



Indian Chemical Industry Challenges and Opportunities

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The Associated Chambers of Commerce and Industry of India

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MESSAGE



The Indian chemical industry is one of the oldest industries in India and has made immense contribution to the industrial and agricultural development of India. Chemicals are one of the most widely used input materials in the world finding applications in almost all manufacturing sectors. With the increase in industrial activity, the demand for chemicals also increased, which resulted in higher international trade.

The chemical industry in India is a key constituent of Indian economy, accounting for about 2.11 per cent of the GDP. Bulk chemicals account for 39 per cent of the Indian chemical industry, followed by Agro-chemicals 20.3 per cent and specialty chemicals 19.5 per cent. India's growing per capita consumption and demand for agriculture related chemicals offers huge scope of growth for the sector in the future.

India is one of the world's leading producers of Dyes, Agro-Chemicals and Petrochemicals. With over 70,000 commercial products, India is the 6th largest producer of Chemicals in the world and 3rd largest producer in Asia. The industry is also the 3rd largest global producer of Agro-Chemicals. India accounts for 16% of world's dye production. The Dyestuff sector is one of the important segments of the chemicals industry in India, having forward and backward linkages with a variety of sectors like textiles, leather, paper, plastics, printing inks and foodstuffs. India also produces a large number of fine and specialty chemicals, which have very specific uses and are essential for increasing industrial production.

I am pleased to present this ASSOCHAM-Resurgent India Report on the Chemical Industry, which highlights the key opportunities and focus areas for the development of this important sector of economy. I hope the stakeholders will find the report useful and informative.

Sunil Kanoria
President
ASSOCHAM

MESSAGE



The Indian chemical industry is among the most diversified industrial sectors and includes basic chemicals and its products, petrochemicals, fertilisers, paints, gases, pharmaceuticals, dyes, etc. The Indian chemical sector accounts for 13-14% of total exports and 8-9% of total imports of India. In terms of volume of production, it is the twelfth-largest in the world and the third-largest in Asia.

Despite a growth in domestic manufacturing capacity India remained a net importer of chemicals as capacity addition lagged demand growth and with certain chemical imports being cheaper than those produced within the country.

Regulations have been framed for import and export of chemicals, manufacturing of chemicals, transportation of chemicals, consumers' interest in using chemicals and protection of human health, environment and for hazards and non-hazards chemicals. For India to align its chemical industry with those being developed and implemented internationally, it would require a relook on certain regulatory issues and investments in R&D to counter global competition.

India, with its skilled manpower and flourishing end user industries, has the right ingredients to emerge as the global hub for chemical manufacturing. However, the Government needs to undertake further reforms for the orderly growth of chemical industry.

I sincerely thank Resurgent India team for their valuable contribution in preparing this Report on the Chemical Industry, which highlights industry overview and future outlook of the sector. I trust that the Report will be useful and informative for the stakeholders.

D S Rawat
Secretary General
ASSOCHAM

MESSAGE



Indian Chemical Industry holds significant importance in the growth of Indian economy. It contributes ~2.51% of the national GDP and 15.95% of the national manufacturing sector GDP. Estimated at a market size of USD 139 bn in FY 2014, the industry is expected to register a growth of about 9 per cent per annum to reach USD 214 bn by 2019. Exports form a significant part of the sector and account for 9% of total value of exports in the country. The industry has linkages with several other industries such as automobile, consumer durables, engineering etc., producing and supplying over 70,000 products.

Growth in consumer base, changes in attitudinal and lifestyle profile, general increase in disposable income and focus on healthcare and hygiene etc. has helped in increasing the demand for the industry. Further, factors such as boost to specialty chemicals and pharmaceuticals segment, low per capital consumption including agrochemicals, likely growth in demand from paints, textiles and diversified manufacturing base are likely to keep the momentum up for the sector.

The government has also acknowledged the latent potential of the industry and thus has ensured a favorable regulatory environment and a conducive policy frame work. Recognizing it as a priority sector under the flagship 'Make in India' campaign is a reflection of the commitment.

In the report, we present a detailed analysis of the underlying issues and opportunities that surround the sector. We have highlighted a few challenges which if addressed can add the required momentum to the growth. Some notable ones relate to raw material procurement, logistical and infrastructure support, low capacity utilizations, lack of access to cheap raw materials, inverted duty structures, complex processes, Distribution and Awareness, Environment Sustainability among many others. We sincerely believe that India has the potential to become a global chemical manufacturing hub if the government and domestic players rise up to the challenge

We hope the report manages to touch upon all pertinent topics, to be taken forward towards enhancing business and investment eco-system for the industry.

Jyoti Prakash Gadia
Managing Director
Resurgent India Ltd.

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Chemical Industry Overview



Industry Overview & Market Size

Chemicals are one of the key input materials that are used across a wide range of industrial and consumer sector. On account of its wide-ranging application, the chemical manufacturing sector has emerged as a key economic activity in the country.

India is the third largest producer of chemicals in Asia and sixth largest in the world. The global chemical market is valued at around USD 3.6 trillion. Estimated at a market size of USD 139 bn in FY 2014, the Indian Chemical Industry is expected to grow at ~9 per cent per annum to reach USD 214 bn by 2019. The Indian chemical sector is one of the strategic industrial sectors in the country, contributing ~2.51% of the GDP and 15.95% of the country's manufacturing sector GDP. Manufacturing of chemicals is concentrated in several industrial clusters across the country with those in Gujarat and Maharashtra being the most prominent. Exports form a significant part of the sector and account for 9% of total value of exports in the country.

