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# PLASTICS: MANY YEARS OF GROWTH AHEAD

The per capita consumption of plastics in India is well below the world average. However, it also reflects the many years of growth ahead, as the country's economy continues to grow and upgrade the usage of products.



Plastic is considered as a sunrise industry exhibiting a consistent export growth rate.

## Global scenario

Last few years have been tumultuous for the plastics and petrochemical sector due to steep rise in oil prices, which has adversely affected the global economies. However, considering the feed stock advantage and abundance of oil reserves, newer petrochemical complexes are being established in Middle-east countries like Oman, Saudi Arabia and UAE. It is projected that by the end of 2010, ethylene capacity in middle-east would reach about 35 million tonnes per annum and polypropylene (PP) capacity will touch about 7 million tonnes per annum.

The US petrochemical sector may lose export competitiveness as most of the ethylene capacities in USA are ethane-based, which are not cost-competitive and can produce only polyethylene (PE). Similarly, the re-vamping of European Petrochemical Complexes would be imperative as these are based on old and expensive technology and are not cost-competitive with the Middle-East companies having the biggest advantage of raw material at their door-step. China, Middle-East and India would be the major global players, where expan-

**T**he Indian plastic industry has taken great strides. In the last few decades, the industry has grown to the status of a leading sector in the country with a sizeable base. The material is gaining notable importance in different spheres of activity and the per capita consumption is increasing at a fast pace. Continuous advancements and developments in polymer technology, processing machineries, expertise and cost-effective manufacturing are fast replacing the typical materials in different

segments with plastics.

On the basis of value added, share of India's plastic products industry is about 0.5 per cent of India's GDP. Plastic products account for about 1 per cent of the country's exports. There are a large number of small-scale companies in the industry, which account for more than 50 per cent turnover of the industry and provide employment to about 400,000 people in the country. Approximately Rs 100 billion are invested in the form of fixed assets in the plastic processing industry.

sion and augmentation of existing petrochemical capacity would take place in the next five years.

The worldwide plastics industry witnessed a steady growth in the year 2007, which is reflected in the increased consumption figures of all types of plastics materials. Asia has been the world's largest plastics consumer for several years, accounting for about 30 per cent of the global consumption excluding Japan, which has a share of about 6.5 per cent. Next to Asia is North America with 26 per cent share, then Western Europe with 23 per cent share in the global market.

The key growth segment remains 'packaging,' which accounted for over 35 per cent of the global consumption. Amongst individual plastics materials, polyolefin accounted for 53 per cent of the total consumption (PE with 33.5 per cent and PP with 19.5 per cent) followed by PVC (16.5 per cent), PS (8.5 per cent), PET and PU (5.5 per cent), styrene copolymers like ABS and SAN (3.5 per cent) and other engineering, high-performance and specialty plastics, blends, alloys, thermosetting plastics (13 per cent).

In recent years, a significant aspect of growth in plastics material globally has been the innovation of newer application areas for plastics, such as increasing plastics applications in automotive field, rail, transport, defence and aerospace, medical and healthcare, electrical and electronics, telecommunication, building and infrastructure, and furniture.

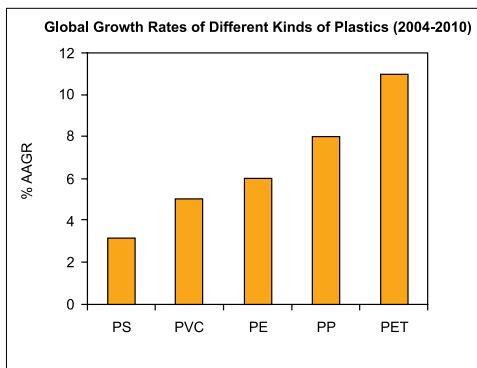
Plastics have become the key drivers of innovations and application development. Polymer electronics is one such area which has opened up new avenues for plastics; from organic light-emitting diodes to electro-optical and bio-electrical complements, from low-cost plastic chips to flexible solar cells. New plastics can conduct electricity and emit light.

While polymers will not replace

Table I  
**Global Per Capita Consumption of Plastics (in kg)**

Country/Region	Consumption
World average	26
North America	90
West Europe	65
East Europe	10
China	12
India	5.0
South East Asia	10
L. America	18

Source: Annual Reports of Indian Plastic Federation



Source: Annual Reports of Indian Plastic Federation

silicon as semiconductors, they do offer completely new opportunities for low-priced mass-manufactured products. Radio-frequency identification (RFID) tags in smartcards for identification and access control, payment and ticket systems, price labels, product tracking systems in the logistics chain or packaging that monitors product quality—many things are in offing.

