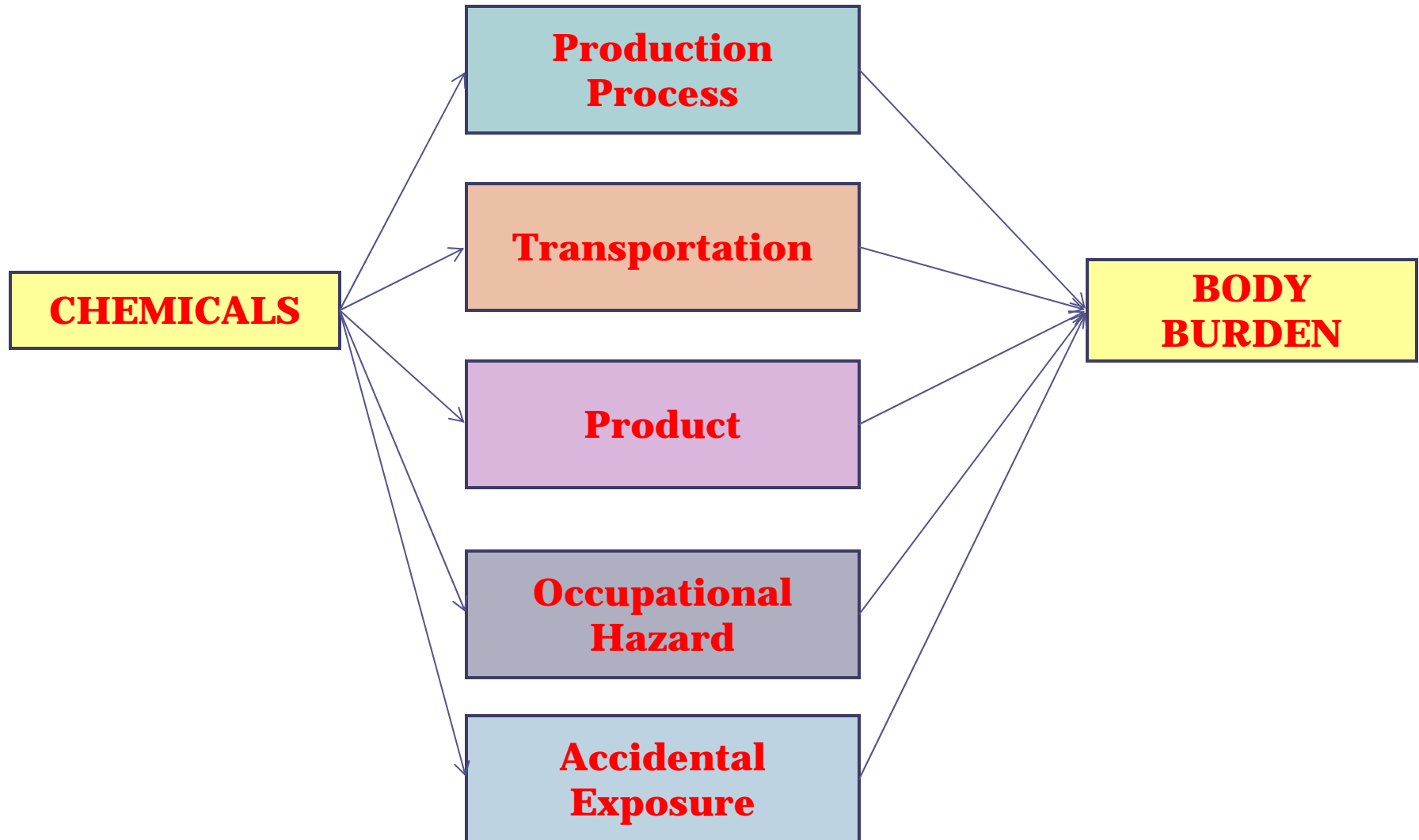


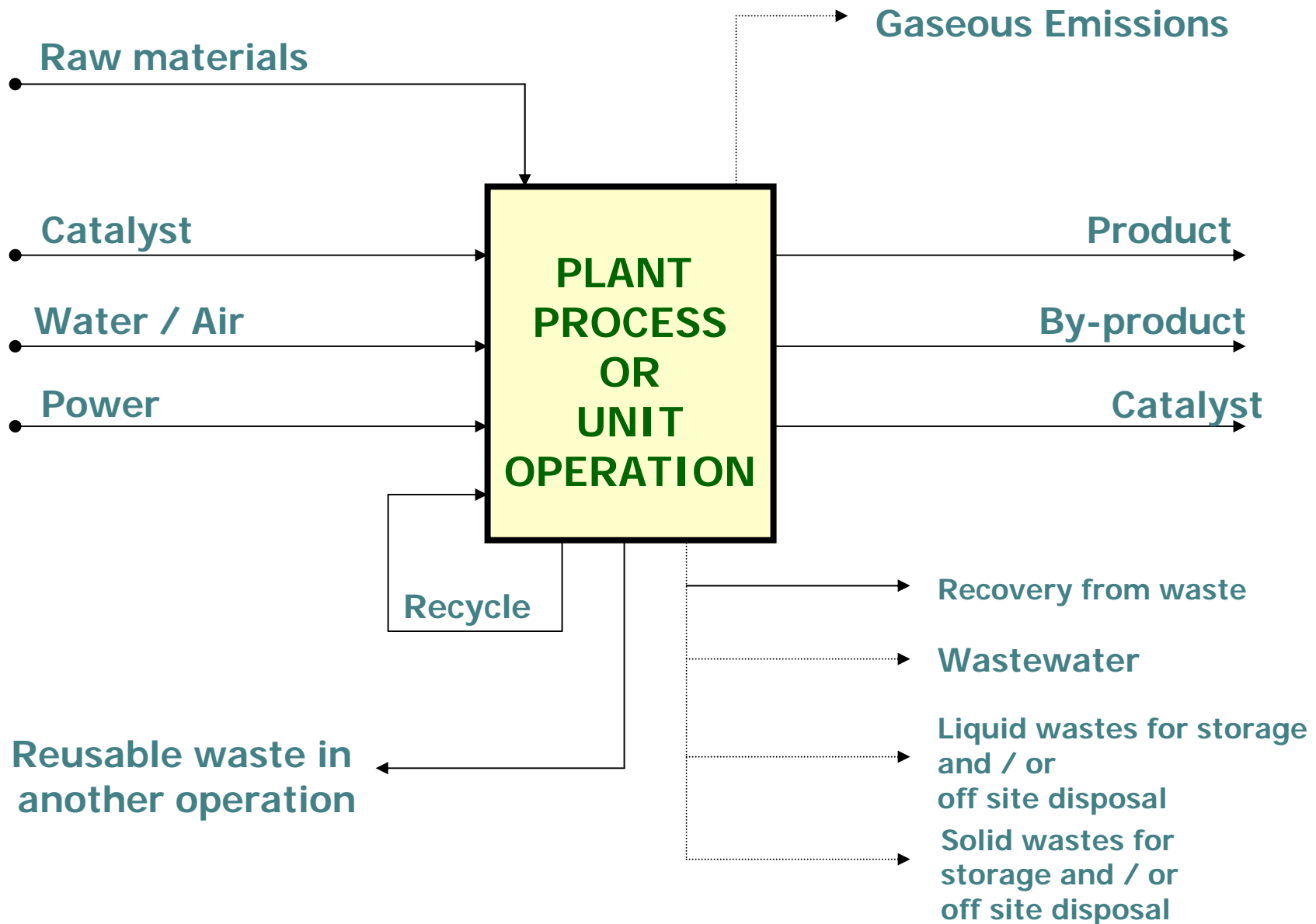
# National Chemical Management Profile

**By**  
**Dr. D.D. Basu**  
**Technical Advisor, CSE**  
**Former Scientist, CPCB**

# Possible pathways to Body Burden of chemicals

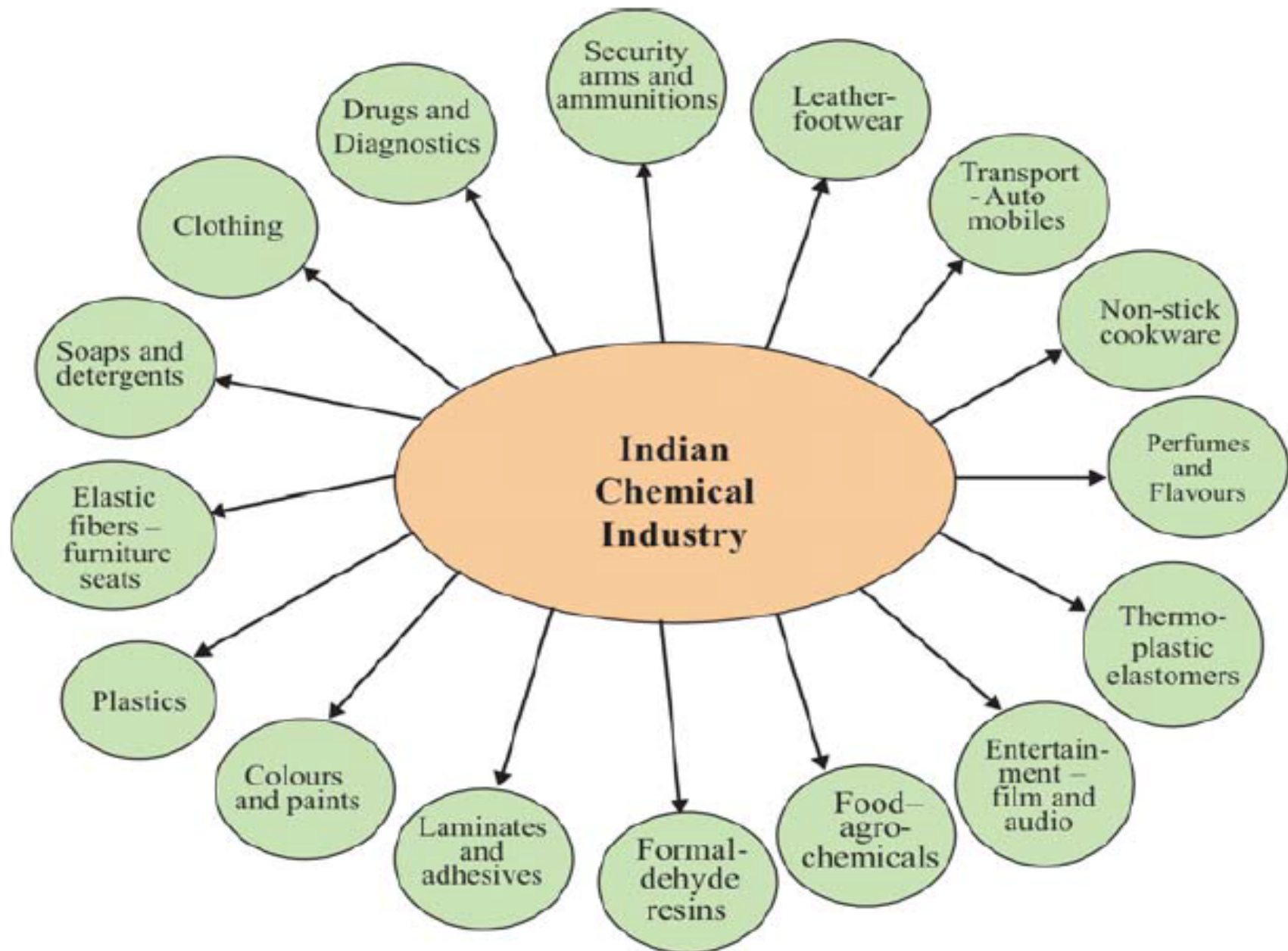


# PICTORIAL REPRESENTATION OF UNIT OPERATIONS



# End-user segments of Chemical Industry

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# Chemical life cycle

Manufacturer/Importer

Manufacture

Own Use

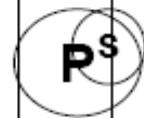
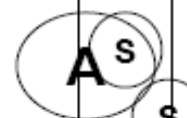
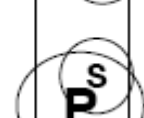
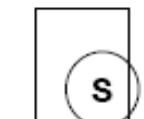
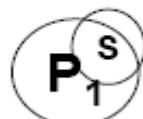
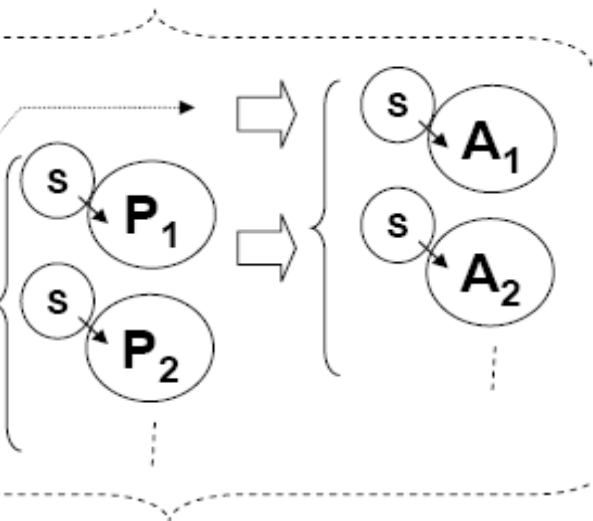
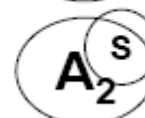
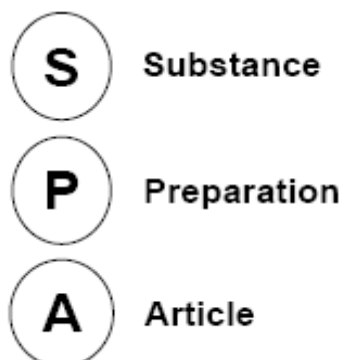
On Market

Professional /  
industrial use

Value chain

Consumer use

Disposal



# Standard Information Requirement for Substances

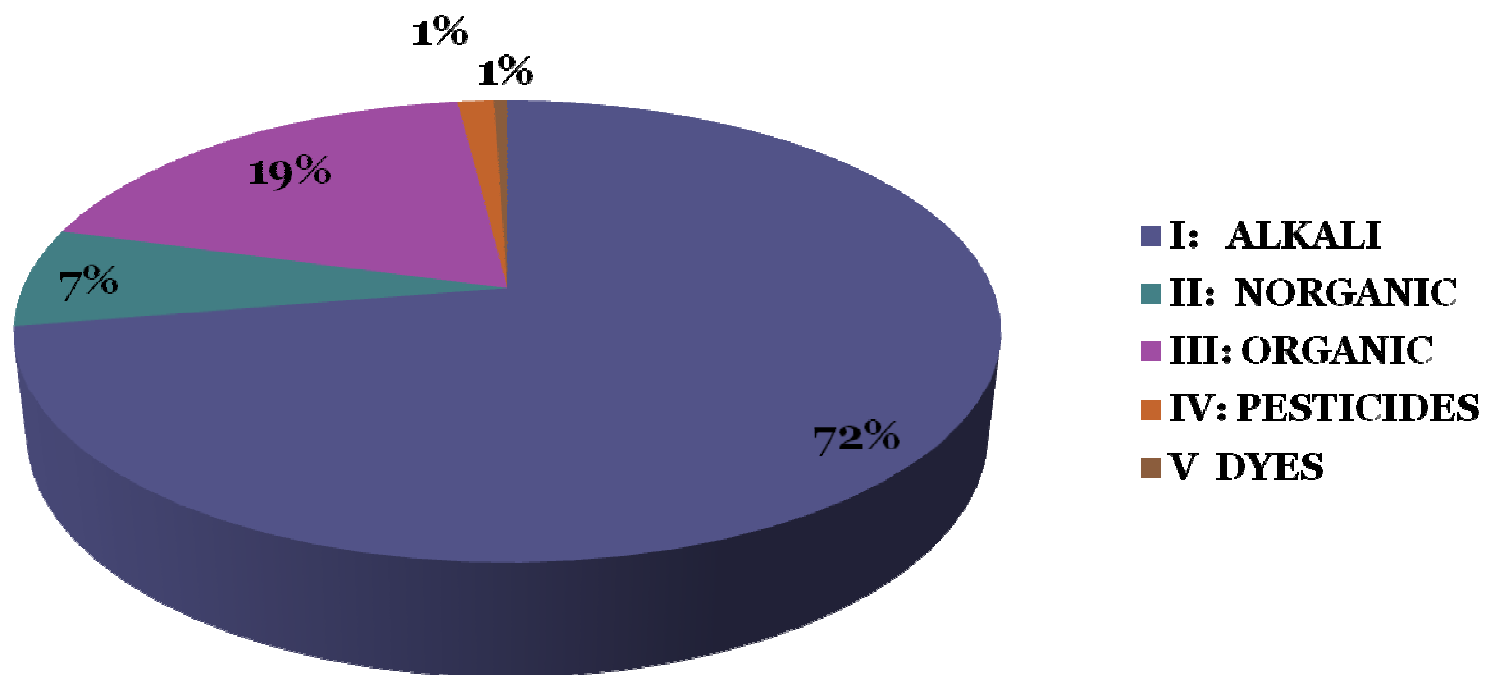
<b>Physicochemical Properties</b>	<b>Toxicological Information</b>	<b>Eco-toxicological Information</b>
<b>Explosive</b>	<b>Mutagenicity</b>	<b>Aquatic toxicity</b>
<b>Flammability</b>	<b>Reproductive toxicity</b>	<b>Nature of Degradation</b>
