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Indian Chemical Industry: Exploring Global Demand

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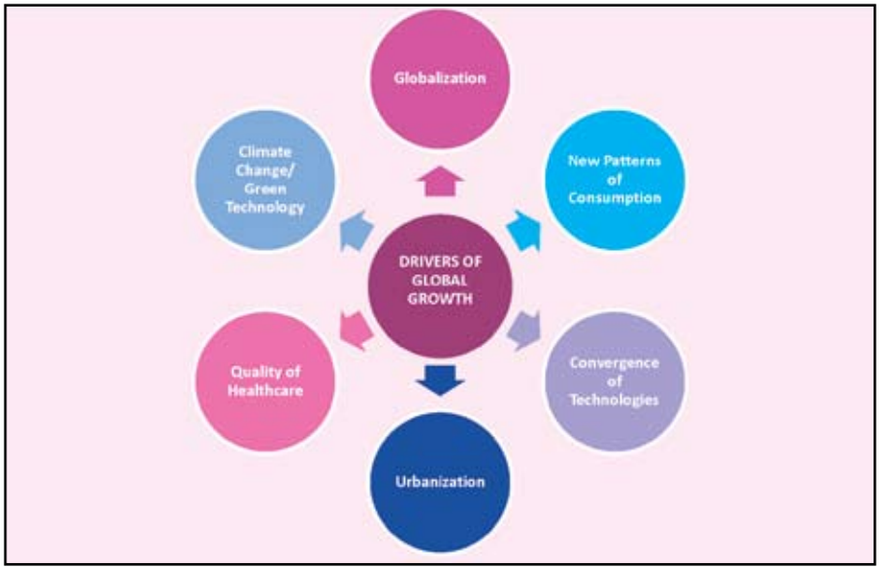
INTRODUCTION

Chemical industry is a critical component of the modern globalised world economy. Although the chemical industry is quite heterogeneous in character, it can broadly be classified into three major segments, viz., basic chemicals, specialty chemicals and agricultural chemicals. Strictly speaking, the chemical industry also includes drugs and pharmaceuticals, as also fertilizers, toiletries and cosmetics. However, considering that these segments are large enough in themselves, they can be categorized as altogether separate industries and hence are beyond the scope of this study. India has traditionally been a net importer of chemicals, a situation which can be reversed with sustained efforts from the industry backed by an enabling policy mix from the government. The industry needs to look beyond the domestic shores in a more proactive manner. A two pronged approach could be adopted that would entail market diversification and expansion along with mapping of international demand for chemical products so as to identify an ideal product market strategy mix. This study has made an attempt to design the broad contours of such a strategy based on mapping of import demand of major chemical markets vis-à-vis India's export basket for chemicals.

Trends Driving the Growth of the Chemical Industry



GLOBAL CHEMICAL INDUSTRY: AN OVERVIEW

The world chemical industry is estimated to have reached € 2353 billion (~ US$ 3127 billion) in 2010. The Asian region has emerged as the largest contributor to the global chemical industry, accounting for nearly half the global sales (€ 1147 billion) followed by Europe (€ 578 billion). Individually, China was the largest market for chemicals with sales aggregating to € 575 billion, followed by USA (€ 395 billion), Japan (€ 153 billion), Germany (€ 142 billion) and France (€ 76 billion). India, with sales of € 56 billion was ranked the eighth largest market in 2010.

International trade in chemical products has witnessed a continuous rise with global exports of chemicals recording an average annual increase of 6.2% during 2006-2010 to amount to US$ 545 billion in 2010 as compared to US$ 451 billion in 2006. USA was the largest exporter of chemicals with exports aggregating US$ 63.9 billion, followed by China (US$ 49.3 billion), Germany (US$ 48.2 billion), Belgium (US$ 36.6 billion) and Japan (US$ 31.9 billion). However, in terms of dynamism in exports, it was led by the emerging markets of Asia-Pacific, Middle East and Africa. While the average annual increase in exports from Asia-Pacific region was 11.9% during the 2006- 2010 period, it was as high as 21.9% each in the case of Middle East and Africa. Consequently, the shares of these regions in world exports

of chemicals registered a consistent increase.