Growth trend of plastics has proved that there has been a quiet plastics revolution taking place in the material sector. The global per capita consumption of plastics is shown in Table I.

Worldwide, the plastics and polymer consumption will have an average growth rate of 5 per cent and it will touch a figure of 227 million tonnes by 2015. Globally, it is projected that PET (bottle grade)

will have the highest growth rate of about 11 per cent AAGR. Global growth rates of plastics are shown in the figure.

The forecast about global demand for polyethylene follows:

1. Global polyethylene demand is estimated to grow at an average 4.4 per cent annually through 2020. This is about 1 per cent above the expected global GDP growth.

2. LLDPE is expected to experience the fastest growth, with an average annual growth rate of 6.2 per cent. This comes at the expense of LDPE, which is expected to grow only 1.8 per cent during the same period.

3. HDPE growth is estimated to average 4.6 per cent.

Polyethylene (PE) dominates the future capacity addition amongst different polymers by 2008, which is evident from the Global Commodity Polymer Capacity Additions between 2004 and 2008.

## Indian plastics industry

Over the years, India has made significant progress in the industrial world with healthy economic growth. On purchase power parity basis, it is one of the top five global economies and is expected to become the third largest by the turn of this decade. Plastics, one of the fastest growing industries in India, has a vital role to play.

The Indian plastics industry is expanding at a phenomenal pace. Major international companies from various sectors such as automobiles, electronics, telecommunications, food processing, packing and healthcare have set-up large manufacturing bases in India. Therefore demand for plastics is rapidly increasing and soon India will emerge as one of the fastest growing markets in the world.

Table II  
Capacities of Indian Petrochemical Producers (in kT)

Producer & Location	PP	HDPE	LDPE	HD/LL	PTA	PS	PVC
RIL, Hazira	350	-	-	400	-	-	300
RIL, Jamnagar	600	-	-	-	800	-	-
RIL Patalganga	60	-	-	-	300	-	-
IPCL, Nagothane	60	-	80	220	-	-	-
IPCL, Vadodara	75	-	80	-	-	-	55
IPCL, Gandhar	-	160	-	-	-	-	-
GAIL, Auriya	-	100	-	160	-	-	150
HPL, Haldia	210	200	-	260	-	-	-
BRPL, Bongaigaon	-	-	-	-	-	-	-
Finolex, Pisanpar	-	-	-	-	-	-	130
LG Poly, Vizag	-	-	-	-	-	80	-
Supreme, Mumbai	-	-	-	-	-	240	-
Chem Plast, Metturdam	-	-	-	-	-	-	60
DCW, Sahapuram	-	-	-	-	-	-	60
DCM, Shriram, Kota	-	-	-	-	400	-	35
RPRL, Abu	-	-	-	-	-	16	-
BASF Styrenics	-	-	-	-	-	60	-
Mitsubishi, Haldia	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>1355</b>	<b>460</b>	<b>160</b>	<b>1040</b>	<b>1500</b>	<b>360</b>	<b>790</b>
<b>Grand Total</b>	<b>5665</b>						

Source: Annual Reports of Indian Plastic Federation

country has consolidated its performance by consuming about 5.0 million tonnes of polymers, as compared to Chinese consumption of about 30 million tonnes in 2007. The Indian plastics industry is enthusiastic about acceleration of the growth engine in the next three to five years due to capacity expansion of existing petrochemical complexes and setting up of new crackers in the country.

Reliance Industries Ltd (RIL) has about 75 per cent share of Indian petrochemical cracker capacity, followed by medium-sized capacity of Gas Authority of India Ltd (GAIL) and Haldia Petrochemicals Ltd (HPL). RIL has ambitious plan of augmenting its PP capacity from 1010 kT to 2600 kT by the year 2010. Indian Oil Corporation (IOC) has also planned an 800kT naphtha cracker at Panipat at an investment of Rs 63 billion to produce 800 kT of PE and PP each at Panipat. These positive factors of availability of polymeric materials would infallibly be harbinger in accelerating the growth of the plastics sector in the near future.

The capacities of petrochemical producers are shown in Table II.

Polymer consumption in India according to various processes is provided in Table III.

