APIC 2014
Asia Petrochemical Industry Conference
Pattaya, Thailand

# INDIAN PETROCHEMICAL INDUSTRY

## COUNTRY PAPER FROM INDIA

**Asia Petrochemical Industry Conference**
**Pattaya Exhibition and Convention Hall (PEACH)**
**Pattaya, Thailand, May 15 -16, 2014**

CPMA
Chemicals & Petrochemicals
Manufacturers' Association, India

# INDIAN PETROCHEMICAL INDUSTRY

## COUNTRY PAPER FROM INDIA

### Review of 2013-14 & Outlook for 2014-15


**Chemicals & Petrochemicals Manufacturers' Association, India**

708, 7th Floor, Kailash Building
26, Kasturba Gandhi Marg, New Delhi – 110001, INDIA
Phone: 91-11-43598337, Fax: 91-11-43598337
Email : cpmai@airtelmail.in  Web : www.cpmaindia.com



**Asia Petrochemical Industry Conference**

**Pattaya Exhibition and Convention Hall (PEACH)**

**Pattaya, Thailand, May 15-16, 2014**

# CONTENTS

## PART 1

# CONTENTS

# PART 2



## PRESENTATIONS FOR COMMITTEE MEETINGS













## SECTION 1

# The Indian Economy

# The Indian Economy: Review of 2013-14 & Outlook for 2014-15

**The Indian Economy Snapshot**

Internationally, India has become an important actor in sustainable global development. Forming the 'I' in the BRICS group of nations, India plays a very important role in the leadership of the emerging markets and developing nations. India boasts a culture of entrepreneurship and innovation, pioneering the global IT services industry, and has a global Diaspora that are leaders in various fields.

The Indian economy weathered the global financial crisis rather well and quickly recovered from the decline in growth rate in 2008-09 to a healthy growth that averaged around 9% annually in 2009-10 and 2010-11. However, this recovery was short-lived and growth rate declined to 6.2% in 2011-12 and 5.0% in 2012-13, on account of both domestic and external factors. Despite some recovery in the growth of agriculture and industry sector, particularly in Q2 of the current financial year, the overall growth of the economy has been a modest at 4.7% in Q3 of the year.

In Q2 there was however, a robust pick-up in the growth of the agricultural sector and a gradual recovery in the industrial sector. The growth in economic services also got strengthened, while the community, social and personal services a sector with substantial public sector presence exhibited a significant fall in growth, pointing towards efforts at fiscal consolidation. The demand side impetus to growth saw gradual gain in momentum with the strengthening of private consumption and investment and with exports making an impressive turnaround in Q2 2013-14.

India's position in the global economy is showing signs of stabilizing and is expected to improve in the coming year. The country has had a high current account deficit for the past few years, which is being contained thanks to a revival in export growth and restrictions of gold imports. The good monsoon season in 2014-15 is expected to further increase purchasing power in rural India which has been the silver lining in the otherwise cloudy Indian growth story. The near-term prospects for India's economy remain little subdued, even as recent data show an easing of inflationary pressures. Consumer price inflation declined to a two-year low of 6.73% in February and wholesale price inflation fell to 4.68% as food prices cooled.

**Review of 2013-14**

Slowing growth and rising inflation marked 2013 and the country looks forward and hope that the New Year will bring in new government and some good news. The economy's growth rate continued to slide throughout the yeardespite attempts by the government to stem the tide with a host of conventional and innovative measures.Phases of high inflation, driven mainly by rising prices of essential food items, added to the overall despondency in a year that saw the rupee dipping to its low estimated level ever against the US dollar and the current account deficit soaring to historic highs. The government tried to control the deficit by checking gold imports and promoting India as an investment destination. RBI supplemented the efforts by imposing restrictions and laying down stiff conditions for gold imports.

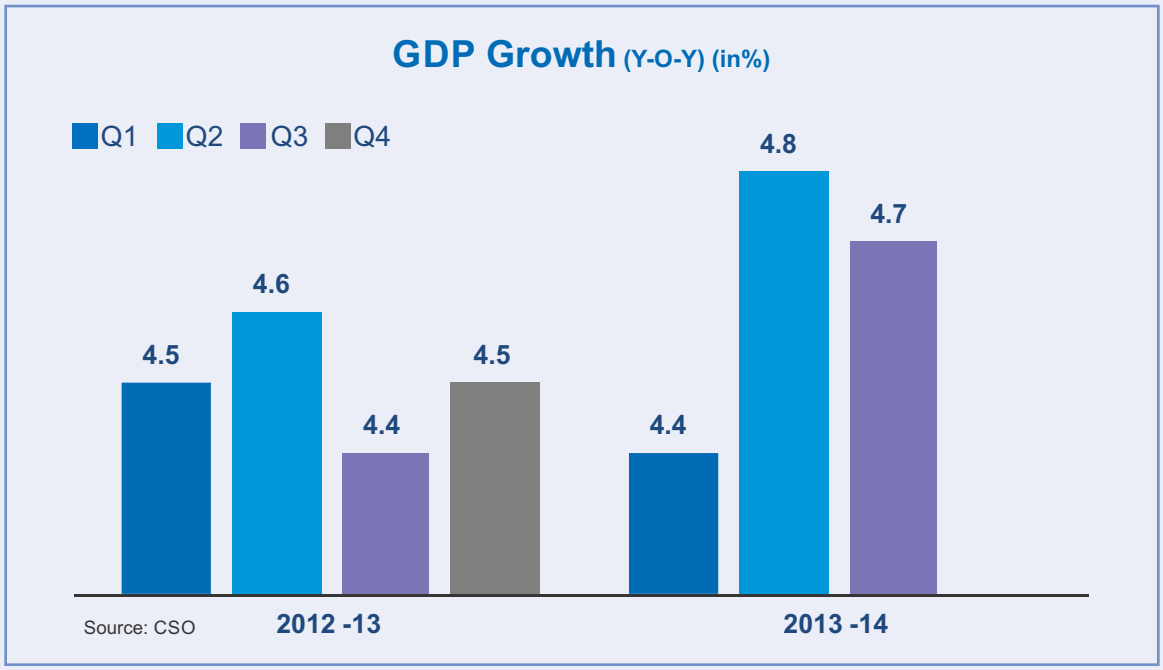
The initiatives yielded results subsequently. The government significantly relaxed the foreign direct investment guidelines and raised the limits of overseas investment in financial markets.

Government data showed that the economy fared better than expected, growing at 4.8% in the Q2. In Q1, the same stood at 4.4%, taking the overall growth in H1 to 4.6%. While manufacturing rose 1% during the September quarter, agriculture output soared 4.6%. Exports during the quarter grew a robust 16.3% on the back of rising global demand and fall in rupee exchange rate.

However, Asia's third largest economy grew 4.7% in the fiscal Q3, slower than the 4.8% pace in the preceding three months, indicating there's more pain left for consumers and companies as the government struggles to kick-start investment and reduce inflation.

Agriculture grew 3.6% in the December quarter, compared with 4.6% in the September quarter. Manufacturing contracted 1.9% against growth of 1% in the previous quarter, while mining contracted 1.6%—the seventh quarter in a row that it has shrunk. A slump in construction activity, which grew an anaemic 0.6% in the Q3 compared with 4.3% in the preceding three months, came as a surprise.

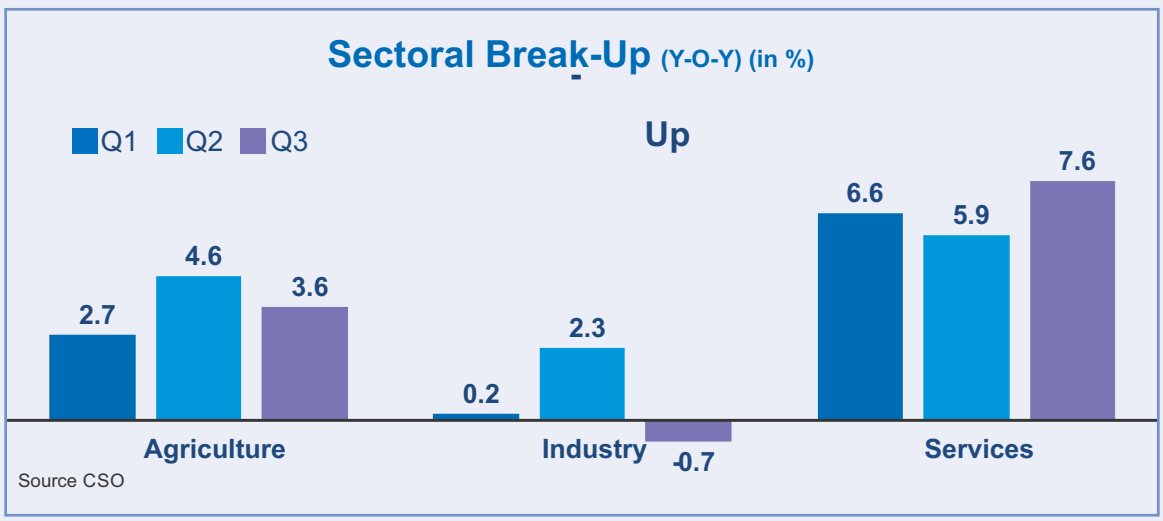
**Figure 1: Quarterly Estimate of GDP Growth (year-on-year in per cent)**




Note: - 2013-14 Refers to April 2013 and March 2014

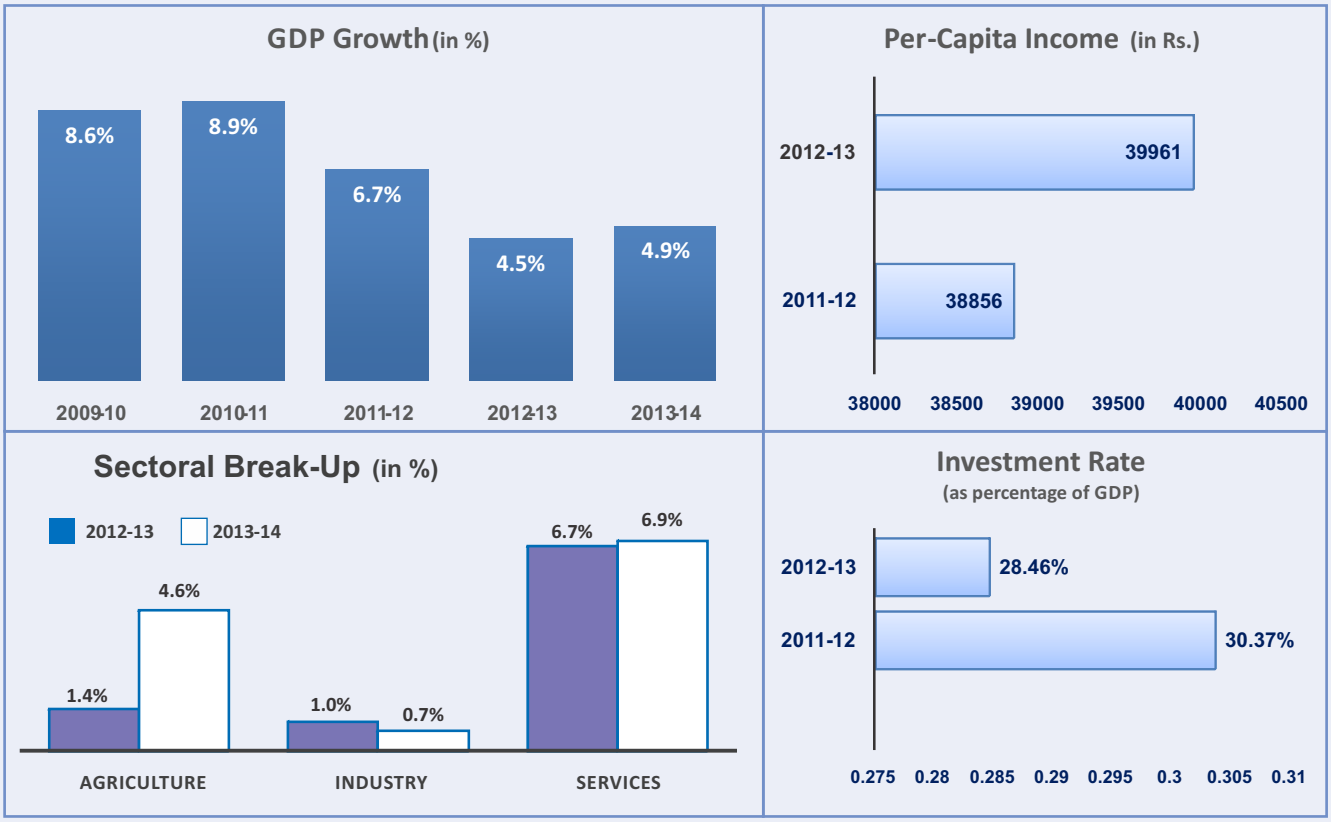
Given the performance in the first nine months and GDP growth of 4.9% projected by the Central Statistics Office (CSO) in its advance estimates for this financial year, the economy must expand 5.5% in the fourth quarter ending March 2014. Even, RBI expects growth to pick up to around 5.5% in 2014-15 after falling below 5% in 2013-14.

**Figure 2: Sectoral Break-up of GDP Growth (Y-0-Y in percent)**




The latest GDP figures in fact suggest that demand is picking up economy-wide. Please also note that private consumption expenditure is on the uptick, and the segment of "Trade, hotels, transport and communications" has posted strongly growth all along this fiscal.

**Figure 3: New Projections (in percent)**




Farm growth in Q3 at 3.6% is lower than that in Q2, but what is notable is that horticulture (fruit and vegetables) is expected to notch a smart 4.1% growth this fiscal year (over the like period last year). Retail inflation in February has come down to a 25-month low of 8.1%. Wholesale inflation fell to nine-month low of 4.68% in February due to easing prices of kitchen staples like onion and potato.

According to the advance estimates, the services sector, including finance, insurance, real estate and business services sectors, is likely to grow 11.2% this year compared with 10.9% in 2012-13.

Growth in construction is likely to improve to 1.7% from 1.1% in 2012-13. According to the CSO's advance estimates, growth in electricity, gas and water production is likely to improve to 6% in 2013-14 from 2.3% in 2012-13. The trade, hotel, transport and communication sectors are projected to grow by 3.5%, as against 5.1% in the previous financial year.

Community social and personal services growth would be better at 7.4%, compared with 5.3% previously.

Per capita income in real terms (at 2004-05 prices) during 2013-14 is likely to attain a level of ₹ 39,961 as compared to the first revised estimate for the year 2012-13 of ₹38,856.

**Table 1:Growth rate of GDP at Factor Cost**

| Growth Rate of GDP at Factor Cost (at 2004-05 prices) (in %) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2007-08 | 2008-09 | 2009-10 | 2010-11^ | 2011-12** | 2012-13* | 2013-14 (AE) |
| Agriculture | 5.8 | 0.1 | 0.8 | 8.6 | 5 | 1.4 | 4.6 |
| Industry | 9.7 | 4.4 | 9.2 | 7.6 | 7.8 | 1 | 0.7 |
| Mining & quarrying | 3.7 | 2.1 | 5.9 | 6.5 | 0.1 | -2.2 | -1.9 |
| Manufacturing | 10.3 | 4.3 | 11.3 | 8.9 | 7.4 | 1.1 | -0.2 |
| Electricity, gas and water supply | 8.3 | 4.6 | 6.2 | 5.3 | 8.4 | 2.3 | 6 |
| Construction | 10.8 | 5.3 | 6.7 | 5.7 | 10.8 | 1.1 | 1.7 |
| Services | 10.3 | 10 | 10.5 | 9.7 | 6.6 | 7 | 6.9 |
| **GDP at factor cost** | **9.3** | **6.7** | **8.6** | **8.9** | **6.7** | **4.5** | **4.9** |

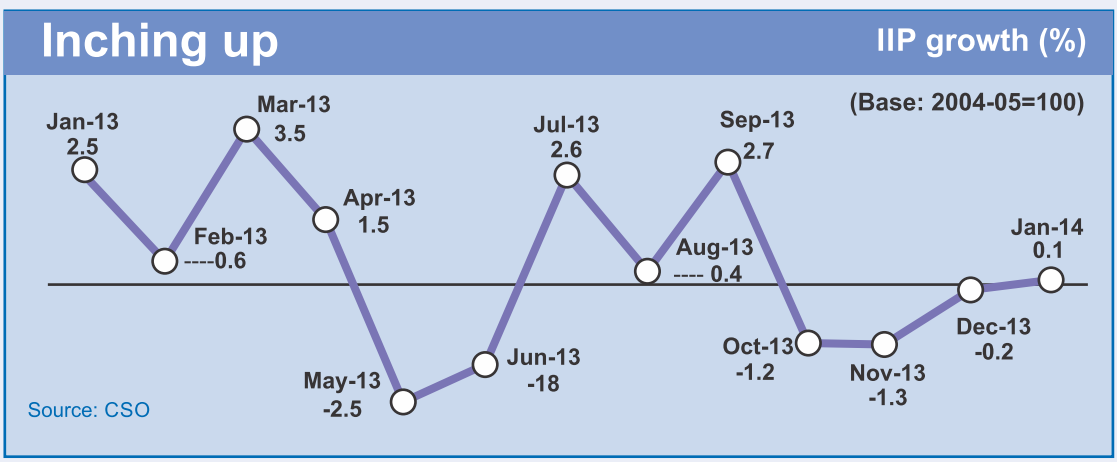
*First revised estimate ** Second revised estimate ^ Third revised estimate, AE- Advance Estimate

*Source:- Central Statistics Office, GoI*

However, industrial growth continues to stagnate and leading indicators of the services sector exhibit a mixed picture. Clear signs of a pick-up are yet to emerge, though a modest recovery is likely to shape up in 2014-15. Durable recovery remains contingent on addressing persistent inflation, and the bottlenecks facing the mining and infrastructure sectors.