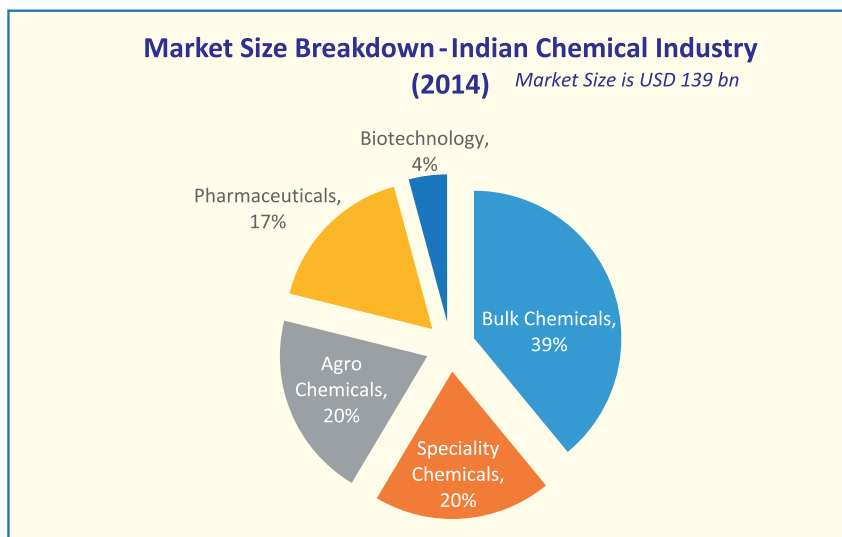
The chemical industry in India is both knowledge intensive and a capital intensive industry. The total production of the Indian chemicals industry was 19,308 Thousand Metric Tonnes in 2013-14. The diversification within the chemical industry is large and covers more than 70,000 commercial products. This Industry occupies an important position in meeting basic needs and improving quality of life. In addition to this, this industry is the cornerstone 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.

Based on their composition and end use properties, chemicals are divided into five broad segments-

1. **Bulk Chemicals:** It includes basic organic chemicals (methanol, acetic acid etc.) and basic inorganic chemicals (caustic soda, soda ash and Liquid Chlorine are also classified as alkali chemicals)

2. **Specialty Chemicals:** Specialty Chemicals, also known as performance chemicals, are low-volume but high-value compounds. These chemicals are derived from basic chemicals and are sold on the basis of their function. Paint, adhesives, electronic chemicals, oilfield chemicals are some examples of specialty chemicals.
3. **Agro Chemicals:** Chemicals essentially meant for protecting agriculture crops against insecticides and pesticides are covered under this sub-group.
4. **Petrochemicals:** Petrochemicals are chemical products derived from petroleum. The two most common petrochemical classes are olefins (including ethylene and propylene) and aromatics (including benzene, toluene and xylene isomers).
5. **Fertilizers:** Fertilizer is any organic or inorganic substance which supplies chemical elements required for plant growth. Fertilizer sector manufactures critical raw materials for agriculture which is a major occupation of the country.

Of the five segments, Bulk chemicals (~39% share) are the largest followed by agro chemicals (~20%) and then specialty chemicals (20%). Globally, bulk chemicals are the most traded chemicals (in terms of volume) and are the building blocks for host of products. In terms of potential growth, specialty chemicals are the fastest growing segment followed by bulk chemicals.



Source- Department of chemicals and petrochemicals, Tata Strategic mgt. group report

In the last few years, the demand for chemical products in the country has declined as industrial production slumped due to unfavorable economic scenario. Drop in industrial activity has lowered demand for input materials. Since chemicals are used as input materials by almost all industrial sectors this slowdown in industrial activity translates into lower demand. However demand from sectors like agrochemicals and pharmaceuticals have remained strong.

Demand Drivers

Chemicals form the foundation for manufacturing a wide range of products including textiles, paper, pharmaceutical products, plastics, synthetic rubber to agro chemicals. The specific factors driving growth of end-user sectors is set to drive and keep the demand up for the overall industry. Factors such as boost to specialty chemicals and pharmaceuticals segment, low per capital consumption including agrochemicals, likely growth in demand from paints, textiles and diversified manufacturing base would act as key drivers for the growth of the industry. The key end-user sectors driving growth include:

1. **Pesticide Manufacturers:** Increased awareness about advantages of using pesticides, growth in the number of farmers able to afford pesticides and growth in access has helped push demand for pesticides in the country. In addition, India has emerged as major manufacturing hub for pesticides due to its low cost advantage, building up exports contribution as well.
2. **Pharmaceutical Sector:** Over the years, India has emerged as a key manufacturing hub of Active Pharmaceutical Ingredients (APIs) and generic formulations. As a result, the demand for input chemicals has surged. Domestic demand is expected to remain strong as number of patients having access to healthcare services increases. With pharmaceutical companies taking steps to meet US Food and Drug Administration (USFDA) norms, export growth is expected to pick up by the next fiscal (FY 2017).
3. **Consumer Product Manufacturers:** Chemicals are used in the manufacture of a wide range of consumer products ranging from cosmetics, body care, hair care, and home care products.
4. **Fertilizer Manufacturers:** Some inorganic chemicals like ammonia, sulphuric acid, and phosphorus are widely used in fertilizer manufacturing. Since the Green Revolution, fertilizer consumption has picked up due to a combination of socio-economic factors like higher subsidies by government, increased affordability of farmers and wider availability.

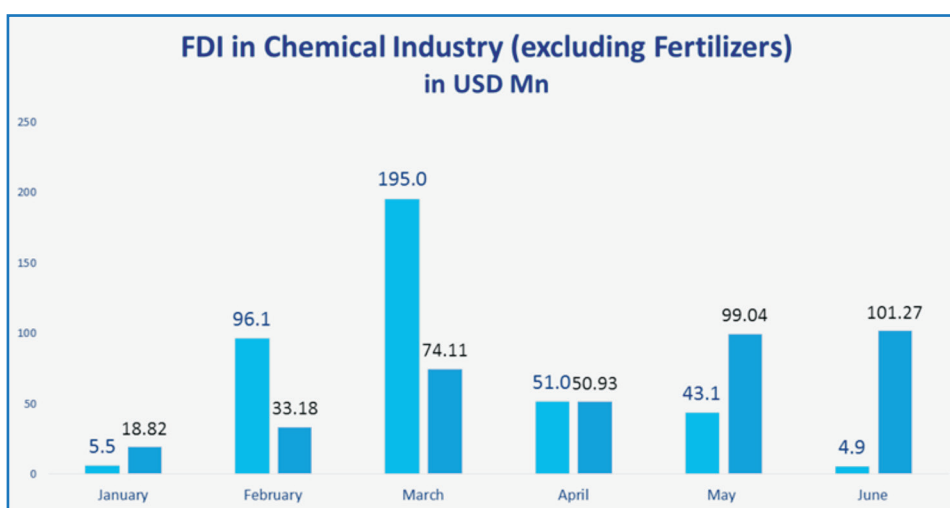
5. **Glass Manufacturers:** Indian market for glass products has increased steadily on the back of higher demand for automobiles, commercial and residential space, as well as for rigid packaging products.
6. **Manufacturers of Soaps & Detergents:** Increased awareness in personal detergents, higher disposable income, increase in consumption of consumer products and wider access to consumer products due to the growth in retail sector has resulted in higher consumption of soaps & detergents. Consequently demand for soda ash from soap & detergent manufacturers have gone up.
7. **Manufacturers of Paper & Pulp Manufacturers:** Globally paper & pulp industry is the largest consumer of caustic soda. Consumption scenario is similar in India too where the INR 500 Bn paper industry is the largest consumer of caustic soda. Approximately 12 Mntonnes of paper is estimated to have been produced in the country in the fiscal year 2015 while domestic consumption reached close to 13.3 Mntonnes per annum. Demand for paper is expected to remain strong in the coming years, which in turn would keep the demand for caustic soda high.
8. **Aluminum Manufacturers:** India is the fifth largest aluminum producer in the world, producing about 1.6 Mntonnes per annum (in FY 2015). Consequently aluminum manufacturers have emerged as a key consumer group of caustic soda in the country. Since FY 2010 aluminum production has slowed as demand from domestic consumers – automobile manufacturers and developers – has mellowed down. This has impacted caustic soda demand. Low demand scenario for caustic soda is expected to continue in the current fiscal (FY 2016), however starting next fiscal it is expected to pick up.
9. **Miscellaneous Industrial Applications:** Caustic soda is also used in a myriad of industrial applications such as food processing, manufacturing of rayon, bleaching agent in textiles, water treatment, rubber recycling, and synthesis of certain pharmaceutical compounds. Consequently prevailing slowdown in industrial activity in the country has impacted demand for caustic soda in the country.

