1	153.9	151.1
May-15	178.0	251.3	154.3	151.3
June-15	179.1	257.9	154.2	151.5
July-15	177.6	255.6	153.6	151.4
August-15	176.5	262.6	153.0	151.2
September-15	176.5	264.4	153.3	150.7
October-15	176.9	267.2	153.3	150.6
November-15	177.5	271.9	153.0	150.1
December-15	176.8	272.0	152.4	149.8
January-16	175.4	268.7	152.7	149.5
February-16	174.1	260.5	153.2	149.5
March-16	175.3	259.5	154.1	149.6
April-16	177.8	265.0	155.5	150.1
May-16	180.2	272.0	156.1	150.8
June-16	182.9	280.0	156.2	151.0
July-16	184.2	287.8	156.6	151.0
August-16	183.3	285.9	156.8	150.7
September-16	183.2	281.3	157.2	150.6
October-16	182.9	278.8	157.4	150.7
November-16	183.1	276.1	157.9	150.8

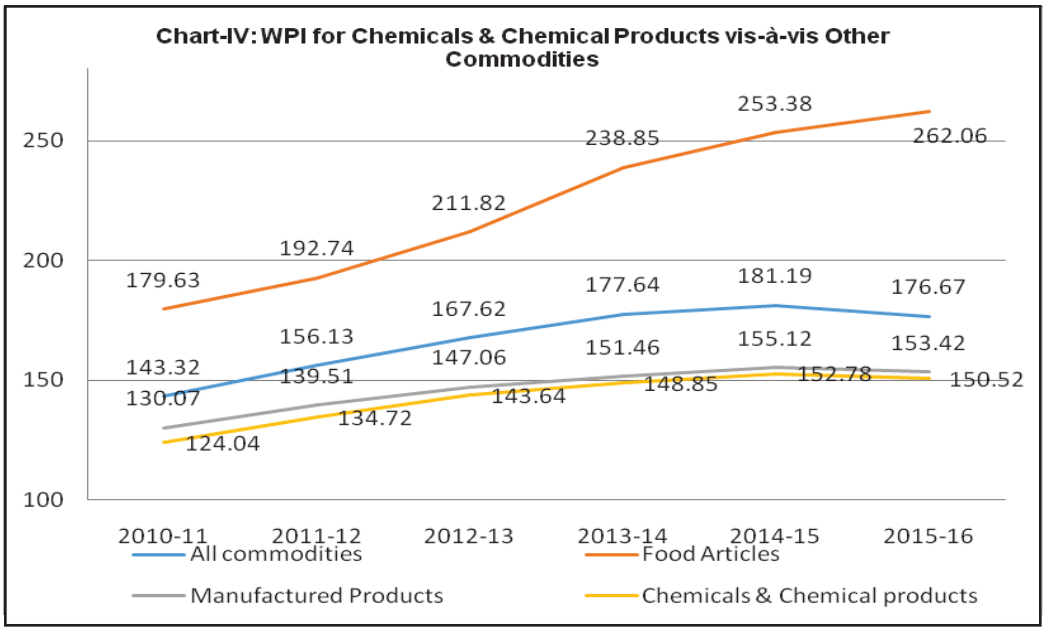
Source: Office of the Economic Advisor, Ministry of Commerce & Industry, Data accessed on 26.12.2016 from http://www.eaindustry.nic.in

2.12 Table VI and Chart IV below show the WPI for chemicals & chemical products vis-à-vis all commodities, food articles and manufactured products during the years 2010-11 to 2015-16.

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

(Base Year: 2004-05 = 100)

Description	Weight	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
All commodities	**100.00**	143.32	156.13	167.62	177.64	181.19	176.67
Food Articles	**14.34**	179.63	192.74	211.82	238.85	253.38	262.06
Manufactured Products	**64.97**	130.07	139.51	147.06	151.46	155.12	153.42
Chemicals & Chemical products	**12.02**	124.04	134.72	143.64	148.85	152.78	150.52



2.13 Table VII shows WPI of different commodity groups within Chemicals & Chemical products group during the years 2010-11 to 2015-16.

Table VII: WPI of Chemicals & Chemical Products

DESCRIPTION	WEIGHT	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Chemicals & Chemical Products	12.02	124.04	134.72	143.64	148.85	152.78	150.52
Basic Inorganic Chemicals	1.19	126.26	138.24	147.78	150.63	156.13	155.27
Basic Organic Chemicals	1.95	124.39	135.04	140.27	147.46	150.86	140.16
Fertilizers	2.66	116.80	132.58	149.01	152.28	154.91	158.18
Pesticides	0.48	113.62	114.85	121.16	125.94	135.73	137.72
Paints, Varnishes & Lacquers	0.53	122.64	128.48	143.59	147.63	149.92	152.22
Dyestuffs & Indigo	0.56	116.34	122.47	126.92	132.59	144.78	141.94
Drugs & Medicines	0.46	115.40	119.64	124.24	126.82	129.31	129.59
Perfumes, Cosmetics, Toiletries Etc	1.13	138.52	145.34	151.94	157.27	160.67	163.19
Turpentine, Plastic Chemicals	0.59	123.43	136.06	140.02	147.59	156.40	154.10
Polymers Including Synthetic Rubber	0.97	123.37	130.38	135.33	142.82	152.32	146.03
Petrochemical Intermediates	0.87	137.37	156.19	164.24	170.41	161.97	150.12
Matches, Explosives & Other Chemicals	0.63	128.72	135.45	142.60	149.84	153.49	153.88

Source: Office of the Economic Advisor, Ministry of Commerce & Industry, Data accessed on 26th December 2016 from http://www.eaindustry.nic.in/

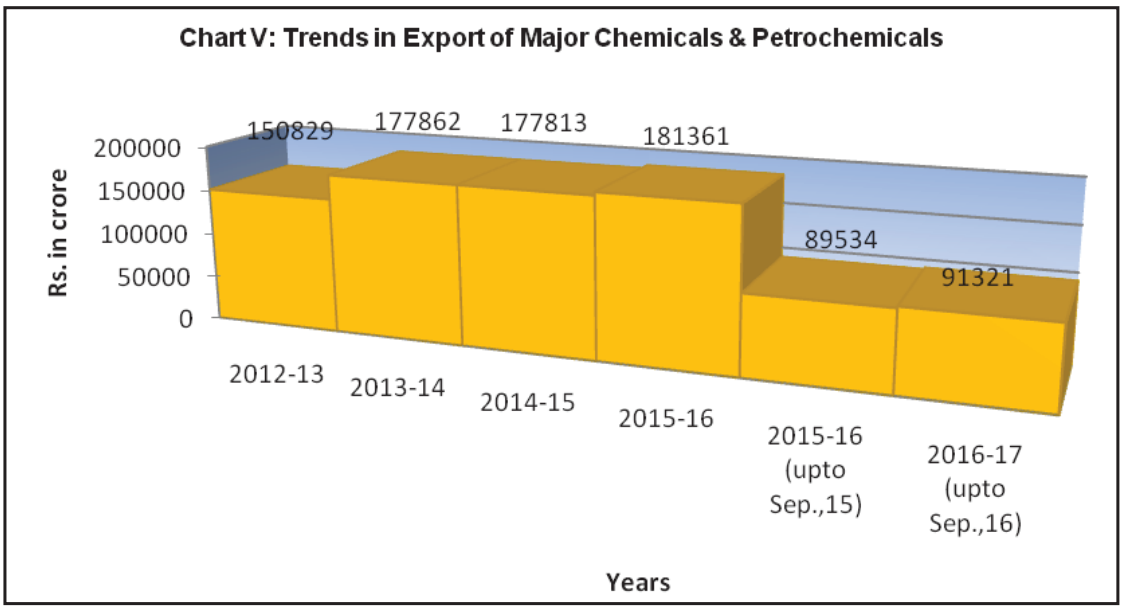
INTERNATIONAL TRADE

2.14 Trends in exports and imports of Chemicals and Chemical Products (excluding Pharmaceutical Products and Fertilizers) during 2012-13 to 2016-17 (up to September, 2016) are given in Table VIII and Chart V and Chart VI.

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

A. Exports (In Rs. crore)

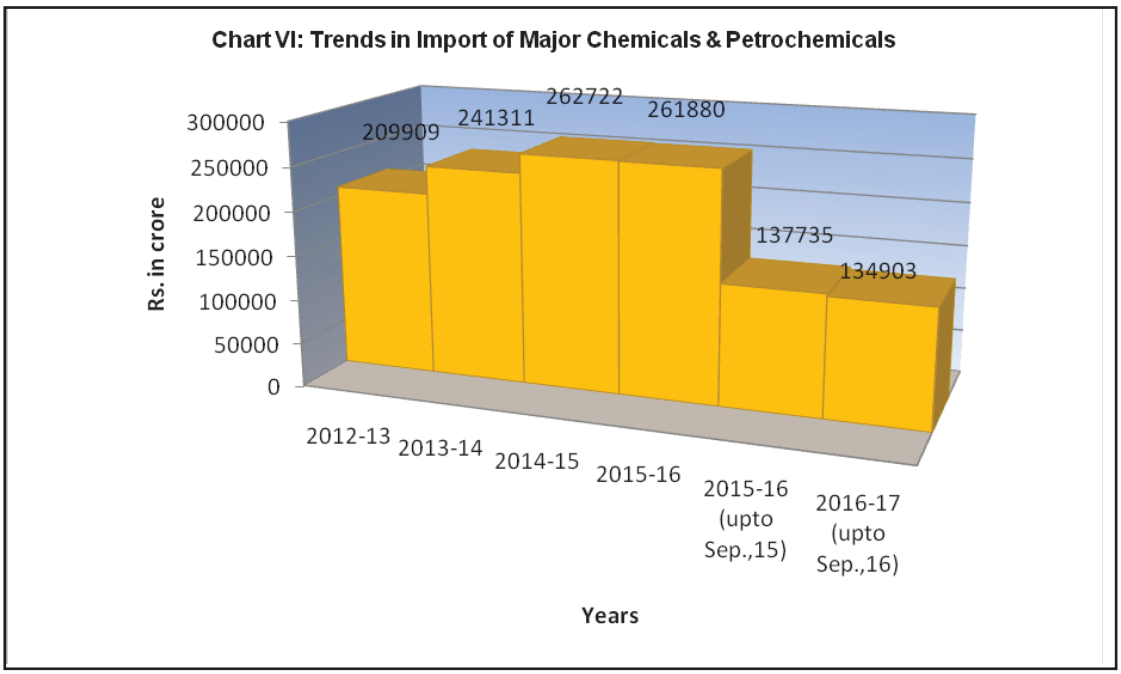
HS Code	Commodity	2012-13	2013-14	2014-15	2015-16	2015-16 (upto Sep.,15)	2016-17 (upto Sep.,16)
	Total National Exports	**1634318**	**1905011**	**1896348**	**1716378**	**858623**	**878318**
28	Inorganic Chemicals	7176	8258	8749	7913	3740	4051
29	Organic Chemicals	65865	72860	73069	75325	37876	37469
32	Tanning or Dyeing	11372	15455	17206	16165	8103	8682
38	Miscellaneous Chemical Products.	15545	18694	19432	20083	8973	9900
39	Plastic and Articles thereof.	28012	34154	31022	34339	16727	17410
4002	Synthetic Rubber and Factice	181	245	379	452	264	196
54	Man-Made Filaments.	12112	15575	14621	13460	7148	6725
55	Man-Made Staple Fibres.	10565	12621	13334	13625	6704	6888
A:Total Chemicals and Chemical Products		150829	177862	177813	181361	89534	91321
% share in total export		9.2	9.3	9.4	10.6	10.4	10.4



B. Imports

(Rs. in crore)

HS Code	Commodity	2012-13	2013-14	2014-15	2015-16	2015-16 (upto Sep.,15)	2016-17 (upto Sep.,16)
	Total National Imports of which	**2669162**	**2715434**	**2737087**	**2490298**	**1298646**	**1167856**
28	Inorganic Chemicals	28770	29063	31413	33170	16596	16743
29	Organic Chemicals	85439	103157	108320	101986	55298	50611
32	Tanning or Dyeing	8004	9254	9821	10467	5237	5327
38	Miscellaneous Chemical Products	20650	23107	25494	27207	14346	15411
39	Plastic and Articles thereof	52283	61072	71398	74566	38566	39530
4002	Synthetic Rubber And Factice	7562	7339	6697	5205	2862	2915
54	Man-Made Filaments	4149	4597	5042	4879	2478	2470
55	Man-Made Staple Fibres.	3052	3722	4539	4401	2352	1896
B: Total Chemicals and Chemical Products		209909	241311	262722	261880	137735	134903
% share in total import		7.9	8.9	9.6	10.5	10.6	11.6



2.15 The imports of chemicals and products (excluding Pharmaceutical Products and Fertilizers) contributed 11.6% of total imports in 2016-17 (upto September, 2016) compared to 10.6% in 2015-16 (upto September, 2015) whereas the exports contributed 10.4% of total exports both in 2016-17 (upto September, 2016) and 2015-16 (upto September, 2015).

*****

Chapter – 3

PLAN SCHEMES

3.1 Public sector investment through Plan schemes in this Department is gradually increasing in keeping with the enabler role of the Department in facilitating the growth of Chemical and Petrochemical industries. Both Plan allocation and expenditure for Schemes for the promotion of Chemical and Petrochemical industries has been increasing. Allocation for Schemes such as Chemical Promotion & Development Scheme (CPDS), Plastic Parks and for Central Institute of Plastic Engineering & Technology (CIPET) which is engaged in Academic, Technology support, Research and Skill development activities has gone up since the beginning of the 12th Five Year Plan.

3.2. The Assam Gas Cracker Project (AGCP) is being implemented by M/s Brahmaputra Cracker and Polymer Limited to produce about 2.8 lakh MT polymers per annum. The last approved revised cost of the project by the Cabinet Committee on Economic Affairs (CCEA) in 2011 is Rs. 8,920 crore, comprising capital subsidy of Rs. 4,690 crore, debt of Rs. 2,961 crore and equity of Rs. 1,269 crore. The project was commissioned on 2nd January, 2016 and dedicated to the nation by the Hon'ble Prime Minister on 5th February, 2016.

3.3. In view of time overruns, foreign exchange fluctuations, price escalation, increase in statutory levies etc., further cost and time escalations have occurred and therefore, BCPL has proposed revised project cost of Rs. 9965 crore as against the approved project cost of Rs. 8920 crore. The estimated increase in project cost of Rs. 1045 crore is proposed to be funded by capital subsidy of Rs. 549.45 crore, equity of Rs. 148.67 crore and debt of Rs. 346.88 crore.The revised project cost has been approved and the Finance Ministry has been approached for allocation Rs. 549.45 crore as capital subsidy. Ministry of Finance has allocated Rs. 100 crore under BE 2017-18 for Assam Gas Cracker Project (AGCP) out of the requirement of Rs. 549.45 crore.

3.4. Further, in order to make the project economically viable, BCPL has also proposed 'in-principle' approval for Feedstock Subsidy on natural gas with an annual review for 15 years of plant operation for maintaining a minimum Internal Rate of Return (IRR) of 10% and Revenue Subsidy of Rs. 26 crore to

fund the cash deficit during initial one year. For a decision on these and other issues, such as first right of refusal for gas explored in NER, price of Naphtha, etc., a PIB note is being circulated.