## I. IIP – Index of Industrial Production

**Figure 4: Index of Industrial Production (IIP)**




Showing sign of recovery, the industrial output grew for the first time in four months on higher manufacturing, gaining 0.1% in January. In December, the IIP had shrunk by 0.6%. The decline in factory output, which began in October with IIP shrinking by 1.6%, continued the same trend in November with a 1.3% contraction, followed by 0.6% in December.

The decline in industrial output had been mainly pulled down by the fall in manufacturing sector.Power generation posted a growth of 6.5% in January, compared with 6.4% in the same month of 2013.

Expansion in power generation was 5.7% in April-January from 4.7% a year ago. The mining sector, with a weight of about 14% in IIP, grew 0.7% in January as against a dip of 1.8% in the same month in 2013. During April-January, mining output shrank 1.5% as against a dip of 1.8% a year earlier. The manufacturing sector, which constitutes over 75% of the index, declined 0.7% in January as against growth of 2.7%in the year-ago period. During April-Jan, the sector's output contracted 0.4% compared to a growth of 0.8% in same period last fiscal. Overall, 11 of the 22 industry groups in manufacturing showed positive growth in January.

**Figure 5: Used based Classification of Index of Industrial Production (IIP)**

| % | April-January FY13 | April-January FY13 |
|---|---|---|
| Basic Goods | 2.8 | 1.3 |
| Capital Goods | -9.4 | -0.8 |
| Intermediate Goods | 1.8 | 3.0 |
| Consumer Goods | 2.7 | -2.7 |

*Source : MOSPI*

Consumer goods output declined 0.6% compared with growth of 2.5% a year earlier. During April-January, consumer goods output contracted 2.7%, compared with 2.7% growth in the corresponding period of 2012-13. The consumer durables segment contracted 8.3% in January as against a decline of 0.7% previously. For the April-January period, the segment declined 12.5% compared with an expansion of 3.3% earlier.

In consumer non-durables, growth was 4.4% compared with 4.6% in January last year and for the April-January period, it was 5.6% versus 2.1% during the first 10 months of 2012-13. Capital goods production, a barometer of demand, showed a 4.2% decline in output compared with a contraction of 2.5% in the same month last year. The segment declined 0.8% in April-January as against a sharp contraction of 9.4% in the comparable period. The intermediate goods segment expanded at 3.4% in January compared with a growth of 3.5% a year earlier.

During April-January, the segment grew 3% compared with 1.8% growth previously. The basic goods segment grew 0.9% in January, lower than 3.7% in the same month last year, while for April-January, growth was 1.3% versus 2.8% in the year ago period.

## ii. Core Industries Performance

The Eight Core Industries recorded a positive growth for the third straight month at 1.6% in January'14, which is much lower than the 8.3% growth recorded in the corresponding period last fiscal. Besides, the cumulative output growth of these eight core sectors, having a weight of 37.9% in the overall index, lowered to 2.4% (Apr- Jan'14), when compared with 6.9% (Apr-Jan'13).

**Table 2: Core Industries Growth Rate (in percent)**

| Sector | Weight | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | Jan-13 | Apr. Jan-14 | Apr. Jan-13 | Jan-14 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Overall Index | 37.903 | 5.2 | 2.8 | 6.6 | 6.6 | 5.0 | 5.4 | 8.3 | 1.6 | 6.9 | 2.4 |
| Coal | 4.379 | 6.3 | 8.0 | 8.1 | 0.2 | 1.3 | 4.1 | 4.0 | -0.7 | 6.5 | 1.0 |
| Crude Oil | 5.216 | 0.4 | -1.8 | 0.5 | 11.9 | 1.0 | -0.6 | -0.2 | 3.0 | -0.4 | -0.3 |
| Natural Gas | 1.708 | 2.1 | 1.3 | 44.6 | 10.0 | -8.9 | -14.5 | -16.8 | -5.2 | -13.6 | -14.1 |
| Refinery Products | 5.939 | 6.5 | 3.0 | -0.4 | 3.0 | 3.1 | 23.6 | 35.1 | -4.5 | 30.1 | 1.4 |
| Fertilizers | 1.254 | -7.9 | -3.9 | 12.7 | 0.0 | 0.4 | -3.4 | -9.1 | 1.2 | -4.0 | 2.5 |
| Steel | 6.684 | 6.8 | 1.9 | 6.0 | 13.2 | 10.3 | 2.9 | 6.3 | 3.4 | 3.3 | 4.1 |
| Cement | 2.406 | 8.1 | 7.2 | 10.5 | 4.5 | 6.7 | 7.7 | 10.2 | 1.5 | 8.1 | 3.4 |
| Electricity | 10.316 | 6.3 | 2.7 | 6.2 | 5.6 | 8.1 | 4.0 | 6.3 | 5.7 | 4.8 | 5.2 |

Source : Ministry of Commerce and Industry

The core industry growth during the month was offset by the continued contraction in coal (-0.7%), natural gas (-5.2%) and refinery products (-4.5%) output. The remaining five core industries recorded a positive growth.

Of these five industries, steel production recorded a growth of 3.4% followed by crude oil (3%), cement (1.5%) and fertilizers (1.2%). Electricity was the only sector which posted a healthy growth during the month at 5.7%. However, the growth in electricity generated has been lower than that recorded in the previous fiscal (6.3%) clearly reflecting the impact of continuously falling coal production.

## iii. Balance of Payments

**Merchandise exports**

On balance of payments (BoP) basis, merchandise exports increased by 7.5% to $79.8 billion in Q3 of 2013-14 (3.9% in Q3 of 2012-13) on the back of significant growth especially in the exports of engineering goods, readymade garments, iron ore, marine products and chemicals. On the other hand, merchandise imports at $112.9 billion, recorded a decline of 14.8% against an increase of 10.4%.

As per RBI - the decline in imports in the Q3 was primarily led by a steep decline in gold imports, which amounted to $3.1 billion as compared to $17.8 billion in the Q3 of 2012-13 and $3.9 billion in the Q2 of 2013-14.

As a result, merchandise trade deficit (BoP basis) contracted by around 43% to $33.2 billion in the Q3 of 2013-14 from $58.4 billion a year ago.

## iv. FDI

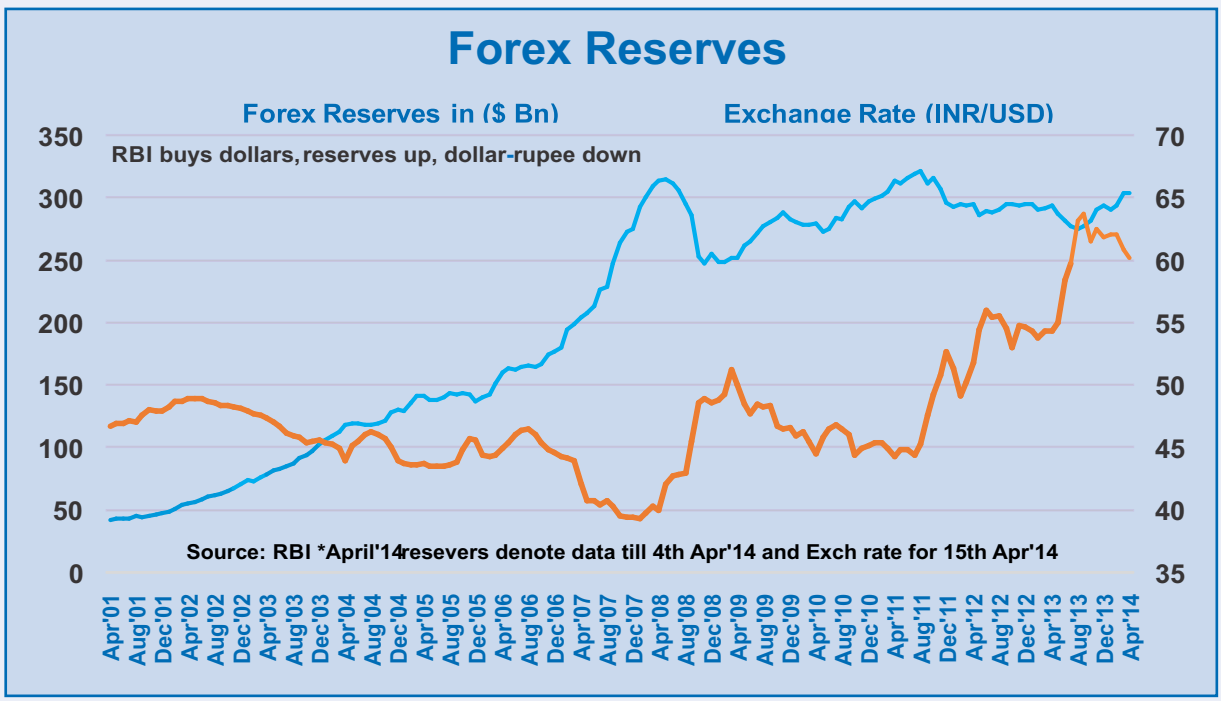
In the financial account, on net basis, foreign direct investment and portfolio investment recorded inflows of $6.1 billion and $2.4 billion, respectively in the third quarter of 2013-14. Within portfolio investment, the debt segment showed net outflow which, however, was offset by higher net inflows of equity of $6.2 billion.

Net inflows of NRI deposits amounted to $21.4 billion as compared to $2.7 billion. A sharp increase in NRI deposits was on account of fresh FCNR (B) deposits mobilized under the swap scheme offered by the RBI during Sep-Nov'13.

## v. Forex reserves

India's forex reserves have crossed $300 billion for the first time since Dec'11. Forex reserves increased by $2.97 billion to $306.64 billion for the week ended April 4th. 2014. This is the sixth consecutive week of increase in the country's forex reserves as overseas investors poured in money in local bonds and stock markets.

**Figure 6: Forex Reserves increase to $306.64 billion**

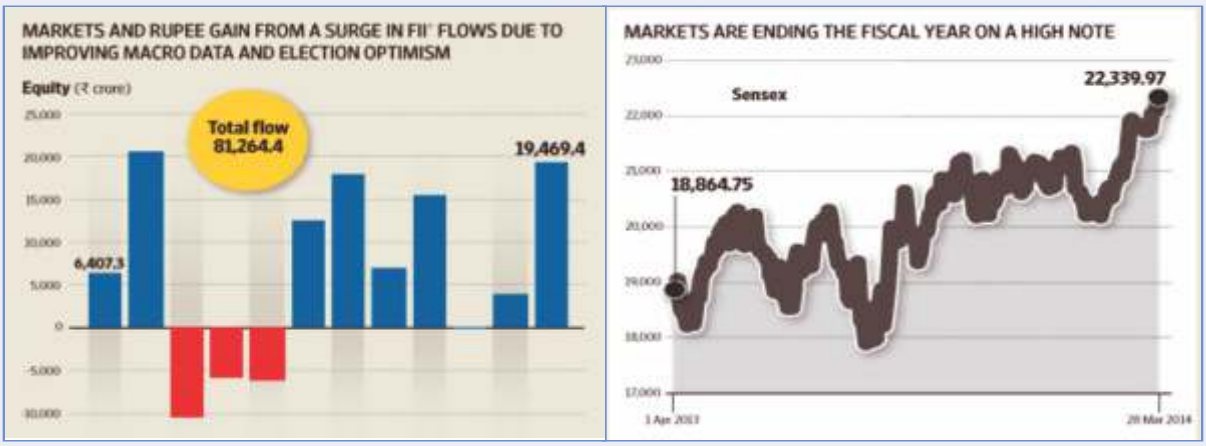



Forex reserves had risen by $5.03 billion & $1.34 billion in the previous two weeks.

## vi. FII Flow and Stock Market Performance

Indian markets scaled new heights on slowing inflation and a surge in FII in-flows due to improving macro data and election optimism. The rupee ended the fiscal year at an eight-month high after plunging to a record low in Aug'13.

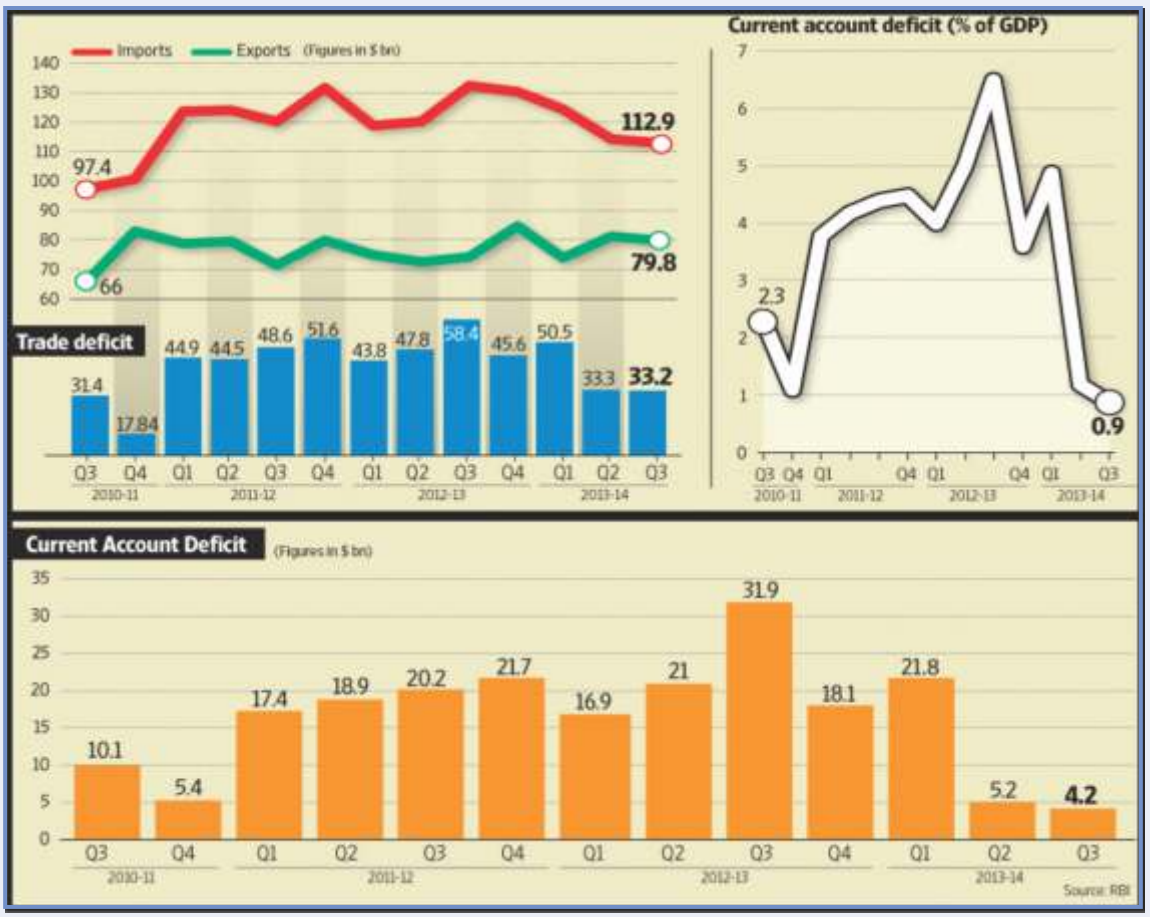
**Figure 7: FII Flow and Stock Market Performance**



## vi. Current Account Deficit

India's current account deficit (CAD) shrunk sharply USD 4.2 billion (0.9% of GDP) in Oct to Dec period of 2013-14, aided by a dramatic fall in imports.

**Figure 8: Q3 CAD at 0.9% of GDP at $4.2 billion**




This was a sharp fall from both the previous year and also lower than the preceding quarter. However, the decline in the CAD is merely transitory, as a rise in oil imports in 2014-15, would drive up the deficit again in 2014-15.

Higher capital inflows relative to CAD resulted into a BoP surplus of $19.1 billion in the Q3 of 2013-14 as compared to a BoP deficit of $10.4 billion in the previous quarter. The country's foreign exchange reserves at $295.7 billion at the end of the Q3 of 2013-14 were slightly lower than $296.6 billion recorded a year ago.

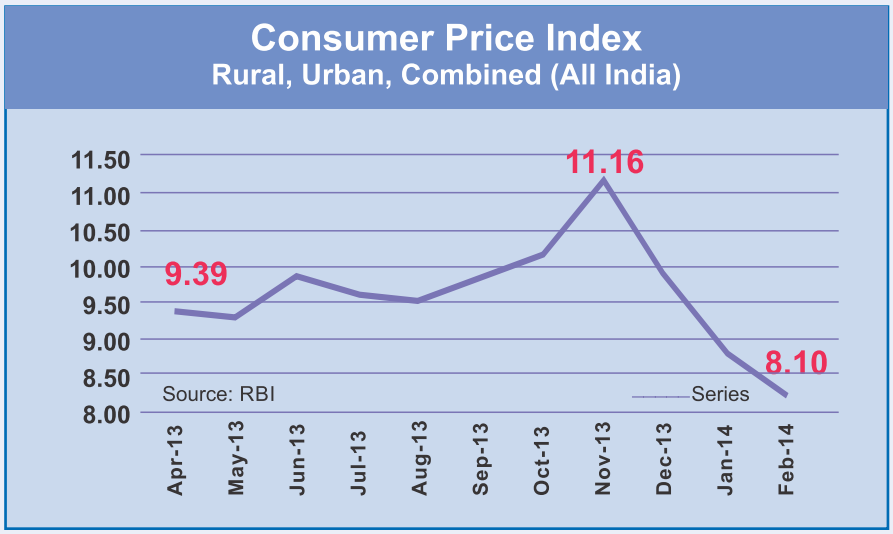
India's trade deficit in the October-December quarter fell to $33.2 billion in the third quarter of 2013-14 from $58.4 billion a year ago. While exports rose 7.5% to $79.8 billion riding on good growth in exports of engineering goods, readymade garments, iron ore, marine products and chemicals, imports declined by 14.8% to $112.9 billion due to the decline in gold imports.

