Is India’s petrochemicals industry poised for a boom?

During the early years of this decade, the chemical industry in India was in a state of near stagnation. Capacity additions had virtually stopped (Fig 1). Tariff protection which had been to the tune of 35-50% till 2000 was being planned to be scaled down to 7.5%-10% by 2007-08. New global scale capacities were being proposed close to cheap raw material sources (e.g. Middle East) or close to big demand centers (e.g. China). Indian capacities designed to cater to the protected domestic market were sub-scale by new global standards of economic sized capacities, and were based on technology licensing from existing global chemical majors. Doubts were being raised whether India’s chemical industry would be able to withstand the onslaught of global competition.

However, in contrast, as per the petroleum ministry, India’s refining capacity is expected to increase from 135 MMTPA in 2006-07 to 210-225 MMTPA by 2011-12, translating into an exportable surplus of refined products of 78-93 MMTPA by 2011-12 (Fig 2).

What has brought about this transformation?

Refining Capacity in India (MMTPA)

Supply  Demand

Exportable surplus

Exportable Surplus 2011-12 ~ 1.5 times of current Singapore refining capacity (67 MMTPA)
This growth in refining capacity is led by Reliance, which on the completion of its second refinery in 2008-09 would have added 62 MMTPA of capacity in a decade, comparable to the entire capacity of the regional refining hub, Singapore (Refining Capacity: 67 MMTPA). Further, since its inception, Reliance’s first refinery has consistently had a $2-$3 / barrel better refining margin than the Singapore complex, proving its global competitiveness. In addition to Reliance’s second refinery (29 MMTPA), Essar is also commissioning a new refinery, (10.5 MMTPA), apart from capacity additions and greenfield projects by the PSU’s (35-50 MMTPA).

This ~ 60% increase in refining capacity would lead to availability of additional 8-10 MMTPA of naphtha by 2011-12. (Fig 3) Reduction in usage of naphtha in power and fertilizers by 2.5 MMTPA by 2011-12 is expected to increase availability of naphtha in India by 10.5-12.5 MMTPA.

**Fig 3: Surplus of Naphtha expected in 2011-12**

As shown in Fig 4, this availability of additional naphtha has already prompted the petrochemical majors (Reliance, IOC, ONGC, HPCL, MRPL) to announce major downstream expansions in naphtha crackers. The olefinic base chemical capacity is expected to increase from ~ 4.5 MMTPA to 8-10 MMTPA, while aromatic base chemical capacity is expected to increase from 3.2 MMTPA to 5-6 MMTPA over the next 5-6 years. Vertical integration of these base chemical capacities would lead to near doubling of capacity in fiber intermediates, and basic petrochemical end products. This is expected to be completed in the next phase of investments by 2010-12.

The petrochemical capacity growth rates which have been 3-4% p.a. over the last 5 years are expected to increase 4 times to 12-15% p.a. over the next 5-7 years. At current prices, the downstream petrochemical industry production is expected to increase from $15-$18 bn currently to $30-35 bn over the next 5-7 years.
This growth in downstream petrochemical production would be supported by growth in domestic consumption as well. Growth in key end use sectors for chemicals like textiles (fibers), auto (plastic parts, accessories), personal/lifestyle products and retail (packaging) is likely to boost the domestic demand for petrochemicals.

Hence, in the next 5-6 years, India is expected to become a regional petrochemical hub. This would translate into availability of base petrochemical products for further processing for numerous customer applications; and availability of building blocks (olefins and aromatics) for other organic chemicals, at globally competitive rates.

Already, Indian petrochemical products have emerged as the top merchandise exporter in India with exports worth $ 18.6 Bn (2006-07). The overall exports have a CAGR of 64% for 2002-07 (Fig 5).
Engineering and Construction

Considering the asset intensive nature of the industry, the outlined growth would translate into investments of $12-15 bn. This investment would in turn create EPC projects worth $ 8-11 bn. Players have already started work on such projects (refer box).

Infrastructure

Government incentives and policy frameworks have been designed to boost the overall infrastructure required for India to be a petrochemical hub. Besides the much publicized SEZ policy, the PCPIR policy (Petroleum, Chemicals and Petrochemicals Investment Region) is expected to further boost the establishment of manufacturing facilities for petrochemicals, along-with the associated services and infrastructure (refer box).

Trade & Logistics

Coupled with the manufacturing infrastructure would be the need for developing the external linkages like ports and airports. Growth in domestic downstream manufacturing will drive the need for inland logistics infrastructure and hence fuel the growth of players in this space (refer box). With Indian railways also opening up container transportation, opportunity exists for chemical logistics players to buy wagons and rakes to complete the linkages and develop a strategic advantage in their space.

Specialty & fine chemicals

India’s has trained manpower 6 times larger than US, whereas the cost of skilled chemists is 10 times lower than US. Couple this with the low cost availability of petrochemicals and India has the ingredients to be a manufacturing hub for specialty chemicals. Already major domestic & global players have announced India plans for their specialty chemicals business (refer box).

*Beyond the above outlined areas, multitude of other opportunities would arise due to the imminent metamorphosis of India into regional petrochemical hub. Domestic players and MNCs need to acknowledge this and suitably plan their strategies and operations to cater to these opportunities.*
### Engineering & Construction

Domestic players like L&T, Punj Lloyd and MNCs like Bechtel & Foster Wheeler have already jumped on to the bandwagon of numerous E&C opportunities resulting out of these refineries and cracking units.

Alliances are being forged to by firms with complementing skillsets to cater to the EPC opportunity. State-owned Engineers India Ltd and Tata Projects Ltd are coming together to float an engineering consultancy company as a JV for working on EPC contracts in India and abroad.

### Infrastructure

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, along-with the associated services and infrastructure.

Business opportunities would arise in the states of India which could host a PCPIR. The sites selected for PCPIR include Dahej (Gujarat), Mangalore (Karnataka), Paradip (Orissa), Haldia (West Bengal) and Visakhapatnam (Andhra Pradesh).

### Trade & Logistics

**Ports:** JNPT is setting up a container & marine chemical terminal project. Jamnagar port is expanding its jetty to handle additional demand due to the refinery and SEZ.

Inland logistics: Aegis Logistic, the largest port terminal operator at the Mumbai port, is developing a presence along the petrochemical belt by putting up bulk liquid terminal at Mumbai. It is also negotiating for acquiring land to set up storage and handling services at Kandla (catering to Jamnagar refinery & SEZ) and Vishakhapatnam ports (catering to ONGC Kakinada expansion).

### Specialty & Fine Chemicals

Domestic players are looking to tie up with international majors to tap the specialty chemicals opportunity. RIL has already tied like Rohm & Haas for world scale acrylic acid & other derivatives plant in Jamnagar.

Individually as well, MNCs are shifting focus to India for specialty & fine chemicals for asset consolidation and cost reduction. Dow, which is already sourcing specialty chemicals from India worth $ 60 mn is expected to touch $ 100 mn by 2010. CIBA, Clariant & BASF have also announced initiatives to outsource from India.