3.5. Scheme-wise Outlay (BE/RE for 2016-17), Expenditure for 2015-16, 2016-17 and BE 2017-18 are given in Tables below:

Table No. IX: Scheme-wise Outlay

(Rs. in crore)

Sr. No.	Name of Scheme	BE 2015-16	RE 2015-16	BE 2016-17
I	**Central Sector Schemes**			
1.	Assam Gas Cracker Project (AGCP)	0.02	0.01	100.01
2.	New Schemes of Petrochemicals	48.00	48.00	48.00
3.	Chemical Promotion & Development Scheme (CPDS)	5.00	1.99	1.99
4.	Chemical Weapons Convention (CWC)	1.01	0.00*	0.00*
	Total	**54.03**	**50.00**	**150.00**
II	**Other Schemes (Sectt / BGLD/ ABs/ PSUs)****			
1.	Secretariat/Economic Services	16.87	17.97 (Non-Plan)	20.41
2.	Central Institute of Plastic Engineering & Technology (CIPET)	57.67	57.67	68.08
3.	Institute of Pesticides Formulation Technology (IPFT)	8.33	8.89 [5.73 (Plan) + 3.16 (Non-Plan)]	9.16
4.	Hindustan Organic Chemicals Ltd. (HOCL)	25.01	24.61 (Non-Plan)	24.61
5.	Hindustan Insecticides Ltd. (HIL)	15.01	0.00	0.00
6.	Hindustan Fluorocarbons Ltd. (HFL)	0.01	0.00	0.00
7.	Bhopal Gas Leak Disaster (BGLD)	25.11 (Non-Plan)	23.86 (Non-Plan)	2574
	Total	**148.01**	**133.00**	**148.00**
	Grand Total	**202.04**	**183.00**	**298.00**

*Scheme transferred to National Authority on Chemical Weapons Convention (NACWC).
**Sectt:Secretariat/BGLD:Bhopal Gas Leak Disaster/ABs:Autonomous Bodies/PSUs:Public Sector Undertakings.

Table – X: Expenditure 2015-16 and 2016-17 (Plan)

(Rs. in crore)

Sr. No.	Name of Scheme	BE 2015-16	RE 2015-16	Exp. 2015-16	% of Exp. w.r.t. RE	BE 2016-16	RE 2015-17	Exp. 2016-17 as on 31.01.2017	% of Exp. w.r.t. RE
1.	Secretariat	1.00	0.80	0.61	76.25	0.00	0.00	0.00	0.00
2.	New Schemes of Petrochemicals	58.41	12.50	9.06	72.48	48.00	48.00	29.83	62.14
3.	Assam Gas Cracker Project (AGCP)	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00
4.	Chemical Promotion & Development Scheme (CPDS)	1.90	3.90	2.80	71.79	5.00	1.99	0.71	35.67
5.	Chemical Weapons Convention (CWC)	1.00	1.00	1.00	100.00	1.00	0.00*	0.00	0.00
6.	Institute of Pesticides Formulation Technology (IPFT)	1.00	1.00	1.00	100.00	8.32	5.73	5.73	100.00
7.	Central Institute of Plastic Engineering & Technology (CIPET)	92.68	107.68	107.68	100.00	57.67	57.67	57.67	100.00
8.	Hindustan Insecticides Ltd. (HIL)	10.00	10.00	0.00	0.00	15.00	0.00	0.00	0.00
9.	Hindustan Organic Chemicals Ltd. (HOCL)	17.00	0.00	0.00	0.00	25.00	0.00	0.00	0.00
10.	Hindustan Fluorocarbons Ltd. (HFL)	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**188.00**	**141.89**	**122.15**	**86.09**	**160.00**	**113.40**	**93.94**	**82.84**

**Scheme transferred to National Authority on Chemical Weapons Convention (NACWC).*

Table – XI: Expenditure 2015-16 and 2016-17 (Non-Plan)

(Rs. in crore)

Sr. No.	Name of Scheme	BE 2015-16	RE 2015-16	Exp. 2015-16	% of Exp. w.r.t. RE	BE 2016-16	RE 2015-17	Exp. 2016-17 as on 31.01.2017	% of Exp. w.r.t. RE
1.	Secretariat	15.79	17.02	14.39	84.55	16.87	17.97	15.01	83.52
2.	Assam Gas Cracker Project (AGCP)	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00
3.	Chemical Weapons Convention (CWC)	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00
4.	Institute of Pesticides Formulation Technology (IPFT)	3.70	4.05	3.33	82.22	0.01	3.16	0.00	0.00
5.	Hindustan Insecticides Ltd. (HIL)	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
6.	Hindustan Organic Chemicals Ltd. (HOCL)	0.01	24.61	24.61	100.00	0.01	24.61	24.61	100.00
7.	Hindustan Fluorocarbons Ltd. (HFL)	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
8.	Bhopal Gas Leak Disaster (BGLD)	47.64	27.18	25.22	92.79	25.11	23.86	20.52	86.00
	Total	67.18	72.88	67.55	92.69	42.04	69.60	60.14	86.41

*Budget Estimates: 2016-17 (Plan & Non-Plan) – Rs. 202.04 crore.

Revised Estimates: 2016-17 (Plan & Non-Plan) – Rs. 183.00 crore.

*****

Chapter – 4

PETROLEUM, CHEMICAL AND PETROCHEMICAL INVESTMENT REGIONS (PCPIRS)

Background

4.1. Government of India has approved four Petroleum, Chemical and Petrochemical Investment Regions (PCPIRs) 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.

4.2. The PCPIRs were conceptualized in a cluster approach to promote the Petroleum, Chemical and Petrochemical sectors in an integrated and environmental 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 State Government concerned to acquire the entire area comprising the PCPIR, but they have to notify the area under the relevant area planning and zoning law.

4.4. TThe State Governments concerned 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, called Viability Gap Funding (VGF), as well as budget support for creation of these linkages.

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 the relevant legislation, is responsible for the development and management of the PCPIR.

4.7. At present, PCPIRs are being set up in the four coastal States of Gujarat, Andhra Pradesh, Odisha and Tamil Nadu.

4.8. Once fully established, these PCPIRs are expected to attract investment of around Rs. 7.63 lakh crore. As on 30.09.2016 investments worth Rs. 1.73 lakh crore approximately have been made in these regions. Infrastructure with investment of Rs. 61,000 crore approximately is expected to be created in the PCPIRs. The four PCPIRs are expected to generate employment for around 34 lakh persons. As on 30.09.2016 around 2.73 lakh persons have been employed in direct and indirect activities related to PCPIRs.

4.9. 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	603.58	284.15	256.83
Processing Area (Sq.kms.)	248.00	270.00	123.00	104.00
Anchor Tenant	ONGC Petroleum addition Limited	Hindustan Petroleum Corporation Ltd. (HPCL)	Indian Oil Corporation Ltd. (IOCL)	Nagarjuna Oil Corporation Ltd. (NOCL)
Refinery / Cracker capacity in MMTPA	Cracker: Ethylene: 1.1 Propylene: 0.6	9.3 to 15 (expansion of existing refinery) 15 (Greenfield) or Ethane Cracker.	15 (Greenfield refinery).	12 (Refinery).
Anchor Project Status	Polypropylene unit commissioned	Anchor Tenant for Greenfield project yet to come on board	Commissioned in February, 2016	Construction work stalled since 2011

Total amount of infrastructure projects approved (Rs. crore)	15,436.00	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)
Proposed Investment (Rs. crore)*	50,000.00	3,43,000.00	2,77,734.00	92,500.00
Investment made (Rs. Crore)	82,825.00	37,010.00	45,000.00	8,100.00
Projected employment (No.)*	8,00,000	11,98,000	6,61,354	7,37,200
Employment generated (No.)	1,28,000	93,500	38,000	13,950
Status of Master Planning notification	Development Plan sanctioned	Field Studies, village level consultations finalized. Master Plan will be completed after finalization of anchor unit.	Preparation of Master Plan is in process.	Will be taken up after formation of PCPIR Management Board.
Status of EIA	EIA final report has been submitted to Ministry of Environment, Forest and expected to be approved shortly.	Environmental Clearances, EIA Studies, Collection of Data etc completed. Environmental Clearance will be initiated after finalization of Master Plan.	EIA Study is in process.	Will be taken up after formation of PCPIR Management Board.

* At approval stage of the projects.

Status of Implementation of PCPIRs

1 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 spent around Rs. 15,714 crore (as on 30.09.2016) for provision of infrastructure in the PCPIR.

- The Anchor Tenant, viz. M/s ONGC Petro addition Ltd. (OPaL), has spent around Rs. 26,477 crore on the project.

- Final Report of Environmental Impact Assessment (EIA) has been submitted and uploaded on the website of Ministry of Environment, Forest and Climate Change (MoEF&CC) on 07th September, 2015. The project of Gujarat PCPIR was considered by MoEF&CC in the 160th Environmental Appraisal Committee (EAC) meeting on 28th June, 2016.

- Minister of State for Chemicals & Fertilizers, Shri Mansukh Lal Mandaviya visited OPaL petrochemical complex in October, 2016 and reviewed the ongoing works.

2 Andhra Pradesh PCPIR:

- Special Development Authority (SDA) was formed by Govt. of Andhra Pradesh in May, 2008 to implement the PCPIR.

- AP PCPIR covers 6 existing SEZs. The units have already made investments of around Rs. 35,000 crore. Rs. 1850 croreappx. have been invested on infrastructure development.

- Hindustan Petroleum Corporation Limited (HPCL) is conducting pre-feasibility study for setting up of Cracker Complex at Kakinada SEZ in the PCPIR.

- Road, rail link, water supply, effluent treatment and marine outfall projects are under different stages from study to implementation.

3 Odisha PCPIR:

- Detailed Detailed Master Plan for industrial development of PCPIRarea 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 is expected by the end of 2017.

- Indian Oil Corporation's 15 MMTPA Refinery at Paradeep has been commissioned in February, 2016. IOCL is setting up a 730 KTA Polypropylene Unit which is expected to be commenced in 2017.

- Rs. 11,403 crore have been invested in development of infrastructure projects such as roads & highways, ports, airports, power plants, effluent treatment plants, desalination plant, etc., which are at various stages of implementation.

- Detailed EIA is being undertaken by Environmental Protection Training and Research Institute (EPTRI). This study will ascertain the actual number of displacement. Accordingly, rehabilitation will be taken up as per Odisha Resettlement and rehabilitation Policy, 2006. Form and Application have been submitted to Ministry of Environment, Forest and Climate Change

4 Tamil Nadu PCPIR:

- An area of about 24692 Hectares in 45 villages of Cuddalore and Chidambaram Taluks of Cuddalore District and Sirkazhi and Tarangambadi villages of Nagapattinam district has been notified as PCPIR under the Tamil Nadu Town and Country Planning Act 1971 in January, 2016.

- The date of commissioning of the first phase of the Anchor Tenant, Nagarjun Oil Corporation Limited (NOCL) project has been extended, due to financial constraints.

- Upon completion of Districts level notification process, final notification of TN PCPIR will be issued by the State Government shortly. Thereafter, Local Planning Area Authority for TN PCPIR will be constituted by the State Government under the Tamil Nadu Town and Country Planning Act 1971. TN PCPIR Management Board will also be formed for development of the PCPIR.

Revision of Petroleum, Chemical and Petrochemical Investment Region (PCPIR) Policy:

- Revision of PCPIR Policy 2007 has been undertaken to promote manufacturing, attract investments and fast track implementation of four approved PCPIRs.

*****

Chapter – 5

NEW SCHEMES OF PETROCHEMICALS

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

(i) National Awards for Technology Innovation in Petrochemical and downstream Plastic Processing Industry
(ii) Setting up Centres of Excellence in Polymer Technology
(iii) Setting up Plastic Parks

5.1. National Awards for Technology Innovation in Petrochemical and downstream Plastic Processing Industry

5.1.1. The Department is implementing an Award Scheme to provide incentive for meritorious innovations & inventions in various fields of petrochemicals and downstream plastics processing industry since 2010-11. Central Institute of Plastic Engineering and Technology (CIPET) is entrusted with the task of seeking and shortlisting nominations for the scheme. The Department has been providing grant-in-aid of Rs. 1 crore (approx.) to CIPET each year for administering the award scheme.

5.1.2. The National Awards for Technology Innovation are given in eight categories for innovation in areas such as Polymeric Materials, Polymeric Products, Polymer Waste Management and Recycling Technology and related areas. There are three sub-categories of Awards in each category, covering (i) individual/ team (ii) industry and (iii) R&D institutions. The award money for each category is Rs. 2 lakh. 264 nominations were received for these categories and sub-categories of the scheme for the 6th National Award for Technology Innovation in 2015-16, out of which 17 'Winners' and 14 'Runners-up' were selected and the awardees were felicitated by the Union Minister (C&F) at a function held on 20.01.2016 in New Delhi.

- For the 7th National Awards for Technology Innovation-2016-17, total 415 nominations have been received, out of which 16 'Winners' and 7 'Runners-up' have been selected and approved. The function to distribute the awards is scheduled to be held in March, 2017.

5.2. Setting up Centres of Excellence (CoE) in Polymer Technology

5.2.1. The scheme, started in the 11th Five Year Plan aims at improving the petrochemicals technology and research in the country and to promote development of new applications of polymers and plastics. The Department has set up five Centres of Excellence (CoE) within the premises of reputed educational/research institutes:-

(i) National Chemicals Laboratory (NCL), Pune – CoE for Sustainable Polymer Industry through Research, Innovation & Training (CoE-SPIRIT);

(ii) Central Institute of Plastics Engineering & Technology (CIPET), Chennai – CoE for Green Transportation Network (GREET),

(iii) IIT, Delhi – CoE for Advanced Polymeric Materials,

(iv) CIPET, Bhubaneswar- CoE on Sustainable Green Materials and

(v) IIT, Guwahati – CoE for Sustainable Polymers.

5.2.2. The CoE at Pune and CoE at CIPET, Chennai were approved during the 11th Five Year Plan and the remaining three CoEs were approved during the 12th Five Year Plan.

5.2.3. The assets created under CoE-SPIRIT at NCL, Pune have not only resulted in a boost to contemporary research in Polymer science, but also contributed to the training of several members of polymer industry and academia. In case of CoE- GREET at CIPET, Chennai and CoE on Sustainable Green Materials at CIPET, Bhubaneswar, the outputs are in terms of promoting academic, research and educational excellence through partnership between CIPET, India and University of Toronto, Canada and Michigan State University, USA. At IIT, Delhi and IIT, Guwahati, the resources and capabilities are being strengthened for furthering research activities in Advanced Polymeric Materials and Sustainable Polymers, respectively.

5.2.4. Government of India provides financial support to the extent of maximum of 50% of total cost of the project subject to an upper limit of Rs. 6 crore over a period of three years. An outlay of Rs. 2 crore has been provided for the scheme in the year 2016-17. The 3rd installment of Rs. 2 crore has been released to IIT, Delhi in November, 2016 and with this disbursement, the entire GoI grant of Rs. 6 crore has been released to all the CoEs.

5.3. Setting up of Plastic Parks

5.3.1. The scheme aims at setting up 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, exports in the sector and also generation of employment.

5.3.2. Under the scheme, 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.

5.3.3 In the 1st phase, 10 Plastic Parks have been approved, out of which, Plastic Parks in Madhya Pradesh, Odisha and Assam are under implementation. For setting up a Plastic Park at Voyalur Village, Ponneri Taluk, Thiruvallur District in Tamil Nadu, the final approval has been accorded in June, 2016 and the Memorandum of Agreement MoA has been signed on 24th November 2016 with the Tamil Nadu Plastic Park agency.

5.3.4 Further, in-principle approval has been accorded for setting up the remaining 6 Plastic Parks i) Devipur, District Deoghar in Jharkhand, (ii) Bilaua, District Gwalior in Madhya Pradesh, (iii) Khairjhiti, District Rajnandgaon in Chhattisgarh, (iv) Sitarganj, District Udham Singh Nagar in Uttarakhand, (v) Industrial Estate, District Panipat in Haryana and (vi) Barjora, District Bankura in West Bengal. In addition, keeping in view the additional demand from States, setting up 8 more Plastic Parks (in addition to 10 Parks already approved) has been accorded in-principle approval. This initiative will boost 'Make in India' programme and also generate huge employment.

5.3.5 During the year under report, till Jan 2016, the Department has released Rs.11.39 crore (as part of 2nd installment) and Rs. 5 crore (as part of 3rd installment) as Grant in Aid to Madhya Pradesh Plastic Park Development Corporation Ltd. (MPPPDCL) for setting up a Plastic Park at Tamot village, Goharganj Tehsil, Raisen District. Similarly, a sum of Rs. 10.22 crore (as part of 2nd installment) has been released to Paradeep Plastic Park Limited (PPPL) for setting up a Plastic Park in Siju Village, Kujang Tehsil, Jagatsinghpur District in Odisha. A sum of Rs. 3.89 crore has been sanctioned and is being released for the Plastic Park in Tamil Nadu.