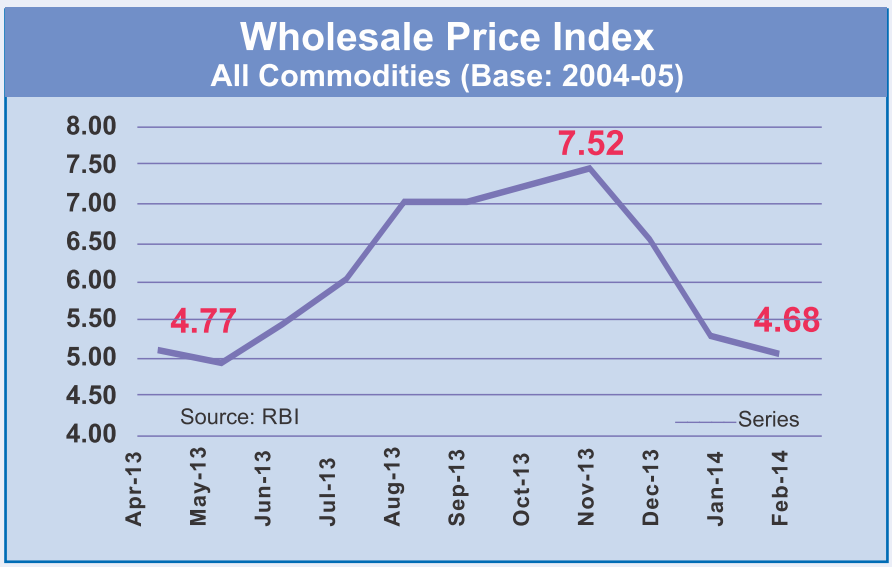
In 2014-15, a sharp pick-up in world growth and a weak rupee could keep the momentum in overall merchandise and services exports high. However, sectors like petroleum could see some decline in exports.In 2013-14, petroleum exports surged due to commissioning of new refineries which left substantial surplus for exports. In 2014-15, with no new refining capacity expected to be commissioned, and in view of higher domestic demand for petroleum products, exports of these could see lower growth. A fall in global crude oil prices will also weigh on petroleum exports in value terms.

## vii. Inflation

Inflation slipped to a nine-month low of 4.68% in February on the back of easing prices of onion and potatoes. Inflation based on the Wholesale Price Index (WPI) came down to 4.68% in February from 7.28% a year ago. It was 5.05% in January 2014.

**Figure 9: Rate of Inflation (in percent)**



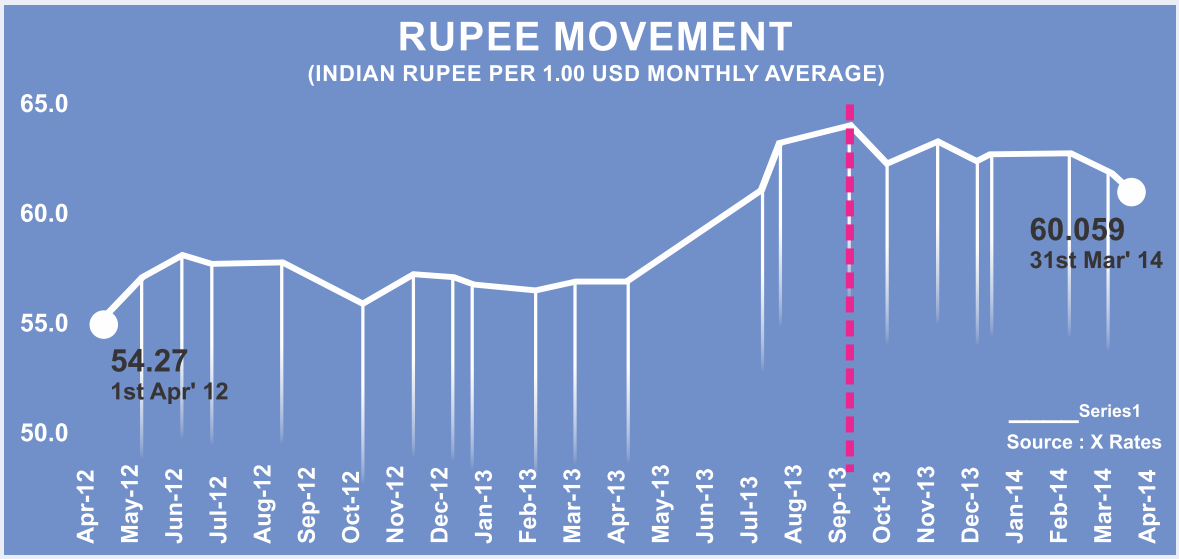




Food inflation, which has been a major cause of concern for the government, dropped to 8.12% in February, compared to 8.8% in January as the rate of price rise slowed in almost all items, except fruits, rice and milk. Inflation, which is on decline since December, was 5.05% in January. Prior to February, the lowest WPI was recorded in May, 2013, at 4.58%. In June, it had inched up again to 5.16%.

## viii. Rupee (₹)

At a time when emerging market currencies are volatile in the light of growing fears of further tapering by the US Federal Reserve, the rupee has managed to hold its ground and has remained largely stable. The currency has been the top performer amongst its emerging market (EMs) peers since early-September 2013. The currency has moved in a narrow band of 61-63/$ so far in 2014 finally closing the year above 60/$.

**Figure 10: Rupee Movement in last two years**




## Outlook for 2014-15: India

As the famous saying goes -- perception is reality. When the outside world sees what India is going through, its perception of the country is bound to dramatically change. We have come a long way since the liberalization of the Indian economy in 1991, and the outside world no longer sees India the same way it did 25 years ago. It now sees the soon to be 3rdlargest economy in the world.

Specifically, all indicators are pointing towards India whose economy will grow faster in 2014-15 than anybody could have previously imagined, and how 2014-15 will be the year that India finally makes that magical jump from the ranks of a '3rd world' economy to a legitimate, economic powerhouse.

With an economic surge, jobs are bound to be created. With the export sectors expected to do exceedingly well in 2014-15, new outsourcing placements are bound to materialize in all export driven sectors: pharma, IT, textiles, jewellery (due to higher consumption domestically as well as internationally) are a few examples.

Domestic sectors are bound to perform better in 2014-15 as well. For example, the banking sector is bracing itself for a big turnaround due to the Reserve Bank of India's (RBI) liberalization of the banking industry, making it easier for banks to acquire loans and reducing the amount of red tape within the sector.

The retail sector, which will not only drive consumption but will also create jobs as new entrepreneurs enter the landscape and create businesses. With the RBI insisting that it wants to make it more lucrative and seamless for FDI's to invest in the country in the next year, all signs are pointing towards a massive increase in FDI activity in the country.

Another golden lining is that residential purchase of new homes is included in the 'investment' category of GDP. With falling house prices, 2014-15 could be the year that a real estate bubble breaks and residential home purchases once again go on an up-climb.

London-based economic consultancy Centre for Economics and Business Research (CEBR) has predicted in a report released in Dec'13 that India is likely to overtake Japan in 2028 to become the third largest economy, after China and the US.

By 2018, the emerging economies will be "on the move". Russia would be at the 6th place; India 9th, Mexico 12th, Korea 13th and Turkey 17th, the report said.

The report noted that India's trend growth is likely expected to overtake China at some point due to the country having a significantly younger and faster growing working age population. "India is expected to achieve the most significant increases in share of the world GDP at Market Exchange Rates (MERs) by 2050.

In 2009, India's share of world GDP at MERs was just 2%. By 2050, this share could grow to around 13%," the report said.

**Table 3: India's GDP Growth Projection – 2014 - 15**

| Agencies | 2014-15 |
|---|---|
| ADB | 5.5% |
| Crisil | 6.0% |
| DBS | 5.5% |
| Goldman Sachs | 5.5% |
| Morgan Stanley | 5.2% |
| IMF | 5.4% |
| OECD | 5.6% |
| UN | 5.3% |
| World Bank | 6.1% |

***Most economists are of the consensus notion, that the worst is over for the Indian economy, and the parameters are in fact reflective of green shoots emerging.***

## SECTION 2

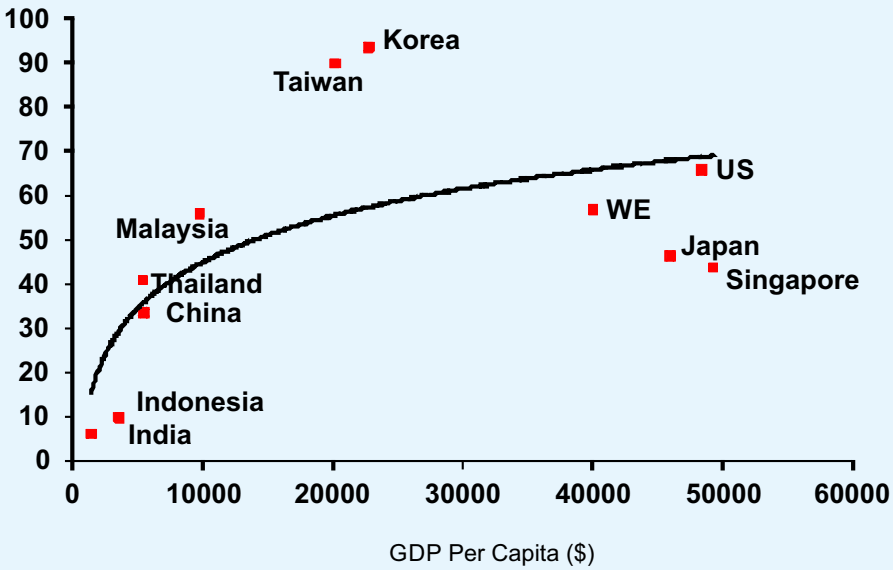
# Indian Petrochemical Industry

# Petrochemical Industry in India

Petrochemicals play a vital role in the functioning of virtually all key sectors of economy which includes agriculture, infrastructure, healthcare, textiles and consumer durables. Polymers provide critical inputs which enable other sector to grow. Petrochemical products cover the entire spectrum of daily use items ranging from clothing, housing, construction, furniture, automobiles, household items, toys, agriculture, horticulture, irrigation, and packaging to medical appliances.

Per capita consumption of polymer has reached saturation level in US. India has the advantage of high population and expected to maintain high economic growth. This should propel India's polymer consumption to new levels in coming year.

**Figure 11: Per capita Polymer Consumption Vs per capita GDP ~ 2012**




The domestic polymer industry (like global industry) is dominated by Polyolefin's (PE & PP), representing about 74% of all commodity resins consumed in 2012-13. Polymers registered demand growth of 11.4% in 2012-13 against growth of 5.9% in 2011-12. The demand for polymer is likely to grow by 6.2%&7.8%approx. in 2013-14& 2014-15 and is expected to reach 10233KT&11029KT respectively.

Net trade deficit rosefrom 1365KT in 2011-12 to 1913KTin 2012-13and is expected to decline substantially to1772KT and 1742KT in 2013-14&2014-15 respectively. Domestic demand is expected to outpace domestic production. New capacities ofMRPLare expected in 2014-15.

Indian petrochemical industry has unrealized potential. Polymer demand is expected to grow by 8-9% in 2014-15 with a healthy growth in the relevant industries such as clothing, automobiles etc. Government and the industry players will have to work in tandem to achieve ambitious targets for the industry.

## Petrochemical Industry Review of 2013 & Outlook for 2014

### Polymers

India's petrochemical industry, which was hurt in 2013 by an economic slowdown and the depreciation of the Indian currency, is expected to recover in the near term, and the industry's long-term prospects are looking very positive, say experts and manufacturers in the country. A number of Indian state-owned energy companies are making major investments to boost their petrochemical activities and are expected to become significant players in the sector. Capacity expansions by several other manufacturers are moving ahead and gradually filling the gap between domestic demand and supply.

Overall, the outlook for the petrochemical industry in India is somewhat more positive than it has been recently, as growth in GDP and industrial output is expected to be higher in 2014-15 than in the prior year, and key end-useindustries like automotive, packaging, and consumer durables reflect this outlook.

Polymers registered a double digit growth of 11.4% in 2012-13 however is expected to slow down at 6.2% in 2013-14as the economy slows down due to monetary & fiscal tightening by government for controlling inflation and weakness in global growth. The main drivers of polymer demand in India remain to be packaging, automobiles, construction, health care, etc. The packaging industry is estimated to be growing at an annual rate of more than 15% annually. Plastics raffia or the woven sack sector is dependent on end-use consumers for packaging applications viz. cement, fertilizers, food grains, sugar, sand / minerals / chemicals / petrochemicals, tarpaulin, geo textiles etc.

**Table 4: Polymer Demand Supply (KT)**

| Polymers (KT) | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|
| Capacity | 8487 | 8967 | 9882 | 10089 | 12290 | 12740 |
| Production | 7682 | 7958 | 8424 | 9059 | 11311 | 12089 |
| **Op Rate (%)** | **91%** | **89%** | **85%** | **90%** | **92%** | **95%** |
| Import | 2404 | 2970 | 2777 | 2957 | 2688 | 2907 |
| Exports | 1121 | 1057 | 1005 | 1215 | 1667 | 1641 |
| Net Trade | -1283 | -1913 | -1772 | -1742 | -1021 | -1266 |
| Demand | 8654 | 9640 | 10233 | 11029 | 12041 | 13049 |
| **Demand Growth %** | **5.9%** | **11.4%** | **6.2%** | **7.8%** | **9.2%** | **8.4%** |

Operating rate for polymers is expected to increase from 89% in 2012-13 to 92% in 2015-16. Import dependency remained high at ~30% in 2012-13 and is expected to come down in next two years to ~27%. PP exports was around 828KT in 2012-13, PE and PVC imports were very high. PE imports in 2012-13 were ~1217KT and PVC imports remained high at 1133KT in 2012-13.In 2012-13 net trade deficit of total polymers stood at 1913KT. Trade deficit is expected to be 1772KT in 2013-14 and down to 1021KT in 2015-16.

Indian Automobile sector has been hit hard by the on the back of prevailing economic slowdown coupled with high fuel and interest costs. It is expected that with the easing of inflation, the interest rates will start coming down and the sentiment will improve. Similar impact has been seen on other sector also, indirectly affecting the polymer demand.

However, the demand for polymers is expected to grow at 7.8% in 2014-15 and see a modest growth of 9.2% in 2015-16. India's petrochemical industry, like the overall economy, faces near-term challenges, but the long-term growth outlook for the industry remains positive. Capacity expansions by several other manufacturers are moving ahead.

OPaL, the special purpose vehicle (SPV) of Oil and Natural Gas Limited (ONGC) is setting up a mega petrochemical project at Dahej in Gujarat, India. The project includes a dual feed cracker unit (DFCU) having a capacity of 1.1 million mt/year of ethylene and 400,000 mt/year of propylene, and associated units that include a Pyrolysis Gasoline Hydrogenation Unit, Butadiene Extraction Unit and Benzene Extraction Unit. In addition, OPaL is setting up two 360,000 mt/year HDPE/LLDPE swing units, and HDPE and PP units having a capacity of 340,000 mt/year each, downstream of the cracker. Production is expected to begin in 2015-16.

The Brahmaputra Cracker and Polymer Ltd.(BCPL) facility at Lepetkata, in the state of Assam,is expected to be on-stream later this year. BCPL is a JV in which Gail has a70% stake, and the remaining 30% is sharedequally among Oil India (New Delhi), NumaligarhRefinery (Guwahati, India), and the Assamgovernment. The complex will produce acombined 220,000 m.t./year of high-densityPE (HDPE) and linear LDPE (LLDPE), as wellas 60,000 m.t./year of PP. The project commissioning is expected tobe completed by 2015-16.

GAIL is currently expanding petrochemicals capacity at its Pata, India, siteby adding a 450,000-m.t./year LLDPE-HDPE swing plant.With this expansion,Gail will double its petrochemical capacity by the end of 2014-15.

BPCL is expanding refining capacity at Kochi and, as part of those plans, isestablishing a fluid catalytic cracker that will produce 500,000 m.t./year ofpropylene to be consumed as feedstock by the proposed petrochemical complex. The petrochemical plant will produce niche petrochemicals such as acrylic acid, superabsorbent polymers (SAP), acrylates, and oxo alcohols. The BPCL petrochemical complex, when operational, would be the first plant in India to produce SAPs. The Department of Chemicals & Petrochemicals expects the complex to be on-stream in fiscal year 2017–18.

ONGC Mangalore Petrochemicals Ltd. (OMPL; Mangalore, India) is building an aromatics complex in the Mangalore special economic zone (SEZ). OMPL is promoted by ONGC and Mangalore Refinery and Petrochemicals Ltd. (MRPL; Mangalore), a subsidiary of ONGC. The aromatics complex will produce 900,000 m.t./year of p -xylene and about 300,000 m.t./year of benzene and is expected to become operational in the fiscal year ending March 2015. MRPL is separately building a 450,000-m.t./year PP plant at the Mangalore SEZ, which is also expected to be on-stream in the fiscal year ending March 2015.

To meetdomestic demand, an Indian Oil joint ventureopened India's first SBR plant at Panipatin November 2013. Indian Synthetic RubberLtd., the JV that owns and operates the120,000-m.t./year SBR plant, is owned 50%by Indian Oil, 30% by TSRC (Taipei), and 20%by Marubeni (Tokyo). Indian Oil's Panipatnaphtha cracker complex provides the plant'sbutadiene feedstock supply.

Indian Oil is building 1-million m.t./year acetic acid plant in a JV with BP, near Indian Oil's refinery at Koyali, in the state of Gujarat. The acetic acid facility is expected to become operational in 2017. Indian Oil is studying a number of projects based on refinery propylene at Koyali. Facilities would make products including acrylic acid, acrylic esters, and oxo alcohols. The acrylic acid plant would be designed to produce 100,000 m.t./year, and the esters unit, producing mainly butyl acrylate, would have capacity for 160,000 m.t./year.

RIL is significantly expanding its petrochemicals capacity with a range of projects. RIL is doubling PX capacity at Jamnagar and will become the world's second-largest producer of PX.