INDIAN CHEMICAL INDUSTRY: MOVING UP THE VALUE CHAIN

The size of the Indian chemical industry (basic, specialty and agricultural chemicals) is estimated to have reached around US$ 60.3 billion in 2010. In terms of total value added (at constant 2000 prices), the Indian chemical industry was the 5th largest in the world, and 2nd largest in Asia after China. The industry accounts for about 10% of the output of the Indian manufacturing sector, 13% of India's total exports, and 9% of the country's total imports. In terms of segmentation, basic chemicals was the largest sector with total revenues of US$ 43.3 billion, equivalent to about two-third of the industry's overall value in 2010. With per-capita consumption of chemical products in India being only a fraction of the global average, the opportunities for the domestic industry are enormous. In dyes, for example, India's per capita consumption is 50 grams, as against a global average of 425 grams. In addition, keeping in view the size of the domestic market and the growth of end user segments, the potential for growth for the Indian chemical industry is immense.

The volume of major chemicals produced in India amounted to 7.5 million metric tonnes (MTs) in 2009- 10. Though high in absolute terms, the growth during recent times has not been as emphatic. The production of the Indian chemical industry increased at an average annual rate of only 1.0%, from 7.1 million MT in 2003-04 to 7.5 million MT in 2009-10. This near flat performance was primary a result of stagnant growth in alkalis – the segment which, by far, accounts for the largest share of the output of the Indian chemical industry in volume terms. Matters were made worse by negative average annual rates of growth in organic chemicals and pesticides, both of which recorded average annual declines of (-) 2.0% and (-) 0.3%, respectively, during the 2003-04 to 2009-10 period, pulling down the overall growth of the industry. The positive and encouraging fact among the various segments of the Indian chemical industry has been the performance of specialty chemicals, primarily dyes and dyestuffs. The average annual growth in production of dyes and dyestuff amounted to a healthy 10.4%, increasing from 26,200 MT in 2003-04 to 42,390 MT in 2009-10 and 31.3% on a year-on year basis in 2009-10. This high growth could partly be attributed to the low base and low absolute volumes of dyes and dyestuffs, but more significantly, it implies a consistent increase in market demand of such products.

MARKET EXPANSION & DIVERSIFICATION: ALIGNING EXPORTS WITH OVERSEAS DEMAND

The study has undertaken an analysis of chemical products that have potential for exports from India by outlining a market/region-specific approach. The analysis has revealed the prospects of market diversification for the various broad segments of the chemical industry, viz. organic chemicals, inorganic chemicals, tanning and dyeing extracts, and insecticides and pesticides. The analysis reveals that for certain segments of the industry, Asian countries have emerged as major vibrant markets. Thus for instance, for inorganic chemicals, India needs to diversify its exports to more dynamic markets of China and Bangladesh while for organic chemicals, China, Indonesia, Malaysia, Singapore in addition to Brazil are the markets that Indian firms could focus on. Similarly, for tanning and dyeing extracts, diversifying exports to Taiwan and Bangladesh would be more fruitful while Argentina, Belgium, Nigeria, Indonesia, Bangladesh and Vietnam offer greater scope for insecticides and pesticides exports.

In addition, the growth prospects of chemical products have been examined at a narrower level (HS 4 digit Code) by mapping international demand with India's export capabilities based on which the products have been categorized into four classes, viz. winners in growing sectors, winners in declining sectors, losers in growing sectors and losers in declining sectors. Winners in growing sectors include products that have not only shown dynamism in import demand from the world (i.e. their share in world imports has been increasing) but also where India has been able to increase its share; Winners in declining sectors comprises products whose import demand has been lower than the world average for all the products (i.e. the product has lost share in the world market) but where India has been able to increase its share; Losers in declining sectors includes products whose import demand has not only been lower than the world average for all the products but also where India's share has declined; Losers in growing sectors consists of products that have shown dynamism in import demand but where India has lost out share to its competitors. This category thus comprises products where India needs to put more focus on.