*****

Chapter – 6

INTERNATIONAL CONVENTIONS AND TREATIES

Chemical Weapons Convention (CWC)

6.1 India is a signatory and party to the Chemical Weapons Convention (CWC), of the 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 a chemical weapons free world. India signed the treaty at Paris on 14th day of January 1993. Pursuant to provisions of the Convention, India enacted the Chemical Weapons Convention Act, 2000. As on date, 192 countries are parties to the Convention. The Department of Chemicals & Petrochemicals is the administrative Department of CWC Act, 2000.

Rotterdam Convention

6.2 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.

6.3. 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.

6.4. There are 47 chemicals listed in Annex III of the Convention and subject to the PIC procedure, which include 33 pesticides, of which 4 are severely hazardous pesticide formulations, and 14 industrial chemicals. 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.

Stockholm Convention

6.5 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 on 17th May, 2004, lays down that in its implementation, Governments will take measures to eliminate or reduce the release of POPs into the environment.

*****

Chapter – 7

BHOPAL GAS LEAK DISASTER

7.1. The biggest Industrial Disaster occurred in Bhopal in the intervening night of 2nd and 3rd December, 1984 when Methyl Iso-Cynate (MIC) , a lethal gas stored in the tanks of Union Carbide India Limited (UCIL) pesticide factory at Bhopal escaped into the atmosphere causing death and injury to a large number of people of Bhopal city. The State and Central Governments provided immediate relief to the gas victims. Various relief and rehabilitation measures were initiated immediately after the disaster. Some of these are still continuing.

Adjudication and disbursement of Compensation

7.2. On directions of the Hon'ble Supreme Court issued vide orders dated 14th and 15th February, 1989, Union Carbide Corporation, USA deposited a compensation amount of US$ 470 million, with the Registrar of the Supreme Court of India in February, 1989. Government of India had earlier enacted the Bhopal Gas Leak Disaster (Processing of Claims) Act, 1985 and a Scheme there under for ensuring proper legal representation of the victims and settlement of their claims. 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.

Original compensation

7.3. The process of adjudication and disbursement of the compensation was commenced in 1992. The Office of the Welfare Commissioner has disbursed a total amount of Rs. 1549.34 crore as compensation in 5,74,391 awarded cases of 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.

Pro-rata compensation

7.4. It was brought to notice in the year 2004 that an amount of approximately

Rs. 1500 crore, had accumulated with the Reserve Bank of India on account of accrual of interest and exchange rate variation. The Supreme Court vide order dated 19th July, 2004 had directed the Welfare Commissioner to disburse the said amount, on pro-rata basis (in the ratio of 1:1 of original compensation) to the claimants whose cases had been settled. A sum of Rs. 1511.35 crore as pro-rata compensation has been paid in 5,63,078 awarded cases till 30.11.2016.

7.5. There are about 11,313 cases in which the claimants concerned or their legal heirs did not turn up. To settle such absentee cases, the Office of the Welfare Commissioner had issued notification published in the local newspapers with the direction to attend the Claim Tribunals for settlement of pro-rata compensation. Besides this, the list of absentees was also provided to NGOs working for the Bhopal Gas Victims, to trace the genuine claimants. The work of disbursal of pro-rata compensation is still continuing.

Disbursement of Ex-gratia

7.6. After the reconstitution of the Group of Ministers (GoM) on Bhopal Gas Leak Disaster on 26.05.2010, the Government took certain decisions to provide further relief and rehabilitation to the gas victims. One 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	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)

An amount of Rs. 874.28 crore has been approved by the Government for disbursal of ex-gratia by the Welfare Commissioner to an estimated 62,448 Gas Victims falling in the above mentioned categories. The disbursement of Ex-gratia commenced on 19.12.2010. A total number of 57,983 cases were decided till 30.11.2016 and a total amount of Rs. 784.83 crore was awarded.

Action plan for Rehabilitation of Bhopal Gas Victims

7.7. Immediately after the disaster, the Central Government provided financial assistance of Rs. 102 crore over a period of 4 years starting from 1985 for carrying out the rehabilitation related work.

7.8. Subsequently, in the year 1990, the Government of India (GoI) approved an Action Plan with a capital outlay of Rs. 163.10 crore which was later revised to Rs. 258 crore, for medical, economic, social and environmental rehabilitation of the gas victims. The outlay was to be shared between the Central Government and State Government of Madhya Pradesh (GoMP) in the ratio of 75:25. The Action Plan was implemented from 1990 to 1999. 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. 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.

7.9. The GoMP had submitted to GoI, in April 2008, a new Memorandum on 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 GoMP, had approved a sanction of Rs. 272.75 crore as Additional Central Assistance (ACA), on 75:25 basis to the State Government of Madhya Pradesh under the New Plan of Action for carrying out various Rehabilitation Measures of Bhopal Gas Victims. The sanction was issued by Ministry of Finance, Department of Expenditure on 8.7.2010.

7.10. The GoMP is in the process of implementation of various rehabilitation schemes as approved in the New Plan of Action. The GoMP has apprised that till June, 2016, an amount of Rs. 122.68 crore has been utilized, out of allocated sum of Rs. 272.75 crore.

Social Rehabilitation

7.11. An estimated 5000 Widows of Gas Victims are to be paid pension of Rs. 1000 p.m. for a period of five years, for which Rs. 30 crore has been allocated. Till June, 2016 , an amount of Rs. 22.43 crore has been disbursed as widow pension to 4,963 beneficiaries.

7.12. A sum of Rs. 40 crore was allocated for construction of free houses for 2500 families of gas victims residing around the UCIL factory. The GoMP apprised that the project regarding construction of houses for the gas victims at village Palasy (Bhopal) could not be executed due to strong resistance of local residents. An expenditure of Rs. 0.9925 crore has been made for DPR preparation etc at initial level before the commencement of work. GoMP is preparing a new scheme for providing houses to gas victims with the marginal money collected from the beneficiaries for the approval of Government of India.

Medical Rehabilitation

7.13. The procurement of new equipment and replacement of obsolete equipment has been made by the GoMP. The Construction and Renovation of hospital Building is completed.

Economic Rehabilitation

7.14. For ensuring employment to gas victims, the State Government has launched an entrepreneurship training Programme scheme with built-in employment opportunity. The State Government selected, through a transparent procedure, 21 Institutes for providing training in different trades to the gas victims. 12155 beneficiaries were selected for training in different fields and trained. The selected institutions have reported 9300 placements, of which 4411 placements of 17 institutions are under verification. Expenditure incurred on this account till December, 2015 is Rs. 18.13 crore. As the scheme is not attractive, the GoMP is considering a new proposal in the place of entrepreneurship training Programme scheme for the approval of the GoI.

Clean Drinking Water

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

Bhopal Memorial Hospital and Research Centre (BMHRC)

7.16. On directions of the Hon'ble Supreme Court, a Specialty Hospital named Bhopal Memorial Hospital and Research Centre (BMHRC) was established at

Bhopal with money provided by Union Carbide Company, for free treatment of gas victims. The Hospital with super specialty facilities started functioning in July, 2000. The Hospital has 330 beds with facilities in 12 disciplines like Cardio Thoracic Surgery, Nephrology, Urology, Neurology, Neuro Surgery, Ophthalmology, Pulmonary Medicine, Psychiatry, etc. 8 mini units of the Hospital have been set up in various gas-affected wards in Bhopal for the gas victims.

7.17. Initially, management of the hospital was overseen by a Trust named the Bhopal Memorial Hospital Trust (BMHT) under the Chairmanship of retired Chief Justice of India Shri A. M. Ahmadi. On the recommendations of the GoMP and as decided by the Government, the administration of BMHRC has been taken over by the GoI in the year 2010 and the Hospital is now administered by the Department of Health Research, Ministry of Health and Family Welfare.

Indian Council Medical Research (ICMR)- 31st Research Center

7.18. After the gas leak, Indian Council Medical Research (ICMR) had established a Research Center in Bhopal in 1984 and conducted epidemiological research and clinical studies. After publication of research papers in 1987 and 1994, ICMR stopped its research work on 31.12.1994 and handed over the research center (Center for Rehabilitation Studies) to the Govt. of M.P. The Government, based on recommendation of the GoMP, decided that ICMR may resume its research on gas victims by establishing a full-fledged Research Centre in Bhopal. Accordingly, ICMR has established its 31st Research Center namely "National Institute for Research in Environmental Health (NIREH)" at Bhopal, on 11th October, 2010, for conducting research studies in identified areas including respiratory diseases, cancer, total renal failure, genetic disorders, second generation children related medical issues. ICMR as well as NIREH have been carrying out the research work on the health problems of the gas victims with exactitude and expeditiousness and ensuring disbursement of its benefit to the gas victims.

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

7.19. As per Union Cabinet's decision taken in the year 2010, the GoMP would be 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 UoI 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 directions given by the Hon'ble Supreme Court, 10 MT of erstwhile UCIL waste was successfully incinerated at Common Hazardous Waste Incinerator at Pithampur, District Dhar, Madhya Pradesh by Central Pollution Control Board (CPCB) during August 13-18, 2015.

Curative Petition

7.20. On the directions of the Cabinet, a Curative Petition No. 345-347 was filed in December 2010 by Union of India V/s Union Carbide Corporation (UCC), USA, Dow Chemicals, USA and Others claiming enhanced compensation from UCC and/ or successor companies of UCC, by seeking a review of the Court's earlier judgment of 1989, settling the compensation amount at US $470 million. The compensation claimed in the Curative Petition is due to the difference between the number of cases assumed by the Hon'ble Supreme Court at the time of passing the orders for settlement in 1989 and the actual number of cases awarded by the Office of the Welfare Commissioner, Bhopal Gas victim, Bhopal. The petition also claims reimbursement of costs incurred by the Government of India for various rehabilitation measures for victims and the amount required for environmental remediation. The case is pending before the Hon'ble Supreme Court.

*****

Chapter -8

PUBLIC SECTOR UNDERTAKINGS

Brahmaputra Cracker and Polymer Limited

8.1 The Assam Gas Cracker Project (AGCP) was initiated in pursuance of the Memorandum of Settlement signed between Central Government and All Assam Students Union (AASU) and All Assam Gana Sangram Parishad (AAGP) on 15th August 1985. This Project is of economic significance for the States of Assam and North East Region. Cabinet Committee on Economic Affairs (CCEA), in its meeting held on 18th April, 2006, approved the setting up of the Assam Gas Cracker Project (AGCP) at a project cost of Rs. 5460.61 crore (fixed cost). A joint venture company viz. M/s Brahmaputra Cracker and Polymer Limited (BCPL) was formed to implement the project. Owing to various reasons, the project witnessed time and cost overruns.

8.2 In view of time and cost overruns, the Board of BCPL submitted a proposal for revised project cost of Rs. 9,965 crore as against the approved project cost of Rs.8,920 crore, with commissioning of the project by December, 2015. The estimated increase of Rs. 1045 crore in project cost was proposed to be funded by capital subsidy of Rs. 549.45 crore, equity of Rs. 148.67 crore and debt of Rs. 346.88 crore.

8.3 However, some issues like feedstock subsidy, revenue subsidy, etc. were referred to an Inter-Ministerial Committee (IMC), constituted on 16.05.2016 and chaired by Secretary (C&PC). As per the recommendations of the IMC, the issues viz., feedstock subsidy, revenue subsidy, pricing of naphtha, and the first right of refusal in respect of additional gas exploration at nearby locations in North-East Region & its pricing, are being forwarded to Public Investment Board (PIB).

8.4 The Project was commissioned on 2nd January, 2016 and dedicated to the nation by the Hon'ble Prime Minister on 5th February, 2016.

8.5 At present the process units at Lepetkata complex are largely stabilized. The plant has been operating in an integrated manner with lower capacity due

to availability of inadequate feedstock from M/s OIL & M/s NRL. During the Financial Year 2016-17, BCPL has produced around 52000 MT of polymers till December, 2016. The products are being marketed to the downstream industries through the majority stakeholder GAIL, as per the marketing arrangements. The total revenue generation, till December, 2016, is to the tune of Rs. 350.11 crore.

HINDUSTAN ORGANIC CHEMICALS LIMITED (HOCL)

8.6 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 has two manufacturing units located at Rasayani (Maharashtra) and Kochi (Kerala). The Rasayani unit (Chemical Complex) started production from 1970-71 and the Kochi Unit (Phenol Complex) commenced production from 1987-88. The company has plants to manufacture phenol, acetone and hydrogen peroxide at Kochi unit and nitrobenzene, formaldehyde, concentrated nitric acid and di-nitrogen tetroxide (N2O4) at Rasayani unit. HOCL is the sole manufacturer of N2O4 in India which is supplied to Indian Space Research Organisation (ISRO) for use in rocket launching programme.

8.7 HOCL has a subsidiary company M/s Hindustan Fluorocarbons Limited (HFL) located at Rudraram, Telangana, which manufactures Poly tetra fluro ethylene (PTFE), a high-tech engineering plastic, and chloro di-fluoro methane (CFM-22), a refrigerant gas and feedstock for PTFE.

8.8 The company'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. 58.78% of the equity of the company (excluding preference shares) is held by the Govt. of India. HOCL is listed both on the Bombay Stock Exchange (BSE) and National Stock Exchange (NSE).

8.9 Following globalization and liberalization 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 Board for

Industrial and 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 on 9th March, 2006 providing (i) cash infusion of Rs.270 crore by way of preference share capital (redeemable) for repayment of high interest bonds, bank loans and implementation of VRS and (ii) continuation of Govt. of India guarantee of Rs.100 crore for full term of 10 years to be utilized to liquidate high cost debt. After implementation of the package, the company made nominal profits during 2006-07 and 2007-08 and came out of BIFR.

8.10 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.

8.11 Further, another 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. Funds of Rs.150 crore were raised by HOCL in October, 2014 against the Govt. guarantee which enabled the company to restore manufacturing operations at Kochi Unit and restore operations of Nitrobenzene plant and N_2O_4 plant at Rasayani Unit. However, the global fall in the prices of petroleum products 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 has led to frequent shutting down of operations at both Kochi and Rasayani units thereby further aggravating the financial crisis of the company.

8.12 With accumulated losses resulting in erosion of company's net worth to (-) Rs. 128.50 crore in 2012-13, HOCL again made a reference to BIFR in November, 2013 for registration as a sick company. In the hearing held on 22.7.2015, BIFR declared HOCL as a sick company. (BIFR has been dissolved with effect from 01.12.2016 following which all proceedings before the Board have abated.)

Financial Performance

8.13 Financial performance of HOCL in terms of turnover and net profit / loss for the last 5 years and net worth as on 31.3.2015 are given below:

(Rs. in crore)

Year	Turnover	Net Profit / (Loss)
2011-12	606.37	(78.07)
2012-13	624.19	(137.99)
2013-14	236.80	(176.85)
2014-15	167.19	(215.49)
2015-16	120.79	(173.91)
	Net worth as on 31.3.2016: **(-)Rs.711.21 crore**	

8.14 During 2016-17 (up to September, 2016), the company achieved turnover of Rs.79.39 crore and loss of Rs.79.52 crore, as per the provisional unaudited results. The low turnover and loss is due to the fact that most of the plants/ operations of the company have generally remained shut down for several months due to acute shortage of working capital. However, the N_2O_4 plant at Rasayani is being operated with financial assistance from ISRO. The Hydrogen Peroxide plant at Kochi is also being operated regularly.

8.15 With a view to address the persistent financial problems of the company, a restructuring plan for HOCL is under active consideration of the Government.

HINDUSTAN INSECTICIDES LIMITED (HIL)

8.16. Hindustan Insecticide Limited (HIL) was incorporated in March, 1954 for manufacture and supply of DDT(dichloro diphenyl trichloroethane). In 1957, the company set up a factory at Udyogmandal, Kerala, for manufacture of DDT and in 1977 at Rasayani, Maharashtra, for manufacture of Malathion, an insecticide. The third unit of HIL was set up at Bhatinda, Punjab, in 2003. Rasayani and Udyogmandal Plants have both DDT manufacturing and agrochemical manufacturing facilities while Bathinda has only formulations manufacturing and packaging facility. All the units of HIL are today holding the Integrated Management System certification (i.e. combination of all the ISO Certificates). The company has 7 Regional Sales Offices across India and a wide network of dealers for marketing and distribution of its products.