Reliance is expected to commission a 142,000-m.t./year SBR plant and a 40,000-m.t./year polybutadiene rubber plant at Hazira, India, by the current financial year. Public sector unit GAIL (India) is gearing up to spend about ₹ 2,600 crore to set up 110,000 tonne-per-yearpoly butadiene rubber (PBR) plant in Gujarat. The project is targeted to be completed by the Q1 of FY17.

A 100,000-m.t./year butyl rubber JV facility at Jamnagar with Sibur (Moscow) will be online in 2015. The new plant will expand RIL's total BR capacity to 120,000 tonnes/year. RIL currently runs an 80,000 tonne/year BR plant at Baroda, which is also in the Gujarat state. Reliance is building a 1.5-million m.t./year ethylene plant at Jamnagar that is expected to start up in the second half of 2015-16.

## Polyolefins

Comprising PE & PP, Polyolefins constituted80% of the total polymer capacity andproduction in India in 2012-13.

**Table 5: Polyolefin Demand in India Actual & Projected (KT)**

| (KT) | Actual | | Projected | | % Change year on year | | |
|---|---|---|---|---|---|---|---|
| | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2012-13 | 2013-14 | 2014-15 |
| LDPE+EVA | 581 | 559 | 562 | 604 | -3.8% | 0.5% | 7.5% |
| LLDPE | 1135 | 1257 | 1306 | 1378 | 10.7% | 3.9% | 5.5% |
| HDPE | 1549 | 1694 | 1782 | 1953 | 9.4% | 5.2% | 9.6% |
| PP | 3160 | 3605 | 3843 | 4121 | 14.1% | 6.6% | 7.2% |
| Total PO | 6425 | 7115 | 7493 | 8056 | 10.7% | 5.3% | 7.5% |

*Source: Industry Estimates.A: Actual, E: Estimate*

All PE registered demand growth of 7.2% in2012-13. It is expected that PE will see correction in demand to 4.4% in 2013-14 and again bounce back 9.3% in 2015-16.

PP registered a demand growth of 14.1% in 2012-13and growth is expected towitness a slow-down to touch 6.6% in 2014-15 before gaining and touching 9.7% in 2015-16.MRPL is expected to commence its production of 440 KT PP in current year – 2014-15.Polyolefins registered demand growth of 10.7%in 2012-13. It is expected to slow to 5.3% in 2013-14 before it sees an upside and reach 9.5% in 2014-15.

## Vinyl's: PVC

The demand for PVC increased substantially to 12.8% in 2012-13 from a low of 8.5%in 2011-12, however it is expected to remain around 9.4% in 2014-15.

**Table 6: PVC Demand Supply (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 |
|---|---|---|---|---|---|---|---|
| Capacity | 1335 | 1335 | 1360 | 1495 | 1557 | 1557 | 1557 |
| Production | 1237 | 1242 | 1201 | 1406 | 1485 | 1485 | 1485 |
| Imports | 674 | 851 | 1133 | 1095 | 1225 | 1475 | 1750 |
| Exports | 10 | 4 | 1 | 0 | 0 | 0 | 0 |
| Apparent Demand | 1919 | 1979 | 2263 | 2478 | 2710 | 2960 | 3235 |
| **Demand Growth%** | **7.9%** | **8.5%** | **12.8%** | **5.5%** | **9.4%** | **9.2%** | **9.3%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

As the economy is expected to perform well with the easing of monetary policy and various PVC end use sectors performance improving, PVC demand is expected to see a sustained growth in coming years.

There was new capacity additionfrom 1335 KTin 2011-12 to 1360KT in 2012-13. PVC capacity is expected to touch 1495KTin 2013-14 and further to 1557KT in 2014-15.

Reliance is de bottle necking its PVC complex at Dahej by adding 100,000 m.t./year of capacity in 2014-15.

PVC import was851KT in 2011-12, increased to 1133KT in 2012-13 and is expected to increase further to 1475 KTby 2015-16.

## Styrenics

### A. Polystyrene

In 2012-13, demand for PS increased by 5% to reach 263KT, as shown in tablebelow. Demand for PS is expected tomaintain the same rate in 2013 & 2014.

**Table 7: Polystyrene Demand Supply (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| Capacity | 472 | 472 | 472 | 472 | 472 | 472 | 472 |
| Production | 305 | 290 | 308 | 308 | 308 | 308 | 308 |
| Imports | 11 | 11 | 17 | 17 | 17 | 17 | 17 |
| Exports | 64 | 50 | 58 | 58 | 58 | 58 | 58 |
| Apparent Demand | 248 | 250 | 263 | 263 | 263 | 263 | 263 |
| **Demand Growth%** | **5.7%** | **0.8%** | **5.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

### B. Acrylonitrile-Butadiene-Styrene (ABS)

Demand for ABS registered a growth of 14.2% in 2012-13 however expected to dip to 9.9% in 2013-14. The slowdown in PS demand is fallout of economic slowdown. Demand for consumer durable good declined affecting the PS demand. Industry capacity is expected rise in 2014-15 and touch 155 KT as Styrolution ABS Ltd and Bhansali Engineering Polymers Ltd. are expected to add capacity in that period and touch 190 KT by 2015-16.

**Table 8: ABS Demand Supply (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| Capacity | 111 | 131 | 131 | 131 | 155 | 190 | 190 |
| Production | 90 | 90 | 96 | 99 | 124 | 154 | 173 |
| Imports | 36 | 32 | 44 | 55 | 45 | 35 | 35 |
| Exports | 1 | 2 | 3 | 3 | 3 | 8 | 8 |
| Apparent Demand | 125 | 120 | 137 | 151 | 166 | 181 | 200 |
| **Demand Growth%** | **15.7%** | **-4.0%** | **14.2%** | **9.9%** | **10.4%** | **8.7%** | **10.5%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

### C. Styrene-Acrylonitrile (SAN)

After registering a robust demand growth of 9.8% in 2011-12, demand for SAN declined to 2.5% in 2012-13. It is expected to growat about 7% in 2013-14 and again see a jump in 2015-16 with capacity addition touching 130 KT in 2013-14 and 150 KT in 2015-16.

**Table 9: SAN Demand Supply (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| Capacity | 80 | 90 | 90 | 130 | 130 | 150 | 150 |
| Production | 73 | 78 | 78 | 82 | 84 | 113 | 154 |
| Imports | 1 | 3 | 5 | 7 | 10 | 0 | 0 |
| Exports | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| Apparent Demand | 74 | 81 | 83 | 89 | 94 | 114 | 138 |
| Demand Growth% | 5.7% | 9.8% | 2.5% | 6.9% | 5.6% | 21.8% | 20.4% |

*Source: Industry Estimates. A: Actual, E: Estimate*

Import is expected to double from 5 KTin 2012-13 to 10KT in 2014-15 to meet the domestic consumption demand.

## Olefins (including Butadiene, Styrene, EDC & VCM)

### A. Ethylene & Propylene

Ethylene Capacity increased from 3837KT in 2010-11 to 3907KTin 2012-13.

**Table 10: Ethylene & Propylene net availability (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **Ethylene (KT)** | | | | | | | |
| Capacity | 3837 | 3907 | 3907 | 4157 | 5637 | 7127 | 7127 |
| Production | 3000 | 3355 | 3744 | 3985 | 5165 | 6755 | 6955 |
| Imports | 55 | 15 | 23 | 50 | 25 | 25 | 25 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Net Availability** | **3055** | **3370** | **3767** | **4035** | **5190** | **6780** | **6980** |
| **Propylene (KT)** | | | | | | | |
| Capacity | 3892 | 3932 | 4132 | 4417 | 4817 | 4957 | 4957 |
| Production | 3150 | 3700 | 3880 | 4150 | 4510 | 4550 | 4550 |
| Imports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exports | 40 | 9 | 6 | 10 | 10 | 10 | 10 |
| **Net Availability** | **3150** | **3700** | **3881** | **4150** | **4510** | **4550** | **4550** |

There is capacity addition expected by GAIL and this will make the total capacity to touch 4157 KT in 2013-14 and further to 5637 KT in 2014-15.

Propylene capacity increased from 3892KT in 2010-11 to 3932KT in 2011-12. It further increased to 4132KT in 2012-13, capacity addition of 450KT by HMEL in 2013-14. OPAL is expected to add 340 KT of propylene capacity in 2014-15and BCPL-Assam GC 60 KTin the same year.

In 2012-13, production of ethylene and propylene was 3744 KT and 3880KT respectively as shown in above table. Ethylene Production is expected to remain rise to 4150 KT in 2013-14 keeping in line with the capacity addition made by GAIL. Propylene production is expected to increase by 4150 KT in 2014-15as new capacity comes on stream.

**B. Butadiene**

The demand for butadiene registered a negative growth of -1.1% in 2012-13.Demand is expected to register a robust growth of 159% in 2014-15on back of new SBR & PBR plants of RIL coming up in next few years. IOCL is adding 140KT of Butadiene capacity in 2014-15and OPAL is expected to add 56KT in 2014-15 increasing it to 115 KT in 2015-16.

Production is expected to increase in line with the new capacity addition taking place and is expected to increase from 295KT in 2012-13 to 550 KT in 2014-15.

**Table 11: Butadiene Demand Supply (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 |
|---|---|---|---|---|---|---|---|
| Capacity | 295 | 295 | 295 | 295 | 493 | 550 | 550 |
| Production | 266 | 262 | 223 | 220 | 363 | 434 | 482 |
| Imports | 4 | 0 | 2 | 0 | 16 | 0 | 39 |
| Exports | 147 | 143 | 113 | 104 | 60 | 65 | 65 |
| Apparent Demand | 121 | 114 | 113 | 117 | 303 | 369 | 456 |
| **Demand Growth%** | **10.4%** | **-5.7%** | **-1.1%** | **3.2%** | **159.6%** | **22.0%** | **23.5%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

There was an exportable surplus of 143KT in 2011-12, which declined to 113KT in 2012-13. Export is expected to be ~104KT in 2013-14.

**C. Styrene**

India does not have any capacity for styrene and is fully dependent upon imports as shown in table below. For 2012-13, India's total demand for Styrene was 523KT and growth in styrene demand was at 5.4%. In 2013-14, demand for Styrene is projected to grow in the range of 5.5%and expected to reach 582KT&614KT respectively in 2014-15& 2015-16.

**Table 12: Styrene Demand Supply(KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 |
|---|---|---|---|---|---|---|---|
| Imports | 470 | 496 | 523 | 551 | 582 | 614 | 647 |
| Exports | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Apparent Demand | 470 | 496 | 523 | 551 | 582 | 614 | 647 |
| **Demand Growth%** | **3.8%** | **5.4%** | **5.4%** | **5.5%** | **5.5%** | **5.5%** | **5.5%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

### D. EDC & VCM

Almost the entire production of EDC and VCM in India are consumed captively by the polymer manufacturers for production of PVC and hence, PVC manufacturers who do not have facilities for captive production of EDC and VCM have to rely entirely on imports to meet their demand for PVC building blocks viz. EDC and VCM.

**Table 13: EDC & VCM Import into India (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **EDC** | | | | | | | |
| Capacity | 350 | 350 | 205 | 185 | 185 | 185 | 185 |
| Production | 331 | 296 | 185 | 185 | 185 | 185 | 185 |
| Imports | 292 | 332 | 451 | 470 | 550 | 550 | 550 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apparent Demand | 623 | 628 | 636 | 655 | 735 | 735 | 735 |
| **Demand Growth (%)** | **0.0%** | **0.8%** | **1.3%** | **3.0%** | **12.2%** | **0.0%** | **0.0%** |
| **VCM** | | | | | | | |
| Capacity | 856 | 856 | 856 | 906 | 956 | 956 | 956 |
| Production | 839 | 850 | 840 | 895 | 945 | 945 | 945 |
| Imports | 404 | 411 | 440 | 510 | 510 | 510 | 510 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apparent Demand | 1243 | 1261 | 1280 | 1405 | 1455 | 1455 | 1455 |
| **Demand Growth (%)** | **16.0%** | **1.4%** | **1.5%** | **9.8%** | **3.6%** | **0.0%** | **0.0%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

EDC & VCM registered nominal growth of 1.3% &1.5% in 2012-13. EDC is expected to register demand growth of approx. 12% in 2014-15. For the year 2012-13, while imports of EDC increased to 451KT, VCM imports increased to440KT. EDC imports expected to increase to 470KT&550KT in 2013-14& 2014-15 respectively. VCM imports expected to reach 510KT by 2013-14.

## Fibre Intermediates

In 2012-13, the combined production of fibre intermediates viz. ACN, Caprolactam, PTA and MEG reached 4563KT of which PTA and MEG constituted 74% and 23% respectively with ACN and Caprolactam together accounting for the remaining 3%.

**Table 14 : Fibre Intermediate Demand Supply (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **ACN** | | | | | | | |
| Capacity | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Production | 38 | 38 | 33 | 37 | 39 | 39 | 39 |
| Imports | 85 | 77 | 82 | 110 | 126 | 131 | 142 |
| Exports | 0 | 6 | 2 | 0 | 0 | 0 | 0 |
| Demand | 123 | 113 | 115 | 148 | 165 | 170 | 181 |
| **Demand Growth (%)** | **1.7%** | **-7.8%** | **1.8%** | **28.2%** | **11.8%** | **3.0%** | **6.2%** |
| **Caprolactam** | | | | | | | |
| Capacity | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| Production | 123 | 118 | 108 | 108 | 112 | 112 | 114 |
| Imports | 6 | 5 | 10 | 11 | 13 | 15 | 17 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Demand | 129 | 123 | 118 | 119 | 125 | 127 | 131 |
| **Demand Growth (%)** | **-3.7%** | **-4.7%** | **-4.1%** | **0.8%** | **5.0%** | **1.6%** | **3.1%** |
| **PTA** | | | | | | | |
| Capacity | 3850 | 3930 | 3930 | 4530 | 5678 | 7946 | 7946 |
| Production | 3514 | 3167 | 3365 | 3450 | 4182 | 5053 | 5638 |
| Imports | 418 | 668 | 633 | 942 | 250 | 0 | 0 |
| Exports | 0 | 15 | 4 | 3 | 0 | 310 | 630 |
| Demand | 3932 | 3820 | 3994 | 4389 | 4432 | 4743 | 5008 |
| **Demand Growth (%)** | **5.5%** | **-2.9%** | **4.6%** | **9.9%** | **1.0%** | **7.0%** | **5.6%** |
| **MEG** | | | | | | | |
| Capacity | 950 | 1300 | 1300 | 1300 | 1300 | 2000 | 2000 |
| Production | 905 | 977 | 1057 | 1040 | 1138 | 1898 | 1868 |
| Imports | 779 | 626 | 656 | 864 | 876 | 273 | 428 |
| Exports | 45 | 58 | 69 | 64 | 65 | 85 | 85 |
| Demand | 1639 | 1586 | 1644 | 1840 | 1950 | 2087 | 2212 |
| **Demand Growth (%)** | **17.7%** | **-3.2%** | **3.7%** | **11.9%** | **6.0%** | **7.0%** | **6.0%** |

PTA and MEG constituted 46% and 48% of the total 1381KT fibre intermediates imported in to India in 2012-13. Fibre intermediates exported from India in 2012-13 was 75KT and is expected to dip to 67 KT in 2014-15. Fibre intermediate exports are expected to jump to 395 KT in 2015-16, with the addition of new capacity from RIL and JBF.

## Synthetic Fibres

In 2012-13, the combined production of synthetic fibre (PSF, ASF, PPSF, PFY, PPFY, VFY, VFS and NFY) reached 3763 KT against demand of 3695KT.