<b>Flashpoint</b>	<b>Acute toxicity</b>	<b>Fate and behavior in environment</b>
<b>Self Ignition temperature</b>	<b>Repeated dose toxicity</b>	
<b>Water Solubility</b>	<b>Skin sensitization</b>	
<b>Melting / boiling / freezing point</b>		

## MAJOR CHEMICAL GROUPS AND SUB-SEGMENTS PRODUCED IN INDIA

<i>Alkali</i>	– Such as Soda ash, Caustic soda, and Liquid chlorine
<i>Inorganic chemicals</i>	– Such as Aluminum fluoride, Calcium carbide, Carbon black, Potassium chlorate, Sodium chlorate, Titanium dioxide and Red phosphorous.
<i>Organic chemicals</i>	– Such as Acetic acid, Acetic anhydride, Acetone, Phenol, Methanol, Formaldehyde, Nitrobenzene, Citric acid, Maleic Anhydride, Penta-Erithritol, Aniline, Chloro methanes, ONCB, PNCB, MEK, Acetaldehyde, Ethanolamines, Ethyl acetate and Ortho nitro toluene.
<i>Pesticides</i>	– Pesticides and insecticides registered under the Insecticide Act of 1968.
<i>Dyes and dyestuff</i>	– Such as Azo dyes, Acid direct dyes, Basic dyes, Fast colour bases, Ingrain dyes, Oil soluble (solvent dyes), Optical whitening agents, Organic pigment colours, Pigment emulsion, Reactive dyes, Sulphur dyes, Vat dyes, Food colours and Napthols.
<i>Petrochemicals</i>	– Such as Synthetic fibres, Fibre intermediates, Polymer, Elastomers, Surfactants and Performance plastics.