The Indian plastic processing industry is highly fragmented and comprises 25,000 firms. Barring 10 to 15 per cent of the firms, which can be classified as medium-scale operations, all the units operate on a small-scale basis. The top 100 players account for just 20 per cent of the industry turnover. The total number of players in the sector is more than 25,000. However, the degree of fragmentation worldwide is large and despite the small size of operations of the players, they are able to operate profitably. Further, the high growth in demand

Table III  
Process Share in Total Polymer Consumption in India

Process	(%) Share in total consumption in India
Extrusion	60.0
Injection moulding	25.0
Blow moulding / Stretch moulding	06.0
Rotomoulding	01.0
Other processes	08.00

Source: Annual Reports of Indian Plastic Federation

The next two decades are expected to offer unprecedented opportunities for the plastic industry in India. This would necessitate industry initiatives to foster investments, grow the market, upgrade quality standards, enhance global participation, and encourage Indian industry to adopt and adapt to world-class technology and

Table IV  
Statistics of Plastics Industry in India

Current Status	
Major raw material producers	15 Nos
Processing units	25,000 Nos
Turnover (processing industry)	Rs 850 billion
Capital asset (polymer industry)	Rs 550 billion
Raw material produced approx	5.3 mmt
Raw material consumed approx	5.1 mmt
Employed direct/indirect	3.3 million
Export value approx	US \$1.90 billion
Revenue to government approx.	Rs 73 billion
By 2011-12	
Demand potential	12.5 mmt
Additional employment	4.0 million
Investment potential	Rs 840 billion

Source: Annual Reports of Plastindia Foundation

manufacturing practices.

Despite instability in international prices of polymer materials in 2006-07, the plastics industry in the

## MARKET SURVEY

ensures that the market is able to absorb the excess capacity quickly. Overall, the degree of competition can be considered high in the Indian plastic processing industry.

The sector has a significant presence of the unorganised sector, which accounts for more than 70 per cent of the industry turnover. More than 95 per cent of the firms in the industry are partnership, proprietorship or private limited companies. Further, these small companies get significant advantages in taxes. These firms thus provide significant level of competition to organised-sector companies, which combined together are making losses. The organised-sector companies thus need to build up significant brand image to survive against the competition from the unorganised sector. The key organised sector players include Nilkamal Plastics Limited and Supreme Industries Limited.

### Exports

In the calendar year 2006, the value of world plastic export was \$375 billion. However, the share of India was less than 1 per cent with exports worth \$3.187 billion. The percentage of growth in export was 21 per cent. During this trend of growth in exports, the export of raw plastics material increased from 55 per cent to 60 per cent of the total export of plastic goods, while the ex-



port of processed plastic goods registered a negative growth from 45 per cent to 9 per cent. According to recent reports, the industry is losing an opportunity of \$300 million through value addition on the raw materials that are exported.

The top ten trading partners for the Indian plastic industry are USA, UAE, Italy, UK, Belgium, Germany, Singapore, Saudi Arabia, China and Hong Kong.

The Indian plastic exports were valued at about \$532 million during FY 2004 (as against first-half FY2005 exports worth \$295 million). With significant capacity additions leading to over-capacity in domestic markets during FY2001 and beyond, polymer exports have increased considerably. However, due to the lower competitiveness of the plastic products industry, polymers have been exported directly.

### Future outlook

The Indian plastic industry clearly has the potential to continue its fast growth. The per capita consumption of plastics in India is well below the world average. However, it also reflects the many years of growth ahead, as the country's economy continues to grow

and upgrade the usage of products. Translating the expected growth rate into incremental demand, it is obvious that the country will remain one of the largest sources of additional demand for almost all kinds of plastics. Hence it is clear that plastics will continue to be a growth industry, with boosting prospects for fresh investments in polymerisation and down-

stream processing capacity. This is in contrast to the situation in various other countries, where growth prospects are limited, either because of stagnant demand or due to the historical over-building. In such countries, the overall outlook would be far less promising, with the key imperatives being cost-cutting and capacity rationalisation.

Over the next few years, competition in the Indian plastic industry is expected to increase considerably as a result of global trends, which will become applicable to the liberalising economy of the country. To survive the competition, both polymer manufacturers and processors will need to adopt radically new methods and approaches to reduce costs and improve market, customer service and management of performance.

Nanotechnology is an exciting technological advancement that has the potential to contribute significantly to the future of plastic. Through nanotechnology, special nanocomposites can be created that will be more dent-, heat- and scratch-resistant. Yet, the thermoplastic resins used to create the plastic can still be processed with the same equipment as used to process resins.

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Table V

### VISION 2015 for Indian Plastics Industry

Parameters	Value
Consumption of polymers @ 15% CARG	18.9 million tonnes
Turnover of plastics industry	Rs1332.45 billion
Additional employment generation	7 million
Requirement of additional plastics processing machines	68113 Nos
Additional capital investment in machines (2004-2015)	Rs 450 billion

Source: Annual Reports of the Plastic Export Promotion Council