**Table 15: Demand Supply Balance of Synthetic Fibre (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **PSF** | | | | | | | |
| Capacity | 1063 | 1075 | 1150 | 1166 | 1166 | 1166 | 1512 |
| Production | 971 | 878 | 932 | 992 | 982 | 1009 | 1252 |
| Imports | 25 | 36 | 27 | 24 | 25 | 25 | 24 |
| Exports | 132 | 139 | 136 | 156 | 145 | 147 | 150 |
| Demand | 856 | 779 | 812 | 846 | 876 | 907 | 1098 |
| **Demand Growth (%)** | **9.4%** | **-9.1%** | **4.3%** | **4.1%** | **3.6%** | **3.5%** | **21.1%** |
| **ASF** | | | | | | | |
| Capacity | 155 | 155 | 167 | 168 | 168 | 168 | 168 |
| Production | 82 | 79 | 78 | 82 | 80 | 81 | 88 |
| Imports | 20 | 20 | 29 | 29 | 33 | 36 | 39 |
| Exports | 25 | 15 | 8 | 8 | 3 | 0 | 0 |
| Demand | 77 | 83 | 99 | 103 | 109 | 117 | 127 |
| **Demand Growth (%)** | **-9.7%** | **8.6%** | **18.5%** | **4.3%** | **6.3%** | **7.1%** | **8.3%** |
| **PPSF** | | | | | | | |
| Capacity | 9 | 10 | 13 | 13 | 13 | 13 | 13 |
| Production | 4 | 5 | 7 | 8 | 9 | 9 | 9 |
| Imports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exports | 1 | 1 | 2 | 3 | 4 | 4 | 4 |
| Demand | 4 | 4 | 5 | 5 | 6 | 5 | 5 |
| **Demand Growth (%)** | **17.9%** | **22.3%** | **15.9%** | **6.0%** | **5.6%** | **-5.3%** | **0.0%** |
| **PFY** | | | | | | | |
| Capacity | 3032 | 3190 | 3442 | 4137 | 4617 | 4733 | 4992 |
| Production | 2127 | 2192 | 2285 | 2443 | 2756 | 2939 | 3111 |
| Imports | 46 | 45 | 45 | 83 | 96 | 64 | 45 |
| Exports | 182 | 240 | 182 | 205 | 251 | 236 | 245 |
| Demand | 2173 | 2237 | 2330 | 2526 | 2852 | 3003 | 3156 |
| **Demand Growth (%)** | **13.9%** | **3.0%** | **4.2%** | **8.4%** | **12.9%** | **5.3%** | **5.1%** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PPFY** | | | | | | | |
| Capacity | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| Production | 15 | 15 | 16 | 17 | 18 | 18 | 18 |
| Imports | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Exports | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Demand | 12 | 12 | 12 | 13 | 14 | 14 | 14 |
| **Demand Growth (%)** | **-4.3%** | **-3.3%** | **4.5%** | **8.1%** | **3.7%** | **3.6%** | **0.0%** |
| **VSF** | | | | | | | |
| Capacity | 419 | 419 | 419 | 419 | 419 | 419 | 419 |
| Production | 331 | 341 | 361 | 382 | 395 | 408 | 415 |
| Imports | 14 | 21 | 24 | 31 | 37 | 44 | 50 |
| Exports | 56 | 54 | 53 | 53 | 51 | 51 | 51 |
| Demand | 289 | 308 | 332 | 360 | 381 | 401 | 414 |
| **Demand Growth (%)** | **9.7%** | **6.8%** | **7.6%** | **8.4%** | **5.8%** | **5.2%** | **3.2%** |
| **VFY** | | | | | | | |
| Capacity | 74 | 76 | 76 | 76 | 76 | 76 | 76 |
| Production | 41 | 42 | 43 | 44 | 45 | 45 | 46 |
| Imports | 13 | 11 | 9 | 7 | 4 | 2 | 0 |
| Exports | 5 | 6 | 6 | 6 | 6 | 6 | 6 |
| Demand | 49 | 47 | 45 | 44 | 42 | 41 | 40 |
| **Demand Growth (%)** | **-1.2%** | **-3.1%** | **-4.8%** | **-2.5%** | **-3.1%** | **-3.2%** | **-3.3%** |
| **NFY** | | | | | | | |
| Capacity | 54 | 63 | 63 | 71 | 71 | 71 | 71 |
| Production | 45 | 41 | 42 | 46 | 51 | 54 | 57 |
| Imports | 15 | 20 | 20 | 18 | 15 | 14 | 12 |
| Exports | 2 | 2 | 2 | 3 | 3 | 4 | 4 |
| Demand | 58 | 59 | 60 | 61 | 63 | 64 | 65 |
| **Demand Growth (%)** | **1.8%** | **1.7%** | **1.7%** | **1.7%** | **3.3%** | **1.6%** | **1.6%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

The demand growth was at 4.7% in 2012-13. It is expected that the fibre demand growth will be approx.7.1% to 9.7% in 2013-14 and 2014-15. The capacity in the 2013-14 and 2014-15 is expected to increase to 6069 KT and 6548 KT respectively from 5348 KT in 2012-13. Reliance Industries Ltd. commissioned its new Polyester Filament Yarn (PFY) facility at Silvassa, from April 2014.

The entire produce from this facility has been successfully placed in the domestic and international markets. With the commissioning of this ultra-modern Polyester Filament Yarn Facility, Reliance's total PFY capacity, including the Malaysian facilities, is in excess of 1.5 MMTPA. This expansion further strengthens RIL's position as the world's largest producer of Polyester Fibre and Yarn.

## Aromatics – Paraxylene

PX demand declined by approx. -1.9%after hitting a high of 14.8% in 2011-12. PX demand is expected to pick up again in 2014-15 and register a demand growth of 16.5%.
PX capacity in 2012-13 was 2501 KTand with MRPL capacity addition of 460 KT in 2014-15 it is expected to touch 2961 KT.Further 460KT of capacity will be added in 2015-16making it a total 920 KT by MRPL and capacity addition by RIL will take India's PX capacity to 4359KT.

**Table 16: Paraxylene Demand Supply (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| Capacity | 2463 | 2477 | 2501 | 2501 | 2961 | 4359 | 5671 |
| Production | 2089 | 2352 | 2326 | 2258 | 2824 | 4056 | 5368 |
| Imports | 410 | 648 | 550 | 679 | 770 | 770 | 770 |
| Exports | 457 | 656 | 595 | 669 | 801 | 596 | 1536 |
| Apparent Demand | 2009 | 2306 | 2263 | 2290 | 2658 | 4248 | 4530 |
| **Demand Growth%** | **2.3%** | **14.8%** | **-1.9%** | **1.2%** | **16.1%** | **59.8%** | **6.6%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

Reliance is doubling PX capacity at Jamnagar and will become the world's second-largest producer of PX.

PX import was at 550KT in 2012-13 and it is expected to increase to 770 KT in 2014-15 however exportsare expected to increase from595KT in 2012-13 to 1536 KT in 2016-17.

## Surfactants

Demand for key surfactant LAB increased by 4% and 9.5% respectively in 2012-13 from 2011-12.Demand growth for LAB is expected to be 5% and 6% in2014-15and 2015-16respectively as shown in tablebelow.LAB capacity is expected to remain unchanged till 2014-15.
LAB import is expected to increasefrom 125KT in 2012-13 to 132KTin 2013-14and further to 145KT in 2014-15, as domestic consumption increases.Exports are also expected to increase from 48KT in 2012-13 to 65 KT in 2014-15.

**Table 17: Demand & Supply of LAB & EO (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **LAB** | | | | | | | |
| Capacity | 530 | 530 | 530 | 530 | 530 | 570 | 570 |
| Production | 460 | 438 | 445 | 415 | 490 | 490 | 490 |
| Imports | 89 | 106 | 125 | 132 | 145 | 135 | 140 |
| Exports | 112 | 66 | 48 | 39 | 65 | 60 | 60 |
| Demand | 442 | 460 | 503 | 513 | 539 | 571 | 600 |
| **Demand Growth (%)** | **5.0%** | **4.0%** | **9.5%** | **2.0%** | **5.0%** | **6.0%** | **5.0%** |

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **EO** | | | | | | | |
| Capacity | 175 | 203 | 208 | 224 | 259 | 259 | 259 |
| Production | 147 | 194 | 197 | 203 | 219 | 236 | 255 |
| Imports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Demand | 147 | 194 | 197 | 203 | 219 | 236 | 255 |
| **Demand Growth (%)** | **6.4%** | **32.3%** | **1.3%** | **3.2%** | **7.8%** | **7.8%** | **8.1%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

EO capacity increased from 175KT in 2010-11 to 208KT in 2012-13 and further is expected to touch 224KT in 2014-15. Debottlenecking of EO capacity by RIL in 2012-13happened and further debottlenecking expected in 2014-15. RIL capacity would also be enhanced by 35 KT from 2014-15 onwards.Demand growth for EO is expected to be at 3.2% &7.8% in 2013-14 and 2014-15.

## Synthetic Rubber

In the current scenario, Synthetic rubber consumption has increased due to the rapid industrialization of the Indian economy. The tyre sector is the largest end-use sector for synthetic rubber in India. SBR which accounts for 40% of the total synthetic rubber demand is consumed mostly in the tyre sector. In 2012-13, synthetic rubber demand grew at18% and is expected to grow at ~7% in 2013-14 and 2014-15.
Reliance is expected to commission a 142,000-m.t./year SBR plant and a 40,000-m.t./year PBR plant at Hazira, India, by the Q2 of this year. This will help in meeting domestic consumption which was earlier dependent on imports, thus bringing down imports considerably from 204 KT in 2012 to 69 KT in 2014.A 100,000-m.t./year butyl rubber JV facility at Jamnagar with Sibur (Moscow) will be online in 2014-15 by RIL.

**Table 18: Demand Supply Balance of PBR, SBR, NBR& EPDM (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **PBR** | | | | | | | |
| Capacity | 74 | 74 | 74 | 85 | 114 | 114 | 114 |
| Production | 76 | 74 | 74 | 85 | 114 | 114 | 114 |
| Imports | 47 | 71 | 94 | 96 | 82 | 96 | 112 |
| Exports | 0 | 1 | 1 | 1 | 2 | 2 | 2 |
| Demand | 124 | 144 | 168 | 180 | 194 | 208 | 224 |
| **Demand Growth (%)** | **12.7%** | **3.0%** | **16.4%** | **7.5%** | **7.8%** | **7.2%** | **7.7%** |
| **SBR** | | | | | | | |
| Capacity | 20 | 20 | 20 | 50 | 220 | 290 | 290 |
| Production | 20 | 20 | 20 | 50 | 220 | 290 | 290 |
| Imports | 158 | 181 | 221 | 220 | 110 | 30 | 35 |
| Exports | 4 | 0 | 4 | 15 | 60 | 30 | 20 |
| Demand | 174 | 201 | 239 | 255 | 270 | 290 | 305 |
| **Demand Growth (%)** | **25.2%** | **15.5%** | **18.9%** | **6.7%** | **5.9%** | **7.4%** | **5.2%** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **NBR** | | | | | | | |
| Capacity | 20 | 20 | 20 | 20 | 40 | 40 | 40 |
| Production | 20 | 20 | 20 | 20 | 40 | 40 | 40 |
| Imports | 8 | 11 | 15 | 18 | 0 | 4 | 7 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Demand | 28 | 31 | 35 | 38 | 40 | 44 | 47 |
| **Demand Growth (%)** | **12%** | **10.7%** | **12.9%** | **8.6%** | **5.3%** | **10.0%** | **6.8%** |
| **EPDM** | | | | | | | |
| Capacity | 10 | 10 | 10 | 10 | 10 | 10 | 50 |
| Production | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Imports | 22 | 28 | 28 | 36 | 40 | 44 | 13 |
| Exports | 0 | 1.2 | 0 | 0 | 0 | 0 | 5 |
| Demand | 22 | 27 | 32 | 36 | 40 | 44 | 48 |
| **Demand Growth (%)** | **29.4%** | **22.7%** | **18.5%** | **12.5%** | **11.1%** | **10.0%** | **9.1%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

RIL currently runs an 80,000 tonne/year BR plant at Baroda, which is also in the Gujarat state. RIL is expected to start commercial production at its new 40,000 tonne/year butadiene rubber (BR) plant at Hazira in Gujarat soon after trial runs are completed successfully. Public sector unit GAIL (India) is gearing up to spend about Rs 2,600 crore to set up 110,000 tonne-per-yearpoly butadiene rubber (PBR) plant in Gujarat. The project is targeted to be completed by the Q1 of FY17. As shown in table above, SBR demand registered a robust growth of 18.9% in 2012-13, followed by EPDM demand growth of 18.5%. PBR/NBR/SBR demand is expected to grow at 7-9% in 2014-15 and EPDM demand is expected to grow at 11%.

## Carbon Black Feedstock & Carbon Black

Carbon black is an additive for rubber products which also finds application as a key raw material in various chemical industries including inks, coatings, paints, batteries, electrical cables, plastic films, pipes and sealants etc.

More than 60% of the demand for carbon black comes from tyres segment. According to ATMA (Automotive Tyre Manufacturers' Association), carbon black constitutes 11% of the raw material cost of tyre companies and forms 20-25% of volumes of the tyre.

**Table 19: Demand Supply Balance of CBFS & Carbon Black (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **CBFS** | | | | | | | |
| Capacity | 1495 | 1495 | 1595 | 1795 | 1795 | 1928 | 2028 |
| Production | 1495 | 1495 | 1595 | 1595 | 1595 | 1798 | 1945 |
| Imports | 988 | 1000 | 1000 | 900 | 870 | 820 | 771 |
| Exports | 1295 | 1095 | 1050 | 800 | 600 | 453 | 279 |
| Demand | 1188 | 1400 | 1545 | 1695 | 1865 | 2166 | 2437 |
| **Demand Growth (%)** | **6.3%** | **17.8%** | **10.4%** | **9.7%** | **10.0%** | **16.1%** | **12.5%** |

| Carbon Black | | | | | | | |
|---|---|---|---|---|---|---|---|
| Capacity | 858 | 935 | 1027 | 1238 | 1238 | 1383 | 1491 |
| Production | 694 | 697 | 840 | 900 | 900 | 974 | 1024 |
| Imports | 70 | 117 | 128 | 70 | 50 | 30 | 20 |
| Exports | 102 | 132 | 170 | 130 | 85 | 84 | 66 |
| Demand | 662 | 682 | 798 | 840 | 865 | 920 | 979 |
| **Demand Growth (%)** | **3.0%** | **3.0%** | **17.0%** | **5.3%** | **3.0%** | **6.4%** | **6.4%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

The industry has three main leading players, which are Philips Carbon Black Ltd., Aditya Birla Nuvo Ltd and Continental Carbon India Ltd (CCIL), having a market share of 46%, 39% and 8% respectively. Other players in the industry include Himadri Chemicals and Hi-tech Carbon. In 2013, Aditya Birla Nuvo divested its Carbon Black business for ₹1,451 crores transferred, on a going concern basis, by way of a slump sale, to SKI Carbon Black (India) Private Limited, an Aditya Birla Group Company.

CBFS registered a growth of 10.4% in 2012-13 and is expected to remain in the same range in next two years. CBFS demand is expected to increase from 1545KT in 2012-13 to 1865KT in 2014-15.

Carbon black registered a demand growth of 17% in 2012-13 and is expected to grow at 5.3% and 3% in 2013-14 and 2014-15 respectively. Phillips Carbon Black Ltd expanded its capacity by 50 KT in 2012-13 in Chennai after its expansion of at Mundra by 50 KT and Durgapur by 12 KT in the previous year. Total capacity at Himadri Chemicals & Industries Limited now stands at 120 KT.

In line with the increase in capacity, domestic production of Carbon Black is expected to increase from 840 KT in 2012-13 to 900 KT in 2013-14.The antidumping duty on carbon black from countries like China,Thailand, and Russia will continue to support domestic demand for carbon black which is expected to increase from 798 KT in 2012-13 to 865 KT in 2014-15.

## Other Key Petrochemicals

Overall other key petrochemicals demand in 2012-13 grew at 4.6% and is expected to pick up to 11% in 2014-15. Benzene demand witnessed a negative growth of 1.8% in 2012-13however is expected to grow at ~23% in 2014-15 with capacity addition by MRPL and boost in domestic sales.

**Table 20: Demand Supply Balance of Benzene, Toluene, MXS& OX (KT)**

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **Benzene** | | | | | | | |
| Capacity | 1230 | 1260 | 1260 | 1535 | 1715 | 2070 | 2070 |
| Production | 1037 | 1153 | 1146 | 1347 | 1439 | 1829 | 1829 |
| Imports | 72 | 44 | 51 | 0 | 0 | 0 | 0 |
| Exports | 429 | 502 | 653 | 617 | 569 | 899 | 829 |
| Apparent Demand | 586 | 606 | 596 | 730 | 870 | 930 | 1000 |
| **Demand Growth%** | **11.4%** | **3.5%** | **-1.8%** | **22.5%** | **19.2%** | **6.9%** | **7.5%** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Toluene** | | | | | | | |
| Capacity | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| Production | 140 | 140 | 140 | 140 | 140 | 140 | 140 |
| Imports | 190 | 245 | 307 | 320 | 320 | 320 | 320 |
| Exports | 0 | 6 | 0 | 0 | 0 | 0 | 0 |
| Demand | 330 | 385 | 447 | 460 | 460 | 460 | 460 |
| **Demand Growth (%)** | **-2.4%** | **16.8%** | **16.0%** | **2.9%** | **0.0%** | **0.0%** | **0.0%** |
| **MXS** | | | | | | | |
| Capacity | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Production | 72 | 86 | 79 | 86 | 85 | 85 | 72 |
| Imports | 25 | 26 | 31 | 35 | 52 | 60 | 25 |
| Exports | 15 | 25 | 22 | 23 | 17 | 14 | 15 |
| Demand | 80 | 85 | 83 | 96 | 120 | 130 | 80 |
| **Demand Growth (%)** | **27.0%** | **6.8%** | **-2.8%** | **15.7%** | **21.6%** | **8.3%** | **27.0%** |
| **OX** | | | | | | | |
| Capacity | 420 | 420 | 420 | 420 | 420 | 420 | 420 |
| Production | 400 | 362 | 365 | 405 | 365 | 365 | 365 |
| Imports | 54 | 50 | 50 | 65 | 68 | 60 | 60 |
| Exports | 184 | 146 | 136 | 205 | 168 | 168 | 168 |
| Demand | 261 | 266 | 279 | 272 | 276 | 288 | 290 |
| **Demand Growth (%)** | **10.0%** | **1.6%** | **5.0%** | **-2.5%** | **1.5%** | **4.3%** | **0.7%** |

Exports increased from 502KT in 2011-12 to 653KT in 2012-13 and are expected to de-grow initially then rise again in 2015-16 to ~900 KT.

MRPL is expected to add Benzene capacity of 275 KT in 2014-15 and OPAL is expected to add Benzene capacity of 135 KT in the same year.