8.17. Authorised 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.

8.18. DDT accounts for almost 50 % of the turnover of the company. HIL is the sole supplier of DDT to the National Vector Borne Disease Control Programme (NVBDCP) of the Ministry of Health and Family Welfare, Govt. of India. The company also exports DDT to some African countries.

8.19. HIL 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. To further consolidate its position, HIL in the year 2012-13 ventured into the seed production and marketing business. The company has been recognized as a nodal agency by Ministry of Agriculture for production and marketing of certified seeds for crops and vegetables. The company is participating in Seed Minikit Programme of Ministry of Agriculture & Farmers Welfare to popularize the latest high yielding varieties among the farmers.

8.20. HIL has identified a new thrust area of fertilizers business. It has been inducted by the Department of Fertilizers as an agency to import fertilizers. The company has also launched its own Water Soluble Fertilizer (NPK 19:19:19) having manufacturing facility of 1800 MTPA at its Bathinda unit (Punjab). This diversification will enable the company to become a one stop shop for the farming community by providing all the three critical agricultural inputs viz. seeds, pesticides and fertilizers.

Financial Performance

8.21. After implementation of revival package sanctioned for the company in 2006-07, HIL has been continuously posting profits. Financial performance in terms of turnover and net profit / loss for the last 5 years and net worth as on 31.3.2016 are given below:

(Rs. in crore)

Year	Turnover	Net Profit / (Loss)
2011-12	279.82	1.60
2012-13	301.11	2.92
2013-14	330.35	1.84
2014-15	339.90	1.60
2015-16	334.75	1.83
	Net worth as on 31.3.2016: **Rs.93.55 crore**	

8.22. During 2016-17 (up to September, 2016), the company achieved turnover of Rs.72.88 crore and net profit of Rs.0.10 crore, as per provisional unaudited results.

Exports

8.23. HIL achieved exports of Rs.28.66 crore in 2015-16 as against exports of Rs.26.99 in the preceding FY 2014-15. The company exported DDT to African countries like Zimbabwe, Mozambique, South Africa etc. for the malaria control programme in these countries. It also exported agrochemicals to countries like Mexico, Costa Rica, Russia, Peru, Israel, Spain and Myanmar.

New initiatives, projects and proposals of HIL

8.24. With a view to widen the product profile and reduce the company's dependence on DDT revenue, new initiatives and projects taken up / planned by HIL to diversify its operations are:

(i) HIL has set up a multiproduct plant at its Rasayani unit to manufacture products like Imidacloprid, Chloropyriphos, Acetamiprid and Triazophos in the same manufacturing facility so that the capacity utilization improves and the company is not dependent on a single product.

(ii) The company has ventured into fertilizers business and it has been inducted by the Ministry of Chemicals & Fertilizers, Govt. of India, into the nutrient based subsidy policy for decontrolled phosphatic and potassic fertilizers. HIL has entered into MoUs with fertilizer PSUs like National Fertilizers Ltd., Rashtriya Chemicals &Fertilizers and other leading manufacturers.It started selling fertilizers in March 2016 and generated business of Rs.7 crore during the month. For the half year ending on 30.09.2016 in the current FY 2016-17, the company achieved turnover of around Rs.34 crore from fertilizers.

(iii) CIPET has undertaken a development project from HIL to develop technology for manufacture of polyethylene based Long Lasting Insecticidal Net (LLIN). LLIN mosquito net is becoming important in the control and prevention of diseases like Malaria, Dengue, Chikunguniya, Yellow Fever and other diseases spread by insect vectors. The company is planning to put up the manufacturing facility for LLIN at an estimated cost of Rs.30 crore.

(iv) To cater to the demands of farmers in northern region of the country, the company is planning to put up another manufacturing facility for Mancozeb having capacity of 2000 MTPA at Rasayani unit.

(v) As the soil in several parts of the country is deficient in many micro-nutrients, HIL has initiated action for conducting a techno-economic feasibility study on taking up manufacture and marketing of the Micro-nutrients and Bio-Pesticides/ Fertilizers. Further, as the demand for environment friendly formulations is growing, HIL is also looking at introduction of newer formulations like Suspension Concentrates, capsulated Suspension and Water Dispersible Granules.

(vi) With Plan loan of Rs.11 crore provided by the Department in 2014-15, HIL is setting up a plant at its Udyogmandal unit (Kochi) to manufacture Pendimethalin, a herbicide mainly used to control grass / weeds that interfere with yield and quality of agricultural and horticultural crops. Projected date of completion of the project is March, 2017.

HINDUSTAN FLUOROCARBONS LTD. (HFL)

8.25. Hindustan Fluorocarbons Ltd. (HFL), a subsidiary company of Hindustan Organic Chemicals Ltd. (HOCL), was incorporated on 14.07.1983. It is located at Rudraram, District Medak, Telangana.The company started production in the year 1987 and is engaged in the manufacture of Poly Tetra Fluoro Ethylene (PTFE) and of 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 used as a refrigerant gas and also as feedstock for production of PTFE.

8.26. 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).

8.27. HFL started making losses from its inception in 1987-88 resulting in erosion of its net worth and reference to 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 and 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 suffered loss of Rs.24.82 crore in 2013-14 mainly on account of provisioning for wage revision arrears of 1997 and 2007 and reduction in sales realization. During 2014-15 and 2015-16 also the company suffered losses of Rs.3.77 crore and Rs.11.11 crore respectively due to reduced sales realization. HFL continues to be registered with BIFR as a sick company since the net worth of the company is negative.

Financial Performance

8.28. Financial performance of HFL in terms of turnover and net profit/loss for the last 5 years and net worth as on 31.3.2016 are given below:

(Rs. in crore)

Year	Turnover	Net Profit / (Loss)
2011-12	50.33	2.52
2012-13	44.48	0.95
2013-14	31.34	(24.82)
2014-15	32.75	(3.77)
2015-16	39.63	(11.11)
	Net worth as on 31.3.2016: **(-)Rs.63.67 crore**	

8.29. During 2016-17 (up to September, 2016), the company achieved turnover of Rs.17.24 crore and restricted its loss to Rs.1.48 crore, as per the provisional unaudited results.

8.30. For revival and growth of HFL, the company has diversified into profitable business of fluoro specialty chemicals which has higher profit margins than the existing grades of PTFE and adopted the strategy of switching over from single product to multi-product facility to reduce dependency on PTFE. HFL has developed superior grades of PTFE (modified PTFE or MPTFE) and fluoro specialty chemicals like TFE-Ether and Telomers and started commercial facility of partial conversion of Telomers. It has also developed Benzotrifluoride (BTF) on lab scale and sample has been accepted by the customer.

8.31. Plan loan of Rs.3.60 crore was provided to the company in 2014-15 for development of modified PTFE project. Additional Plan loan of Rs. 13.20 was also provided in 2014-15 for plant refurbishment and new schemes. Implementation of the above project / schemes has been completed.

8.32. The Government on 27.10.2016 has given 'in principle' approval for strategic disinvestment of HFL with the parent company HOCL to exit the firm completely.

*****

Chapter – 9

Autonomous Institutions

Central Institute of Plastics Engineering & Technology (CIPET)

9.1. GENERAL PROFILE

9.1.1 CIPET is an ISO 9001:2008 QMS, NABL, ISO/IEC 17020 accredited premier national 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 polymer & allied industries in the country. CIPET, with its Head Office at Chennai, functions at 30 locations spread across the country as given below:

Sl. No.	States/UTs	CIPET Centre at
High Learning Centres (HLCs)		
1	Tamil Nadu	Chennai
2	Gujarat	Ahmedabad
3	Odisha	Bhubaneswar
4	Uttar Pradesh	Lucknow
5	Kerala	Kochi
Diploma Centres		
6	Punjab	Amritsar
7	Maharashtra	Aurangabad
8	Madhya Pradesh	Bhopal
9	Assam	Guwahati
10	Telangana	Hyderabad
11	Bihar	Hajipur
12	West Bengal	Haldia
13	Rajasthan	Jaipur
14	Manipur	Imphal
15	Karnataka	Mysore
16	Haryana	Murthal
17	Chhattisgarh	Raipur

R&D wings		
18	Odisha	Laboratory for Advanced Research in Polymeric Materials (LARPM), Bhubaneswar
19	Tamil Nadu	Advanced Research School for Technology and Product Simulation (ARSTPS), Chennai
20	Karnataka	Advanced Polymer Design & Development Research Laboratory (APDDRL), Bengaluru
Specialized Centres		
21	Assam	Plastic Waste Management Centre at Guwahati
22	Odisha	Advanced Plastics Processing Technology Centre (APPTC), Balasore
23	Tamil Nadu	Advanced Tooling and Plastics Product Development Centre (ATPDC), Madurai
Vocational Training Centre		
24	Gujarat	Dharampur, Valsad
25	Odisha	Bhubaneswar Campus – II
26	Andhra Pradesh	Vijayawada
27	Himachal Pradesh	Baddi
28	Madhya Pradesh	Gwalior
29	Maharashtra	Chandrapur
Polymer Data Service Centre		
30	Haryana/Delhi NCR	Gurgaon

9.1.2 Further, CIPET is in the process of establishing 9 more Centres in different parts of the country. CIPET Centres have modern infrastructural facilities of Designing, CAD/CAM/CAE, Tooling & Mould Manufacturing, Plastics Processing, Testing and Quality Control to cater to the needs of plastics and allied industries.

9.2. ACADEMIC PROGRAMS AND SKILL DEVELOPMENT PROGRAMS

9.2.1. Long Term Professional Skill development Programs:-

CIPET conducts 13 different long term training programs viz. Diploma, Post Diploma, Post Graduate Diploma, Undergraduate, Postgraduate and Ph.D. Programs with varying levels of entry qualifications. The long term programs offered by the institute are as follows:

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

- Post Diploma in Plastics Mould Design with CAD/CAM (PD-PMD)(1½ years)
- Post Graduate Diploma in Plastics Processing & Testing (PGD-PPT) (1½ years)
- Post Graduate Diploma in Plastics Testing & Quality Management (PGD-PTQM)
- B.Tech. (Plastics Engineering/Technology) (4 years)
- B.E./B.Tech. (Manufacturing Engineering/Technology) (4 years)
- M.Tech. (Plastics Engineering/Technology) (2 years)
- M.Tech. (Polymer Nanotechnology) (2 years)
- M.E. (CAD/CAM) (2 years)
- M.Sc.(Bio Polymer Science) (2 years)
- M.Sc.(Polymer Science) (2 years)
- M.Sc. (Tech.) in Material Science Engineering (5 years)

The Undergraduate, Postgraduate & Doctoral programs are offered at five High Learning Centres (HLCs), in affiliation with the respective State Universities.

As on 31st December, 2016, 13,929 students have been enrolled for long term programs against 13,376 students enrolled in 2015-16.

9.2.2. Short Term Vocational Skill development Training Programs

As part of "Skill India Mission" Department of Chemicals and Petrochemicals formed a "Core Group on Skill Development in Chemicals and Petrochemicals Sector" with participation of all stakeholders. Under guidance of the Core Group, CIPET developed Qualification Packs (QPs), National Occupational Standards (NOS) and Qualification Files for 36 Job Roles from level 1 to level 4 in Petrochemical Industries. These 36 short term courses have been aligned with the National Skill Qualification Framework and approved by the National Skill Qualification Council (NSQC) in July, 2016. CIPET has started conducting the aligned courses in the field of Plastics Engineering & Technology in 2016-17.

CIPET has also developed 39 Up-Skilling courses starting from 16 hours of training for petrochemical industries, 04 fresh skilling courses for chemical sector and submitted to National Skill Development Agency (NSDA) through the Department for approval.

These short duration programs ranging from 16 hours upto 1 year are aimed at enhancing skill and competency level of participants in the relevant domains of plastics. The broader range of programs offered at CIPET includes:

- Up-skilling and re-skilling programs
- Short term industry specific programs
- Tailor-made programs
- In-plant training for students for various colleges and universities.

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 unemployed/under employed youth through gainful employment in leading plastics & allied industries in India and abroad.

9.2.3. UDAAN Scheme

Govt. of Jammu & Kashmir has sanctioned skill development training programs for the benefit of unemployed youths of J&K under "UDAAN" Scheme to be undertaken by CIPET Centres. Under this scheme, the two courses being conducted are "CNC Milling Machine Programming Techniques & Machining Operations" and "Plastics Testing and Quality Control for Plastics Materials & Products". Out of 150 students trained so far by CIPET under Udaan Scheme, 114 students have already been placed.

9.3. TECHNOLOGY SUPPORT SERVICES

9.3.1. In line with "Make in India" initiative, CIPET contributes significantly in promoting the plastic industries through Technology Support Services in all the key areas viz., Designing, CAD/CAM/CAE, Tooling, Plastics Processing, Testing and Quality assurance.

9.3.2. During the year 2016-17 (upto December 2016) 36,452 Technical support assignments were undertaken by CIPET which include job works, mould orders, testing assignments and consultancy services. Some of the important assignments undertaken in the domains of Technology Support Services are given below:

- Developed Meter Box for M/s Yash Electricals System, New Delhi;

- Developed End Radius Cropping Tool & End Cropping 3 holes piercing Tool for M/s. Indira Metal Components, Sivaganga;

- Developed Mould for Internal Mud Guard (Wheel Arch) for M/s. Scooters India Limited, Lucknow;

- Design & Development of Moulds for Wheel Components for M/s. EM CEE Sports Agencies Pvt. Ltd., Jalandhar;

- Design & Manufacturing of two cavity Injection Mould for Half Round Shaft for M/s H.B Enterprises, Jaipur;

- Developed Mould for Blanking Tool & Forming Tool for M/s. Madras Radiators & Pressings Ltd., Thiruvallur;

- Developed Mould for Fuze Anti removal Mine AT 2B ND (84) for M/s. Ordnance Factory, Badamal;

- Developed Fully Automatic Eight Cavity Injection Mould for Patuler Resting Cap (Black) for M/s. Associated Engineering Works, Malda.

9.3.3. Inspection and Certification of materials and products against prescribed specification is one of the important activities of CIPET which also helps various organizations including Government Departments in quality certification of plastics products procured. During this period (upto December 2016), around 3000 Pre-Delivery Inspection (PDI) assignments have been undertaken by CIPET centres.

9.4. RESEARCH & DEVELOPMENT ACTIVITIES:

9.4.1. The two well established R&D wings of CIPET viz., (i) Advanced Research School for Technology & Product Simulation (ARSTPS) at Chennai and (ii) Laboratory for Advanced Research in Polymeric Materials(LARPM)at Bhubaneswar have been consistently contributing since their inception in 2008-09.

9.4.2. The major contributions / achievements of these two R&D wings during 2016-17 (upto December 31st, 2016) are as follows:

1. No. of patents filed:01 patent filed and 02 under progress
2. No. of research papers published: 40 papers
3. No. of papers presented in International Conferences: 08 papers
4. Research & Development projects undertaken are given below:

- "Development of Floating Mechanism for Installation of 100 kWp Solar PV Panel in a Reservoir" forNTPC Energy Technology Research Alliance (NETRA), NTPC Limited, Plot 3E, Pocket -II UdyogVihar, Greater Noida.

- "Design and Fabrication of Bubble Detector Vials for Neutron Dosimetry" for Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam.

- "Development of Low Temperature FRP Composite Torque Tube for 200KW HTS Motor" for Bharat Heavy Electricals Limited, R&D Center, Hyderabad

- "Development of medical image based Physical and Computational Phantoms for radiation Bioassay application" for Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam

- "Fatigue Analysis of plastic materials for simulation study" for M/s Hero Motor Corporation, Jaipur.

- "Comparative Strength Study For Machining Of Grooves/Scallops On PMMA Organic Glass Panel Used in VIP Helicopters" for M/s. 3BRD, Chandigarh

- "Development of Plastic components by value Engineering"for M/s Tractors and Farm Equipments, Chennai

- "Development of functional proto model of Astrosat" for ISRO Satellite Centre, Bangalore.