Outside of specific sectors driving demand, macro socio-economic factors pulling growth have been summarized below:

- a. Per capita consumption of most of the chemicals is much lower than global averages, thus, it is expected that the demand growth will be primarily driven by domestic consumption, backed by strong sentiments among key end-user industries as discussed above.
- b. Domestic demand is further strengthened by higher discretionary spending by the newly emerged affluent middle class. The increased focus on lifestyle, hygiene, asset creation, health infrastructure access etc. is likely to keep the demand up from the consumer end.
- c. Attracted by the existing and latent size of the industry, foreign firms have increasingly strengthened presence in India. From April 2000 to June 2015, total FDI inflows into the Indian chemicals industry (excluding fertilizers) were USD10.5 billion.
- d. The government has ensured setting up of a favorable policy eco-system for the industry. 100 per cent FDI is permissible in the Indian chemicals sector; manufacturing of most chemical products is de-licensed and setting up of R&D centers is encouraged.

Recent Investments

The Government of India has approved 100 per cent foreign direct investment (FDI) in the chemicals sector. The Chemical Industry (Other than fertilizer) attracted Foreign Direct Investment (FDI) worth USD 10,588 million or Rs 50,908.61 crore between April 2000 and June 2015. In June 2015, the sector has garnered FDI worth USD 101 million, up by 20 fold as compared to USD 4.89 million in June 2014.



Source : D&B Research

Other Corporate Investments

The Gujarat State Fertilizers & Chemicals (GSFC) is planning to invest Rs 1,050 crore over the next 2-3 years for expanding its soda ash and textile capacity at its Sutrapada plant in Saurashtra (Gujarat).

Gujarat Alkalies and Chemicals (GACL) and National Aluminium Company (Nalco) signed an agreement for the formation of a joint venture to manufacture caustic soda. As per the agreement, the JV will set up an 800 tonnes per day (TPD) caustic soda plant and an 80-90 MW coal-based captive power plant (CPP) at Dahej, Gujarat.

Aarti Industries is looking to expand capacities across benzene, toluene & ethylene, and nitro toluene based value chain with a capex of Rs 500 crore over the next

3yrs to cater growing end-user markets and space vacated by closing down of few capacities in developed markets & reduced global supplies from China.

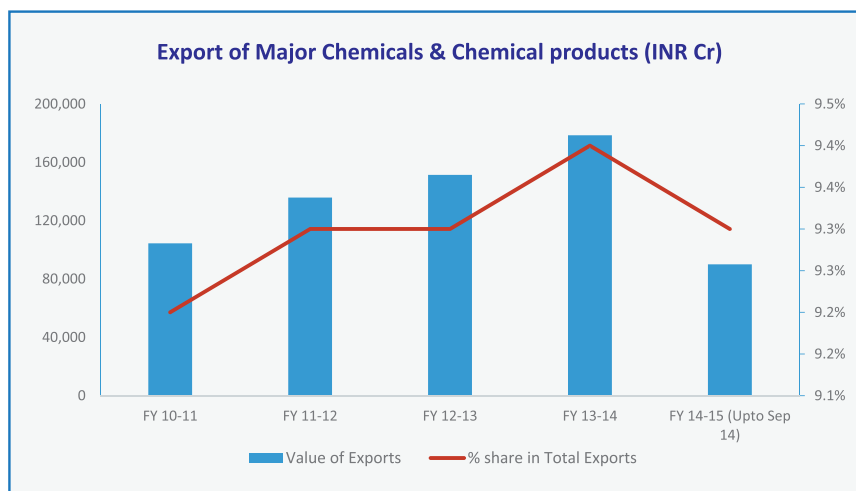
Aditya Birla Chemicals (ABCL) has completed the acquisition of the chlor-alkali division of Jayshree Chemicals (JCL). The chlor-alkali division of Jayshree chemicals comprises caustic soda manufacturing unit at Ganjam in Odisha and salt manufacturing facility at Pundi in Andhra Pradesh

Navin Fluorine International's subsidiary NFIL UK has acquired balance 49 percent stake in Manchester Organics, UK at pound 6.3 million. The subsidiary had acquired 51 percent stake in Manchester Organics, UK in May 2011. Manchester Organics is engaged in specialized chemical research.