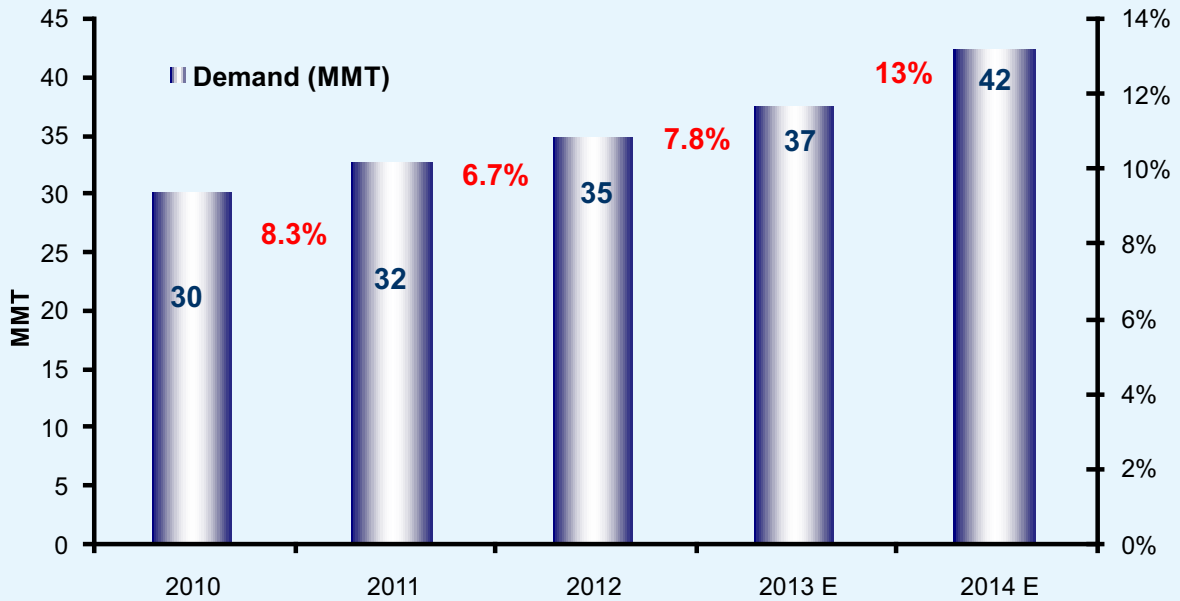
Toluene demand registered growth of 16% in 2012-13. Toluene demand is expected to slow down to 2.9% in 2013-14. Toluene import was at 307KT in 2012-13 and is expected to increase to 320KT in 2014-15.
MXS demand was negative at 2.8% in 2012-13 and is expected to grow at 15.7% in 2013-14 with increase in production and domestic sales. The increase in domestic demand is expected to be met by imports. Imports expected to be 44KTby 2014-15.

OX demand registered a growth rate of 5% in 2012-13. There is no new capacity addition. Demand is expected to increase from 279KT in 2012-13 to 288KT in 2015-16.

## Outlook for the Overall Indian Petrochemical Industry

India's aggregated demand for petrochemicals increased by 6% in 2012-13 over 2011-12.Combining the demand for all the key segments in the petrochemical industry aggregate demand for the entire petrochemical sector in India is likely to increase from 31 MMT in 2012-13 to 33 MMT in 2013-14 and further to 36 MMT in 2014-15 as depicted in figure below. At the aggregate level, therefore, demand for petrochemicals in India is expected to grow at 8% and 9% per annum in 2013-14 and 2014-15 respectively.

**Figure 11: Aggregate Petrochemical Demand (All key segments – MMT)**




- Polymers are likely to register growth rate of 6.2% and 7.8% in 2013-14 and 2014-15.
- Polyolefins are expected to grow at 5.3% and 7.5% in 2013-14& 2014-15, with the startup of new capacities.
- Surfactants are projected to grow at approx. 3.2% and 7.8% in the same period.
- Synthetic rubbers are expected to register demand growth in the range of 7% in next two years.
- Other key petrochemicals expected to grow at approx. 11-10% in next two years 2014.India's demand from the automobiles, packaging, and agriculture and infrastructure sector is expected to grow at healthy rate with easing of government's monetary policy. This optimism is based on the expectation that India's GDP would again grow at 6% plus in 2013 after hitting a low of 5% in 2012.
- This optimism is based on the expectation that India's GDP would again grow at 6% plus in 2013-14 after hitting a low of 5% in 2012-13


STATISTICAL
DATA

## SECTION 3

# Statistical Appendix

## Demand Supply Balance: Polymers (KT)

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **LDPE** | | | | | | | |
| Capacity | 205 | 205 | 205 | 205 | 205 | 415 | 615 |
| Production | 179 | 194 | 186 | 193 | 205 | 375 | 575 |
| Imports | 250 | 290 | 257 | 259 | 283 | 205 | 180 |
| Exports | 0 | 0 | 0 | 0 | 0 | 30 | 60 |
| Apparent Demand | 439 | 483 | 443 | 454 | 490 | 520 | 548 |
| **Demand Growth%** | **-3.3%** | **10.0%** | **-8.3%** | **2.5%** | **7.9%** | **6.1%** | **5.4%** |
| **EVA** | | | | | | | |
| Capacity | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Production | 11 | 15 | 11 | 12 | 12 | 15 | 15 |
| Imports | 91 | 83 | 105 | 96 | 102 | 106 | 110 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apparent Demand | 91 | 98 | 116 | 108 | 114 | 121 | 125 |
| **Demand Growth%** | **3.1%** | **7.8%** | **18.0%** | **-7.1%** | **5.9%** | **6.1%** | **3.3%** |
| **LLDPE** | | | | | | | |
| Capacity | 930 | 965 | 980 | 980 | 1030 | 1890 | 2140 |
| Production | 676 | 822 | 770 | 806 | 828 | 1593 | 1816 |
| Imports | 390 | 385 | 520 | 510 | 550 | 365 | 320 |
| Exports | 10 | 24 | 10 | 10 | 12 | 190 | 170 |
| Apparent Demand | 1044 | 1135 | 1257 | 1306 | 1378 | 1532 | 1642 |
| **Demand Growth%** | **7.0%** | **8.7%** | **10.7%** | **3.9%** | **5.5%** | **11.2%** | **7.2%** |
| **HDPE** | | | | | | | |
| HDPE Capacity | 1690 | 1795 | 1795 | 1795 | 1830 | 2810 | 2810 |
| LLD/HD Capacity | 847 | 1007 | 1007 | 1007 | 1007 | 1007 | 1007 |
| Total Capacity | 2537 | 2802 | 2802 | 2802 | 2837 | 3817 | 3817 |
| Production | 1216 | 1503 | 1501 | 1486 | 1621 | 2521 | 2606 |
| Imports | 330 | 385 | 440 | 410 | 480 | 220 | 230 |
| Exports | 55 | 227 | 160 | 115 | 65 | 368 | 500 |
| Apparent Demand | 1451 | 1549 | 1694 | 1782 | 1953 | 2124 | 2310 |
| **Demand Growth%** | **10.8%** | **6.8%** | **9.4%** | **5.2%** | **9.6%** | **8.8%** | **8.8%** |
| **All PE** | | | | | | | |
| Capacity | 2826 | 2965 | 2980 | 2980 | 3065 | 5115 | 5565 |
| Production | 2072 | 2519 | 2457 | 2485 | 2654 | 4488 | 4996 |
| Imports | 970 | 1060 | 1217 | 1179 | 1313 | 790 | 730 |
| Exports | 65 | 251 | 170 | 125 | 77 | 588 | 730 |
| Apparent Demand | 2934 | 3167 | 3394 | 3542 | 3821 | 4176 | 4500 |
| **Demand Growth%** | **8.4%** | **7.9%** | **7.2%** | **4.4%** | **7.9%** | **9.3%** | **7.8%** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PP** | | | | | | | |
| Capacity | 3700 | 3700 | 4140 | 4920 | 4980 | 5131 | 5131 |
| Production | 3229 | 3616 | 3982 | 4214 | 4600 | 5015 | 5286 |
| Imports | 341 | 398 | 498 | 390 | 300 | 300 | 300 |
| Exports | 583 | 816 | 828 | 822 | 1080 | 1021 | 853 |
| Apparent Demand | 2979 | 3160 | 3605 | 3843 | 4121 | 4521 | 4926 |
| **Demand Growth%** | **14.6%** | **6.1%** | **14.1%** | **6.6%** | **7.2%** | **9.7%** | **9.0%** |
| **Polyolefins** | | | | | | | |
| Capacity | 6541 | 6680 | 7135 | 7915 | 8060 | 10261 | 10711 |
| Production | 5312 | 6150 | 6450 | 6710 | 7266 | 9518 | 10297 |
| Imports | 1402 | 1541 | 1820 | 1665 | 1715 | 1196 | 1140 |
| Exports | 648 | 1067 | 998 | 947 | 1157 | 1609 | 1583 |
| Apparent Demand | 6004 | 6425 | 7115 | 7493 | 8056 | 8818 | 9551 |
| **Demand Growth%** | **7.3%** | **7.0%** | **10.7%** | **5.3%** | **7.5%** | **9.5%** | **8.3%** |
| **PVC** | | | | | | | |
| Capacity | 1335 | 1335 | 1360 | 1495 | 1557 | 1557 | 1557 |
| Production | 1237 | 1242 | 1201 | 1406 | 1485 | 1485 | 1485 |
| Imports | 674 | 851 | 1133 | 1095 | 1225 | 1475 | 1750 |
| Exports | 10 | 4 | 1 | 0 | 0 | 0 | 0 |
| Apparent Demand | 1919 | 1979 | 2263 | 2478 | 2710 | 2960 | 3235 |
| **Demand Growth%** | **7.9%** | **8.5%** | **12.8%** | **5.5%** | **9.4%** | **9.2%** | **9.3%** |
| **PS** | | | | | | | |
| Capacity | 472 | 472 | 472 | 472 | 472 | 472 | 472 |
| Production | 305 | 290 | 308 | 308 | 308 | 308 | 308 |
| Imports | 11 | 11 | 17 | 17 | 17 | 17 | 17 |
| Exports | 64 | 50 | 58 | 58 | 58 | 58 | 58 |
| Apparent Demand | 248 | 250 | 263 | 263 | 263 | 263 | 263 |
| **Demand Growth%** | **5.7%** | **0.8%** | **5.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Polymers** | | | | | | | |
| Capacity | 8348 | 8487 | 8967 | 9882 | 10089 | 12290 | 12740 |
| Production | 6854 | 7682 | 7958 | 8424 | 9059 | 11311 | 12089 |
| OR (%) | 82% | 91% | 89% | 85% | 90% | 92% | 95% |
| Imports | 2087 | 2404 | 2970 | 2777 | 2957 | 2688 | 2907 |
| Exports | 722 | 1121 | 1057 | 1005 | 1215 | 1667 | 1641 |
| Net Trade | -1365 | -1283 | -1913 | -1772 | -1742 | -1021 | -1266 |
| Apparent Demand | 8171 | 8654 | 9640 | 10233 | 11029 | 12041 | 13049 |
| **Demand Growth%** | **7.4%** | **5.9%** | **11.4%** | **6.2%** | **7.8%** | **9.2%** | **8.4%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

## Demand Supply Balance: Olefins (KT)

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **Ethylene** | | | | | | | |
| Capacity | 3837 | 3907 | 3907 | 4157 | 5637 | 7127 | 7127 |
| Production | 3000 | 3355 | 3744 | 3985 | 5165 | 6755 | 6955 |
| Imports | 55 | 15 | 23 | 50 | 25 | 25 | 25 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net Availability | 3055 | 3370 | 3767 | 4035 | 5190 | 6780 | 6980 |
| **Propylene** | | | | | | | |
| Capacity | 3892 | 3932 | 4132 | 4417 | 4817 | 4957 | 4957 |
| Production | 3150 | 3700 | 3880 | 4150 | 4510 | 4550 | 4550 |
| Imports | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Exports | 40 | 9 | 6 | 10 | 10 | 10 | 10 |
| Net Availability | 3150 | 3700 | 3881 | 4150 | 4510 | 4550 | 4550 |
| **Butadiene** | | | | | | | |
| Capacity | 295 | 295 | 295 | 295 | 493 | 550 | 550 |
| Production | 266 | 262 | 223 | 220 | 363 | 434 | 482 |
| Imports | 4 | 0 | 2 | 0 | 16 | 0 | 39 |
| Exports | 147 | 143 | 113 | 104 | 60 | 65 | 65 |
| Apparent Demand | 121 | 114 | 113 | 117 | 303 | 369 | 456 |
| **Demand Growth%** | **10.4%** | **-5.7%** | **-1.1%** | **3.2%** | **159.6%** | **22.0%** | **23.5%** |
| **Styrene** | | | | | | | |
| Imports | 470 | 496 | 523 | 551 | 582 | 614 | 647 |
| Exports | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Net Trade | 470 | 496 | 523 | 551 | 582 | 614 | 647 |
| **Demand Growth%** | **3.8%** | **5.4%** | **5.4%** | **5.5%** | **5.5%** | **5.5%** | **5.5%** |
| **EDC** | | | | | | | |
| Capacity | 350 | 350 | 205 | 185 | 185 | 185 | 185 |
| Production | 331 | 296 | 185 | 185 | 185 | 185 | 185 |
| Imports | 292 | 332 | 451 | 470 | 550 | 550 | 550 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apparent Demand | 623 | 628 | 636 | 655 | 735 | 735 | 735 |
| **Demand Growth%** | **0.0%** | **0.8%** | **1.3%** | **3.0%** | **12.2%** | **0.0%** | **0.0%** |
| **VCM** | | | | | | | |
| Capacity | 856 | 856 | 856 | 906 | 956 | 956 | 956 |
| Production | 839 | 850 | 840 | 895 | 945 | 945 | 945 |
| Imports | 404 | 411 | 440 | 510 | 510 | 510 | 510 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apparent Demand | 1243 | 1261 | 1280 | 1405 | 1455 | 1455 | 1455 |
| **Demand Growth%** | **16.0%** | **1.4%** | **1.5%** | **9.8%** | **3.6%** | **0.0%** | **0.0%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

## Demand Supply Balance: ABS, SAN, PX & Surfactants (KT)

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **ABS** | | | | | | | |
| Capacity | 111 | 131 | 131 | 131 | 155 | 190 | 190 |
| Production | 90 | 90 | 96 | 99 | 124 | 154 | 173 |
| Imports | 36 | 32 | 44 | 55 | 45 | 35 | 35 |
| Exports | 1 | 2 | 3 | 3 | 3 | 8 | 8 |
| Apparent Demand | 125 | 120 | 137 | 151 | 166 | 181 | 200 |
| **Demand Growth%** | **15.7%** | **-4.0%** | **14.2%** | **9.9%** | **10.4%** | **8.7%** | **10.5%** |
| **SAN** | | | | | | | |
| Capacity | 80 | 90 | 90 | 130 | 130 | 150 | 150 |
| Production | 73 | 78 | 78 | 82 | 84 | 113 | 154 |
| Imports | 1 | 3 | 5 | 7 | 10 | 0 | 0 |
| Exports | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| Apparent Demand | 74 | 81 | 83 | 89 | 94 | 114 | 138 |
| **Demand Growth%** | **5.7%** | **9.8%** | **2.5%** | **6.9%** | **5.6%** | **21.8%** | **20.4%** |
| **PX** | | | | | | | |
| Capacity | 2463 | 2477 | 2501 | 2501 | 2961 | 4359 | 5671 |
| Production | 2089 | 2352 | 2326 | 2258 | 2824 | 4056 | 5368 |
| Imports | 410 | 648 | 550 | 679 | 770 | 770 | 770 |
| Exports | 457 | 656 | 595 | 669 | 801 | 596 | 1536 |
| Apparent Demand | 2009 | 2306 | 2263 | 2290 | 2658 | 4248 | 4530 |
| **Demand Growth%** | **2.3%** | **14.8%** | **-1.9%** | **1.2%** | **16.1%** | **59.8%** | **6.6%** |
| **LAB** | | | | | | | |
| Capacity | 530 | 530 | 530 | 530 | 530 | 570 | 570 |
| Production | 460 | 438 | 445 | 415 | 490 | 490 | 490 |
| Imports | 89 | 106 | 125 | 132 | 145 | 135 | 140 |
| Exports | 112 | 66 | 48 | 39 | 65 | 60 | 60 |
| Apparent Demand | 442 | 460 | 503 | 513 | 539 | 571 | 600 |
| **Demand Growth%** | **5.0%** | **4.0%** | **9.5%** | **2.0%** | **5.0%** | **6.0%** | **5.0%** |
| **EO** | | | | | | | |
| Capacity | 175 | 203 | 208 | 224 | 259 | 259 | 259 |
| Production | 147 | 194 | 197 | 203 | 219 | 236 | 255 |
| Imports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apparent Demand | 147 | 194 | 197 | 203 | 219 | 236 | 255 |
| **Demand Growth%** | **6.4%** | **32.3%** | **1.3%** | **3.2%** | **7.8%** | **7.8%** | **8.1%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

## Demand Supply Balance: Fibre Intermediates (KT)

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **ACN** | | | | | | | |
| Capacity | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Production | 38 | 38 | 33 | 37 | 39 | 39 | 39 |
| Imports | 85 | 77 | 82 | 110 | 126 | 131 | 142 |
| Exports | 0 | 6 | 2 | 0 | 0 | 0 | 0 |
| Apparent Demand | 123 | 113 | 115 | 148 | 165 | 170 | 181 |
| **Demand Growth%** | **1.7%** | **-7.8%** | **1.8%** | **28.2%** | **11.8%** | **3.0%** | **6.2%** |
| **Caprolactam** | | | | | | | |
| Capacity | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| Production | 123 | 118 | 108 | 108 | 112 | 112 | 114 |
| Imports | 6 | 5 | 10 | 11 | 13 | 15 | 17 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apparent Demand | 129 | 123 | 118 | 119 | 125 | 127 | 131 |
| **Demand Growth%** | **-3.7%** | **-4.7%** | **-4.1%** | **0.8%** | **5.0%** | **1.6%** | **3.1%** |
| **PTA** | | | | | | | |
| Capacity | 3850 | 3930 | 3930 | 4530 | 5678 | 7946 | 7946 |
| Production | 3514 | 3167 | 3365 | 3450 | 4182 | 5053 | 5638 |
| Imports | 418 | 668 | 633 | 942 | 250 | 0 | 0 |
| Exports | 0 | 15 | 4 | 3 | 0 | 310 | 630 |
| Apparent Demand | 3932 | 3820 | 3994 | 4389 | 4432 | 4743 | 5008 |
| **Demand Growth%** | **5.5%** | **-2.9%** | **4.6%** | **9.9%** | **1.0%** | **7.0%** | **5.6%** |
| **MEG** | | | | | | | |
| Capacity | 950 | 1300 | 1300 | 1300 | 1300 | 2000 | 2000 |
| Production | 905 | 977 | 1057 | 1040 | 1138 | 1898 | 1868 |
| Imports | 779 | 626 | 656 | 864 | 876 | 273 | 428 |
| Exports | 45 | 58 | 69 | 64 | 65 | 85 | 85 |
| Apparent Demand | 1639 | 1586 | 1644 | 1840 | 1950 | 2087 | 2212 |
| **Demand Growth%** | **17.7%** | **-3.2%** | **3.7%** | **11.9%** | **6.0%** | **7.0%** | **6.0%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