- Development of Polymer electrolyte membranes for use in fuel & solar cells – alternate power generation source.

- Development of water purification with advanced Membrane Technology.

5. A Delegation from Department of Chemicals & Petrochemicals and Central Institute of Plastics Engineering and Technology (CIPET) visited Mexico and held discussions on bilateral collaboration and project partnerships with Universities and Institutes in Mexico (UAEM), Toluca, Mexico during June 27 – 29, 2016. MoU was signed with the University of State of Mexico (UAEM), Mexico for Faculty Exchange Program and collaborative research projects.

Visit of Delegation from Department of Chemicals and Petrochemicals and CIPET to Mexico during 27-29 June, 2016.

9.5. FINANCIAL PERFORMANCE (UN-AUDITED)

During the financial year 2016-17, CIPET has generated revenue income of Rs.140.00 crore (upto October 2016) against the budgeted income of Rs.270.00 crore for the year (un-audited). During the same period, CIPET has incurred a revenue expenditure of Rs. 93.00 crore against budgeted revenue expenditure of Rs.220.00 crore for the year (un-audited).

During the last few years, CIPET has enriched the civil & technical infrastructure facilities utilizing the grants from Department of Chemicals and Petrochemicals which has culminated in ensuring consistent growth in all the domains of plastics engineering & technology i.e. academic, technology and research & development. CIPET has been operating on self-sustainable mode since 2008-09 onwards from operating perspective.

9.6. MAJOR EVENTS

- CIPET, Raipur was jointly inaugurated by Shri Ananthkumar, Hon'ble Minister for Chemicals & Fertilizers, Govt. of India and Dr. Raman Singh, Hon'ble Chief Minister of Chhattisgarh on 22.04.2016.

CIPET, Raipur was jointly inaugurated by Shri Ananthkumar, Hon'ble Minister for Chemicals & Fertilizers, Govt. of India and Dr. Raman Singh, Hon'ble Chief Minister of Chattisgarh on 22nd April, 2016.

- Foundation stone for CIPET Vijayawada was laid jointly by Shri Ananthkumar, Hon'ble Minister for Chemicals & Fertilizers, Government of India and Shri Nara Chandrababu Naidu, Hon'ble Chief Minister, Andhra Pradesh on 22nd April, 2016.

Foundation stone for CIPET Vijayawada laid jointly by Shri Ananthkumar, Hon'ble Minister for Chemicals & Fertilizers, Government of India and Shri N Chandrababu Naidu, Hon'ble Chief Minister, Andhra Pradesh in the presence of Shri M. Vankaiya Naidu, Hon'ble Minister Urban Development, Govt. of India on 22nd April, 2016.

- Foundation stone for CIPET, Baddi was laid Jointly by Shri Ananthkumar, Hon'ble Minister for Chemicals & Fertilizers, Government of India & Shri Virbhadra Singh, Hon'ble Chief Minister, Himachal Pradesh on 27th April, 2016

Foundation stone of CIPET, Baddi laid Jointly by Shri Ananthkumar, Hon'ble Minister for Chemicals & Fertilizers, Government of India & Shri Virbhadra Singh, Hon'ble Chief Minister, Himachal Pradesh, in the presence of Shri Hansraj Gangaram Ahir, Hon'ble Minister of State for Chemicals & Fertilizers, Govt. of India on 27th April, 2016.

9.7. CONFERENCES/ SEMINARS/ EXHIBITIONS

- **IPLEX–2016:** The 7th edition of the Southern Regional Plastics Manufacturer's Associations was jointly organized by the Member Industry Association in association with CIPET and with the active support from Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India and Plastindia Foundation, All India Plastics Manufactures Association (AIPMA), Gujarat State Plastics Manufacturers Association (GSPMA), Indian Plastics Institute (IPI) and Indian Plastics Federation (IPF) at Kochi from 26-29th September, 2016. The Exhibition was inaugurated by Shri A.C. Moideen, Hon'ble Minister for Tourism and Co-operation, Govt. of Kerala.

- **K-2016:** Shri Ananthkumar, Hon'ble Minister for Chemicals & Fertilizers and Parliament Affairs, Government of India Inaugurated the Indian Pavilion at K 2016 - Plastics and Rubber Trade Fair, Dusseldorf, Germany on 19th October, 2016. A team of 15 CIPET officials visited K 2016, World's No. 1 Trade Fair for Plastics and Rubber held at Dusseldorf, Germany during 19-23rd October, 2016.

Inaguration by Shri Ananthkumar, Hon'ble Minister for Chemicals & Fertilizers and Parliament Affairs of the Indian Pavilion at K 2016 - Plastics and Rubber Trade Fair, Dusseldorf, Germany on 19th October, 2016.

- CIPET stall at India Chem 2016 held at Mumbai from 1-3rd, September, 2016 was inaugurated by Shri Mansukh L. Mandaviya, Hon'ble Minister of State for Chemicals & Fertilizers, Road Transport & Highways and Shipping, Government of India.

- A two day Workshop on "Plastics Waste Management" was organized by CIPET – Lucknow on 13th & 14th July, 2016 at Hotel Hypen Grand, SIDCUL, Haridwar, (Uttarakhand). Shri Avinash Joshi, Joint Secretary, Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India inaugurated and presided over the Workshop. Smt. Nupur Verma, Additional Municipal Commissioner, Haridwar, Shri Manoj Garg, Mayor, Nagar Nigam Haridwar, Shri R.K. Agarwal, President, AIPMA, Shri Harendra Garg, Chairman State Industrial Development Corporation of Uttarakhand (SIDCUL) and Prof. (Dr.) S.K. Nayak, Director General, were the Guests of Honour of the event.

- A two day Workshop on "Plastics Waste Management" was organized by CIPET – Lucknow on 22nd & 23rd August, 2016 at Kanpur. Shri Amit Kumar Ghosh, Commissioner& Director of Industries, Government of Uttar Pradesh was the Chief Guest of the Workshop. Shri Tarun Khetrapal, Secretary IIA, Kanpur and Shri Arun Agarwal, Director, Deptt. of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India were the Guests of Honour of the event.

Institute of Pesticide Formulation Technology (IPFT)

9.8. Introduction

Institute of Pesticide Formulation Technology (IPFT) located at Gurgaon, 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 and environment friendly new generation pesticide formulation technology**. The Institute has established a healthy rapport with the Indian agrochemical industries and has been able to successfully transfer technology for safer, efficient and environment friendly formulations. IPFT is also helping the industries in data generation as per CIB/RC guidelines for bioefficacy, phytotoxicity and pesticide residue analysis for both agriculture and household formulations. IPFT undertakes both in-house and external R & D projects.

9.9. 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.

9.10. Functional Divisions :

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.

9.11. Major Achievements :

(i) Continuation of NABL Accreditation of IPFT :-

IPFT continues to be an accredited Laboratory by National Accreditation Board for Testing & Calibration Laboratories (NABL) as per ISO/IEC–17025 (2005) for the analysis of pesticides and their formulations, pesticide residues in food matrices and CWC related chemicals. The Re-Assessment of the laboratory was held during 24-25 January, 2015 and the accreditation of the Lab is valid until 23rd April, 2017.

(ii) Industry Sponsored Projects:-

A large number of industry sponsored projects have been received from Indian Agrochemical Industries for the data generation on Bioefficacy, Phytotoxicity, Residue Analysis and Stability Studies.

(iii) Signing of MoU :-

IPFT signed MoU with Amity University, Noida for collaborative Research Work. IPFT also signed MoUs and CDA with and M/s Agrinos Pvt. Ltd. for the development of formulation products.

(iv) Programmme Study Centre for "Post Graduate Diploma in Analytical Chemistry (PGDAC)" :-

IPFT continued to be an IGNOU Programmme Study Centre for "Post Graduate Diploma in Analytical Chemistry (PGDAC)" with effect from February 2015 and is continue to be so during 2016 – 17. Twenty four students have been registered in July 2016.

(v) GB Meeting :-

The 34th Meeting of the Governing Body of IPFT was held on 10th August, 2016 under the Chairmanship of Secretary DC & PC.

(vi) Development of Water based Micro-emulsion Combination Formulation :-

Successfully developed water based micro-emulsion combination formulation of two herbicides. The patent filing work is on progress.

9.12. R & D Projects :

9.12.1. In–House R & D Projects :-

The Department of Chemicals and Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India sanctioned the following five projects for the XII Five Year Plan. The progress on these projects are as follows:

(a) Development of User & Environment Friendly Water Dispersible Granule Formulations of Highly Toxic, Broad Spectrum & effective Pesticides to reduce their Toxicity for Continuation of Use and Prevention from Ban.

Achievements:

Experimental work for development of Monocrotophos WDG formulation was conducted. Compatibility studies on inert ingredients for the formulation were carried. Samples were prepared with optimized inert ingredients having compatibility with the active ingredient.

(b) Development of Mass Production Technique and Formulation for Baculoviruses.

Achievements:

- Isolation and purification of selected cabbage viral strains for control of Cabbage worm, Pierisbrassicae.

- Study on entomopathogenic potential of cabbage viral strains done at laboratory maintained standard conditions.

- Poly-inclusion bodies count study that determining the insect infestation level and viral potential was done for standardized viral strains of Helicoverpaarmigera, Spodopteralitura and cabbage viral strains using haemo-cytometer.

- Experiments conducted to study the effect of different food substrates on development period and mortality of Cabbage worm, Pierisbrassicae for development and mass production of baculovirus strain.

- Evaluation on effect of different larval stages and incubation periodon mass production of Cabbage worm, Pierisbrassicae.

(c) Management of Termite by Integrated Approach and Indigenous Technologies.

Achievements:

- Survey conducted on different termite species from North India viz. U.P, Rajasthan, Haryana.

- Identified termite species were studied for relative impact on use of Indigenous technologies and application of new generation chemical pesticides.

- Effect of intercropping with various crops and its impact on termite population build up and percentage infestation reduction.

- Study on indigenous technology applied in termite management in various crops at farmers' level in North India.

- Collection of Botanicals, Eucalyptus leaf samples from different location and screening for its termiticidal action.

(d) Magnetic core-shell nano particles based extraction coupled with Gas/Liquid Chromatography – Tandem Mass Spectrometry for trace level analysis of pesticides.

Achievement :

- Experimental setup for application of Magnetic core-shell nanoparticles in Pesticide Analysis has been standardised.

- Till date more than 60 pesticides were screened. Majority of organochlorine pesticides, synthetic pyrethroids, triazole fungicides, dinitroaniline herbicides, chloroacetanilide herbicides were found to be adsorbed properly on the surface of developed MNPs.

- The pesticides selected were determined by GC-MS SIM mode and GC-MSMS. Operating parameters were standardized as per the requirements.

- Application of Magnetic core-shell nanoparticles for Pesticide Residue Analysis were examined and evaluated properly based on the following parameters:-
  (i) Requirement of Vortex shaking / Sonication.
  (ii) pH requirement for Extraction medium.
  (iii) Evaluation of efficiency of various solvents.
  (iv) Evaluation of Adsorption capacity of the synthesized Magnetic core-shell nanoparticles.
  (v) Evaluation of solvents for Desorption.
  (vi) Recovery Experiment.

(e) Pesticide formulation from Plant Extract and their Bio-efficacy studies.

Achievements :

Melia azedarach, Euphorbia tricullaiand and Capparis decidua plant extraction was performed in polar and non-polar solvents. Toxicological study of the developed herbal botanical based cream has been completed. Phytochemical screening and bio-efficacy studies of Melia and Euphorbia are under process.

f) Evaluation, efficacy enhancement and data generation of Neem based pesticides and fertilizers for commercial use.

Achievements :

Large scale field trials on modified neem based insecticidal composition on tea and vegetable crops were conducted. The work is in progress to generate data for registering the modified neem based compositions with Central Insecticide Board for commercialization is in progress.

9.13. Sponsored Projects :

Besides the above In–House projects IPFT continued to work on the sponsored project on “Monitoring of Pesticide Residue in various Crops” sanctioned by ICAR, Ministry of Agriculture, Govt. of India.

9.14. Industry Sponsored Projects :

a) Following two projects have been sponsored by the Indian Agrochemical Industries for the development user and environment friendly pesticides formulations during 2016–17.

S. No.	*Name of Project*	*Name of Sponsors*
1.	Development of WDG Formulation of HYTC Bio-fertilizer	M/s Agrinos India Ltd
2.	Development of Bispyribac sodium and Pyrazosulfuran ME formulation	M/s Godrej Agrovet Ltd.

b) Thirty Seven Projects from the following Agrochemical Industries have been received for the bio-efficacy and phytotoxicity studies from April, 2016 to October, 2016 :

S. No.	*Sponsored by*	*No. of Trial*
1.	M/s Krishi Rasayan Pvt. Ltd	2
2.	M/s Excel Crop Care Pvt. Ltd	6
3.	M/s Rainbow Agro Sciences Pvt. Ltd.	8
4.	M/s Insecticide India Ltd.	4
5.	M/s Godrej Consumer Pvt. Ltd.	4
6.	M/s Tagrose Chemicals India Ltd.	1
7.	M/s Mahamaya Life Science Pvt. Ltd.	1
8.	M/s Meenakshi Agro Chemical	2
9.	M/s Baroda Agro Chemical	2
10.	M/s Microplex Pvt. Ltd.	4
11.	M/s Mgr Industry Pvt. Ltd	2
12.	M/s Coromandel Agrico Pvt. Ltd.	1
Total		**37**

c) Following projects have been sponsored by the Indian Agrochemical Industries for the Residue Analysis during 2016–17:

S. No.	*Name of Sponsors*	*No. of Projects*
1.	M/s Parijat Industries Pvt. Ltd.	09
2.	M/s Krishi Rasayan Pvt. Ltd.	18
Total		**27**

d) 151 Samples submitted by different Industries were analyzed for particle size distribution.

9.15. Skill Development/training :

IPFT is conducting Skill Development and Training Courses for various stakeholders in Chemical/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, 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 Farmers Field Days and Farmers Meetings with significant impact under development of Rural Agriculture and Intensive Crop Management. Research scholars/executives from Indian agriculture universities/pesticide industries come to IPFT for taking training on above areas. Recently, trainees from Australia, Turkey, Egypt and Sri Lanka and all over India have received training at IPFT. IPFT conducted a skill development course for unemployed youths during 1–31 August, 2016 on Quality Assurance / Quality Control of Pesticides and their Formulations sponsored by M/s Dhanuka Agritech Ltd., Gurgaon under CSR Scheme.

9.16. WORKSHOP / CONFERENCE / SEMINAR ORGANISED :

S. No.	*Name of the Conference/ Workshop*	*Place*	*Date*
1.	Sustaining Botanical Pesticides through Innovation & Enterprise Development.	TRA, Nagarkata (Assam)	06-07 May, 2016
2.	Sustaining Botanical Pesticides through Innovation & Enterprise Development.	IIM, Ahmedabad	24-25 May, 2016
3.	Sustaining Botanical Pesticides through Innovation & Enterprise Development.	Impal, Manipur	10-11 July, 2016
4.	National Workshop on "Analytical Techniques in Food Safety (Food Safe Tech)" in Association with Shimadzu Analytical (India) Pvt. Ltd.	IPFT, Gurgaon	14-15 July, 2016

5.	International Workshop on "Production of User & environment friendly pesticide formulations, quality assurance & instrumental methods of analysis" organized by IPFT in co-operation with UNIDO (RENPAP).	IPFT, Gurgaon	25-28 July, 2016

9.17. Consultancy Services :

IPFT has been offering Consultancy Services to various Agrochemical Industries from time to time on various aspects related to Pesticide Manufacturing and Establishment of QA/QC Laboratories.

9.18. Awareness and extension activities :

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 to understand the termite pest problem in agriculture or storage lands with respect to climate change.
- Conducting survey and obtaining feedback on latest pests problems.
- Educating farmers about organic farming and propagating the use of indigenous techniques/traditional knowledge.
- Conducting workshops for judicious use of pesticide through Krishi Vigyan Kendras (KVKs).
- Participation in various Krishi Melas, Conferences, Agriculture Exhibitions etc. such as :

  i) International Agrichem Exhibition (Agritech India – 2016) held at Bangalore International Exhibition Centre (BIEC), Bengaluru during 26-28th August, 2016.

  ii) Biennial India Chem Exhibition - 2016 being organized by FICCI by at Bombay Exhibition Centre, Mumbai during 1-3rd September, 2016.