Exports and Imports

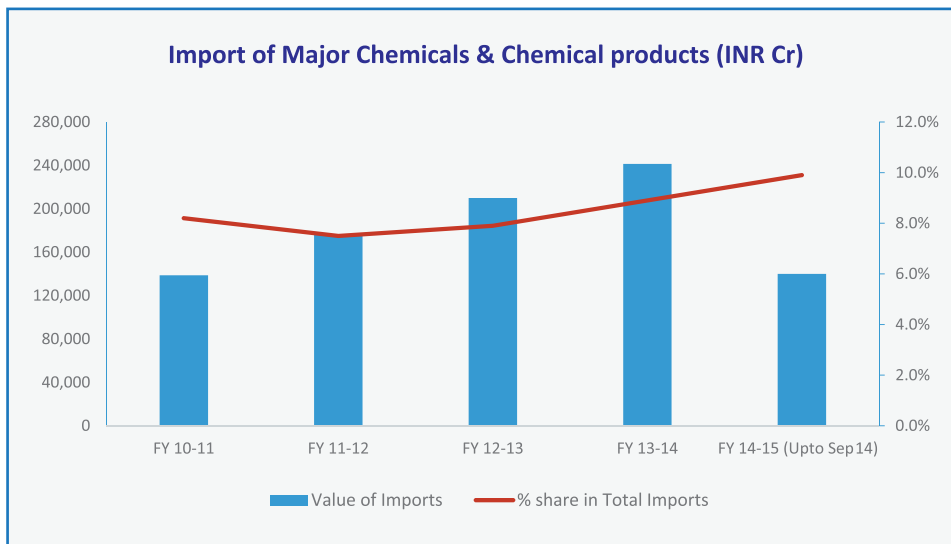
Chemicals are one of the most widely used input materials in the world finding applications in almost all manufacturing sectors. With the increase in industrial activity, the demand for chemicals also increased, which resulted in higher international trade.

Despite a growth in domestic manufacturing capacity India remained a net importer of chemicals as capacity addition lagged demand growth and with certain chemical imports being cheaper than those produced within the country.



Source: Department of chemicals and petrochemicals, GOI

In FY 13-14, the total exports of chemicals and chemical products amounted to INR 1,78,567Crore as against import of INR 2,41,311 Crore. During the period FY11 to FY14, exports and imports grew at a CAGR of 19.6% and 20.3% respectively.



Source: Department of chemicals and petrochemicals, GOI

The import of chemicals and chemical products has registered an inconsistent growth trend over the period FY11 to FY14. This volatility was on account for sudden surge in import of sulphuric acid in the fiscal year 2012. Higher import of sulphuric acid could be partly attributed to higher demand from phosphoric fertilizer manufacturers, which form the largest consumers of sulphuric acid.

Competitive Scenario

The Indian chemical industry is comprised of both small and large scale companies with about 65,000 – 70,000 small chemical manufactures across the country. The majority of these manufacturers are present in the bulk chemical segment. In bulk chemical segment, the products manufactured are de-licensed which negates the technology barrier. However, economy of scale is a critical variable to sustain in this thin margin business. This calls for high upfront capital investment which creates an entry barrier for smaller firms. As a result, there are only few large players in the basic chemical segment. Smaller manufacturers tend to focus on a small number of basic chemicals and mostly have only regional presence.

In the specialty chemicals space the focus is mostly on technological prowess, R&D skills, employee skills, and strength of patents. Presence of multiple entry barriers makes all the more daunting for companies to enter and succeed. A potential entrant to these two segments would need high spending power to invest in technology and R&D. It should also be capable to withstand the losses that might happen till a product reaches commercial scalability. Unlike the bulk segment, companies manufacturing specialty chemicals face higher risk of failure. In line with risks involved, the margins earned are correspondingly higher for the latter.

Some of the major chemical manufacturers in India are - Tata Chemicals Ltd, UPL Ltd, India Glycols Ltd (IGL), BASF India and Phillips Carbon Ltd

Industry Regulatory Scenario



Regulatory Scenario

The Chemical and Petrochemicals sector is one of the key focus sectors under the 'Make in India' initiative of the government. As a result, the regulatory environment is favorable and lays strong emphasis on the growth of this sector through a conducive policy frame work. The salient features of the government policies for this sector have been mentioned below –

1. Sector Policy
 - a. The Government of India has de-licensed the manufacturing of most chemical products except for certain hazardous chemicals. It also provides infrastructure support for setting up of petroleum, chemicals and petrochemicals investment regions by building roads, ports and other similar facilities.
 - b. The government provides duty protection to domestic manufacturers by levying anti-dumping duties on imports.
 - c. The government is continuously reducing the list of reserved chemical items for production in the MSME sector. In fact, the 20 items which were earlier exclusively reserved for MSME sector have been de-reserved on 10th April 2015, thus opening up the sector for greater investment, better technologies so as to enhance competition in Indian and global markets.
 - d. The government offers incentives for chemical manufacturing units in SEZ/ NIMZ as specified in respective Acts or setting up projects in special areas like the North-east, Jammu & Kashmir, Himachal Pradesh & Uttarakhand.
 - e. To promote investment in the Chemicals and Petrochemical industry, the government has allowed setting up of Petroleum, Chemicals & Petrochemical Investment Regions (PCPIRs). PCPIR would be a specifically delineated investment region with an area of around 250 square kilometers planned for the establishment of manufacturing facilities for domestic and export led production in petroleum, chemicals & petrochemicals. The PCPIR

may include one or more Special Economic Zones, Industrial Parks, Free Trade & Warehousing Zones, Export Oriented Units, or Growth Centres. This dedicated manufacturing will improve raw material availability as well as provide infrastructure support to set up chemical manufacturing units.

- f. The government is working towards formulating the National Chemical Policy to accelerate manufacturing in the chemical sector in order to meet the growing internal and external demands, particularly, reducing dependence on imports. The proposed policy is expected to help India's chemicals sector grow and become more competitive as well as place a framework for promoting safety and security of chemical facilities.

2. FDI Policy

- a. The government allows 100% Foreign Direct Investment (FDI) under the automatic route in the chemicals sector, subject to all the applicable regulations and laws.

3. Duty Structure – In the union budget 2015-16, the government announced reduction in duty for several chemical products. They are listed below -

- a. Basic customs duty (BCD) reduced on Ulexite Ore (Calcium Sodium Borate) (2528) from 2.5% to 0%.
- b. Special Additional Duty (SAD) reduced on Naphtha (27101290) from 4% to 2%.
- c. BCD reduced on Styrene Monomer (29025000) from 2.5% to 2%. Further, SAD on this product has been reduced from 4% to 2%.
- d. BCD reduced on Ethylene Dichloride (29031500) from 2.5% to 2%. Further, SAD on this product has been reduced from 4% to 2%.
- e. BCD reduced on Vinyl Chloride Monomer (29032100) from 2.5% to 2%. Further, SAD on this product has been reduced from 4% to 2%.
- f. BCD reduced on Isoprene (29012400) from 5% to 2.5%