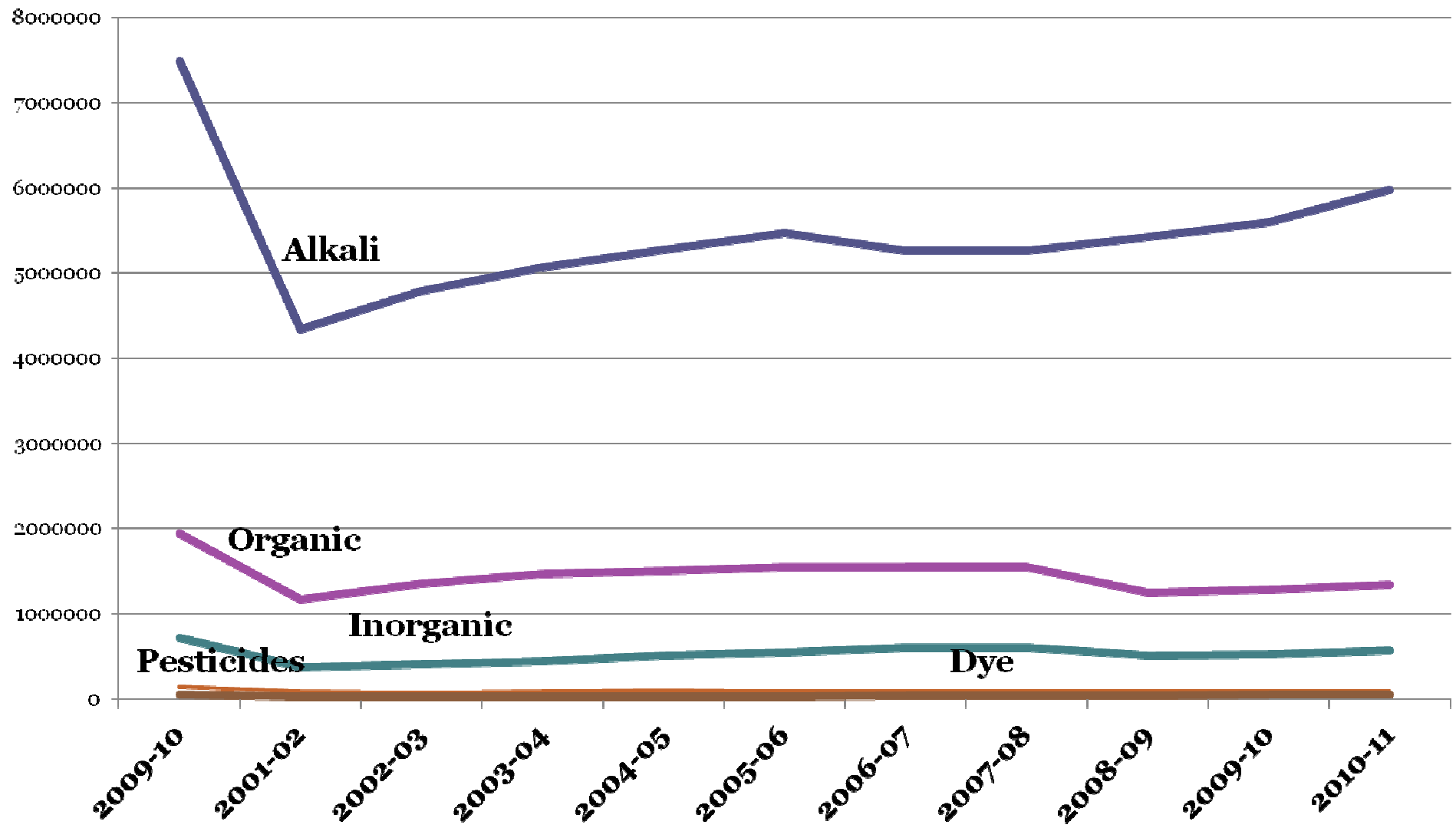
# Chemical Production Statistics

**Installed Capacity of major chemicals  
(2009-10)**

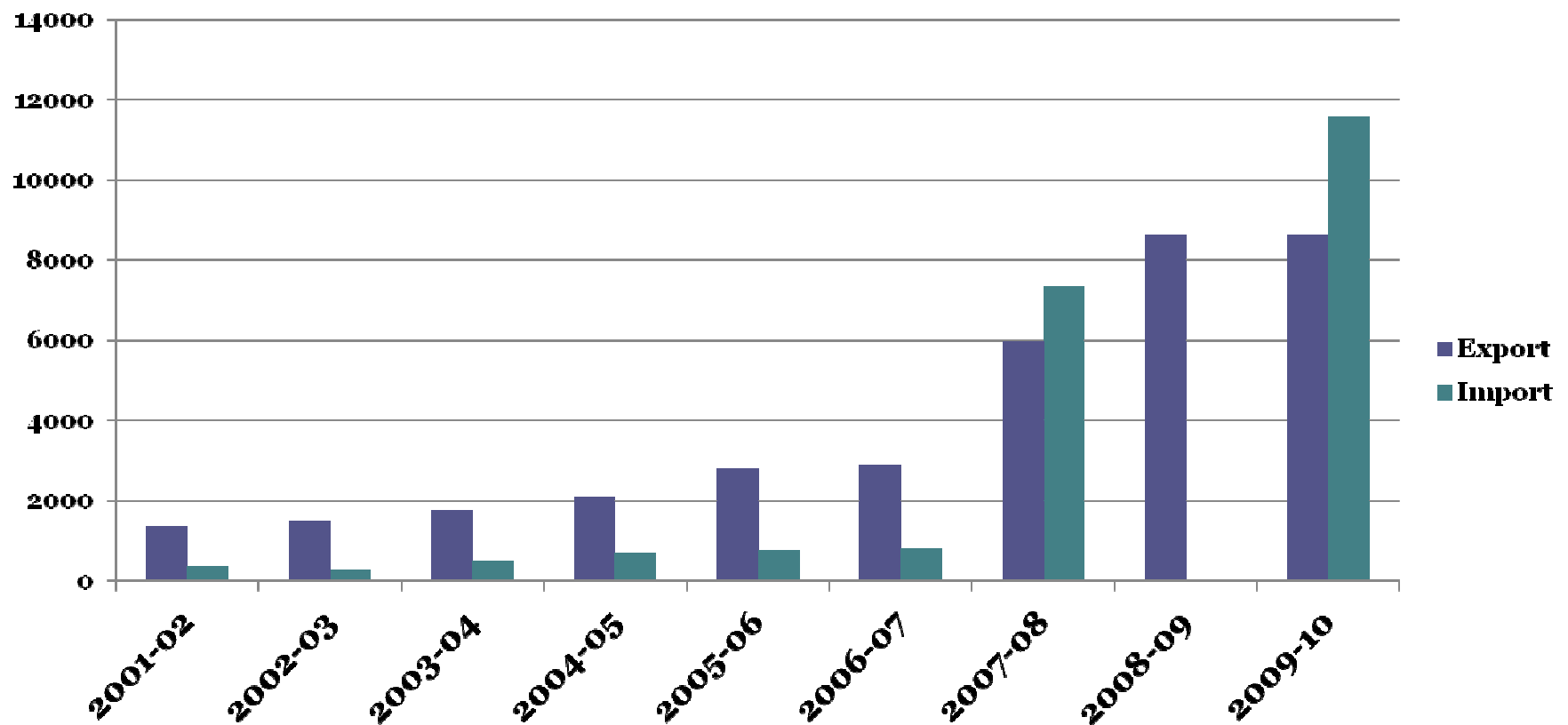




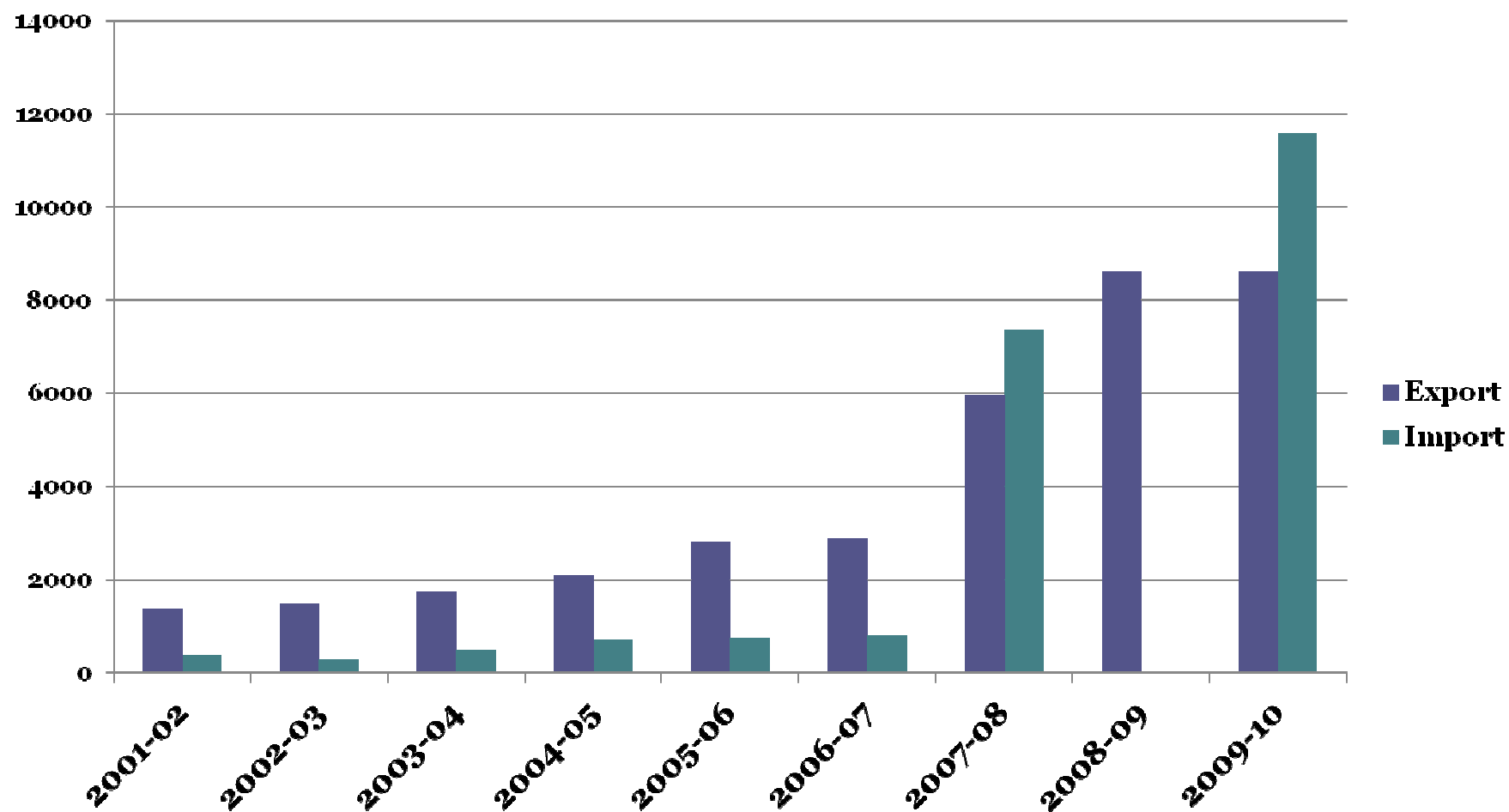
# Production of Chemicals (MT)



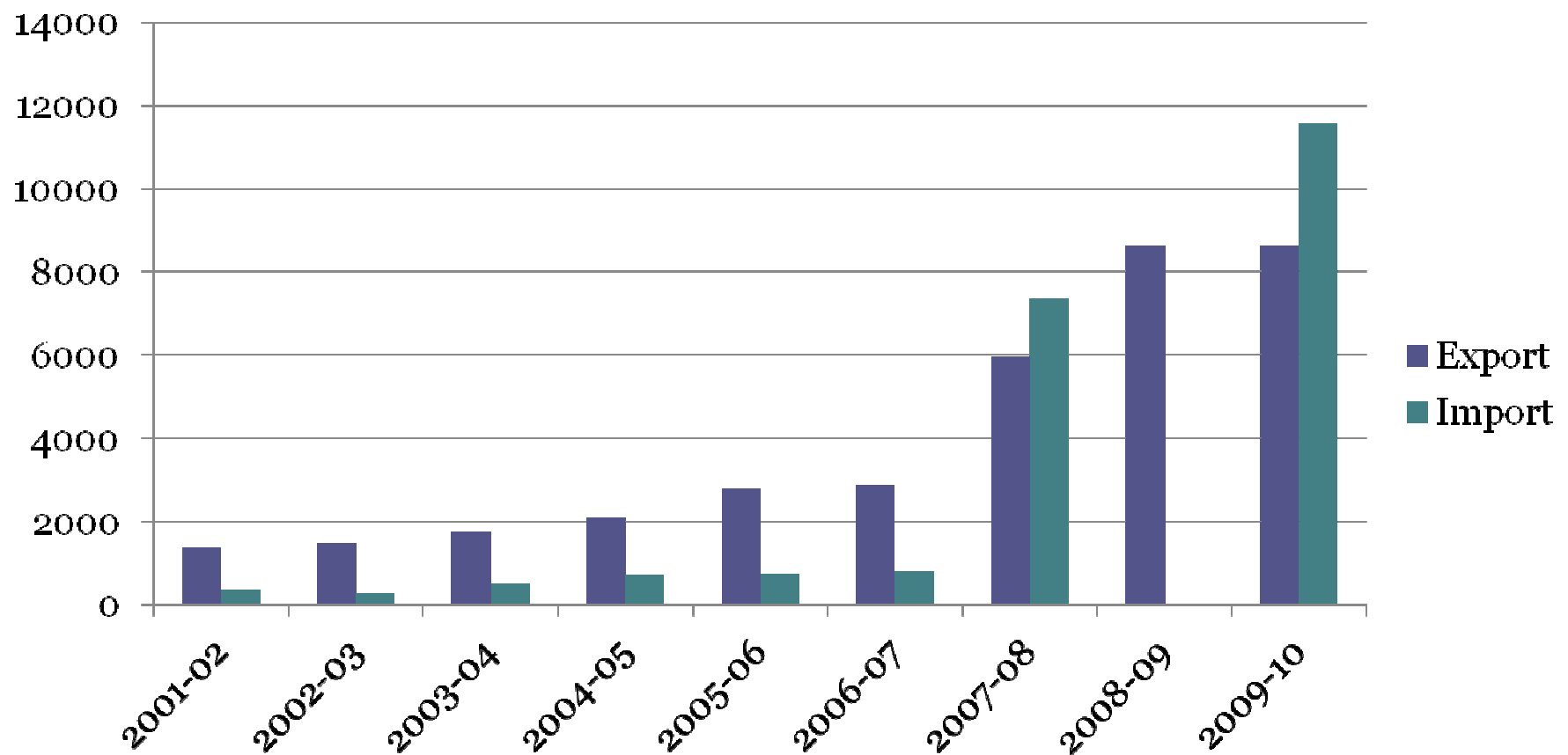
# Import & Export of Inorganic Chemicals