9.19. Revenue generation;

IPFT earned revenue of Rs. 2.41 crore during the Financial Year 2015-16.

9.20. Photo gallery :

(a) Cleanliness Drive from 1st to 15th May, 2016 in the Industrial Area and 16th to 31st May, 2016 in the Institute's Premises under Swachh Bharat Mission.

(b) Yoga Camp on the occasion of International Yoga Day for its employees on 21st May, 2016 :

(c) International Workshop on "Production of User & environment friendly pesticide formulations, quality assurance & instrumental methods of analysis" organized by IPFT in co-operation with UNIDO (RENPAP) during 25-28th July, 2016:

(d) Shri Mansukh L. Mandaviya, Hon'ble Minister of State (Road Transport & Highways, Shipping and Chemicals & Fertilizers) visit to IPFT on 22August, 2016 :

*****

Chapter – 10

Promotional Activities & Major Events

India Chem 2016

10.1. To promote the Indian Chemical Industry, Department of Chemicals & Petrochemicals, Government of India and Federation of Indian Chambers of Commerce & Industry (FICCI) have jointly been organizing the "India Chem" series of events.

10.2. The 9th edition of India Chem - 2016 was organized during 1–3 September, 2016 at Bombay Exhibition Centre, Mumbai with the theme "INDIA CHEM 2016 – EXPLORING OPPORTUNITIES". The event was inaugurated by Shri Ananth Kumar, Hon'ble Minister of Chemicals and Fertilizers, on 1st September, 2016 in Mumbai in the presence of Shri Amir Hossain Amu, Member of Parliament, Hon'ble Minister for Industries, Government of the People's Republic of Bangladesh, Shri Debi Prasad Mishra, Hon'ble Minister of Industries, Govt. of Odisha, Shri Mansukh L. Mandaviya, Hon'ble Minister of State Ministry of Chemicals and Fertilizers, Shri Anuj Kumar Bishnoi, Secretary , Department of Chemicals &Petrochemicals, Shri Sanjeev Gandhi, Member of Board of Executive Director, BASF and over 500 delegates attended the inaugural ceremony of INDIA CHEM 2016.

Inaguration by Shri Ananthkumar, Hon'ble Minister of Chemicals & Fertilizers of 9th edition of India Chem 2016 on 1st September, 2016 at Bombay Exnhibition Centre, Mumbai.

10.3. Salient features of India Chem 2016 - Exhibition

- 282 exhibitors participated at the event from Manufacturing, End Users and Intermediate segments
- International Participation – 146, National Participation – 136
- Host State – Maharashtra
- Partner State – Gujarat, Andhra Pradesh, Odisha
- Partner Country – Iran
- International Participation from 23 countries: Japan, Dubai, Turkey, Chile, Bangladesh, Iran, Argentina, Malaysia , Germany, Saudi Arabia, China, Brazil, Taiwan, USA, Vietnam, Singapore, South Korea, United Kingdom, Belgium, Israel, Trinidad & Tobago, Portugal
- State Pavilion – Madhya Pradesh, Tripura, Rajasthan
- Make in India Pavilion
- 16,162 Business visitors from various countries

10.4. Highlights of India Chem 2016 International Conference:

- Theme: Exploring Opportunities
- Included a Panel Discussion and four Symposiums on issues of importance.
  - Symposium on Role of PCPIR Policy in triggering the growth of Indian Chemical Industry
  - Panel Discussion on Exploring Opportunities in Indian Chemical & Petrochemical Industry with focus on Make in India
  - Symposium on Alternate Feedstock for Indian Chemical industry
  - Symposium on Responsible Manufacturing –Strengthening Safety & Security in the Indian Chemical Sector
  - Symposium on role of Sound Infrastructure in facilitating the Chemical industry

- 29 Esteemed speakers from Manufacturing, End Users and Intermediates segments made presentations and 18 deliberated on the various industry issues.
- Above 200 delegates attended the Conference
- A Handbook on Indian Chemical Industry was released.
- A Preliminary Report on Strengthening Chemical Security in India was released.
- FICCI Chemicals and Petrochemicals Awards 2016 were distributed in 22 award categories
- The Strategic report on "Redefining Brand India: Value through Innovation and New Product Development" was released in Pumps, Valves & Process Equipment Conference
- Around 150 Delegates attended the conference on Pumps, Valves & Process Equipment
- Conclave of Overseas Industries Association coinciding India Chem 2016 was organized by Indian Chemical Council (ICC) on 1st September 2016 with the theme "Partnering with India". Shri Samir Kumar Biswas, Jt. Secretary, Department of Chemicals and Petrochemicals inaugurated the Conclave. The Conclave was attended by representatives from USA, UK, Bangladesh, Philippines, Singapore and Japan (local representative from India).

10.5. INDIA CHEM Gujarat 2017

Government of India, Department of Chemicals and Petrochemicals, Government of Gujarat and FICCI shall jointly organize the 5th edition of India Chem Gujarat – 2017 at Ahmedabad in October, 2017 to promote Indian Chemical Industry.

10.6. INDIA CHEM 2018

The 10th edition, i.e. India Chem 2018, would be organized during 4-6 October 2018, jointly by Department of Chemicals and Petrochemicals and FICCI.

Chemical industry in India is a diversified industry, covering more than 70,000 commercial products. Total production of the major chemicals including petrochemicals was 23.9 Million tons in 2015-16. 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, varnish etc.

The most important objective of organizing the India Chem series is to highlight the investment possibilities in the country's chemical industry and give a fillip to "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 expected to take part in India Chem- 2018 as exhibitors, delegates and visitors.

10.6.1. HIGHLIGHTS: INDIA CHEM 2018

- International participation from China, Japan, Iran, Germany, Turkey, Vietnam are expected
- Participation of PCPIR States: Gujarat, Andhra Pradesh & Odisha
- Buyers delegation from South America, USA, CIS, West Europe, Middle East and South East Asian countries & many more to join
- Over 20,000 Business visitors from India and abroad expected
- Over 300 Indian and International exhibitors expected
- Buyer-Seller meet by Basic Chemicals, Pharmaceuticals and Cosmetics Export Promotion Council (CHEMEXCIL)
- Over 30 top CEOs from India and abroad will be deliberating at International Conference
- 16,000 sq. m. of exhibition area

10.7. BUSINESS OPPORTUNITIES

- Transfer of technology, investment, joint ventures, research and development.
- Supply of plant, machinery, process control equipment, projects and services etc.
- Logistics, warehousing & supply chain in Chemicals
- Sourcing requirements from India
- Showcase the latest products, machinery, equipments& developments in the industry for generating business and test marketing
- Technology adaptation and up-gradation
- Joint venture partners and project collaborators
- Business Tie-Ups and collaborations
- Contract Research & Manufacturing

10.8. Poly India 2016

Poly India 2016, the third International Exhibition and Conference on Plastics and Petrochemicals, was jointly organised by the Department, Central Institute of Plastics Engineering and Technology (CIPET) and Federation of Indian Chambers of Commerce and Industry (FICCI) from 28th to 30th January 2016 in Mumbai. The theme of the event was "Indian Plastic and Petrochemical Sector: Potential for Global Manufacturing Hub".The event was inaugurated by Shri Hansraj Gangaram Ahir, the then Minister of State for Chemicals & Fertilizers, in the presence of senior Govt. officers and industry captains, on 28th January, 2016.

Inauguration by Shri Hansraj Gangaram Ahir, the then Hon'ble Minister of State for Chemicals & Fertilizers of Poly India 2016.

Poly India 2016 was a multi-dimensional event comprising an exhibition, a conference and a CEOs Conclave for exchange of views on relevant issues in an interactive manner. About 100 exhibitors and 5000 visitors participated in the exhibition, held at Bombay Exhibition Centre, Goregaon, Mumbai. As part of the event, a conference with the theme "Indian Plastics industry: challenges and opportunities" was organised on 29th January, 2016. A Domestic Buyer-Seller Meet was also organized by FICCI which was attended by about 325 Buyers.

*****

Chapter – 11

GENERAL ADMINISTRATION

ORGANISATIONAL SET UP OF THE DEPARTMENT

11.1 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.

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

EMPLOYMENT OF SCHEDULED CASTES/SCHEDULED TRIBES/PHYSICALLY HANDICAPPED IN THE MAIN SECRETARIAT OF THE DEPARTMENT

11.3 The status of employment of Scheduled Castes/Scheduled Tribes/Physically handicapped in the main Secretariat of the Department, as on 31.12.2016 is as under:-

Group	Total No. of posts	Scheduled Castes	Scheduled Tribes	Physically Handicapped
A	44	5	0	0
B	76	11	3	1
C	87	16	3	1
TOTAL	207	32	6	2

11.4 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. Appointment to posts in Group B and C is mostly 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

11.5 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

11.6 To ensure compliance with the statutory provisions and Presidential Orders on the Official Language Policy of the Government in the Department and also in its' attached and subordinate offices, there is a Hindi Section. The work of the Hindi Section is supervised by Assistant Director (OL) and Joint Director (OL) under the overall guidance of Economic Adviser.

11.7 Hindi Pakhwada was organized in the Department during 15-30 September, 2016. During this period, five competitions of Hindi Essay, Noting and Drafting, Translation, Hindi Poetry and Hindi Essay exclusively for MTS were held. A total of 20 participants have been awarded prizes worth Rs 38,000/-. Rs 3000/- has been awarded as first prize, Rs 2000/- has been awarded as second prize, Rs 1600/- has been awarded as third prize and Rs 1000/- has been awarded as incentive prize.

11.8 Three meetings of the Departmental Official Language Implementation Committee under the Chairpersonship of Economic Adviser were held on 24 February, 2016, 13 July 2016 and 30 November 2016 respectively. The progress made in the use of Hindi in the department was reviewed in these meetings and suggestions for further improvement were adopted.

11.9 A workshop was organised by Central Institute of Plastic Engineering and Technology (CIPET) on 30th September, 2016 in Gangtok, Sikkim on "Implementation of Official Language and our responsibility towards Official

Language at Office level" to address the challenges in the implementation of Official Language provisions and improvements thereupon. Economic Advisor, DCPC, as Chief Guest of the function suggested measures for improvement in implementation of Official Language in CIPET. A Hindi magazine "CIPET Darshan" published by CIPET, Bhubaneswar was also launched on the occasion.

11.10 Most of the documents like Annual Report, Outcome Budget, Demand-for-Grants, Parliament Questions & Assurances, Papers relating to standing committee and report of Comptroller and Auditor General, Cabinet notes, papers of updating the departmental website were issued in bilingual form as per Section(3) of the Official Language Act, 1963. All letters received in Hindi were replied to in Hindi as per 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 set out in the Annual Programme of the Department of Official Language.

11.11 During the year, Quarterly Progress Reports were compiled on the basis of the inputs received from different Sections of the Department and sent to the Department of Official Language for inclusion in the database. Reports received from Attached and Subordinate Offices were reviewed and deficiencies found therein were suggested for rectification.

Activities of the Vigilance Set up

11.12 The Department has a Chief Vigilance Officer (CVO) of the rank of Joint Secretary to look into the complaints against the employees of the Department as well as Board Level Officers of the Public Sector Undertakings (PSUs) and organizations under its administrative control. The CVO is assisted by a Director, Under Secretary and a Vigilance Section.

11.13 'Vigilance Awareness Week' was organized during the period 31st October, 2016 to 5th November, 2016. The Department organized an essay competition on 2nd November, 2016 on the subject "Public participation in promoting integrity and eradicating corruption", which was the theme of this year's Vigilance Awareness Week-2016 and prizes were awarded to the winners on 4th November, 2016. All the PSUs and autonomous organizations under the administrative control of the Department also organized 'Vigilance Awareness Week'. Integrity pledge was also taken by the officers/officials

of this Department as well as PSUs/ autonomous organizations under the administrative control of this Department during this week.

GRIEVANCE CELL

11.14 The Department of Administrative Reforms & Public Grievances (D/o AR&PG) has instituted an Award Scheme for recognizing meritorious performance by Ministries / Departments for effective redress of public grievances received on Centralized Public Grievance Redress and Monitoring System (CPGRAMS). Under the scheme, Certificate of Recognition is awarded to departments who are found to have done outstanding work during the quarter as per criteria prescribed by D/o AR&PG. For the 2nd quarter of 2016 (i.e. April – June, 2016), the Department of Chemicals & Petrochemicals has been awarded Certificate of Appreciation.

The Certificate of Recognition was given by Hon'ble MoS (PP) Dr. Jitendra Singh on 04.10.2016

GENDER EQUALITY

11.15 In compliance with the Supreme Court judgment laying down certain guidelines to be followed for prevention of sexual harassment of women employees at work place, the Department has constituted a Complaints Committee for redressal of complaints relating to sexual harassment of women. The

Committee is functional since June 2002. The present Committee is headed by the Economic Advisor.

RIGHTS OF PERSONS WITH DISABILITIES

11.16 Department of Chemicals & Petrochemicals follows the guidelines issued by the Government of India from time to time regarding rights of persons with disabilities. Efforts are made to fill up posts suitable for persons with disabilities as per guidelines of Ministry of Social Justice & Empowerment.

11.17 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. Gestetner Operator, 1 post of Dispatch Rider and 48 posts of Multi Tasking Staff (MTS) in Group 'C'.

11.18 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 always available to attend to the problems of persons with disabilities, if approached.

OBSERVANCE OF 'SWACHHTA PAKHWADA'

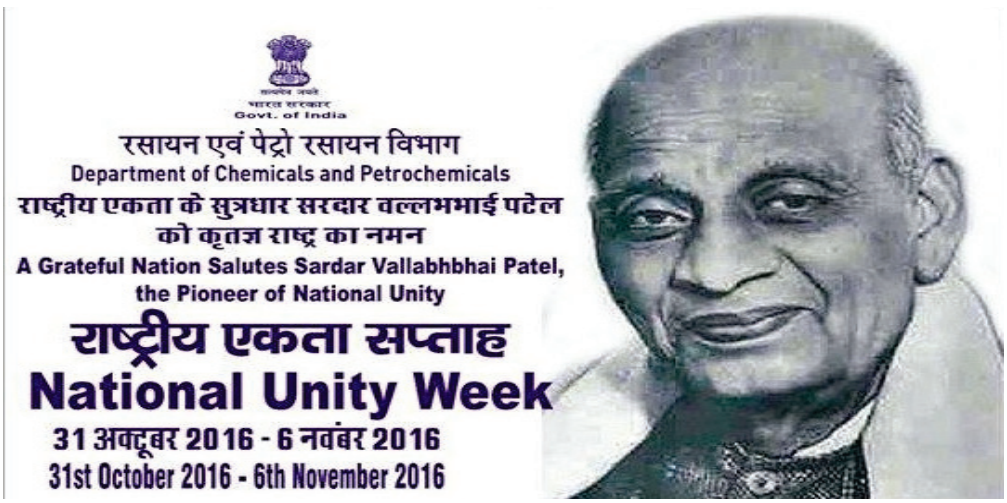
11.19 The Department observed two 'Swachhta Pakhwadas' in the month of May, 2016. During the 1st 'Swachhta Pakhwada' observed during 1st - 15th May,

Essay writing competition organized by Department during 1st Swachhta Pakhwada observance on 26th May, 2016.

2016, the PSUs/ Autonomous Bodies under the administrative control of the Department undertook activities like cleaning of offices/ factories/ labs/ toilets/ premises, organizing awareness programmes, quiz competitions/ workshops in schools, conducting rallies, distribution of pamphlets, displaying posters on cleanliness in villages etc. During the 2nd 'Swachhta Pakhwada' observed during 16th - 31st May, 2016, the Department undertook various swachhta activities like special cleanliness campaign in common areas in and outside Shastri Bhawan etc. An expert from Sulabh International working in the field of sanitation was invited for an interactive session on 'Swachh Bharat for Swasth and Sashakt Bharat' on 23rd May, 2016 with officers/ officials of the Department. An Essay writing competition on the subject 'Cleanliness and Health (Swachhta aur Swasthya)' was also organized in the Department on 26th May, 2016. 18 officers/ officials participated in the Essay writing competition and the best three Essays were awarded prizes of Rs. 3000, Rs. 2000 & Rs. 1000 respectively.