THE INDIAN CHEMICAL INDUSTRY: IMPERATIVES TO REALIZE GROWTH POTENTIAL

Import Substitution through Capacity Additions

While India's export of chemicals has been gradually increasing, the country still has a deficit on the trade account in the chemical sector. India's exports of chemicals in 2009 stood at US$ 9.7 billion whereas imports had touched US$ 14.1 billion, an indication of strong domestic demand for chemical products. However, there are chemical products which India is exporting as well as importing. Exporting a particular product in reasonable quantity corroborates that India does have the capabilities to produce the same, but for some reasons India is unable to fulfill its domestic demand, due to which it has to rely on imports. This would imply that had appropriate capacities been in existence, the country would not have to rely on imported chemicals. The study has made an attempt to identify a list of such chemical products (at SITC 5 digit level) where India can increasingly seek capacity addition in the domestic market so as to reduce its reliance on importing.

Cross-Country Comparisons

Cross-country analysis reveals that for the manufacture of basic chemicals, India is relatively competitive in terms of labour cost but needs to drastically improve its efficiency as reflected in the value added per employee number, which is one of the lowest among the countries examined. Further, operating surplus for the basic chemical industry has declined when compared to the year 2000. This has primarily been on account of the increase in the share of the cost of input materials and utilities, perhaps a reflection of India's infrastructure bottlenecks such as uncertain power supplies, etc. For manufacture of other chemicals including agrochemicals, paints and printing inks, while the value addition per employee is again the lowest, the growth in this parameter has been one of the fastest. A similar positive feature was evident in the case of operating surplus which exhibited a reasonable increase during the 2000-2007 period, unlike most other countries which actually recorded a decline. The key takeaway from this analysis is that Indian chemical industry has to improve efficiencies with the government creating an enabling environment by overcoming infrastructure bottlenecks and setting up common infrastructure facilities.

Setting up of Chemical Parks or Mega Chemical Estates

In order to address the issue of capacity expansion and for creation of common infrastructure facilities, the chemical industry, with support of Government and financial institutions could establish exclusive Chemical Parks. The chemical industry requires certain basic infrastructure facilities, both in the process chain as also in the supply chain. In the former, the critical infrastructure requirements include a common effluent treatment plant and an effective green belt segregating the industrial units from human settlements. In the latter, the critical requirements include an efficient port, chemical storage terminal, and adequate berthing facilities. The production and export earnings of this sector would receive a quantum jump if an industrial estate dedicated to the chemical industry could be set up. At present, each unit has to create specialized facilities on its own which leads to duplication of efforts and investment. If chemical units are clustered in close proximity the required infrastructure could be vertically integrated resulting in cost reduction. In this context, the German model of Chemical Parks, which supports the chemical sites across the country, could be studied and suitably adapted.

A Fund for SMEs in Chemical Industry

The contribution of SMEs to the country's chemical industry in terms of production is estimated at around 40%. However, given the limited channels for accessing funds at competitive rates, SMEs have been finding it difficult to upgrade their technology. SMEs face not just technical constraints but also manpower limitation with availability of quality manpower being a major issue. With a significant market potential abroad, these SMEs need to move up the value chain so as to tap the opportunities in overseas markets. For this, they would need to conform to the various rules, regulations and good practices prevalent abroad. Establishment of a suitable Fund could be considered by the Government on the lines of the Technology Upgradation Fund as available to the textile industry. The Fund could also be utilized to access designs, patents, processes and technology. Other measures such as provision of accelerated depreciation as available to the wind energy sector, exclusively for SMEs in this sector could also be thought of.

R&D Intensity of Chemical Industry

In order to become technically more competitive in the international market, the industry needs to increase R&D spending substantially – to at least 5% of sales from the current level of just 0.5%. Since chemical industry is a knowledge based industry, the competitiveness of the units can be significantly strengthened through supply of new and innovative products. The areas for R&D in chemical industry include improvements in manufacturing process for reduction in cost of production, application development to diversify demand, new product development and research related to application/ safe use of chemicals. While R&D remains a universal imperative, its purpose and nature varies across segments. Thus, for instance, the basic chemical sector could focus on process innovation and product development and strengthen its competitiveness through improvements based on performance and quality of products; while firms in knowledge based chemical sector could focus on R&D with the objective of achieving product leadership and process innovations.