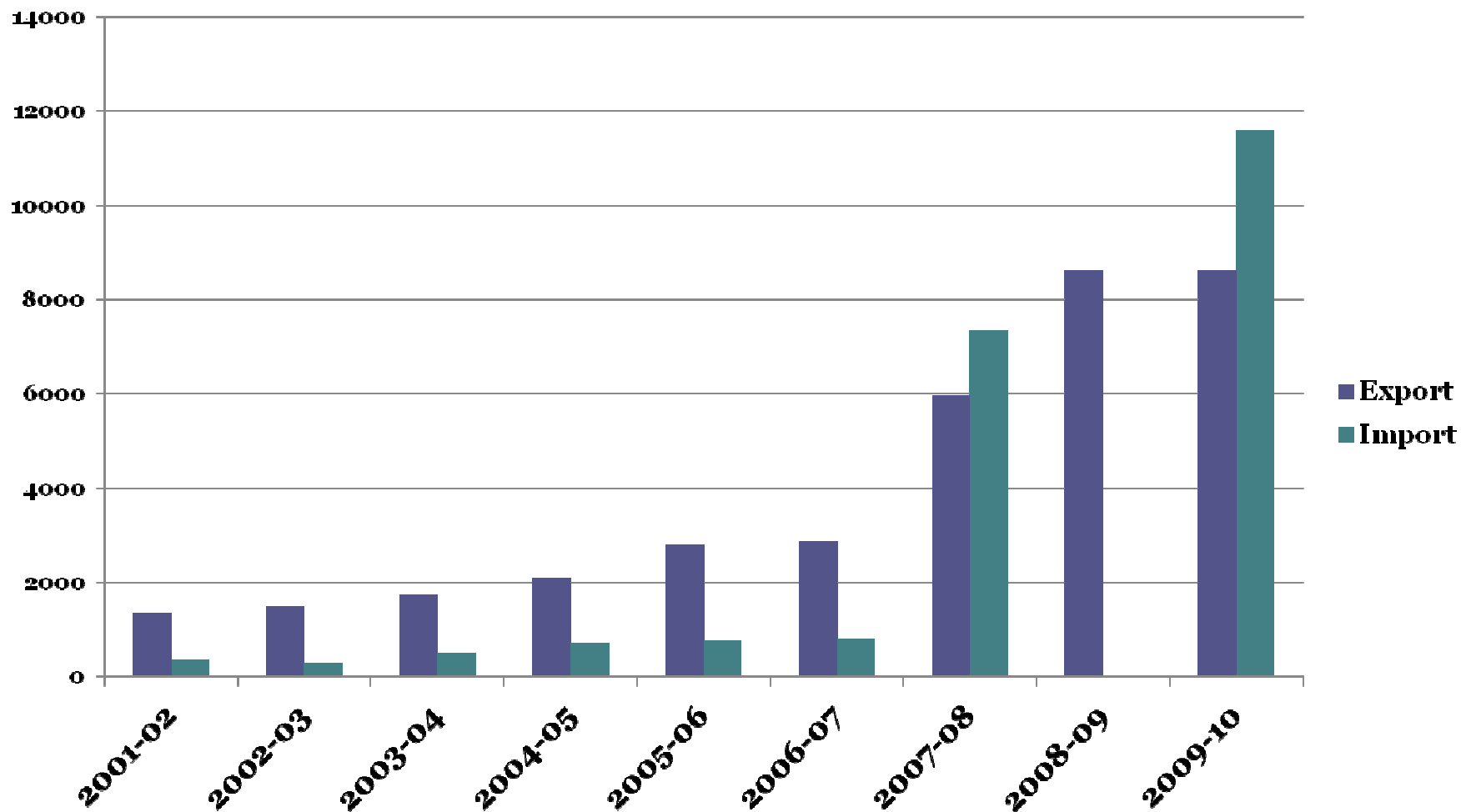
# Import & Export of Organic Chemicals



# Import & Export of Dyeing, Tanning & Coloring matter



# Import & Export of Pesticides





# **Chemical Sectors**

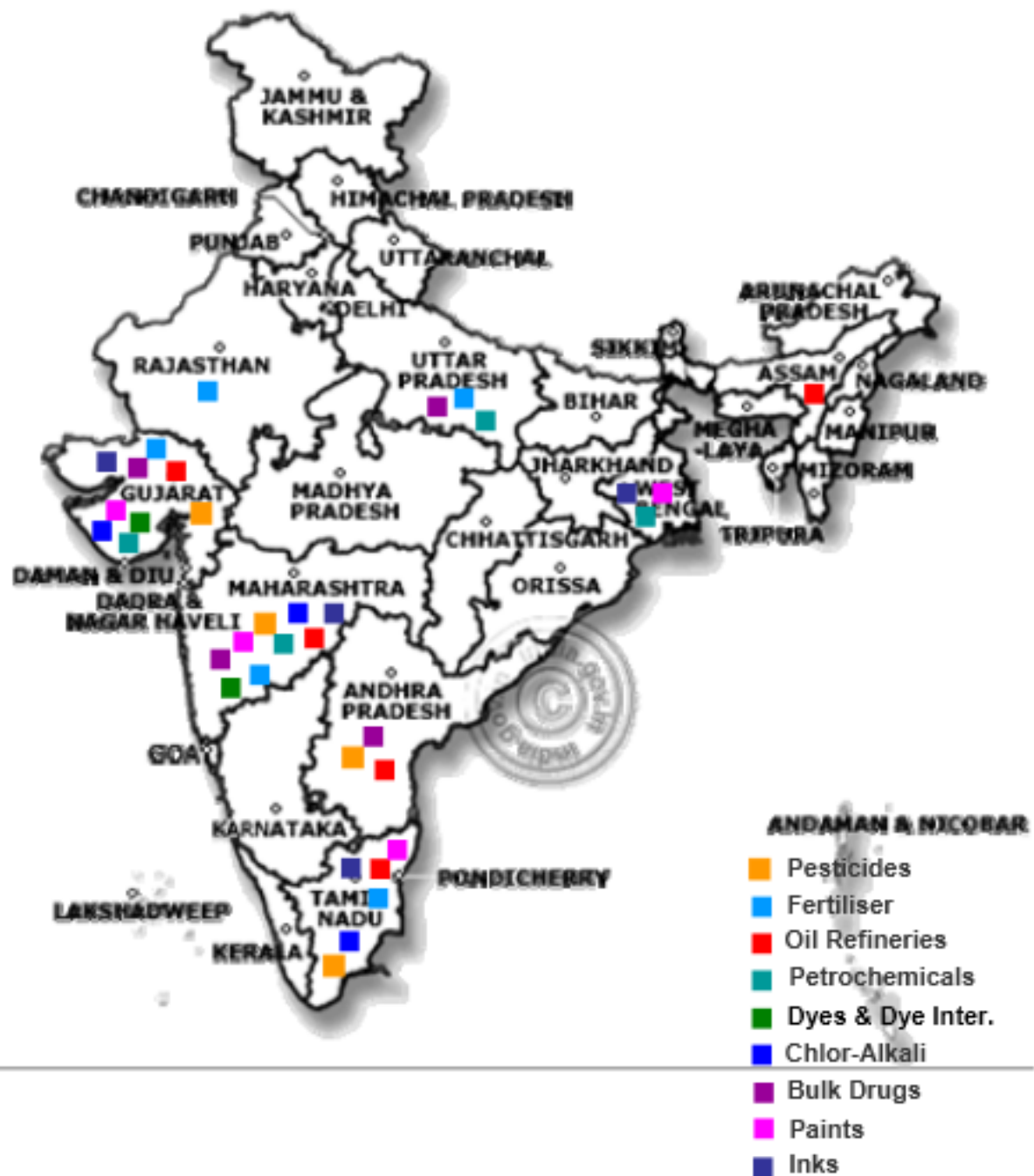
## **(Installed capacity, Production, Export and Consumption)**

Chemical Sector	Installed Capacity (Thousand Tonnes)		Production (Thousand Tonnes)		Import (Thousand Tonnes)		Export (Thousand Tonnes)		Consumption (Thousand Tonnes)	
<b>Pesticides</b>  (Source: DGCI&S, States, UTs, Ministry of Chemicals & Fertilisers)	134.1		84.35		2		20		66	
	Insecticide	97.9	Insecticides	57.9						
	Fungicide	21.1	Fungicides	19.4						
	Herbicides	01.8	Herbicides	0.5						
	Fumigants	0.4	Fumigants	0.1						
	Weedicide	9.7	Weedicides	5.1						
	Rodenticide	3.2	Rodenticides	1.4						
<b>Fertilisers</b> (Source: The Fertiliser Association of India)	59401.3		45580.3		5518.3		126.02		50972.6	
<b>Oil Refineries</b> (Crude Oil & Petroleum Products) (Source: Ministry of Petroleum & Natural Gas)	127370		113463		98435		14620		107751	
			Light Distillates	31971						
			Middle Distillates	60018						
			Heavy Ends	21474						
<b>Petrochemicals (Major Petrochemicals)</b> (Source: Ministry of Chemicals & Fertilisers)	7423		7006		830		1039		6797	
	Synthetic Fibre	2286	Synthetic Fibre	1868	Synthetic Fibre	155	Synthetic Fibre	141	Synthetic Fibre	1882
	Polymer	4449	Polymer	4499	Polymer	462	Polymer	845	Polymer	4116
	Elastomers	147	Elastomers	87	Elastomers	179	Elastomer	8	Elastomers	258
	Surfactants	426	Surfactants	453	Surfactants	3	Surfactant	42	Surfactants	414
	Performance Plastics	115	Performance Plastics	99	Performance Plastics	31	Performanc e Plastics	3	Performanc e Plastics	127