- g. BCD reduced on Anthraquinone for Hydrogen Peroxide from 7.5% to 2.5%
 - h. BCD reduced on Butyl Acrylate from 7.5% to 5%.
 - i. BCD reduced on Liquefied Butanes from 5% to 2.5%.
4. R&D Policy
- a. To foster R&D in this sector, the government allows weighted tax deduction of 200% under Section 35 (2AA) of the Income Tax Act. To avail this benefit, the assessee should have made payments to a national laboratory, university or institute of technology for conducting scientific research which is duly approved by the prescribed authority
 - b. In addition to the above, a weighted tax deduction of 200% under Section 35 (2AB) of the Income Tax Act is allowed for both capital and revenue expenditure incurred on scientific research and development.
 - c. The government is planning to launch a R&D fund under Public Private Partnership model for this sector
5. State Incentives
- a. Some states in India offer additional incentives for industrial projects in the chemical and petrochemicals sector
 - b. State incentives are typically in the form of subsidized land cost, exemption in stamp duty on sale/lease of land, power tariff incentives, concessional rate of interest on loans, investment subsidies/tax incentives, backward areas subsidies, special incentive packages for mega projects, etc.
6. Export Incentives – To encourage exports in this sector, the government provides export incentives mentioned below -
- a. Export promotion capital goods scheme (EPCG) - EPCG Scheme permits chemical manufacturers to import capital goods at zero percent customs duty with an obligation to export 6 times of the duty saved amount in 6 years.

- b. Duty drawback scheme - The Duty drawback scheme allows chemical manufacturers relief of Customs and Central excise duties suffered on the inputs used in the manufacture of export product. These typically include raw materials, components, intermediates and packing materials used at various stages of production. To be eligible for the refund, the goods should have been exported to a foreign port.
- c. Service Exports from India Scheme (SFIS) - SFIS scheme extends benefit of duty exemption scrips of 5% to service providers engaged in R&D services in the chemical sector in India. To be eligible for benefit under the scheme, these service providers must have registered a minimum net foreign exchange earnings of USD 15,000 in the preceding financial year.
- d. Merchandise Export from India Scheme (MEIS) – Under the MEIS scheme, chemical products exported on and after 1st April 2015 to notified markets / countries are provided benefit ranging from 2% to 5% of FOB value of exports or FOB value realized, whichever is less. This scheme was introduced to offset infrastructural inefficiencies and associated costs involved in export of goods/products, which are produced/manufactured in India, especially those having high export intensity and significant employment potential.
- e. The government is also planning to extend export incentives in the form of interest subventions to even large players in chemical industry so as to boost exports. Till now, only medium and small enterprises were eligible for interest subvention but it is proposed to cover even large manufactures in the scheme. Under interest subvention scheme, the banks will provide credit to exporters at subsidized rates for which they will later be compensated by the government.

On back of the government policies listed above, India should be able to create a strong chemical manufacturing sector capable of enhancing its contribution to the manufacturing GDP.

Issues, Challenges & Opportunities



Key Industry Issues/Concerns

The Indian chemical manufacturers face issues around raw materials, infrastructure & environment, duty structures, human resources, etc. Some of the challenges faced by them have been detailed below -

1. Raw Material related issues

- a. Lack of adequate raw material (feedstock) – Continuous availability of feedstock at competitive cost is a key concern for companies operating in this sector. Feedstock (naphtha and natural gas) are critical inputs for both organic and inorganic chemicals industry. Costs of these raw materials are high in India compared to countries like China, Middle East and other South East Asian countries such as Thailand and Indonesia. This makes the domestic products uncompetitive in the international market.

In order to address this issue, the government has already taken some positive steps. Gas prices have been linked to international prices to bring in investment to explore and increase supplies. Further, the government is also exploring the possibility of setting up Reverse Special Economic Zones (SEZ) in various nations starting from Iran. In fact, steps are already under way to explore the feasibility of setting up a chemical plant in Iran and soon other countries such as Mozambique and Myanmar would be also explored in this regard.

- b. High dependence on imports for chemical needs – In last decade or so, the demand of petrochemicals has gone up substantially and this has led to increase in imports, as domestic output is lagging due to limited availability of feedstock like gas and oil. Given that the country lacks reserves of petroleum and gas but rich in coal, the industry has also not leveraged modern technology and new methods of exploration and production to use coal gasification as feedstock to produce chemicals and petrochemicals.

- c. Volatility in raw material prices: More than 50% of global petrochemical capacities are based on naphtha, a crude oil derived product. The prices of crude oil products have witnessed significant volatility, thereby making petrochemicals prices highly volatile.

2. Infrastructural and Logistical issues

- a. Inadequate infrastructure facilities and power shortage - Due to the poor infrastructure facilities with in-adequate facilities at ports and railway depots and poor pipeline connectivity, domestic manufacturers face difficulties in obtaining raw materials from suppliers at competitive prices. Apart from this, intermittent power supply is another issue which is affecting the energy intensive chemical industry and it is more pertinent to the small & medium players in the industry, who do not have the resources to invest in captive power plants like the large players.

However, the government has taken some initiatives to address this issue. This includes proposal for building 7,900 km of highway projects and corporatization of public ports for improving their efficiency. Further, transparent auctions of coal blocks and spectrum have also helped the cause

- b. Logistical Issues - The Indian bulk chemical industry is mainly concentrated in the west coast especially Gujarat, due to proximity to raw materials and ports, while majority of the demand comes from the end-use industries located in the eastern and the southern regions of the country leading to distribution-related hurdles. This results in high transportation cost and raises the overall production cost, thereby making the imports cheaper compared to domestic purchase. For example- Soda ash manufacturers are located in Gujarat, whereas ~40% of the end use industries (glass, detergent and soap units) are located in south
- c. Poor availability of quality catalysts: It has been observed, that India lacks availability of good catalysts and processes for better processing and value addition to feedstocks. Lack of autonomous research centers are one of

the primary reason. Government support, strengthening of resources and focused research in this field, especially by centers such as IIP and NCL, could help develop better catalysts.