Collaborative Endeavors: Inter-Firm and Institutional

The chemical industry needs to enhance its collaborative efforts in order to improve competitiveness. Collaboration among players in the chemical industry could happen both at cluster level (for sharing of common infrastructure) as also at firm level (for sharing of knowledge and technology). Smaller players needed to cooperate in 'clusters' where infrastructure, resources, commercial intelligence, common trade centres and even knowledge can be shared at lower costs and improve competitiveness of producers. Collaboration with firms across borders for technology and investment would also give boost to the industry. For transforming ideas into new products, partnership between industry and academia is a must. Thus, Indian chemical industry should leverage the potential of educational and research institutions to source intellectual as well as human capital. Such linkages may be effectively used for setting up of in-house R&D facility or for outsourcing R&D activities. The educational institutions could play a greater role for development of Indian chemical industry by offering courses and conducting research proactively. The research and academic institutions may also open local offices within chemical clusters to facilitate greater level of interactions while also setting up business incubation centres. Such incubation centres could accelerate the successful development of entrepreneurial companies in the chemical sector.

Exploring New Markets

Leading chemical manufacturers in the world are entering emerging markets through joint ventures or acquisitions (mainly in the West Asia to gain access to feedstocks, and in China and India to develop a local market presence). The most successful chemical producers in the near future are likely to be those that embrace the changing dynamics in the global chemical industry by effectively positioning themselves in emerging markets. It's also important to consider regional differences – mature products in one region may be innovative products in another. At the same time, there may be a need to explore a new business model, packaging, or a particular delivery method, to successfully deploy a product line in certain region, and all these can be ascertained by enhancing customer relationships.

Ensuring and Maintaining Compliance

Indian chemical industry has significant prospects in countries in the EU. However, with the new set of regulations and compliances, the Indian chemical industry will find it extremely difficult to enter this market. One such strict environmental regulation that the chemical companies must comply with is the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH), which deals with the tracking and registration of regulated substances, ensuring the safe handling of substances and preparations to protect workers and the environment. It requires that the chemical firms, in order to do business in EU, should establish sophisticated new processes to be adopted by a series of deadlines in 2013, and 2018 for: volume tracking of substances in preparations; assessing the obligations for notification and information of agencies, business partners, and end consumers; and complying with safe usage conditions specified by exposure scenarios for products. The Indian chemical industry needs to be sensitized on this issue and close interactions with the industry counterparts in EU as also the Indian missions there needs to be initiated on an ongoing basis. A series of sensitization programmes with actual practitioners from EU as resource persons could be planned across all the major chemical clusters in India.

Emerging New Segments in Chemical Business

There are new areas of chemical businesses that are emerging, ranging from specialty chemicals to high end nano-technology. Firms therefore need to be proactive in identifying opportunities across the entire spectrum of chemical business verticals. Although, specialty chemical companies were hard hit by the recent economic downturn, many of the US and European chemical companies are still focused on this sector, as specialty products are more profitable than commodity chemicals in the longer term. In India also, the usage of specialty chemicals has increased considerably during the past few years in construction, automotive, electronics and water treatment industries. This positive growth is expected to accelerate in the years to come given the vibrancy in these industries. Another emerging area in the chemical industry is rubber chemicals which is witnessing tremendous growth. The chemical industry needs to focus and be in readiness to cater to the demands of such emerging and high value added segments.

Environmental Sustainability

Since end users of many chemical substances are largely household consumers, using daily use items such as paint, glue, insect spray, cosmetics and household cleaners, chemical producers have the responsibility in promoting safe management of substances – starting from design in production to end-use, and their final disposal (hazardous waste). To garner a greater share in the global chemical market, the Indian industry needs to address the environmental issues including sustainable chemistry, adherence to safety and health standards. The chemical industry needs to establish an environmentally sustainable strategy to fulfill and implement a holistic, centrally-led governance and management approach that focuses on developing internal, cross-functional networks and programmes in key areas like operations and supply chain and products and packaging.

Low Level of Brand Development

Indian chemical producers, except a few large producers, generally sell their products as generic products without brand development. There is also low level of interest among small scale producers for brand development, product development as also market development. To increase their visibility, chemical firms could undertake brand building exercise, availing of suitable funds from the central and state government allocated for this purpose, wherever they have the opportunity to penetrate the market.

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