Chemical Sector	Installed Capacity (Thousand Tonnes)	Production (Thousand Tonnes)		Import (Thousand Tonnes)	Export (Thousand Tonnes)	Consumption (Thousand Tonnes)
<b>Bulk Drugs</b> (Source: Ministry of Chemicals & Fertilisers)	N.A.	22.14		1.447*	200.774*	8.9
		Anaesthetics	0.052			
		Analgesics & Antipyretics	3.95			
		Anti Asthmatics	0.31			
		Antibiotics	12.12			
		Anti Diabetics	0.1			
		Anti Dysentery Drugs	1.71			
		Anti Filariasis	0			
		Anti Helmentics	0.05			
		Anti Histamines	0.04			
		Anti Leprotics	0			
		Anti Malarials	NA			
		Anti T. B. Drugs	0.91			
		Cardiovascular Drugs	0.01			
		CNS Stimulants	0.06			
		Corticosteroids	0.01			
		Diuretics	0.08			
		Gastro Intestinal	0.66			
		Other Anti Bacterials	0.43			
		Sulpha Drugs	0.01			
		Tranquilizers & Sedatives	0.02			
		Vitamins	1.63			



Chemical Sector	Installed Capacity (Thousand Tonnes)	Production (Thousand Tonnes)	Import (Thousand Tonnes)	Export (Thousand Tonnes)	Consumption (Thousand Tonnes)
<b>Dyes &amp; Dye Intermediates</b> (Source: Ministry of Chemicals & Fertilisers)	54	26	13	131	-92
<b>Paints</b> (Source: IPA, ISSPA)	600	400.373	12.521	7.961	84
<b>Ink &amp; Printing Ink</b>	127.02	112.06	3.45	21.741	101.6
		Paste Ink 64.35			
		Liquid Ink 35.31			
		Silk Screen 6.05			
		Industrial Coatings 6.05			
<b>Chlor Alkali</b> (Source: AMAI, Ministry of Chemicals & Fertilisers )	3767	2903	73	31.153	1791
		Caustic Soda 1749			
		Liquid Chlorine 1154			
<b>Soda Ash</b> (Source: AMAI, Ministry of Chemicals & Fertilisers)	2626	2167	128	274	2092



**Concentration of major chemicals clusters in India**

## Nature of problems associated with the chemical industries

Area	Nature of Problem	City / Region	Brief Description of Problem Area	Chemicals/ Pollutants	Present Status
<b>Production</b>	Mitigation of environmental pollution	Largely the industrial estates in Gujarat, Maharashtra, Andhra Pradesh and other industrial clusters and isolated industrial area through out the country	Industries and statutory authorities are engaged in pollution abatement but the measures taken are not adequate so that pollution load to receiving environment is within its assimilative capacity	Treated/untreated wastewater, emissions, hazardous wastes, rejected products and process rejects	Sizable pollution mitigation has been achieved in some of the areas through common waste (wastewater and hazardous waste) treatment and disposal facilities. Common incineration systems have also been set up in Gujarat, Maharashtra and Andhra Pradesh.
	Implementation of environmental regulation	Various States / UTs	Lack of coordination between different government agencies and lack of implementation (sustained operation of pollution control devices)	-	Statutory bodies at States / UTs level require more funding (in some cases), infrastructure and technical support
	Obsolete / Outdated technologies	Mainly small-scale industries	Lack of funds and sufficient knowledge	Low yield, partially treated / untreated wastewater, hazardous wastes, rejected products and process rejects	Yet to achieve pollution control objectives even with initiatives taken for waste minimisation/ cleaner production.

Area	Nature of Problem	City / Region	Brief Description of Problem Area	Chemicals/ Pollutants	Present Status
	Lack of general Awareness	Various States / UTs	Pollution problems are overlooked. Lack of priority.	Various pollutants	Environmental Awareness is improving.
	Industrial Accidents	Industrial areas through out the country	Accidental release of chemicals	Various Chemicals	Under MSIHC rules, most Industries have prepared on-site emergency plans. District authorities have also prepared off-site emergency plans. Mock-drills are also conducted. Industrial Estate like Ankleshwar has set up Disaster Prevention and Management Centre
	Disposal of hazardous wastes	Industrial areas	Groundwater / soil contamination in some locations due to part dumping of wastes	Heavy metals and leachable chemicals	Common treatment and disposal facilities have been developed in major industrial areas and at some States also developed. Few common incineration facilities in Gujarat, Maharashtra and Andhra Pradesh
	Occupational health	Industrial workers	The health problems are not identified or manifested after a long time	Asbestos, Silica, VOCs, PCBs	Awareness is increasing, however, proper training / system in hazard identification is required. Many industries do not have adequate treatment facilities and well-qualified doctors.

Area	Nature of Problem	City / Region	Brief Description of Problem Area	Chemicals/ Pollutants	Present Status
	General safety awareness	Industrial workers and population close to the industrial clusters	Lack of general safety awareness	Exposure of hazardous chemicals	Information on chemicals handled are displayed by industries. Training programs are also conducted.
	Transportation	Throughout the country	Accidental spillage, lack of monitoring of vehicles, untrained drivers and handling staff	Hazardous chemicals	Guidelines and policies are available. Road conditions (Highways) are improving.
<b>Use</b>	Supplier related	Throughout the country	Lack of formal training on formulation, handling, chemicals poisoning, etc.	Hazardous chemicals especially pesticides and others of toxic nature	Requires lot of training to formulators, dealers and suppliers.
	User related	Throughout the country	Lack of information and training in handling, and use, remedial measures in case of poisoning, Contamination of ponds, soil and ground water due to over usage	Hazardous chemicals especially pesticides and others of toxic nature	The health hazards are manifested after a long time. Majority of the farmers are uneducated and are not aware of the health and environmental implications

## Rankings based on priority concerns of related to problems

Nature of Problem	Scale of Problem <sup>a</sup>	Level of Concern <sup>b</sup>	Ability to Control Problem <sup>b</sup>	Availability of Statistical data <sup>c</sup>	Specific Chemicals Creating Concern	Priority Ranking <sup>d</sup>
Air Pollution	Local to Regional	Medium	High	Sufficient	RSPM, VOCs	3
Pollution of inland Waterways	Local to Regional	Medium	Medium	Sufficient	Organics (not easily biodegradable), TDS	3
Marine Pollution	Local	Low	High	Sufficient	Metals, Organics (toxic & persistent / bioaccumulation)	4
Groundwater Pollution	Local	Medium to High	Medium	Less than Sufficient	TDS, Fluoride, Heavy Metals	2
Soil Contamination	Local	Low	Medium	Insufficient	Salinity	4
Chemical Residue in Food	Local	Low	Medium	Less than sufficient	Heavy Metals	4
Drinking Water Contamination	Local	Low to Medium	High	Sufficient	Dissolved solids, Fluoride	3
Hazardous Waste Treatment / Disposal	Local	Highest	Medium	Sufficient	Salt bearing Organics	1
Occupational Health: Industrial	Local	Medium	Medium	Insufficient	VOCs, Dust emissions	3
Public Health	Local	Low	Medium	Not sufficient	VOCs, Pesticides, heavy metals	3
Chemical Accidents ( Industrial)	Local	Medium	Sufficient	Sufficient	Storage of chemicals under pressure	3
Chemical Accidents during Transportation	Regional	Medium	Not Sufficient	Less than sufficient	Flammable/ toxic chemicals	3
Impact of Chemical (unknown)	Local	Low	Sufficient	Less than Sufficient	Hazardous	4
Storage / Disposal of Obsolete Chemicals	National	Medium	Low	Not Sufficient	Pesticides	2
Chemical Poisoning / Suicides	National	Low	Medium	Not Sufficient	Pesticides	4
Persistent Organic Pollutants	National	Low	Low	Not Sufficient	Dioxin / Furans	3

**Note:** a: scale of problem or level of concern (Local, regional, or national); b :Ability to control pollution (low, medium, or high; c: Sufficient, less than insufficient, not sufficient) d: Ranking based on the Priority of the problem (1-highest, 2- high, 3- medium and 4- low).



# Legal Instruments which address the Management of Chemicals

S. No.	Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories / Chemical By-products	Objective of Legislation	Relevant Articles / Provisions	Enforcement Status
1	The Air (Prevention and Control of Pollution) Act, 1981 amended 1987	Central Pollution Control Board (CPCB), State Pollution Control Boards (SPCB) and Pollution Control Committees (PCC) in Union Territories (UT)	Air pollutants from chemical industries	Prevention, control and abatement of air pollution	Section 2: Definitions Section 21: Consent from State Boards Section 22: Not to allow emissions exceeding prescribed limits Section 24: Power of entry and inspection Section 25: Power to obtain information Section 26: Power to take samples Section 37 - 43: Penalties and procedures	Effective
2	The Air (Prevention and Control of Pollution) (Union Territories) Rules, 1983	CPCB, SPCB and PCC for UT	Air pollutants from chemical industries	Prevention, control and abatement of air pollution	Rule 2: Definitions Rule 9: Consent applications	Effective
3	The Water (Prevention and Control of Pollution) Act, 1974 amended 1988	CPCB, SPCB and PCC for UT	Water pollutants from water polluting industries	Prevention and control of water pollution and also maintaining or restoring the wholesomeness of water bodies	Section 2: Definitions Section 20: Power to obtain information Section 21: Power to take samples Section 23: Power of entry and inspection Section 24: Prohibition on disposal Section 25: Restriction on new outlet and new discharge Section 26: Provision regarding existing discharge of sewage or trade effluent Section 27: Refusal or withdrawal of consent by the State Boards Section 41-49: Penalties and procedures	Effective
4	The Water (Prevention and Control of Pollution) Rules, 1975	CPCB, SPCB and PCC for UT	Water pollutants from water polluting industries	The prevention and control of water pollution and also maintaining or restoring the wholesomeness of water bodies	Rule 2: Definitions Rule 30: Power to take samples Rule 32: 7Consent applications	Effective
5	The Environment (Protection) Act, 1986, amended 1991	Ministry of Environment & Forests (MoEF), CPCB, SPCB and PCC for UT	All types of environmental pollutants	Protection and Improvement of the Environment	Section 2: Definitions Section 7: Not to allow emission or discharge in excess of prescribed standards Section 8: Handling of hazardous substances Section 10: Power of entry and inspection Section 11: Power to take samples Section 15 - 19:Penalties and procedures	Fair
6	Environmental (Protection) Rules, 1986 (Amendments in 1999, 2001, 2002, 2003, 2004)	MoEF, CPCB, SPCB and PCC for UT	All types of environmental pollutants	Protection and Improvement of the Environment	Rule 2: Definitions Rule 3: Standards for emission or discharge of environmental pollutants Rule 5: Prohibition and restriction on the location of industries and the carrying on process and operations in different areas Rule 13: Prohibition and restriction on the handling of hazardous substances	Fair