3. Competition

- a. The manufacturers in this industry are subject to high level of competition. This leads to reduced prices, which could negatively affect the margins.
- b. Availability of cheaper Imports - The chemical industry faces a major challenge in the availability of cheaper imported chemicals from low cost manufacturing hubs including China. After India's entry into the World Trade Organization, the government has been reducing the import tariffs on various products. Under various multilateral and bilateral agreements, India has committed to gradually eliminate the tariffs on various chemical products in addition to non-tariff import barriers such as quotas based on amount and source. Also, many of the chemicals are placed in Open General License (OGL) of imports. This has increased the import of various chemicals, intermediates and end products. However, the import duty tariff levels in India are still higher as compared to other chemical importing country. But, if the government decides to reduce the import tariffs further to meet increasing demand of the chemicals in the country, then the level of competition in the Indian chemical industry will further intensify.
- c. Large global capacity additions- Large capacity additions in countries such as ethane rich Middle East and shale gas rich USA is another cause of concern for the domestic players as it may affect their market. It is estimated, that out of the 30 million tons of ethylene capacity additions expected during period 2014 and 2018, 12.5 million tons is expected in the US alone. Since, ethane and shale gas based petrochemical products are cheaper than petrochemical products in India; it will affect the margins of the domestic players in the market.
- d. High entry barriers: Given the capital intensive nature of the petrochemical plant and tariff barriers, new entrants and small and medium size companies are prohibited from easily entering into the market.

- e. Low capacity utilization: Due to oversupply in global markets, the prices of petrochemicals have witnessed a steep decline, thereby forcing the domestic companies to underutilize their plants operating levels. The average capacity utilization has fallen from 95% levels before global economic crisis to 80% in 2013.
 - f. Growing circulation of counterfeit products - According to industry estimates, counterfeit pesticides account for up to 40% of the pesticides sold in India in FY13. These products are inferior formulations and do not show the expected results. The damage through such products is multifold. Apart from crop loss and damage to soil fertility, use of non-genuine products leads to loss of revenue to farmers, agrochemical companies and government. Some of the key reasons for use of non-genuine products are lack of awareness amongst the farmers, difficulty in differentiating between genuine and non-genuine products, supply chain inefficiencies, law enforcement challenges and influencing power of distributors/retailers.
4. Regulatory issues
- a. Inverted duty structure discourages local manufacturing - The prevailing duty structure taxes raw materials (inputs) at a higher rate than the finished product, and thereby discourages domestic value addition through local manufacturing. In fact, some chemicals used in making medicines draw a duty of as high as 12 per cent, while free trade agreements (FTAs) ensure that the finished products draw negligible duty. In terms of finished goods, the domestic manufacturing industry has grown by 4 per cent in the last three years whereas the imports have grown by over 20 per cent for the same period.

The government has taken few steps towards removing anomalies in the duty structures in this year's budget. In the union budget 2015, the government announced reduction in customs duty and special additional duty on certain raw materials used in manufacturing of chemicals. The government may further rationalize the duty structure to discourage low

cost imports and facilitate better offtake from domestic markets. Further, the much awaited roll-out of GST in 2016 is expected to have a sizeable impact on the chemical industry by reducing logistical cost of companies as much as 20% and contribute to the overall growth of this sector.

- b. Complex regulations licenses - Up until recently, the sector was affected by too many and complex regulations and multiple licenses / certificates that were required to operate a plant in India. However, with the government's focus on improving the ease of doing business, several policy reforms have already been made including scrapping of industrial licensing for most sub-sectors except the ones dealing in hazardous chemicals.
- c. Slow implementation of Petroleum, Chemicals and Petrochemical Investment Region policy (PCPIRs) – Though the PCIPR policy was notified in 2007, it has not witnessed significant offtake by the states till now. Only few states including Gujarat, Andhra Pradesh, Orissa and Tamil Nadu have so far evinced interested in developing PCIR regions in the state. Some states have also witnessed opposition by the farmers in land acquisition for developing PCIPR. However, the government is planning to revise the PCPIR policy to make it attractive for states to implement it and attract investment. Revisions are expected to make the policy more attractive and feasible for the states to execute. Other aspects such as financial support, clearances, additional anchor tenant and single window clearances were likely to be incorporated in the revised policy.
- d. Drop in fiscal benefits: With India fast becoming a refining and petrochemical surplus nation, the government has withdrawn some of the income tax holidays and other fiscal benefits from the industry. Only oil exploration companies now enjoy the benefits based on the profit-sharing mechanism with the government.
- e. Long gestation period for new products - It takes significant time, almost up to 10 years to bring a new molecule into the market. Even for the generic products, it can take up to 5 years to get the product registered. The regulatory bodies do not have adequate resources and infrastructure

to execute timely registration of products. Sometimes the rules are not clearly defined creating interpretation challenges for the regulatory bodies, leading to confusions thereby adding to the complexities for the crop protection chemical companies.

5. R&D related issues

- a. Low focus on R&D by domestic manufacturers due to high costs- The industry is witnessing low R&D activity due to the high costs involved. It takes almost USD 250 million in research and development to introduce a new product in the market. This prevents the companies to invest in R&D activities and focus more on the generic products which require low investments in research and development.

6. Distribution and awareness related issues

- a. Need for efficient distribution systems – The lack of robust distribution systems make it difficult for the agrochemical companies to reach the farmers to promote their products and educate them about their usage and benefits. At present, the industry is facing issues due to supply chain inefficiencies and inadequate infrastructure which results in post-harvest losses estimated at INR 45,000 crore every year, thereby impacting the farmers.
- b. Lack of education and awareness among farmers – Lack of knowledge on the part of the farmers on the appropriate kind of pesticide, its dosage quantity and application frequency have hurt the demand for agro chemicals. This issue has been difficult to address due to poor reach of the farmers owing to infrastructure issues, regional languages and dialects. Furthermore, the retailer, who is the main point of contact between the manufacturer and the farmer often lack the technical experience and knowledge to provide correct advice to farmers.

7. Human resource related issues

- a. Shortage of skilled man power – Lack of skilled manpower is another issue faced by the industry. However, to address the industry’s need of skilled manpower, the Ministry of Chemicals and Fertilizers recently signed three Memorandum of Understandings (MoUs) with the Ministry of Skill Development and Entrepreneurship. The MoUs aim to collectively address the incremental human requirement in the fertilizer, pharmaceutical and chemicals & petrochemical industry.

8. Environment protection related issues

- a. Environment risk protection and pollution control measures entail significant expenditure - Environment protection issues are emerging as a great challenge for the Indian chemical industry. The operations of the company are subject to various government regulations including those pertaining to environmental protection. These laws and regulations stipulate higher environmental protection standards pertaining to air emissions, the use, handling and transport of hazardous or toxic materials, wastewater storage, treatment and discharges, waste disposal practices, as well as the remediation of environmental contamination. Complying with these regulations adds up new costs to the company, which could affect its operational performance. If the company fails to comply with these regulations, it may be penalized with hefty fines and penalties, which could have a material impact on the profitability of the company. The company may also be denied new projects, which might hamper its business prospects.