OBSERVANCE OF 'RASHTRIYA EKTA SAPTAH'

11.20 The Department observed 'Rashtriya Ekta Saptah' during 31st Oct - 6th Nov, 2016. Rashtriya Ekta Pledge was taken by all officers/ officials of the Department on 'Rashtriya Ekta Diwas (National Unity Day)' on 31st October, 2016, celebrated to commemorate the birth anniversary of Sardar Vallabhbhai Patel. Banners regarding observance of Rashtriya Ekta Saptah in the Department were displayed at prominent places in Shastri Bhawan.



An Essay writing competition on the subject 'Integration of India' was also organized on 2nd November, 2016. 11 officers/ officials participated in the competition and the top three essays were awarded prizes of Rs. 3000, Rs. 2000 & Rs. 1000 respectively.

11.21 'Rashtriya Ekta Saptah' was also observed by PSUs/ Autonomous Bodies under the administrative control of the Department. Pledge was taken by employees of these organizations and various activities like essay writing competition, workshops/seminars, quiz competition, making human chains, run for unity, discussions, lectures, displaying banners/ posters etc. were also organized.

OBSERVANCE OF 'QAUMI EKTA WEEK (NATIONAL INTEGRATION WEEK)'

11.22 The Department observed 'Qaumi Ekta Week (National Integration Week)' during 19-25 November, 2016. An Expert on defence matters was invited to deliver a talk on 'Challenges to National Integration in India' to officers/ officials of the Department on 21st November, 2016.

Talk on National Intigration organized by Department during 'Qauni Ekta Week (National Integration Week)' on 21st November, 2016.

A poetry competition on the subject 'Sashakt Bharat/ United India-Strong India' was also organized on 21st November, 2016 in which officials of the Department participated. The best three poems were awarded prizes of Rs. 3000, Rs. 2000 & Rs. 1000 respectively.

11.23 The Department observed 'Women's Day' as part of 'Qaumi Ekta Week' on 24th November, 2016. Two eminent personalities working in the field of women's empowerment delivered talks on 'Economic Role of Women and Nation Building' and 'Women's Safety' respectively, to women officers/ officials of the Department. A muppet show on 'Women's Safety' was also performed by artists from Kayakalp, a puppet theatre group.

'Women's Day' Celebration during 'Qaumi Ekta Week' on 24th November, 2016.

11.24 'Qaumi Ekta Week' was also observed by PSUs/ Autonomous Bodies under the administrative control of the Department. Activities like essay writing competition, workshop/ seminars, quiz competition, kavi sammelans, meetings and rallies, discussions, lectures, debates, cultural functions, tree plantation programme etc. were organized by these organizations during 'Qaumi Ekta Week'.

CELEBRATION OF 'CONSTITUTION DAY'

11.25 The Country celebrated 'Constitution Day' on 26th November, 2016. 26th November, 2016 (Saturday) being a Govt. Holiday, the Department celebrated 'Constitution Day' on 25th November, 2016. 'Preamble to the Constitution of India' was read out by all employees of the Department. An Essay Writing Competition on the subject 'Role of Constitution in everyday life' was also organized in the Department. 10 officers/officials of the Department participated and the best three essays were awarded prizes of Rs. 3000, Rs. 2000 & Rs. 1000 respectively.

11.26 PSUs/ Autonomous Bodies also observed 'Constitution Day' on 25th November, 2016. 'Preamble to the Constitution of India' was read out by employees and various activities like lectures, essay/ debate competitions, discussions, quiz competition were organized to increase the awareness about the Indian Constitution among employees.

RIGHT TO INFORMATION

11.27 As per the provisions of the Right to Information Act, 2005, all relevant information relating to the Department has been made available on the web site and it is updated regularly to keep it easily accessible and comprehensible to the public. Central Public Information Officers (CPIOs) have been nominated in the Department to provide information to the public and information seekers. In addition, officers of the rank of Deputy Secretary/ Director and above have been designated as First Appellate Authority for the subjects they are dealing with. The online RTI portal is functional to facilitate information seekers to file RTI applications online.

*****

Annexure – I

PRODUCT-WISE INSTALLED CAPACITY & PRODUCTION MAJOR CHEMICALS

(In thousand MT)

Major Groups / Products	Installed Capacity			Production					Percentage growth	
	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16	2014-15	2015-16
1	2	3	4	5	6	7	8	9	10	11
ALKALI CHEMICALS										
SODA ASH	2951.00	2951.00	3031.00	2410.82	2437.79	2392.17	2462.00	2583.01	2.92	4.92
CAUSTIC SODA	2948.25	3019.42	3102.02	2408.73	2375.83	2391.66	2442.89	2503.96	2.14	2.50
LIQUID CHLORINE	2176.09	2243.37	2289.26	1658.08	1673.25	1697.33	1720.10	1714.82	1.34	-0.31
Total	**8075.33**	**8213.79**	**8422.28**	**6477.63**	**6486.88**	**6481.15**	**6624.99**	**6801.78**	**2.22**	**2.67**
INORGANIC CHEMICALS										
ALUMINIUM FLUORIDE	25.60	25.60	25.60	7.31	6.70	5.40	6.73	9.51	24.71	41.33
CALCIUM CARBIDE	112.00	112.00	112.00	66.39	70.98	78.78	87.18	83.47	10.67	-4.25
CARBON BLACK	559.00	583.00	640.00	447.67	404.02	406.41	444.35	469.56	9.34	5.67
POTASSIUM CHLORATE	3.00	3.00	3.00	0.34	0.59	0.68	0.45	0.41	-33.88	-9.17
TITANIUM DIOXIDE	76.05	82.50	82.50	52.14	50.14	52.78	47.88	58.53	-9.28	22.25
RED PHOSPHORUS	1.68	1.68	1.68	0.56	0.69	0.75	0.89	0.84	17.84	-5.54
HYDROGEN PEROXIDE	167.87	168.63	169.23	103.07	125.79	128.37	119.75	153.08	-6.71	27.83
CALCIUM CARBONATE	282.35	282.35	282.35	217.20	232.18	233.12	236.93	226.13	1.63	-4.56
Total	**1227.54**	**1258.75**	**1316.35**	**894.68**	**891.10**	**906.27**	**944.15**	**1001.53**	**4.18**	**6.08**
ORGANIC CHEMICALS										
ACETIC ACID	192.28	177.43	177.43	160.73	160.56	157.17	159.61	157.91	1.55	-1.07
ACETIC ANHYDRIDE	100.92	148.30	118.30	53.28	87.15	80.85	93.84	92.99	16.07	-0.91
ACETONE	47.82	49.46	47.14	42.80	37.05	28.58	25.98	24.96	-9.09	-3.93
PHENOL	77.13	79.68	76.75	65.93	59.92	46.39	42.26	40.42	-8.89	-4.35
METHANOL	474.30	474.30	474.30	359.93	254.91	307.26	209.83	162.62	-31.71	-22.50
FORMALDEHYDE	413.25	411.30	411.30	263.80	275.36	268.29	255.95	242.09	-4.60	-5.42
NITROBENZENE	103.80	103.80	91.80	74.46	83.70	76.51	69.72	68.37	-8.87	-1.93

(In thousand MT)

Major Groups / Products	Installed Capacity			Production					Percentage growth	
	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16	2014-15	2015-16
1	2	3	4	5	6	7	8	9	10	11
MALEIC ANHYDRIDE	5.40	6.40	6.40	2.63	2.48	2.92	3.20	3.54	9.91	10.46
PENTAERYTHRITOL	12.40	13.72	13.72	11.40	11.49	12.18	13.46	13.97	10.55	3.77
ANILINE	60.10	60.10	60.10	40.09	48.23	40.62	34.47	39.40	-15.14	14.29
CHLORO METHANES	211.75	216.75	221.10	188.55	197.74	214.03	220.71	220.18	3.12	-0.24
ISOBUTYLBENZENE	12.75	12.75	13.80	1.94	6.63	6.08	4.30	7.24	-29.18	68.24
ONCB	30.00	30.00	30.00	13.74	15.41	16.82	16.13	19.26	-4.11	19.43
PNCB	30.00	30.00	30.00	22.14	24.40	27.06	26.96	31.27	-0.37	15.99
MEK	5.00	5.00	5.00	2.19	2.49	3.72	4.02	5.75	8.12	43.02
ACETALDEHYDE	183.51	172.01	189.01	65.39	76.27	79.66	67.77	58.96	-14.92	-13.00
ETHANOLAMINES	13.00	16.00	17.76	8.73	7.05	11.20	13.76	13.25	22.95	-3.75
ETHYL ACETATE	439.63	479.83	545.83	235.36	305.26	382.39	327.94	360.40	-14.24	9.90
MENTHOL	33.65	33.65	33.65	15.80	19.70	18.34	17.45	14.73	-4.85	-15.58
ORTHO NITRO TOLUENE	16.40	16.40	16.40	11.14	10.68	12.31	11.74	11.52	-4.67	-1.81
Total	**2463.10**	**2536.88**	**2579.78**	**1640.03**	**1686.48**	**1792.34**	**1619.11**	**1588.83**	**-9.67**	**-1.87**
PESTICIDES (Technical)										
D.D.T.	6.34	6.34	6.34	3.64	3.87	2.79	3.63	2.09	30.14	-42.38
MALATHION	3.80	2.60	3.80	2.55	1.71	2.04	2.24	2.04	10.01	-8.97
DIMETHOATE	1.45	1.45	1.45	0.73	0.81	1.36	1.43	1.44	5.14	0.28
D.D.V.P.	32.48	35.72	35.72	4.64	4.41	5.52	6.66	7.22	20.71	8.44
QUINALPHOS	2.80	2.80	2.80	1.00	1.35	1.74	1.88	0.84	8.04	-55.40
MONOCROTOPHOS	12.24	13.18	13.94	9.59	8.25	4.27	6.97	5.48	63.24	-21.29
PHOSPHAMIDON	2.00	2.00	2.00	0.06	0.02	0.05	0.13	0.13	184.44	0.00
PHORATE	10.13	10.13	10.13	7.01	5.75	6.85	6.62	5.92	-3.37	-10.62
ETHION	2.50	2.50	2.20	1.33	0.94	1.51	1.60	1.72	5.94	7.04
ENDOSULPHAN	0.00	0.00	0.00	1.35	0.00	0.00	0.00	0.00		
FENVALERATE	2.10	2.10	2.10	0.55	0.48	0.75	0.51	0.56	-31.82	8.79
CYPERMETHRIN	15.69	15.69	13.92	10.41	7.78	9.26	8.59	8.53	-7.29	-0.71
ACEPHATE	19.25	19.25	19.67	17.11	15.76	14.51	17.97	16.58	23.85	-7.74
CHLORPYRIPHOS	14.3	16.46	16.85	6.05	7.52	9.54	9.73	6.87	1.99	-29.40
TRIAZOPHOS	3.90	3.90	3.90	0.78	0.93	0.99	1.00	1.72	0.60	71.80

(In thousand MT)

Major Groups / Products	Installed Capacity			Production					Percentage growth	
	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16	2014-15	2015-16
1	2	3	4	5	6	7	8	9	10	11
TEMEPHOS	0.25	0.25	0.25	0.13	0.20	0.25	0.00	0.08	-100.00	
DELTAMETHRIN	0.63	0.63	0.59	0.47	0.52	0.52	0.51	0.38	-0.97	-25.24
ALPHAMETHRIN	0.35	0.51	0.50	0.57	0.54	0.56	0.75	0.23	32.74	-69.03
PROFENOFOS TECHNICAL	14.60	14.90	12.90	6.41	5.01	7.18	7.58	6.85	5.54	-9.56
PRETILACHLOR TECHNICAL	2.84	2.56	2.58	1.65	1.93	2.22	1.88	1.94	-15.34	3.46
LAMBDA CYHALOTHRIN	0.60	0.60	0.60	0.29	0.43	0.55	0.47	0.42	-13.21	-11.63
PHENTHOATE	0.90	0.90	0.90	0.59	0.96	1.24	1.40	1.11	12.72	-20.50
PERMETHRIN TECH	1.80	1.80	1.97	1.41	1.04	1.39	1.70	1.30	22.01	-23.29
IMIDACALOPRID TECH	0.83	0.98	1.13	0.39	0.23	0.94	0.56	0.20	-40.62	-64.29
CAPTAN & CAPTAFOL	4.73	3.85	3.45	0.92	0.56	1.12	2.38	2.12	113.06	-11.00
ZIRAM (THIO BARBAMATE)	0.65	0.70	0.70	0.73	0.55	0.60	0.58	0.51	-3.18	-12.11
CARBENDZIM (BAVISTIN)	0.98	0.98	0.98	0.43	0.34	0.31	0.36	0.24	15.64	-32.39
MANCOZAB	71.56	71.56	72.46	43.46	45.30	57.82	61.40	66.38	6.19	8.11
HEXACONAZOLE	0.58	1.08	1.08	0.47	0.44	0.58	0.59	0.62	2.95	4.89
METCONAZOLE	0.75	0.75	0.75	0.50	0.63	0.70	0.61	0.39	-13.53	-35.91
2, 4-D	22.00	22.00	22.00	15.03	15.44	17.90	11.62	18.46	-35.07	58.79
BUTACHLOR	0.50	0.50	0.50	0.20	0.18	0.04	0.00	0.00	-100.00	
ETHOFUMESATE TECHNICAL	1.65	1.65	1.56	1.14	1.22	1.01	0.62	0.50	-38.95	-18.90
THIAMETHOXAM TECHNICAL	3.00	3.10	3.10	1.63	3.12	3.31	1.66	1.92	-49.89	15.49
PENDIMETHALIN	2.00	2.00	3.00	0.00	1.03	1.71	2.26	2.82	32.34	24.75
METRIBUZIN	0.75	0.75	1.20	0.00	0.24	0.74	0.52	0.91	-30.05	74.95
TRICLOPYR ACID TECH	0.30	0.30	0.30	0.10	0.21	0.20	0.19	0.30	-4.50	57.07
ISOPROTURON	6.25	6.25	6.25	2.53	4.05	2.35	2.43	1.95	3.45	-19.54
GLYPHOSATE	9.26	9.26	9.26	5.25	6.12	8.48	9.69	6.96	14.27	-28.16
DIURON	0.33	0.33	3.30	0.31	0.14	0.07	0.12	1.26	76.81	932.79
ATRAZIN	0.50	0.50	0.50	0.66	0.65	1.24	1.20	1.21	-3.15	1.00

(In thousand MT)

Major Groups / Products	Installed Capacity			Production					Percentage growth	
	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16	2014-15	2015-16
1	2	3	4	5	6	7	8	9	10	11
ZINC PHOSPHIDE	1.32	1.32	1.32	0.89	0.60	0.65	1.29	1.50	99.38	16.28
ALUMINIUM PHOSPHIDE	3.90	3.90	3.90	3.14	4.16	4.47	5.05	5.75	13.02	13.84
DICOFOL	0.15	0.09	0.15	0.08	0.05	0.07	0.11	0.09	44.59	-15.89
Total	**282.92**	**288.10**	**292.00**	**156.17**	**155.42**	**179.38**	**186.47**	**187.52**	**3.95**	**0.57**
DYES AND PIGMENTS										
AZO DYES	22.62	22.62	22.62	12.10	12.72	13.46	10.59	9.71	-21.32	-8.38
ACID DIRECT DYES (OTHER THAN AZO)	45.08	44.90	44.90	19.00	17.58	19.00	17.23	20.57	-9.35	19.41
DISPERSE DYES	55.21	55.21	55.21	29.44	28.26	29.21	29.56	43.57	1.21	47.40
FAST COLOUR BASES	0.50	0.50	0.50	0.04	0.02	0.01	0.01	0.00	-42.86	-100.00
INGRAIN DYES	1.61	1.61	1.61	0.98	0.58	0.51	0.44	0.30	-14.42	-31.89
OIL SOLUBLE (SOLVENT DYES)	3.60	3.60	3.60	2.64	2.31	2.26	1.80	2.20	-20.21	22.22
OPTICAL WHITENING AGENTS	37.30	37.30	40.90	14.14	18.17	23.74	22.94	24.70	-3.33	7.64
ORGANIC PIGMENT	74.28	79.83	80.75	51.77	44.46	68.67	76.89	61.31	11.98	-20.27
PIGMENT EMULSION	5.41	5.41	5.41	5.22	6.48	7.34	9.64	9.67	31.42	0.27
REACTIVE DYES	159.82	180.82	171.82	83.38	87.60	95.42	89.47	106.12	-6.24	18.62
SULPHUR DYES (SULPHUR BLACK)	3.00	3.00	3.00	7.02	6.58	7.57	9.38	9.55	24.03	1.79
VAT DYES	2.98	2.98	2.98	1.69	1.38	1.60	1.77	1.44	10.71	-18.38
SOLUBILISED VAT DYES	0.13	0.13	0.13	0.03	0.03	0.02	0.03	0.03	45.45	-9.38
FOOD COLOURS	0.00	0.00	0.00	0.36	0.25	0.62	0.66	0.71	5.96	7.60
NAPTHOLS	0.90	0.90	0.90	0.04	0.00	0.00	0.00	0.00		
INORGANIC PIGMENTS	17.68	18.05	18.05	13.06	13.14	14.18	14.82	14.19	4.53	-4.24
Total	**430.12**	**456.85**	**452.37**	**240.88**	**239.53**	**283.60**	**285.23**	**304.06**	**0.58**	**6.60**

Note: Some Pesticides and Dyes manufacturing units supply combined installed capacity.