S. No.	Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories/ Chemical By-products	Objective of Legislation	Relevant Articles/Provisions	Enforcement Status
7	National Disaster Management Act, 2005	(Establishment of) a National Disaster Management Authority and State Disaster Management Authority	None (related to Disasters caused by man made, natural, accident or negligence)	Disaster prevention, mitigation, capacity building, improving preparedness to deal with disaster, response capability and provision of evacuation, rescue, relief and rehabilitation and reconstruction	Rule 2: Definitions Rule 3: Constitution of a National Disaster Management Authority Rule 10: Powers and functions of National Executive Committee Rule 11: Preparation of a "National Plan" Rule 14: Constitution of State Disaster Management Authorities Rule 23: Preparation of "State Plans" Rule 25: Constitution of District Disaster Management Authorities Rule 31: Preparation of "District Plans" Rule 42: Constitution of a National Institute of Disaster Management Rule 44: Constitution of a National Disaster Response Force Rule 46: Constitution of a National Disaster Response Fund	New Act
8	Prevention of Terrorism Act, 2002	Designated Authority (Central level-not below Joint Secretary to the Government, State level-not below Secretary to the Government)	Bombs, dynamite or other explosive substances or inflammable substances or firearms or other lethal weapons or poisons or noxious gases or other chemicals or by any other substances (whether biological or otherwise) of a hazardous nature	Prevention of and dealing with Terrorist activities	Rule 2: Definitions Rule 3: Punishments Rule 18: Declaration of an organisation as a terrorist organisation Rule 23: Constitution of special courts	Fair
9	EIA Notification, 1994	MoEF, SPCB, PCC	Chemicals/ pollutants expected to be generated from industrial activities	Requirement of environmental clearance before establishment/ expansion of certain type of industries/ projects.	Rule 3: Standards for emission or discharge of environmental pollutants	Effective
10	Batteries (Management and Handling) Rules, 2001.	MoEF, CPCB, SPCB and PCC	Lead acid batteries	To control the hazardous waste generation (lead waste) from used lead acid batteries	Rule 5: Prohibition and restriction on the location of industries and the carrying on process and operations in different areas Rule 13: Prohibition and restriction on the handling of hazardous substances Rule 14: Submission of environmental statement Rule 5: Registration of importers Rule 7: Responsibilities of dealer Rule 8: Responsibilities of recycler Rule 9: Procedure for registration / renewal of registration of recyclers Rule 10: Responsibilities of consumer or bulk consumer Rule 11: Responsibilities of auctioneer	



S. No.	Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories/ Chemical By- products	Objective of Legislation	Relevant Articles/Provisions	Enforcement Status
11	Hazardous Waste (Management and Handling) Rules, 1989 amended 2000 and 2003	MoEF, CPCB, SPCB, Directorate General of Foreign Trade (DGFT), Port Authority and Customs Authority	Hazardous wastes generated from industries using hazardous chemicals	Management & handling of hazardous wastes in line with the Basel Convention	Rule 2: Application Rule 3: Definitions Rule 4: Responsibility of the occupier and operator of a facility for handling of waste Rule 4A: Duties of the occupier and operator of a facility Rule 4B: Duties of the authority Rule 5: Grant of authorisation for handling hazardous wastes Rule 6: Power to suspend or cancel authorisation Rule 7: Packaging, labelling and transport of hazardous wastes Rule 8: Disposal sites Rule 9: Record and returns Rule 10: Accident reporting and follow up Rule 11: Import and export of hazardous waste for dumping and disposal Rule 12: Import and export of hazardous waste for recycling and reuse Rule 13: Import of hazardous wastes Rule 14: Export of hazardous waste Rule 15: Illegal traffic Rule 16: Liability of the occupier, transporters and operator of a facility Rule 19: Procedure for registration and renewal of registration of recyclers and re-refiners Rule 20: Responsibility of waste generator	Effective
12	Ozone Depleting Substances (Regulation and Control) Rules, 2000	Ministry of Environment & Forests	Ozone depleting substances (ODS)	Regulate the production, import, use, sale, purchase and phase-out of the ODS	Rule 2: Definitions Rule 3: Regulation of production and consumption of ODS Rule 4: Prohibition on export to or import from countries not specified in Schedule VI Rule 5: ODS are to be exported to or imported from countries specified in Schedule VI under a license Rule 6: Regulation of the sale of ODS Rule 7: Regulation on the purchase of ODS Rule 8: Regulation on the use of ODS Rule 9: Prohibition on new investments with ODS Rule 10: Regulation of import, export and sale of products made with or containing ODS Rule 11: Regulation on reclamation and destruction of ODS Rule 12: Regulation on manufacture, import and export of compressors Rule 13: Procedure for registration, cancellation of registration and appeal against such orders Rule 14: Monitoring and reporting requirements	Effective

S. No.	Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories/ Chemical By- products	Objective of Legislation	Relevant Articles/Provisions	Enforcement Status
13	Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 amended 2000	MoEF, Chief Controller of Imports and Exports, CPCB, SPCB, PCC, Chief Inspector of Factories, Chief Inspector of Dock Safety, Chief Inspector of Mines, Atomic Energy Regulatory Board (AERB), Chief Controller of Explosives, District Collector or District Emergency Authority, Centre for Environment & Explosive Safety (CEES) under Defence Research & Development Organisation (DRDO)	Hazardous chemicals - Toxic, Explosive, Flammable and Reactive	Regulate the manufacture, storage and import of hazardous chemicals	Rule 2: Definitions Rule 4: Responsibility of the occupier Rule 5: Notification of major accidents Rule 7 - 8: Approval and notification of site and updating Rule 10 - 11: Safety Reports and Safety Audit reports and updating Rule 13: Preparation of Onsite Emergency Plan Rule 14: Preparation of Offsite Emergency Plan Rule 15: Information to persons likely to get affected Rule 16: Proprietary information Rule 17: Material Safety Data Sheets Rule 18: Import of hazardous chemicals	Fair
14	Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996	Central Crisis Group (CCG), State Crisis Group (SCG), District Crisis Group (DCG), Local Crisis Group (LCG) and Major Accident Hazard (MAH) Units	Hazardous chemicals - Toxic, Explosive, Flammable and Reactive	Emergency planning preparedness and response to chemical accidents	Rule 2: Definitions Rule 5: Functions of CCG Rule 7: Functions of SCG Rule 9: Functions of DCG Rule 10: Functions of LCG	Fair
15	Public Liability Insurance Act, 1991 amended 1992	MoEF, District Collector	Hazardous Substances	To provide immediate relief to persons affected by accident involving hazardous substances	Section 2: Definitions Section 3: Liability to give relief in certain cases on principle of no fault Section 4: Duty of owner to take out insurance policy Section 7A: Establishment of Environmental Relief Fund (ERF) Section 14 - 18: Penalties and Offences	Fair
16	Public Liability Insurance Rules, 1991 amended 1993	MoEF, District Collector	Hazardous Substances	To provide immediate relief to persons affected by accident involving hazardous substances and also for Establishing an ERF	Rule 2: Definitions Rule 6: Establishment of administration of fund Rule 10: Extent of liability Rule 11: Contribution of the owner to ERF	Fair
17	The Petroleum Act, 1934	Ministry of Petroleum and Natural Gas	Petroleum (Class A, B and C - as defined in the rules)	Regulate the import, transport, storage, production, refining and blending of petroleum	Section 2: Definitions Section 3: Import, transport and storage of petroleum Section 5: Production, refining and blending of petroleum Section 6: Receptacles of dangerous petroleum (Class A) to show a warning Section 23-28: Penalties and Procedure	Effective

S. No.	Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories/ Chemical By- products	Objective of Legislation	Relevant Articles/Provisions	Enforcement Status
18	The Petroleum Rules, 2002	Ministry of Petroleum and Natural Gas, Ministry of Shipping (for notification of authorised ports for import), MoEF or SPCB or PCC (for clearance of establishment of loading/unloading facilities at ports) Chief Controller of Explosives (CCoE), District Authority, Commissioner of Customs, Port Conservator, State Maritime Board (Import)	Petroleum (Class A, B and C - as defined in the rules)	Regulate the import, transport, storage, production, refining and blending of petroleum	Rule 2: Definition Chapter I Part II: General provisions Chapter II: Importation of Petroleum Chapter III: Transport of Petroleum Chapter VII: Licenses	Effective
19	The Calcium Carbide Rules, 1987	Ministry of Petroleum and Natural Gas, CCoE, Customs Collector, Port Conservator, Director General of Civil Aviation (DGCA), District Authority	Calcium Carbide	To regulate the import, production, storage, transportation, sale, use and handling and disposal of Calcium Carbide with a view to prevent accidents	Rule 2: Definitions Chapter II: General provisions Chapter III: Importation of carbide Chapter IV: Transportation of carbide Chapter V: Storage of carbide Chapter VI: Licensing Chapter VII: Notice of accident	Effective
20	The Explosives Act,	Ministry of Commerce and Industry (Department of Explosives)	Explosive substances as defined under the Act	To regulate the manufacture, possession, use, sale, transport, export and import of explosives with a view to prevent accidents	Section 4: Definition Section 6: Power for Central government to prohibit the manufacture, possession or importation of especially dangerous explosives Section 6B: Grant of Licenses	Effective
21	The Explosives Rules, 1983	Ministry of Commerce and Industry and CCoE, Port Conservator, Customs Collector, Railway Administration	Explosive substances as defined under the Act	To regulate the manufacture, possession, use, sale, transport, export and import of explosives with a view to prevent accidents	Rule 2: Definition Chapter II: General provisions Chapter III: Import and export Chapter IV: Transport Chapter V: Manufacture of explosives Chapter VI: Possession sale and use Chapter VII: Licenses	Effective

S. No.	Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories/ Chemical By- products	Objective of Legislation	Relevant Articles/Provisions	Enforcement Status
22	The Gas Cylinder Rules, 2004	Ministry of Commerce and Industry and CCoE, Port Conservator, Customs Collector, DGCA, District Collector (DC), District Magistrate (DM), Police (Sub inspector to Commissioner)	Gases (Toxic, non-toxic and non-flammable, non-toxic and flammable, Dissolved Acetylene Gas, Non-toxic and flammable liquefiable gas other than Liquefied Petroleum Gas (LPG) and LPG	Regulate the import, storage, handling and transportation of gas cylinders with a view to prevent accidents	Rule 2: Definition Chapter II: General provisions Chapter III: Importation of cylinder Chapter IV: Transport of cylinder Chapter VII: Filling and possession	Effective
23	The Static and Mobile Pressure Vessels (Unfired) Rules, 1981	Ministry of Commerce and Industry and CCoE, Port Conservator, Customs Collector, DGCA, DC, DM, Police (Sub inspector to Commissioner)	Gases (Toxic, non-toxic and non-flammable, non-toxic and flammable, Dissolved Acetylene Gas, Non-toxic and flammable liquefiable gas other than Liquefied Petroleum Gas (LPG)) and LPG	Regulate the import, manufacture, design, installation, transportation, handling, use and testing of mobile and static pressure vessels (unfired) with a view to prevent accidents	Rule 2: Definition Chapter III: Storage Chapter IV: Transport Chapter V: Licences	Effective
24	The Insecticides Act, 1968	Ministry of Agriculture, Central Insecticides Board, and Registration Committee	Insecticides including fungicides and weedicides	Regulate the import, manufacture, sale, transport, distribution and use of insecticides with a view to prevent risk to human beings or animals	Section 3: Definitions Section 9: Registration of Insecticides Section 13: Grant of Licence Section 17: Prohibition of import and manufacture of certain insecticides Section 18: Prohibition of sale etc. of certain insecticides Section 25: Confiscation Section 26: Notification of poisoning Section 27: Prohibition of sale etc. of insecticide for reasons of public safety Section 28: Notification of cancellation of registration, etc. Section 29: Offences and Punishment	Effective