## Demand Supply Balance: Synthetic Fibres (KT)

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **PSF** | | | | | | | |
| Capacity | 1063 | 1075 | 1150 | 1166 | 1166 | 1166 | 1512 |
| Production | 971 | 878 | 932 | 992 | 982 | 1009 | 1252 |
| Imports | 25 | 36 | 27 | 24 | 25 | 25 | 24 |
| Exports | 132 | 139 | 136 | 156 | 145 | 147 | 150 |
| Demand | 856 | 779 | 812 | 846 | 876 | 907 | 1098 |
| **Demand Growth (%)** | **9.4%** | **-9.1%** | **4.3%** | **4.1%** | **3.6%** | **3.5%** | **21.1%** |
| **ASF** | | | | | | | |
| Capacity | 155 | 155 | 167 | 168 | 168 | 168 | 168 |
| Production | 82 | 79 | 78 | 82 | 80 | 81 | 88 |
| Imports | 20 | 20 | 29 | 29 | 33 | 36 | 39 |
| Exports | 25 | 15 | 8 | 8 | 3 | 0 | 0 |
| Demand | 77 | 83 | 99 | 103 | 109 | 117 | 127 |
| **Demand Growth (%)** | **-9.7%** | **8.6%** | **18.5%** | **4.3%** | **6.3%** | **7.1%** | **8.3%** |
| **PPSF** | | | | | | | |
| Capacity | 9 | 10 | 13 | 13 | 13 | 13 | 13 |
| Production | 4 | 5 | 7 | 8 | 9 | 9 | 9 |
| Imports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exports | 1 | 1 | 2 | 3 | 4 | 4 | 4 |
| Demand | 4 | 4 | 5 | 5 | 6 | 5 | 5 |
| **Demand Growth (%)** | **17.9%** | **22.3%** | **15.9%** | **6.0%** | **5.6%** | **-5.3%** | **0.0%** |
| **PFY** | | | | | | | |
| Capacity | 3032 | 3190 | 3442 | 4137 | 4617 | 4733 | 4992 |
| Production | 2127 | 2192 | 2285 | 2443 | 2756 | 2939 | 3111 |
| Imports | 46 | 45 | 45 | 83 | 96 | 64 | 45 |
| Exports | 182 | 240 | 182 | 205 | 251 | 236 | 245 |
| Demand | 2173 | 2237 | 2330 | 2526 | 2852 | 3003 | 3156 |
| **Demand Growth (%)** | **13.9%** | **3.0%** | **4.2%** | **8.4%** | **12.9%** | **5.3%** | **5.1%** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PPFY** | | | | | | | |
| Capacity | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| Production | 15 | 15 | 16 | 17 | 18 | 18 | 18 |
| Imports | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Exports | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Demand | 12 | 12 | 12 | 13 | 14 | 14 | 14 |
| **Demand Growth (%)** | **-4.3%** | **-3.3%** | **4.5%** | **8.1%** | **3.7%** | **3.6%** | **0.0%** |
| **VSF** | | | | | | | |
| Capacity | 419 | 419 | 419 | 419 | 419 | 419 | 419 |
| Production | 331 | 341 | 361 | 382 | 395 | 408 | 415 |
| Imports | 14 | 21 | 24 | 31 | 37 | 44 | 50 |
| Exports | 56 | 54 | 53 | 53 | 51 | 51 | 51 |
| Demand | 289 | 308 | 332 | 360 | 381 | 401 | 414 |
| **Demand Growth (%)** | **9.7%** | **6.8%** | **7.6%** | **8.4%** | **5.8%** | **5.2%** | **3.2%** |
| **VFY** | | | | | | | |
| Capacity | 74 | 76 | 76 | 76 | 76 | 76 | 76 |
| Production | 41 | 42 | 43 | 44 | 45 | 45 | 46 |
| Imports | 13 | 11 | 9 | 7 | 4 | 2 | 0 |
| Exports | 5 | 6 | 6 | 6 | 6 | 6 | 6 |
| Demand | 49 | 47 | 45 | 44 | 42 | 41 | 40 |
| **Demand Growth (%)** | **-1.2%** | **-3.1%** | **-4.8%** | **-2.5%** | **-3.1%** | **-3.2%** | **-3.3%** |
| **NFY** | | | | | | | |
| Capacity | 54 | 63 | 63 | 71 | 71 | 71 | 71 |
| Production | 45 | 41 | 42 | 46 | 51 | 54 | 57 |
| Imports | 15 | 20 | 20 | 18 | 15 | 14 | 12 |
| Exports | 2 | 2 | 2 | 3 | 3 | 4 | 4 |
| Demand | 58 | 59 | 60 | 61 | 63 | 64 | 65 |
| **Demand Growth (%)** | **1.8%** | **1.7%** | **1.7%** | **1.7%** | **3.3%** | **1.6%** | **1.6%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

## Demand Supply Balance: Elastomers (KT)

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **PBR** | | | | | | | |
| Capacity | 74 | 74 | 74 | 85 | 114 | 114 | 114 |
| Production | 76 | 74 | 74 | 85 | 114 | 114 | 114 |
| Imports | 47 | 71.1 | 94 | 96 | 82 | 96 | 112 |
| Exports | 0 | 1 | 1 | 1 | 2 | 2 | 2 |
| Apparent Demand | 124 | 144 | 168 | 180 | 194 | 208 | 224 |
| **Demand Growth%** | **12.7%** | **3.0%** | **16.4%** | **7.5%** | **7.8%** | **7.2%** | **7.7%** |
| **SBR** | | | | | | | |
| Capacity | 20 | 20 | 20 | 50 | 220 | 290 | 290 |
| Production | 20 | 20 | 20 | 50 | 220 | 290 | 290 |
| Imports | 158 | 181 | 221 | 220 | 110 | 30 | 35 |
| Exports | 4 | 0 | 4 | 15 | 60 | 30 | 20 |
| Apparent Demand | 174 | 201 | 239 | 255 | 270 | 290 | 305 |
| **Demand Growth%** | **25.2%** | **15.5%** | **18.9%** | **6.7%** | **5.9%** | **7.4%** | **5.2%** |
| **NBR** | | | | | | | |
| Capacity | 20 | 20 | 20 | 20 | 40 | 40 | 40 |
| Production | 20 | 20 | 20 | 20 | 40 | 40 | 40 |
| Imports | 8 | 11 | 15 | 18 | 0 | 4 | 7 |
| Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apparent Demand | 28 | 31 | 35 | 38 | 40 | 44 | 47 |
| **Demand Growth%** | **12.0%** | **10.7%** | **12.9%** | **8.6%** | **5.3%** | **10.0%** | **6.8%** |
| **EPDM** | | | | | | | |
| Capacity | 10 | 10 | 10 | 10 | 10 | 10 | 50 |
| Production | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Imports | 22 | 28 | 28 | 36 | 40 | 44 | 13 |
| Exports | 0 | 1.2 | 0 | 0 | 0 | 0 | 5 |
| Apparent Demand | 22 | 27 | 32 | 36 | 40 | 44 | 48 |
| **Demand Growth%** | **29.4%** | **22.7%** | **18.5%** | **12.5%** | **11.1%** | **10.0%** | **9.1%** |

*Industry Estimates. A: Actual, E: Estimate*

## Demand Supply Balance: Carbon Black & CBFS (KT)

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **CBFS** | | | | | | | |
| Capacity | 1495 | 1495 | 1595 | 1795 | 1795 | 1928 | 2028 |
| Production | 1495 | 1495 | 1595 | 1595 | 1595 | 1798 | 1945 |
| Imports | 988 | 1000 | 1000 | 900 | 870 | 820 | 771 |
| Exports | 1295 | 1095 | 1050 | 800 | 600 | 453 | 279 |
| Demand | 1188 | 1400 | 1545 | 1695 | 1865 | 2166 | 2437 |
| **Demand Growth (%)** | **6.3%** | **17.8%** | **10.4%** | **9.7%** | **10.0%** | **16.1%** | **12.5%** |
| **Carbon Black** | | | | | | | |
| Capacity | 858 | 935 | 1027 | 1238 | 1238 | 1383 | 1491 |
| Production | 694 | 697 | 840 | 900 | 900 | 974 | 1024 |
| Imports | 70 | 117 | 128 | 70 | 50 | 30 | 20 |
| Exports | 102 | 132 | 170 | 130 | 85 | 84 | 66 |
| Demand | 662 | 682 | 798 | 840 | 865 | 920 | 979 |
| **Demand Growth (%)** | **3.0%** | **3.0%** | **17.0%** | **5.3%** | **3.0%** | **6.4%** | **6.4%** |

*Source: Industry Estimates. A: Actual, E: Estimate*

## Demand Supply Balance: Other Key Petrochemicals (KT)

| (KT) | 2010-11 A | 2011-12 A | 2012-13 A | 2013-14 E | 2014-15 E | 2015-16 E | 2016-17 E |
|---|---|---|---|---|---|---|---|
| **Benzene** | | | | | | | |
| Capacity | 1230 | 1260 | 1260 | 1535 | 1715 | 2070 | 2070 |
| Production | 1037 | 1153 | 1146 | 1347 | 1439 | 1829 | 1829 |
| Imports | 72 | 44 | 51 | 0 | 0 | 0 | 0 |
| Exports | 429 | 502 | 653 | 617 | 569 | 899 | 829 |
| Apparent Demand | 586 | 606 | 596 | 730 | 870 | 930 | 1000 |
| **Demand Growth%** | **11.4%** | **3.5%** | **-1.8%** | **22.5%** | **19.2%** | **6.9%** | **7.5%** |
| **Toluene** | | | | | | | |
| Capacity | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| Production | 140 | 140 | 140 | 140 | 140 | 140 | 140 |
| Imports | 190 | 245 | 307 | 320 | 320 | 320 | 320 |
| Exports | 0 | 6 | 0 | 0 | 0 | 0 | 0 |
| Apparent Demand | 330 | 385 | 447 | 460 | 460 | 460 | 460 |
| **Demand Growth%** | **-2.4%** | **16.8%** | **16.0%** | **2.9%** | **0.0%** | **0.0%** | **0.0%** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **MX** | | | | | | | |
| Capacity | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Production | 72 | 86 | 79 | 86 | 73 | 85 | 85 |
| Imports | 25 | 26 | 31 | 35 | 44 | 52 | 60 |
| Exports | 15 | 25 | 22 | 23 | 18 | 17 | 14 |
| Apparent Demand | 80 | 85 | 83 | 96 | 99 | 120 | 130 |
| **Demand Growth%** | **27.0%** | **6.8%** | **-2.8%** | **15.7%** | **2.8%** | **21.6%** | **8.3%** |
| **OX** | | | | | | | |
| Capacity | 420 | 420 | 420 | 420 | 420 | 420 | 420 |
| Production | 400 | 362 | 365 | 405 | 365 | 365 | 365 |
| Imports | 54 | 50 | 50 | 65 | 68 | 60 | 60 |
| Exports | 184 | 146 | 136 | 205 | 168 | 168 | 168 |
| Apparent Demand | 261 | 266 | 279 | 272 | 276 | 288 | 290 |
| **Demand Growth%** | **1.6%** | **0.0%** | **5.0%** | **-2.5%** | **1.5%** | **4.3%** | **0.7%** |

*Industry Estimates. A: Actual, E: Estimate*


VERTICAL GROWTH SECTORS
VINYL
ELASTOMES
POLYOLEFINS
FIBRE INTERMEDIATE
PETROCHEMICAL

# COMMITTEE MEETINGS

# Presentations for Committee Meetings APIC 2014

# Indian Petrochemical Industry

## Review & Future Prospects

### May 2014

# Review & Outlook of Indian Economy

CPMA

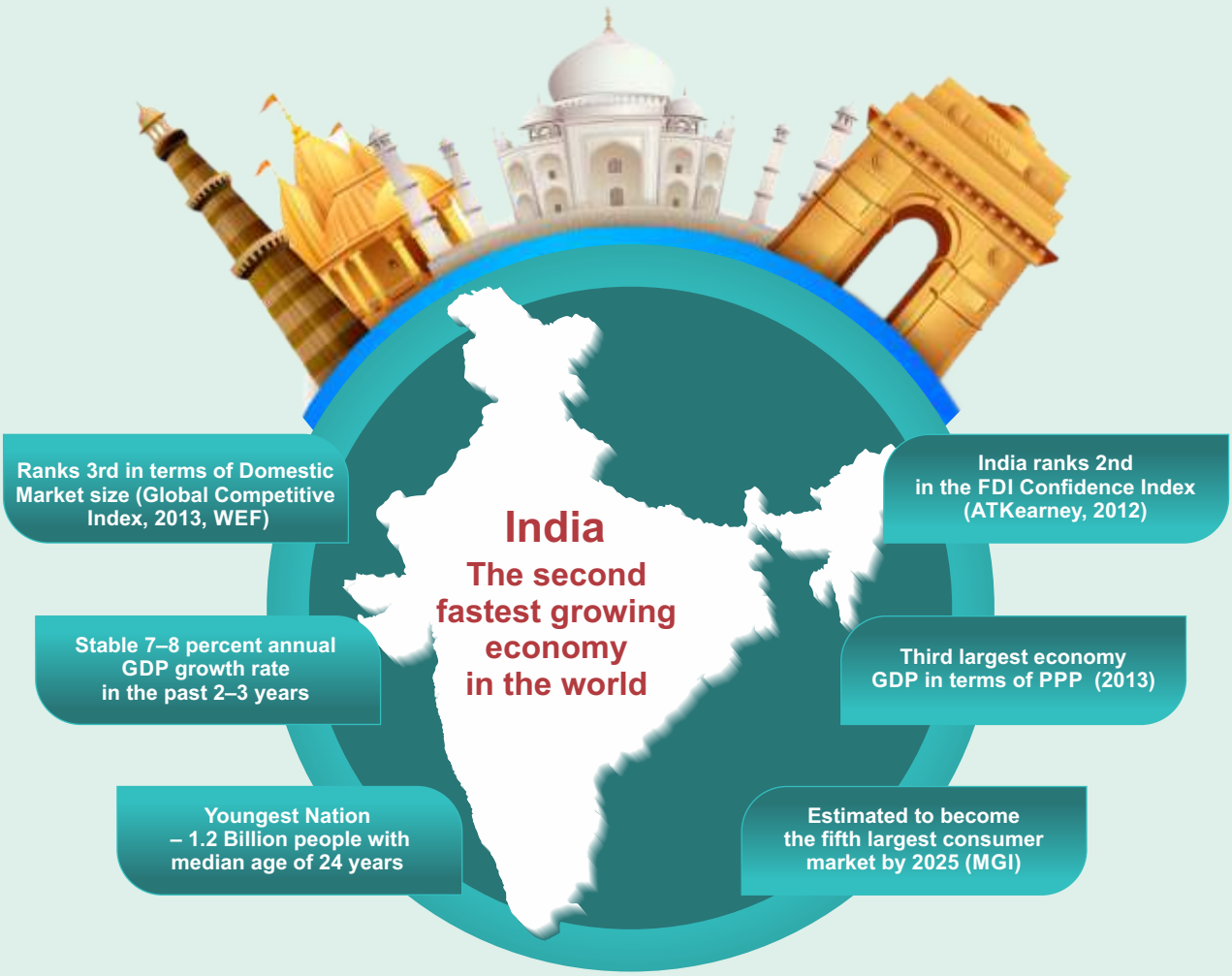
**Chemicals & Petrochemicals Manufacturers' Association**

708, 7th Floor, Kailash Building, 26, Kasturba Gandhi Marg
New Delhi – 110001, INDIA
Phone: 91-11-43598337, Fax: 91-11-43598337
Email : cpmai@airtelmail.in Web : www.cpmaindia.com

# Vibrant Indian Economy












# Growth in GDP at Factor Cost at 2004-5 prices (%)

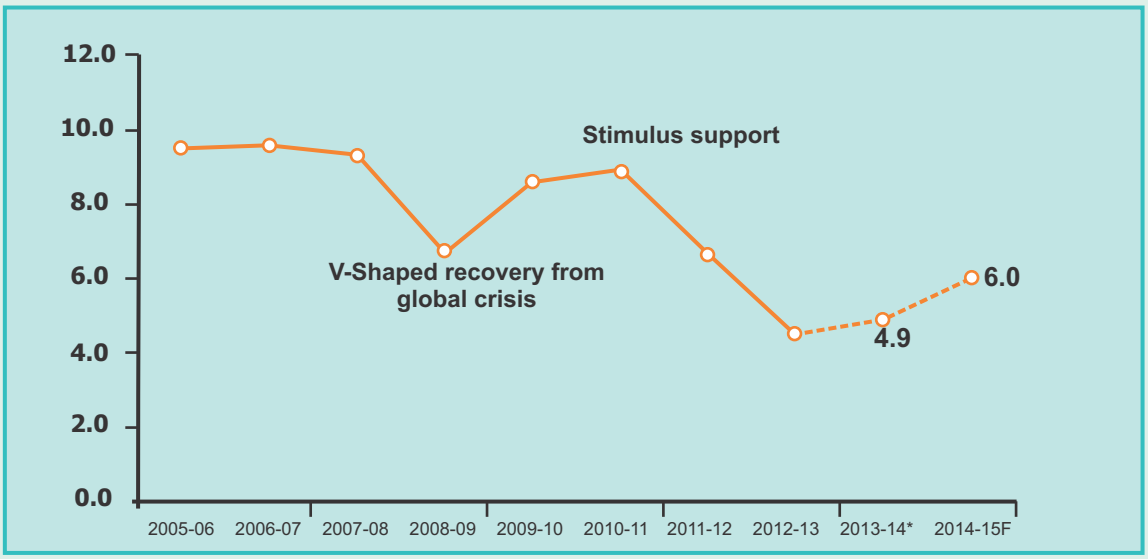
| Growth Rate of GDP at Factor Cost (at 2004-05 prices) (in %) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2007-08 | 2008-09 | 2009-10 | 2010-11^ | 2011-12** | 2012-13* | 2013-14 (AE) |
| Agriculture | 5.8 | 0.1 | 0.8 | 8.6 | 5 | 1.4 | 4.6 |
| Industry | 9.7 | 4.4 | 9.2 | 7.6 | 7.8 | 1 | 0.7 |
| Mining & quarrying | 3.7 | 2.1 | 5.9 | 6.5 | 0.1 | -2.2 | -1.9 |
| Manufacturing | 10.3 | 4.3 | 11.3 | 8.9 | 7.4 | 1.1 | -0.2 |
| Electricity, gas and water supply | 8.3 | 4.6 | 6.2 | 5.3 | 8.4 | 2.3 | 6 |
| Construction | 10.8 | 5.3 | 6.7 | 5.7 | 10.8 | 1.1 | 1.7 |
| Services | 10.3 | 10 | 10.5 | 9.7 | 6.6 | 7 | 6.9 |
| **GDP at factor cost** | **9.3** | **6.7** | **8.6** | **8.9** | **6.7** | **4.5** | **4.9** |