Key Industry Opportunities

1. Product Portfolio Related:

- a. Enhance existing portfolio with advantaged products: Commodity chemicals companies can improve their product portfolio by adding specialty chemicals such as polymers additives, water treatment chemicals, lubricating additives, etc. or truly advantaged products. For example- The demand for performance plastics such as biodegradable polymers is expected to be on rise across the world including India. Given the environment concerns with traditional plastics, companies should look at expanding their portfolio and include more value add products. The advantaged portfolio will help improving their margins but will require significant R&D efforts.
- b. Opportunities for local customization: Indian specialty chemical market is characterized by the opportunity for local customization. Many customers are willing to sacrifice on some of the product attributes for a lower product price. These offerings can also be expanded to other Asian markets.
- c. Growth in generic products: During the period of 2014 - 2020 products worth USD 6.3 billion are expected to go off-patent. This will provide opportunities for the Indian generic product manufacturers to expand their market presence and grow organically.

2. Market Access/ Geography Related

- a. Explore global frontiers: Given the capital intensive nature of the project and high costs associated in India, the domestic companies may also look outside for organic and inorganic opportunities. Many western companies are shifting their base to resource rich nations like Saudi Arabia, Qatar, Russia, etc. Indian organic chemical companies may also explore opportunities outside the country either through Greenfield or brownfield projects.

- b. Opportunity to serve a large addressable market: India represents a large and fragmented end-user market. To be able to serve it efficiently and adequately, the companies have to start adopting a twin strategy – key account strategy for large customers and partnership with other companies to foster distribution and access across geographies. It will be critical growth driver to have a strong vendor base and partnership arrangements with cost effective local companies to achieve a leadership position.
 - c. Export Opportunities: India's share in export of global chemicals is less than 2 per cent. This means there is significant export potential especially for pesticides, which have registered strong growth over the last few years. Globally, India is the thirteenth largest exporter of pesticides. Most of the exports are off-patent products. The major exports from India happen to Brazil, USA, France and Netherlands. The key growth drivers are India's capability in low cost manufacturing, availability of technically trained manpower, seasonal domestic demand, better price realization globally and strong presence in generic pesticide manufacturing.
 - d. Growth Opportunities in Emerging Markets: The chemical manufactures in India can expect to benefit from the strong growth expected in the emerging countries of Asia-Pacific, Africa and the Middle East. Although the economic crisis has dampened the growth of the chemicals industry in the recent past, it continues to grow at a positive rate compared to the developed countries of Europe and North America
3. Process/ Infrastructure Related
- a. Opportunities in Backward and Forward integration: The domestic organic chemical players lack pricing flexibility on account of lack of opportunities for backward integration. However, with the new finds of natural gas reserves in the country, the manufacturers should be able to leverage stable pricing going forward. Similarly, petrochemical companies producing benzene and propylene can look for forward integration opportunity given the demand supply deficit in phenol market. An opportunity exists for companies with better access to natural gas supply to venture into the methanol

market facing continuous supply deficit. For e.g. Reliance Industries Ltd. successfully backward integrated from refining and petrochemical company to oil and gas exploration. ONGC which is primarily an exploration company recently built a Greenfield petrochemical project (OMPL).

- b. India as an R&D hub for specialty chemicals: Large MNCs have started tapping India's cost advantage by investing in production for exports and also moving some of their R&D work to India. There is a large untapped potential in this space.
- c. Opportunity for setting up reverse SEZs: In order to meet the rising demand for inputs for the chemical industry, the Indian government can consider exploring the possibility of setting up SEZs in countries such as Mozambique, Iran and Myanmar. Besides securing inputs at competitive prices, the reverse SEZ would assure rapid investment in the downstream projects in India thereby creating large employment in the country. In fact, steps are already under way to explore the feasibility of setting up a chemical plant in Iran and soon other countries will be explored.
- d. Improved feedstock supply: Domestic products are uncompetitive due to high costs of naphtha when compared with ethane based products from Middle East. One means to improve the competitiveness is through improved infrastructure and feedstock support -- as more natural gas becomes available in India, the domestic players are likely to shift from naphtha to cheaper natural gas thereby increasing their competitiveness in the market.
- e. Opportunities in coal gasification: With abundant coal reserves, there is an opportunity to leverage gasification technology to increase production of chemicals and petrochemicals. In last decade or so, the demand of petrochemicals has gone up substantially leading to increased imports as the domestic output is lagging due to limited availability of feedstock.

4. Others

- a. Low consumption of pesticides in India: Per hectare consumption of pesticides in India is amongst the lowest in the world and currently stands at 0.6 kg/ha. On the other hand consumption in developed nations ranges from 5-7 kg/ha whereas at 13 kg/ha China is almost 20-30 times as compared to India. In order to increase yield and ensure food security, agrochemicals penetration in India is bound to go up.
- b. Growth in herbicides and fungicides: Labor shortage and increased costs, along with growth in GM crops has spiked the use of herbicides. The herbicide consumption in India currently stands at 0.3 USD billion and is expected to grow at a CAGR of 15% over the next five years to reach 0.6 USD billion by FY18. On the other hand the fungicide industry in India has grown due to the growth in Indian horticulture industry, which has grown at a CAGR of 7.5% over the last five years.
- c. Opportunity to emerge as a low cost outsourcing option in the global market: There has been a noticeable global shift towards Asia as the world's chemical manufacturing hub. While China leads in this space, countries like Singapore, South Korea and Thailand have also quickly emerged as favorable low-cost sourcing destinations. By leveraging its ample labor force, available resources, and new technologies in alternative feedstock options- coal gasification, syngas and pet coke, even India can emerge as a low-cost outsourcing option in the global market.

Future Outlook



Even though the Indian chemical industry has witnessed robust growth in the past decade, the potential for future growth is significant. The per capita consumption of chemicals in India is much lower than the western countries – for a country of 1.25 billion the industry was valued only at USD 139 billion in FY 14. Despite its significant GDP contribution, the industry represents only around 3% of global chemicals industry.