S. No.	Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories/ Chemical By- products	Objective of Legislation	Relevant Articles/Provisions	Enforcement Status
25	The Insecticides Rules, 1971	Ministry of Agriculture, Central Insecticides Board, and Registration Committee	Insecticides including fungicides and weedicides	Regulate the import, manufacture, sale, transport, distribution and use of insecticides with a view to prevent risk to human beings or animals	Rule 2: Definition Rule 6: Manner of registration Rule 9: Licence to manufacture insecticides Rule 10: License for sale etc. of insecticides Rule 10A: Segregation and disposal of date-expired pesticides Rule 10B: Special provision with regard to sulphur Rule 10C: Prohibition against sale or storage of insecticides in certain places Rule 15: Issuing cash memo and maintenance of records Rule 16: Prohibition of sale or distribution unless packed and labelled Rule 17: Packaging of insecticides Rule 18: Leaflet to be contained in a package Rule 19: Manner of labelling Rule 20: Prohibition against altering inscriptions etc. on containers, labels or wrappers of insecticides Rule 35: Manner of packing, storage while on transit by rail Rule 36: Conditions to be specified for storage of insecticides Rule 37: Medical examination Rule 38: First-aid measures Rule 39: Protective clothing Rule 40: Respiratory devices Rule 41: Manufacturers etc. to keep sufficient quantities of antidotes and first-aid medicines Rule 42: Training of workers Rule 43: Aerial spraying operations Rule 44: Disposal of used packages, surplus materials and washings of insecticides	Effective
26	The Fertiliser (Control) Order, 1985 under the Essential Commodities Act, 1955	Ministry of Agriculture (Department of Agriculture and Cooperation)	Fertilisers	Regulate the import, manufacture, sale, transport, distribution and use of fertilisers	Order 2: Definitions Section III: Control on distribution of fertilisers by manufacturer/importer Section V: Manufacture of mixtures of fertilisers Section VII: Analysis of samples	Effective
27	The Motor Vehicles Act, 1988	Ministry of Shipping, Road Transport and Highways	Hazardous and dangerous goods	To consolidate and amend the law relating to motor vehicles	Section 2: Definition Chapter II: Licensing of drivers of motor vehicles Chapter VII: Construction equipment and maintenance of motor vehicles	Fair

S. No.	Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories/ Chemical By- products	Objective of Legislation	Relevant Articles/Provisions	Enforcement Status
28	Factories Act, 1948	Ministry of Labour, Directorate General, Factory Advice Service and Labour Institutes (DGFASLI) and Directorate of Industrial Safety and Health/Factories Inspectorate	Chemicals as specified in the Table	Control of workplace environment, and providing for good health and safety of workers	Section 2: Interpretation Section 6: Approval, licensing and registration of factories Section 7A: General duties of the occupier Section 7B: General duties of manufacturers etc., as regards articles and substances for use in factories Section 12: Disposal of wastes and effluents Section 14: Dust and fume Section 36: Precautions against dangerous fumes, gases etc. Section 37: Explosion or inflammable dust, gas etc. Chapter IVA: Provisions relating to hazardous processes Section 87: Dangerous operations Section 87A: Power to prohibit employment on account of serious hazard Section 88: Notice of certain accident Section 88A: Notice of certain dangerous occurrences Chapter X: Penalties and procedures	Effective
29	The Central Motor Vehicles Rules, 1989	Ministry of Shipping, Road Transport and Highways	Hazardous and dangerous goods	To consolidate and amend the laws relating to motor vehicles including regulating the transportation of dangerous goods with a view to preventing loss of life or damage to the environment	Rule 2: Definition Rule 9: Educational qualification for drivers of goods carriages carrying dangerous or hazardous goods Rule 129: Transportation of goods of dangerous or hazardous nature to human life Rule 129A: Spark arrestors Rule 130: Manner of display of class labels Rule 131: Responsibility of the consignor for safe transport of dangerous or hazardous goods Rule 132: Responsibility of the transporter or owner of goods carriage Rule 133: Responsibility of the driver Rule 134: Emergency Information Panel Rule 135: Driver to be instructed Rule 136: Driver to report to the police station about accident Rule 137: Class labels	Fair
30	The Mines Act, 1952	Ministry of Coal and Mines	Use of toxic and inflammable gases, dust or mixtures	Safety of the mine workers	Section 2: Definitions Chapter IV: Mining operations and management of mines Chapter V: Provisions as to health and safety Chapter IX: Penalties and procedure	Effective
31	The Customs Act, 1962	Central Board of Excise and Customs (CBEC), Ministry of Finance	Hazardous goods	To prevent entry of illegal hazardous goods or banned goods including hazardous or banned chemicals	Section 2: Definitions Section 11: Power to prohibit importation or exportation of goods	Effective



S. No.	Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories/ Chemical By- products	Objective of Legislation	Relevant Articles/Provisions	Enforcement Status
32	The Merchant Shipping Act, 1958 amended in 2002 and 2003	Ministry of Shipping, Road Transport and Highways	All packaged cargo including dangerous and hazardous goods as defined in the rules	For safe handling and transportation of cargo including dangerous goods to prevent accident	Section 3: Definitions Section 331: Carriage of dangerous goods	Fair
33	The Indian Ports Act, 1908	Ministry of Shipping, Road Transport and Highways	All Chemicals - handling and storage	For control of activities on ports including safety of shipping and conservation of ports	Section 2: Definitions Chapter IV: Rules for the safety of shipping and the conservation of ports Chapter VII: Provisions with respect to penalties	Fair
34	The Dock Workers (Safety, Health and Welfare) Act, 1986	Ministry of Labour, DGFASLI and Directorate of Dock Safety	All Chemicals termed as dangerous goods	Safety of Dock workers including handling of dangerous goods	Section 2: Definitions Section 4: Powers of inspectors Section 5: Powers of inspectors where employment of dock workers are dangerous Section 7: Restriction on disclosure of information Section 9: Advisory committee Section 10: Power of appropriate Government to direct inquiry into cases of accidents or diseases Section 11: Obligations of dock workers Section 14: Penalties	Effective
35	The Dock Workers (Safety, Health and Welfare) Regulations, 1990	Ministry of Labour, DGFASLI and Directorate of Dock Safety	All Chemicals termed as dangerous goods	Safety of Dock workers including handling of dangerous goods	Rule 2: Definition Rule 8: Enquiry into causes of accidents Rule 9: Advisory committee Rule 10: Competent persons Rule 11: Persons to appear at inquiry Rule 12: Inquiry in public	Effective
36	The Drugs and Cosmetics Act, 1940	Ministry of Health and Family Welfare	All types of drugs and cosmetics	To regulate import, manufacture, distribution and sale of drugs	Section 2: Definitions Chapter III: Import of drugs and cosmetics Chapter IV: Manufacture, sale and distribution of drugs and cosmetics	Fair
37	The Prevention of Food Adulteration Act, 1954	Ministry of Health and Family Welfare	All food-grade chemicals, colourants, preservatives, poison metals etc.	To prevent food adulteration	Section 2: Definitions Section 5: Prohibition of import of certain articles of food Section 7: Prohibition of manufacture, sale etc., of certain articles of food Section 15: Notification of food poisoning Section 16: Penalties	Effective

S. No.	Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories/ Chemical By- products	Objective of Legislation	Relevant Articles/Provisions	Enforcement Status
38	The Prevention of Food Adulteration Rules, 1955	Ministry of Health and Family Welfare	All food-grade chemicals, colourants, preservatives, poison metals etc.	To prevent food adulteration	Section 2: Definitions Part VI: Colouring matter Part X: Preservatives Part XI: Poisonous metals Part XIA: Crop contaminants and naturally occurring toxic substances Part XII: Anti-oxidants, emulsifying and stabilising and anti-caking agents Part XIII: Flavouring agents and related substances Part XIII-A: Carry over of food additives Part XVI: Sequestering and buffering agents (acids, bases and salts) Part XVIII: Antibiotic and other pharmacologically active substances Part XIX: Use of food additives in food products	Effective
39	The Prevention of Terrorism Act, 2002	Ministry of Home Affairs	All substances of hazardous nature including flammable, explosive or toxic substances	To prevent and deal with terrorist activities	Section 2: Definitions Chapter II: Punishment for, and measures for dealing with, terrorist activities	Effective



# Location of National Data

Type of Data	Location(s)	Data Source	Who has Access	How to Gain Access	Format
Production Statistics	Concerned Departments/Ministries for different products such as Department of Fertilisers for fertiliser production in India; Ministry of Petroleum and Natural Gas for Petroleum Statistics, CIBRC for Pesticides and Industry associations etc.	Available with concerned Ministries / Departments / Industry associations/ Planning Commission etc.	Actual users mainly the department / ministry plus other concerned bodies	Officially available	Computers / paper files / registers
Import Statistics	<a href="http://commerce.nic.in/eidb/default.asp">http://commerce.nic.in/eidb/default.asp</a>	Export Import Databank, Department of Commerce, Ministry of Commerce and Industry	All	open access	searchable database
Export Statistics	<a href="http://commerce.nic.in/eidb/default.asp">http://commerce.nic.in/eidb/default.asp</a>	Export Import Databank, Department of Commerce, Ministry of Commerce and Industry	All	open access	searchable database
Chemical Use Statistics	Concerned Departments / Ministries for different products such as Department of Fertilisers for fertiliser production in India; Ministry of Petroleum and Natural Gas for Petroleum Statistics, CIBRC for Pesticides, etc.	Available with concerned Ministries/Departments	Actual users mainly the department / ministry plus other concerned bodies	Officially available for some	Computers / paper files / registers
Industrial Accident Reports	Chief Inspector of Factories / Director of Industrial Safety and Health at State headquarters plus DGFASLI at Mumbai, CCG etc.	Reports from occupier/factories inspectors at local level under Factories Act	Actual users mainly the department / ministry plus other concerned bodies	Officially available but not effective	Computers / paper files / registers

Type of Data	Location(s)	Data Source	Who has Access	How to Gain Access	Format
Transport Accident Reports	No centralised Data - Police Department keeps records of transport accidents, however difficult to make out about the type of chemical involved	Police Investigation report	Actual users mainly the department / ministry plus other concerned bodies	Officially available but not effective	Computers / paper files / registers
Occupational Health Data (Agricultural)	Not Available				
Occupational Health Data (Industrial)	Chief Inspector of Factories/Director of Industrial Safety and Health at State headquarters plus DGFASLI at Mumbai/ Labour Office at Shimla (statistics)	Reports from occupier/factories inspectors at local level under Factories Act	Actual users mainly the department / ministry plus other concerned bodies	Officially available	Computers / paper files / registers
Poisoning Statistics	National Poison Control Centre established at AIMS	National Poison Control Centre, AIMS			Computers / paper files / registers
Pollutant Release and Transfer Register	Pollution Control Boards and Committees at State Headquarters and UTs	Consent Data as applied by industries	Actual users mainly the department / ministry plus other concerned bodies	Officially available	Computers / paper files / registers
Hazardous Waste Data	Pollution Control Boards and Committees at State Headquarters and UTs / Ministry of Environment & Forests has developed a Web-based National Hazardous Waste Information System ( <a href="http://164.100.194.13/servlet/">http://164.100.194.13/servlet/</a> )	Authorisation Data as applied by industries	Actual users mainly the department / ministry plus other concerned bodies	Officially available	Computers/ Internet