Annexure – II

PRODUCT-WISE INSTALLED CAPACITY & PRODUCTION OF MAJOR PETROCHEMICALS

(In thousand MT)

Major Groups / Products	Installed Capacity			Production					Percentage growth	
	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16	2014-15	2015-16
1	2	3	4	5	6	7	8	9	10	11
A : BASIC MAJOR PETROCHEMICALS										
I : SYNTHETIC FIBRES / YARN										
1. Polyester Filament Yarn (PFY) ($)	2354	2791	2820	1874	1878	1811	2179	2179	20.29	0.01
2. Nylon Filament Yarn (NFY) ($$)	20	20	23	30	22	24	32	37	33.40	14.80
3. Nylon Industrial Yarn (NIY) ($$)	61	61	61	97	95	104	101	95	-3.18	-5.63
4. Polypropylene Filament Yarn (PPFY)($$)	**8**	**8**	**4**	**7**	**6**	**6**	**5**	**3**	**-12.96**	**-32.55**
Sub Total Yarn (1+2+3+4)	**2443**	**2880**	**2908**	**2008**	**2001**	**1945**	**2317**	**2315**	**19.10**	**-0.10**
5. Acrylic Fibre (Inc. Dry Spun) (AF)	107	107	107	76	75	94	90	106	-5.04	18.13
6. Polyester Staple Fibre (PSF)	1170	1170	1170	953	974	1010	1021	1040	1.11	1.80
7. Polypropylene Staple Fibre (PPSF)	31	32	32	4	8	23	25	27	10.51	6.36
8. Polyester Staple Fibrefil (PSFF)	81	87	69	49	51	56	57	51	1.49	-10.90
9. Polyester Industrial Yarn (PIY)	22	22	22	14	15	15	17	15	12.38	-7.25
Total Synth. Fibre / Yarn	**3854**	**4298**	**4307**	**3105**	**3124**	**3144**	**3527**	**3554**	**12.18**	**0.75**
II : POLYMERS										
1. Linear Low Density Polyethylene (LLDPE)	No separate Capacity			1033	1012	1037	910	1205	-12.19	32.33
2. High Density Polyethylene (HDPE)	No separate Capacity			1119	1177	1195	1156	1317	-3.28	13.96
LLDPE/HDPE (Combined) ($$$)	**2735**	**2735**	**3135**	**2152**	**2189**	**2232**	**2066**	**2522**	**-7.42**	**22.06**
3. Low Density Polyethylene (LDPE)	160	160	160	194	187	190	184	200	-2.95	8.48

(In thousand MT)

Major Groups / Products	Installed Capacity			Production					Percentage growth	
	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16	2014-15	2015-16
1	2	3	4	5	6	7	8	9	10	11
4. Polyestyrene (PS)	462	462	472	288	290	270	281	309	4.01	9.75
5. Polypropylene (PP)	4016	4016	4456	3248	3507	3740	3615	4284	-3.34	18.52
6. Poly Vinyl Chloride (PVC)	1423	1423	1423	1296	1257	1367	1330	1438	-2.67	8.08
7. Expandable Polystyrene (EX-PS)	108	109	122	72	81	77	81	86	4.31	6.83
Total Polymers	**8905**	**8905**	**9768**	**7250**	**7509**	**7876**	**7558**	**8839**	**-4.04**	**16.95**
III : SYNTHETIC RUBBER										
1. Styrene Butadiene Rubber (SBR)	130	271	271	9	8	12	57	125	379.13	118.00
2. Poly Butadiene Rubber (PBR)	74	114	114	79	77	81	108	114	32.98	5.95
3. Nitrile Butadiene Rubber (NBR)	25	25	25	0	0	1	0	0	-26.21	3.68
4. Ethyl Vinyl Acetate (EVA)	15	15	15	12	11	11	6	2	-42.72	-62.48
Total Synthetic Rubber	**244**	**425**	**425**	**100**	**96**	**105**	**172**	**242**	**64.13**	**40.76**
IV : SYNTHETIC DETERGENT INTERMEDIATES										
1. Linear Alkyl Benzene (LAB)	547	547	547	454	455	406	411	377	1.21	-8.12
2. Ethylene Oxide (EO)	140	140	140	169	172	191	185	188	-2.92	1.62
Total Synth. Detergent Intermediates	**687**	**687**	**687**	**623**	**627**	**597**	**596**	**566**	**-0.11**	**-5.09**
V : PERFORMANCE PLASTICS										
1. ABS Resin	128	128	128	89	91	102	107	117	4.98	9.06
2. Nylon-6 & Nylon 66	23	23	28	18	19	20	21	21	1.46	3.35
3. Polymethyl Methacrylate (PMMA)	4	4	4	3	3	2	1	1	-57.80	40.21
4. Styrene Acrylonitrile (SAN)	96	136	136	77	80	88	89	99	1.33	11.16
5. PET Chips/ Polyester Chips	2184	2169	2199	1473	1487	1460	1362	1453	-6.70	6.68
6. PTFE (TEFLON)	20	20	20	16	11	12	11	9	-5.00	-22.95

(In thousand MT)

Major Groups / Products	Installed Capacity			Production					Percentage growth	
	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16	2014-15	2015-16
1	2	3	4	5	6	7	8	9	10	11
Total Performance Plastics	**2454**	**2479**	**2514**	**1677**	**1691**	**1685**	**1591**	**1700**	**-5.54**	**6.86**
TOTAL BASIC MAJOR PETROCHEMICALS										
(I+II+III+IV+V)	**16144**	**16794**	**17702**	**12755**	**13047**	**13406**	**13443**	**14900**	**0.28**	**10.83**
B : INTERMEDIATES										
I : FIBRE INTERMEDIATES										
1. Acrylonitrile (ACN)	41	41	41	38	33	37	34	2	-9.02	-94.25
2. Caprolactum	120	120	120	118	99	85	87	86	2.59	-0.87
3. Mono Ethylene Glycol (MEG)	1153	1153	1153	997	1061	1069	1001	1159	-6.37	15.76
4. Purified Terephthalic Acid (PTA)	3753	3753	3753	3308	3494	3477	3755	3432	8.02	-8.61
Total Fibre Intermediates	**5067**	**5067**	**5067**	**4461**	**4687**	**4668**	**4877**	**4679**	**4.49**	**-4.06**
II : BUILDING BLOCKS										
OLEFINS										
1. Ethylene	3783	3783	4283	3320	3315	3346	3192	3727	-4.62	16.78
2. Propylene	4268	4268	4746	3567	3741	3988	3869	4457	-2.98	15.18
3. Butadiene	433	433	433	250	235	236	239	343	1.66	43.44
Total Olefins	**8484**	**8484**	**9462**	**7136**	**7290**	**7570**	**7301**	**8528**	**-3.56**	**16.80**
AROMATICS										
1. Benzene	1283	1566	1566	1002	1048	1031	1094	1333	6.17	21.77
2. Toluene	258	258	288	132	108	120	108	116	-10.16	7.01
3. Mixed Xylene	898	898	898	207	200	248	215	269	-13.15	25.28
4. Ortho-xylene	420	420	420	390	444	412	462	500	12.14	8.01
5. Paraxylene	2218	3132	3132	2394	2360	2264	2758	3266	21.83	18.44
Total Aromatics	**5077**	**6274**	**6304**	**4125**	**4161**	**4075**	**4638**	**5484**	**13.82**	**18.23**
TOTAL INTERMEDIATES										
(I+II)	18629	19826	20834	15722	16138	16313	16816	18690	3.08	11.15
C : OTHER PETRO-BASED CHEMICALS										
1. Butanol	26	26	26	22	14	5	4	11	-23.36	163.62
2. C4-Raffinate	262	292	292	209	395	393	365	429	-7.14	17.56
3. Di-Ethylene Glycol	85	85	85	99	103	107	101	114	-5.33	13.15

(In thousand MT)

Major Groups / Products	Installed Capacity			Production					Percentage growth	
	2013-14	2014-15	2015-16	2011-12	2012-13	2013-14	2014-15	2015-16	2014-15	2015-16
1	2	3	4	5	6	7	8	9	10	11
4. Diacetone Alcohol	9	10	10	5	3	0	0	0		
5. Ethylene Dichloride (By Product)	593	593	593	435	316	278	285	277	2.61	-2.79
6. 2-Ethyl Hexanol**	55	55	55	49	50	20	14	44	-31.20	219.71
7. Epichlorohydrine	0	0	0	9	11	0	0	0		
8. Iso-Butanol	3	3	3	2	2	1	1	2	-14.52	176.75
9. Isopropanol (IPA)	70	70	70	71	70	76	75	71	-1.21	-5.08
10. Methyl Methacrylate (MMA)	4	4	4	4	3	3	3	2	7.56	-34.32
11. Phthalic Anhydride (PAN)	362	349	349	250	254	264	292	306	10.53	4.89
12. Propylene Oxide (PO)	27	36	36	35	30	33	37	26	9.51	-30.10
13. Propylene Glycol (PG)	15	20	20	19	15	14	16	14	15.74	-16.00
14. Polyvinyl Acetate Resin	17	17	17	0	0	0	0	0		
15. Vinyl Acetate Monomer (VAM)	30	30	30	0	0	0	0	0		
16. Vinyl Chloride Monomer (VCM) (By Product)	541	541	541	689	669	735	718	791	-2.39	10.14
17. Polyol	70	114	142	41	42	40	52	72	29.08	38.65
18. PBT	0	*	*	0	0	0	1	1	16.71	-0.40
19. Polycarbonate	0	*	*	0	0	0	0	0	1.23	3.05
Total Other Petro-based Chemicals	**2169**	**2244**	**2272**	**1940**	**1979**	**1970**	**1963**	**2159**	**-0.38**	**10.01**

($) : Includes capacity of all the units producing PFY, NFY, NIY and PPFY under broadbanding as Synthetic Filament Yarn : * Inclues capacity with Nylon 6, 66

($$) : Independent capacity of units producing only NFY, NIY and PPFY.

As the capacities of these products are also included in Synthetic Filament yarn, capacity utilisation can not be worked out.

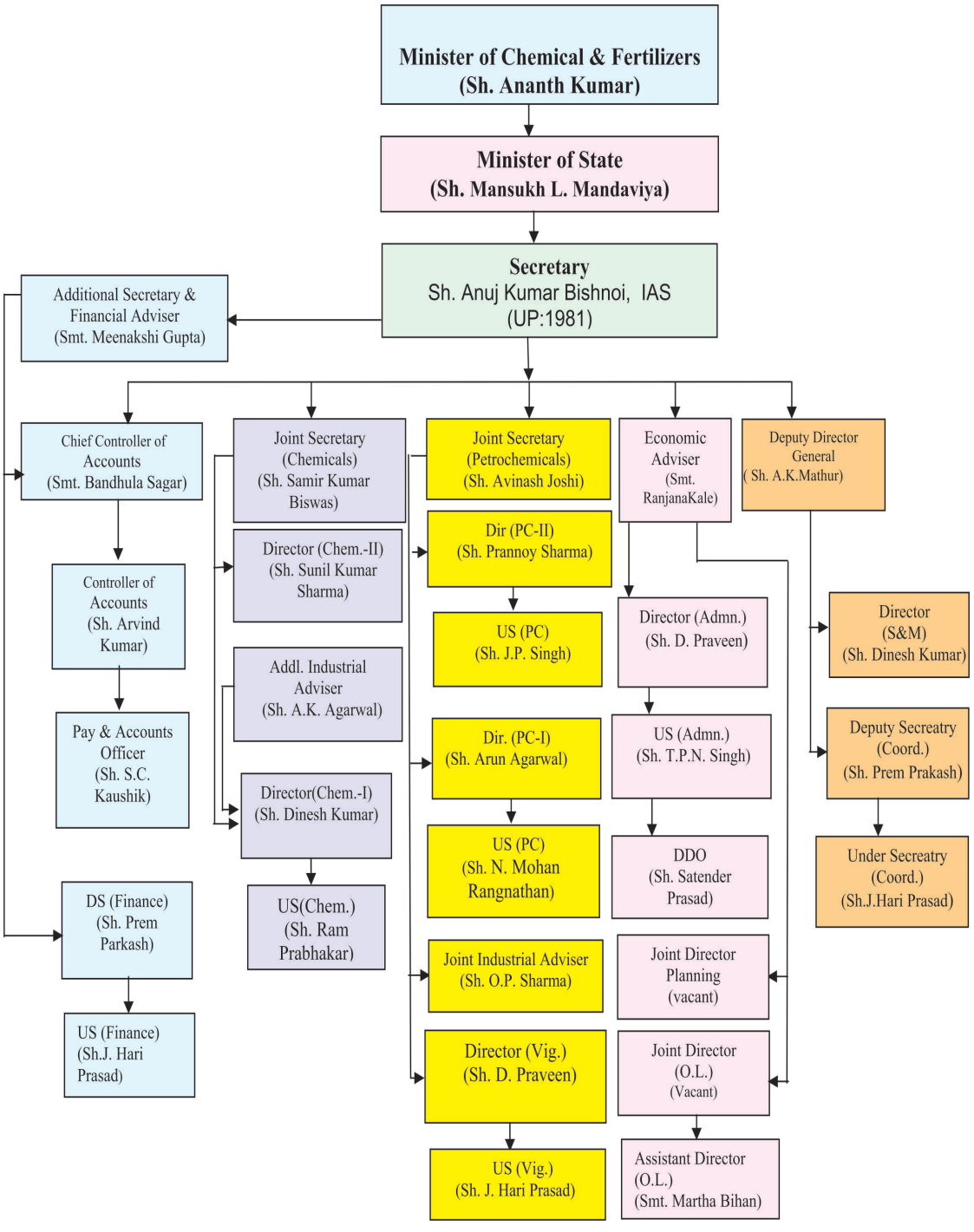
($$$) : Combined capacity to produce both LLDPE and HDPE and hence capacity utilisation can not be worked out. However production is independent.

(** : Combined capacity of 2-EH, Butanol & Iso Butanol is given under 2 - EH)

Annexure-III

ORGANISATIONAL CHART OF DEPARTMENT OF CHEMICALS & PETROCHEMICALS

(As on 31.12.2016)



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

Government of India
Ministry of Chemicals & Fertilizers
Department of Chemicals and Petrochemicals
Shastri Bhawan, Dr. Rajendra Prasad Road, New Delhi - 110001
Website : www.chemicals.gov.in
Facilitation Counter: 91 -11 - 23384317