In coming years, India is expected to rise as both, a manufacturing capital for valued goods and well as a consumer-driven economy from a broader perspective. The country will grow at 7.5 to 8 percent over the next 3-4 years. In this scenario, the Indian chemical industry is expected to grow at 9% every year to reach a market size of USD 214 billion by the end of FY 2019. The industry is likely to benefit from the improvement in investment climate, interest rate reduction, speedy approval of projects and proposed reform measures that would translate into higher industrial activity, and in turn higher demand for chemicals. Several factors such as rising demand for specialty chemicals and pharmaceuticals segment, low per capital consumption including agrochemicals, likely growth in demand from paints, textiles and diversified manufacturing base are expected to drive the growth in this sector.

Though the Indian chemical industry enjoys reasonable export presence, it lacks significantly behind its Asian counterparts. In order to be competitive at a global level, India will have to address the key issues pertaining to inadequate infrastructure and lack of availability of low-cost feedstock for production. The industry can leverage new technologies and explore alternative feedstock options such as coal gasification, syngas, and pet coke to mitigate the issue of feedstock availability in the sector.

Post the formation of the new government at the center in 2014, the Indian chemical industry has received amuch needed boost. The chemical sector has been included as priority sector under the ambitious 'Make in India' initiative of the government. 'Make in India' is expected to play a pivotal role in driving some of the key initiatives to stimulate growth in the chemical industry. The government has already taken some crucial steps to create favorable conditions, in terms of polices and infrastructure, to attract global and domestic investment in the Indian chemical industry.

ASSOCHAM: THE KNOWLEDGE ARCHITECT OF CORPORATE INDIA

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ASSOCHAM derives its strength from its Promoter Chambers and other Industry/Regional Chambers/Associations spread all over the country.

VISION: Empower Indian enterprise by inculcating knowledge that will be the catalyst of growth in the barrierless technology driven global market and help them upscale, align and emerge as formidable player in respective business segments.

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MEMBERS – OUR STRENGTH: ASSOCHAM represents the interests of more than 4,50,000 direct and indirect members across the country. Through its heterogeneous membership, ASSOCHAM combines the entrepreneurial spirit and business acumen of owners with management skills and expertise of professionals to set itself apart as a Chamber with a difference.

Currently, ASSOCHAM has more than 100 National Councils covering the entire gamut of economic activities in India. It has been especially acknowledged as a significant voice of Indian industry in the field of Corporate Social Responsibility, Environment & Safety, HR & Labour Affairs, Corporate Governance, Information Technology, Biotechnology, Telecom, Banking & Finance, Company Law, Corporate Finance, Economic and International Affairs, Mergers & Acquisitions, Tourism, Civil Aviation, Infrastructure, Energy & Power, Education, Legal Reforms, Real Estate and Rural Development, Competency Building & Skill Development to mention a few.

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ASSOCHAM derives its strengths from the following Promoter Chambers: Bombay Chamber of Commerce & Industry, Mumbai; Cochin Chambers of Commerce & Industry, Cochin; Indian Merchant's Chamber, Mumbai; The Madras Chamber of Commerce and Industry, Chennai; PHD Chamber of Commerce and Industry, New Delhi. Together, we can make a significant difference to the burden that our nation carries and bring in a bright, new tomorrow for our nation.

About Resurgent India

Equity | Debt | Advisory

Resurgent India is a full service investment bank providing customized solutions in the areas of debt, equity and advisory. We offer independent advice on capital raising, mergers and acquisition, business and financial restructuring, valuation, business planning and achieving operational excellence to our clients.

Our strength lies in our outstanding team, sector expertise, superior execution capabilities and a strong professional network. We have served clients across key industry sectors including Infrastructure & Energy, Consumer Products & Services, Real Estate, Metals & Industrial Products, Healthcare & Pharmaceuticals, Telecom, Media and Technology.

In the short period since our inception, we have grown to a 100 people team with a pan-India presence through our offices in New Delhi, Kolkata, Mumbai, and Bangalore. Resurgent is part of the Golden Group, which includes Ginesys (an emerging software solutions company specializing in the retail industry) and SNC Associates (a full service accounting firm, specializing in taxation, auditing, management consultancy and outsourcing).

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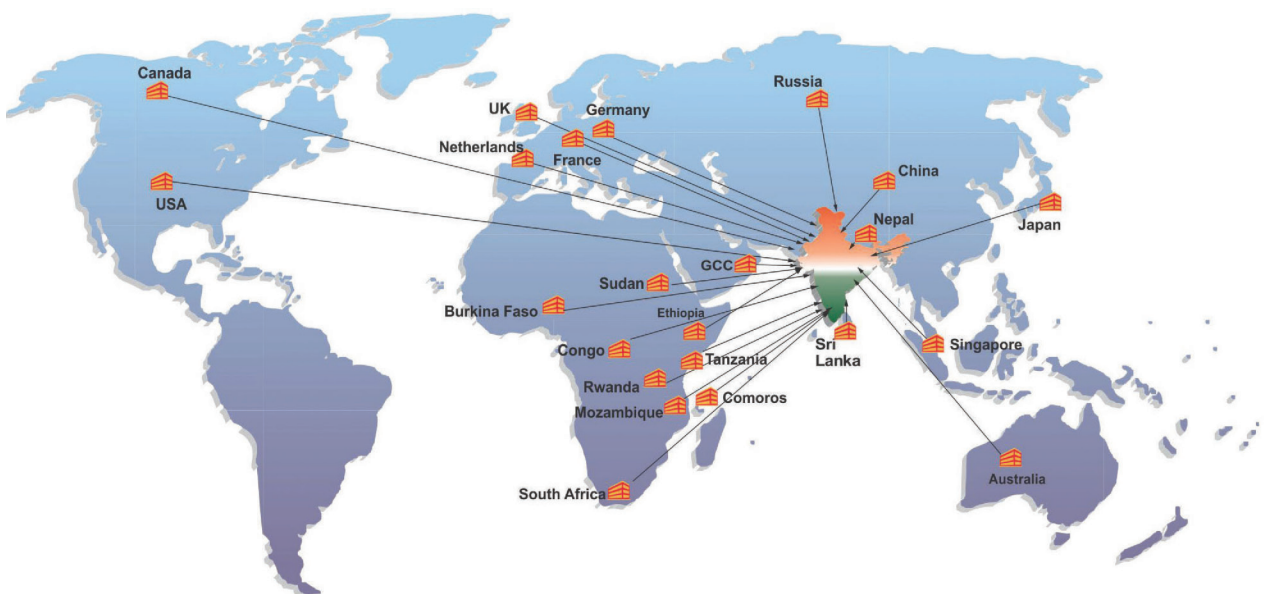
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