Type of Data	Location(s)	Data Source	Who has Access	How to Gain Access	Format
Register of Pesticides	CIBRC, Faridabad	Available with concerned Ministries/Departments	Actual users mainly the department / ministry plus other concerned bodies	Officially available	Computers / paper files / registers
Register of Toxic Chemicals	National Register established for India and Regional Registers being set up under the UNEP International Register of Potentially Toxic Chemicals (IRPTC) project.				
Inventory of Existing Chemicals	Not available as a single data source. Multiple sources would need to be consulted and still may not yield the total result.	Multiple sources- Factory Licenses, Isolated Storage Registers under the MSIHC Rules with Pollution Control Boards etc.	Actual users mainly the department / ministry plus other concerned bodies	Identify the source of data and contact officially	Computers / paper files / registers
Register of Imports	Chief Controller for Imports and Exports- all categories may not be possible to obtain.	Export Import Databank, Department of Commerce, Ministry of Commerce and Industry	All	open access	Computers
Register of Producers	DG FASLI- Mumbai (only for Factories registered under the Factories Act)- will not cover warehouses and possibly isolated storages.	Factories License (under the Factories Act) obtained from each state and compiled centrally	Actual users mainly the department / ministry plus other concerned bodies	Officially available	Computers / paper files / registers

Type of Data	Location(s)	Data Source	Who has Access	How to Gain Access	Format
	Large Industry Associations such as CII, ICC and FICCI. In addition, local associations such as Bulk Drug Manufacturers Associations, Dye Manufacturers Association etc. and other such bodies also keep lists of members/ producers.	Annual Report/ brochure and listing of members	Actual users mainly the department / ministry plus other concerned bodies	Officially available	Computers / paper files / registers
	State Pollution Control Boards	Licenses under Air Act and water Act and authorisation under Hazardous waste Management and Handling rules		Officially available	Computers / paper files / registers
	Ministry of Chemicals and Fertilisers for chemicals and fertilisers, CIBRC for Pesticides, Ministry of Petroleum and Natural Gas for refinery / petrochemicals etc.	Available with concerned Ministries/Departments	Actual users mainly the department / ministry plus other concerned bodies	Officially available	Computers / paper files / registers
PIC Decisions	Department of Chemicals, Ministry of Chemicals and Fertilisers for Chemicals and Ministry of Agriculture for Pesticides	International data and various local data bases	Actual users mainly the department / ministry plus other concerned bodies	Officially available	Computers / paper files / registers
POPs Decisions	HSM Division, MoEF	POPs inventorization study - under finalisation	Ministry of Environment & Forests	Officially available	Computers / paper files



# Awareness of Workers and Public

# Information to worker on Health & Safety

Agency	Legal Instruments	Programmes
Occupier of the industry	The Factories Act	Training workshops/ seminars/ on-the-job training
Occupier of the industry	MSIHC Rules under the E(P) Act	Training workshops/ seminars
	Sector-specific Acts (Insecticides Act, Petroleum Acts, Explosives Act, Dock Workers Act etc.)	Training workshops/ seminars
	CA(EPPR) Rules- Through DCGs and LCGs.	Training workshops/ seminars
Chief Inspector of Factories under Ministry of Labour	Factories Act	Training workshops/ seminars
National Safety Council	Factories Act	Training workshops/ seminars. Focus on chemical safety issues, hazardous materials handling, unsafe acts and conditions etc.
	MSIHC Rules under the E(P) Act	Training workshops/ seminars
Ministry of Environment and Forests (through training institutes)	MSIHC Rules under the E (P) Act	Training workshops/ seminars- 3-tier training programmes, top, middle and supervisory cadres through various Training Institutes/ NSC/ FICCI/ ASSOCHAM and others)
Central Pollution Control Board (CPCB)	Air Act, Water Act, Hazardous Waste Management & Handling Rules, acute and chronic toxicity	Training workshops/ seminars- conducted through SPCBs or Regional Offices of CPCB
Ministry of Shipping, Road Transport and Highways	Central Motor Vehicles Rules	Funding of training conducted by recognised institutes and NGOs- approved programmes
Industry Organisations (CII, ICC etc.)	MSIHC Rules (under the E(P) Act)	Training workshops/ seminars. sponsored by MoEF or Industry Associations

# Information to public on Health & Safety

Agency	Legal Instruments	Programmes
Occupier of the industry	The Factories Act	On-the-job training and specific training on chemical handling etc.
Occupier of the industry	MSIHC Rules under the E(P) Act	Information on the chemicals, hazards, use of PPEs, emergency response etc.
Local/ District Crisis Groups	CA (EPPR) Rules- through DCGs and LCGs.	Training workshops/ seminars
Disaster Management Agencies (state level)	State Disaster Management Act (notified in some States e.g. Gujarat, Orissa etc)	Training workshops/ seminars
Ministry of Shipping, Road Transport and Highways	Central Motor Vehicles Rules	Funding of approved training conducted by recognised institutes and NGOs
Multilateral organisations such as World Bank, Asian Development Bank, UNEP etc.	Institutions have their own internal guidelines	Environmental & social assessment and inclusion of environment, public health & safety and poverty alleviation

# Awareness building & Public Education

Agency	Legal Instruments	Programmes
Ministry of Environment And Forests	E (P) Act	Programmes / workshops / school level education on environment etc.
CPCB / SPCB	E (P) Act, Air Act, Water Act, HW (M&H) Rules	Training workshops / seminars. some campaigns in schools, posters etc.
Local/ District/ State/ Central Crisis Groups	CA (EPPR) Rules	Training workshops / seminars
Disaster Management Agencies (state level)	State Disaster Management Act (notified in some states e.g. Gujarat, Orissa etc)	Training workshops / seminars
Multilateral Organisations such as World Bank, Asian Development Bank, UNEP etc.	Internal Guidelines	Training workshops / seminars



# Non-Government Organizations

Organisations	Address and Contact Details	Brief Background	Data Collection	Testing of Chemicals	Risk Assessment	Risk Reduction	Policy Analysis	Training & Education	Research on Alternatives	Monitoring	Enforcement	Information to Workers	Information to Public	Others	Promote Business Interests	Responsible Care	ISO Series (9000, 14000 ETC.) and OHSA S 18000	Seminars/ Workshops/ Meets/ Newsletters/ Pamphlets etc.
<b>Environmental/ Consumer Groups</b>																		
Centre for Science and Environment	41, Tughlakabad Institutional Area, New Delhi. India – 110062, Tel: +91-11 29955124; 29956110; 29956394, Fax: +91-11 29955879, E-mail: cse@cseindia.org	CSE is a large non-governmental organisation actively involved in issues relating to air pollution, global green governance, rainwater harvesting, environmental education, investigation of the presence of toxic elements in food items and consumer products, etc.. It has a full fledged lab for testing and environmental monitoring also.	√	√	√	√	√	√		√			√					√
Development Alternatives	111/9-Z, Kishangarh, Vasant Kunj, New Delhi – 110070, Tel : 91 (11) 2613-4103, 2689-0380, Fax : 91 (11) 2613-0817, Email : tara@devalt.org	Established in 1983, Development Alternatives works with partners in all sectors: government, international agencies, public and private sector institutions and grass root voluntary organisations. The respective functional units of the Development Alternatives Group provide support to partners. The group has its own water and air monitoring instruments manufacturing facility and regularly monitors environmental parameters under its various schemes such as Clean India, Delhi Environment Action Network, etc.	√	√			√	√		√			√					√

Organisations	Address and Contact Details	Brief Background	Data Collection	Testing of Chemicals	Risk Assessment	Risk Reduction	Policy Analysis	Training & Education	Research on Alternatives	Monitoring	Enforcement	Information to Workers	Information to Public	Others	Promote Business Interests	Responsible Care	ISO Series (9000, 14000 ETC.) and OHSA S 18000	Seminars/ Workshops/ Meets/ Newsletters/ Pamphlets etc.
Toxic Links	H2 (Ground Floor), Jangpura Extension, New Delhi 110 014, T: +91-(0)11-24328006, 24320711, F: +91-(0)11-24321747, E: info@toxicslink.org	Toxics link is India's leading NGO working in toxics and waste issues. It emerged from a need to establish a mechanism for disseminating credible information about toxics in India, and for raising the level of the debate on these issues. The goal was to develop an information exchange and support organisation that would use research and advocacy in strengthening campaigns against toxic pollution, help push industries towards cleaner production, and link groups working on toxics and waste issues. Over time, it has developed capacities to interact with the grassroots through outreach amongst various civil society actors, as well as to play a role in influencing policy and have conversations with other stakeholders such as industry and technical experts. It is also central to networks connecting experts, civil society groups and individuals working nationally and internationally on issues related to toxics.	√	√	√	√	√	√		√		√						√

Organisations	Address and Contact Details	Brief Background	Data Collection	Testing of Chemicals	Risk Assessment	Risk Reduction	Policy Analysis	Training & Education	Research on Alternatives	Monitoring	Enforcement	Information to Workers	Information to Public	Others	Promote Business Interests	Responsible Care	ISO Series (9000, 14000 ETC.) and OHSAS 18000	Seminars/ Workshops/ Meets/ Newsletters/ Pamphlets etc.
Greenpeace	#3360, 13th B Main, HAL II Stage, Indira Nagar, Bangalore, Karnataka, India, Tel: +91 80 51154866, Fax: +91 80 51154862	Greenpeace is a non-profit organisation having main office for India in Bangalore and also in other 9 cities across the country. To maintain its independence, Greenpeace relies on contributions from individual supporters and foundation grants only. As a global organisation with presence in 40 countries, Greenpeace focuses on the most critical worldwide environmental issues such as:- Oceans and ancient forests protection;- Fossil fuel phase out and the promotion of renewable energies;- Nuclear disarmament and an end nuclear contamination;- Elimination of toxic chemicals; and- Preventing the release of genetically engineered organisms.	√	√	√	√	√	√	√	√			√					√
Thannan, Thiruvananthpuram	thanal@nd4.vsnl.net.in	Thanaan is a local level NGO of Kerala active in chemical safety.	√	√	√	√	√	√		√			√					√
Pariyavaran Suraksha Samiti Gujarat	MICHAEL MADGAONKAR, pss@narmada.net.in	Paryavaran Suraksha Samiti, founded in 2001 is a local NGO working on environmental pollution in Gujarat.	√	√	√	√	√	√		√			√					√

# Some Questions ??

- Are there adequate legislations in India ?
- How far this legislation is effective ?
- Are there sufficient Expertise/ institutes available ?
- Is there sufficient data ?
- What is the awareness level of people?