*First revised estimate ** Second revised estimate ^ Third revised estimate, AE- Advance Estimate

*Source:- Central Statistics Office, GoI*

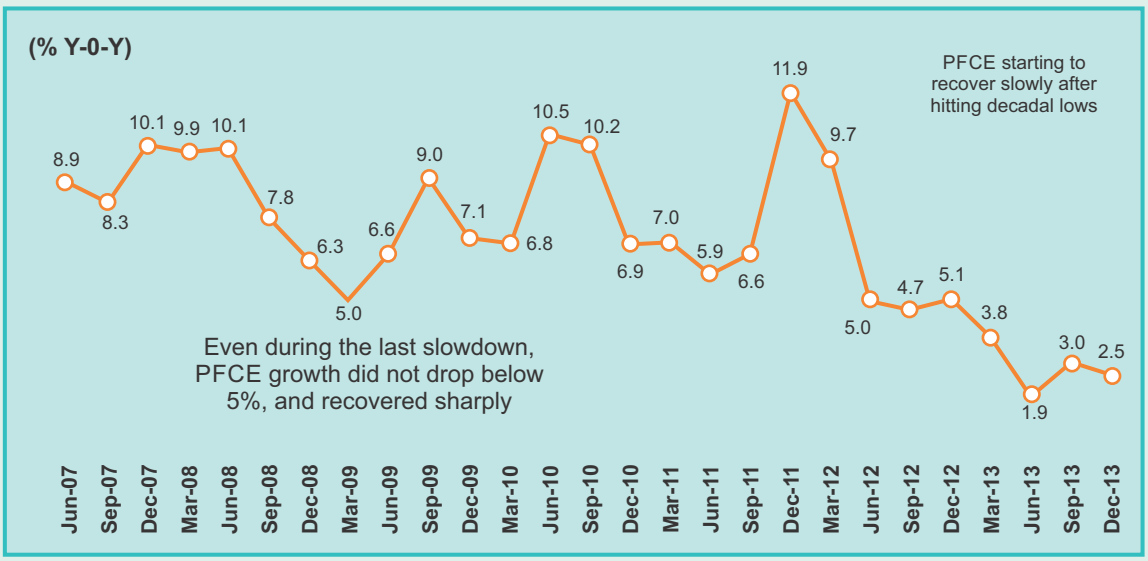
- The economy is expected to grow 4.9 per cent in 2013-14
- Durable recovery remains contingent on addressing persistent inflation, and the bottlenecks facing the mining and infrastructure sectors
- Most economists are of the consensus notion, that the worst is over for the Indian economy, and the parameters are in fact reflective of green shoots emerging

# GDP growth showing signs of recovery



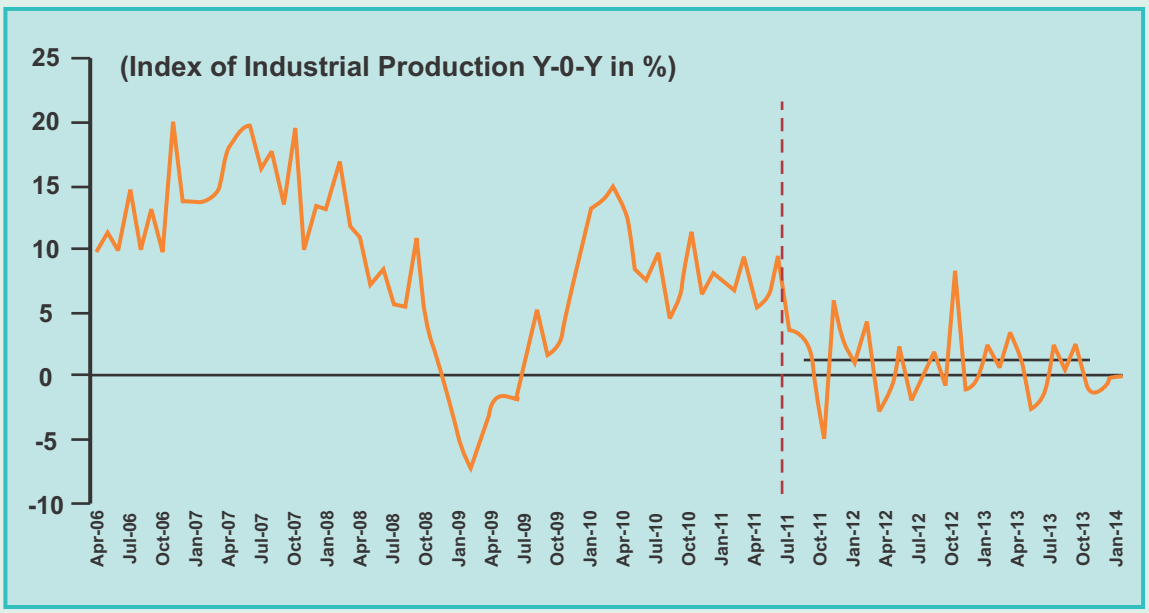

Note: * Advance estimates, F- Agency Estimates
Source: CSO

# Modest recovery in private consumption after hitting decadal lows



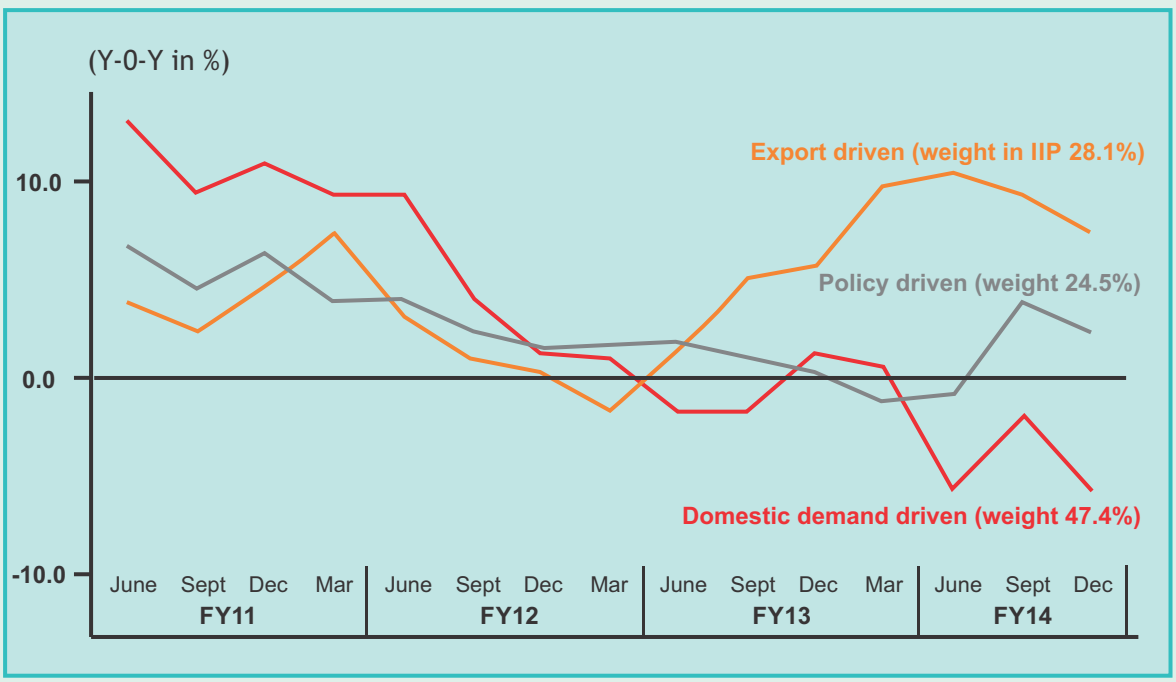

Source: CSO

# Industrial Production caught in low equilibrium since July'11




Source: CSO

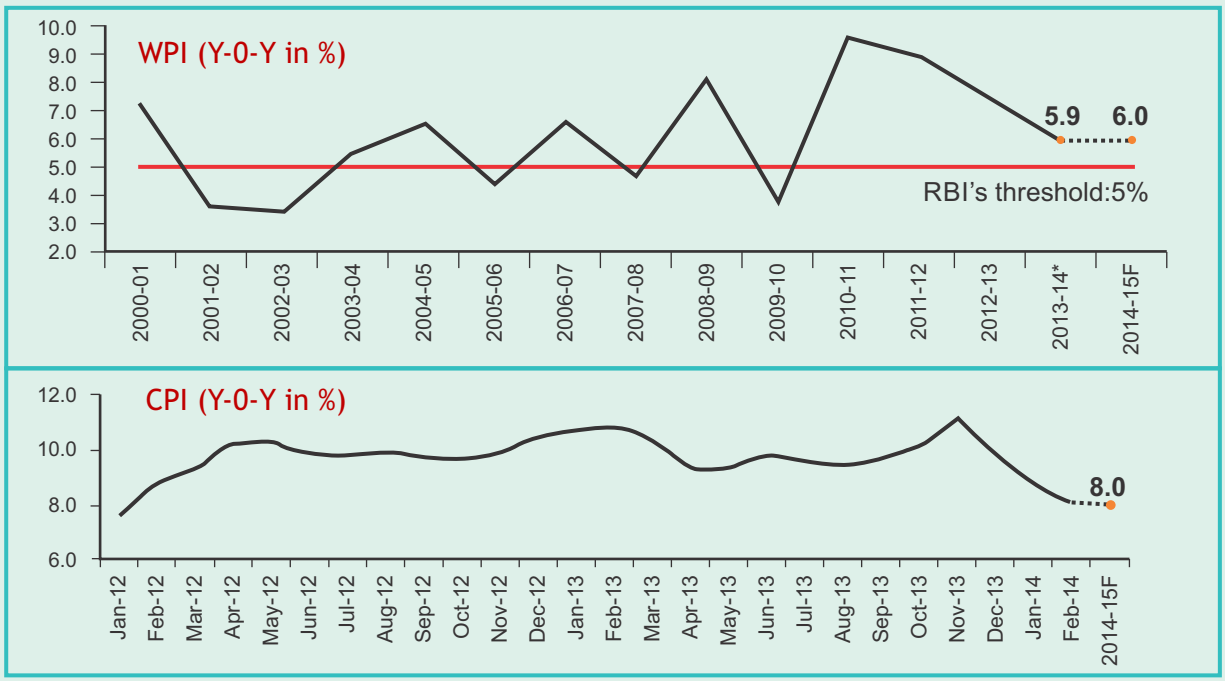
# Export led industries improve performance




Source: CSO

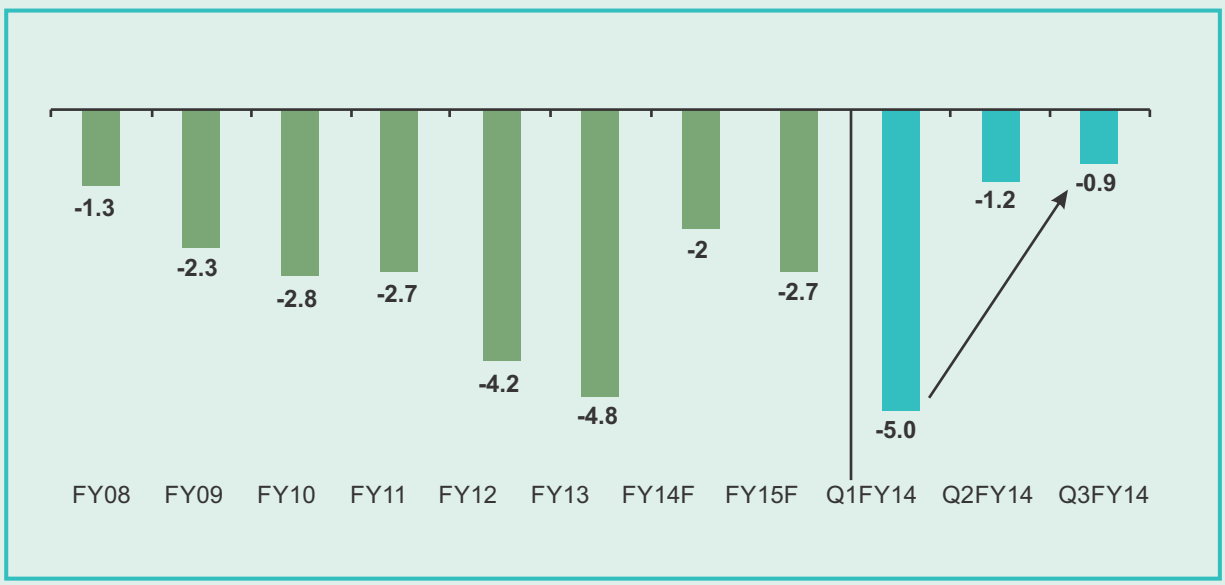
Note: Policy-led includes mining and electricity; Export-led manufacturing includes textiles, wearing apparel, leather, chemicals, refined petroleum, other transport equipment; domestic demand driven includes all other manufacturing industries in the IIP.

# Inflation: Recent decline moving towards expectations




Note: Note: * Data up to Feb-14, F-CRISIL Research Forecast | Source: Ministry of Commerce & Industry, CSO

# CAD falls to 0.9% of GDP in Q3; lowest in 4 years




Note: F: CRISIL Estimates | Source: RBI, CRISIL Research

CAD is expected to rise to 2.7% of GDP in 2014-15 from an estimated 2.0% in 2013-14

# India's macroeconomic prospects brightening

| | 2011-12 | 2012-13 | 2013-2014 | 2014-15F |
|---|---|---|---|---|
| Real GDP factor cost (y-o-y% growth | 6.7 | 4.5 | 4.9* | 6.0 |
| Agriculture | 5.0 | 1.4 | 4.6* | 3.0 |
| Industry | 7.8 | 1.0 | 0.7* | 4.0 |
| Services | 6.6 | 7.0 | 6.9* | 7.6 |
| Other macroeconomic variables | | | | |
| cpi inflation (avarage) | – | 10.2 | 10.0 | 8.0 |
| Interest rate (10-year G-sec March-end) | 8.8 | 8.0 | 8.3 8.5 | 8.2 8.1 |
| Exchange rate (Rs-$ March-end) | 51.0 | 54.4 | 60.0 | 62.0 |
| Fiscal Deficit (% of GDP) | 5.8 | 4.9 | 4.6** | 4.6 |
| Current Account Deficit (% of GDP) | 4.2 | 4.8 | 2.0 | 2.7 |

Note: * Advanced Estimates; ** Revised Estimates; F-CRISIL forecast | Source: CSO, RBI, Ministry of commerce, CRISIL Research

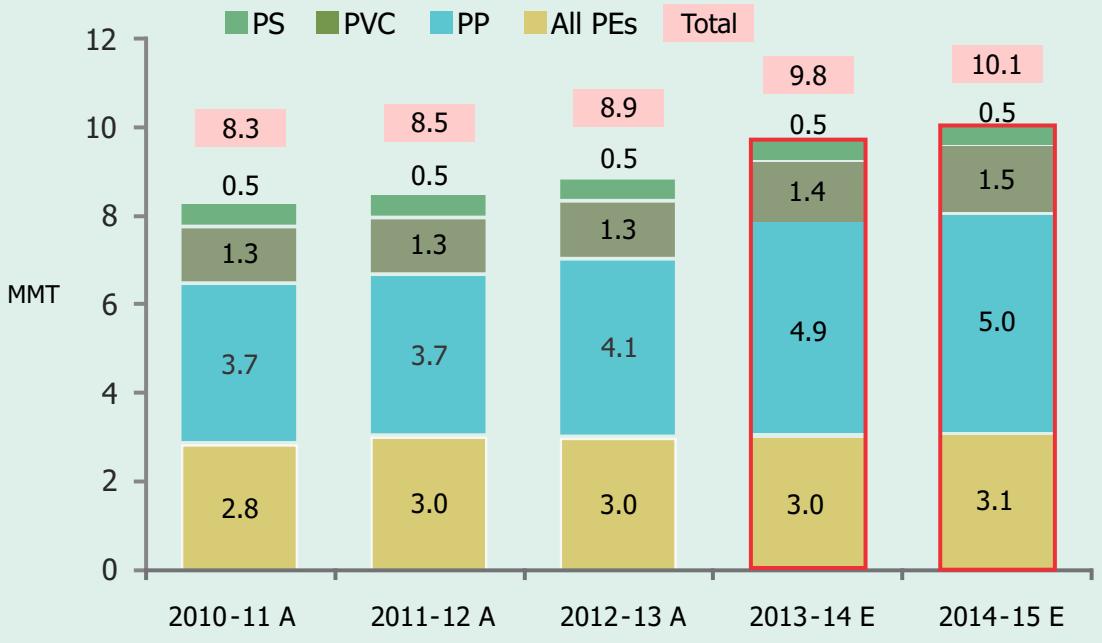
# India's GDP growth projections

| Agencies | 2014-15 |
|---|---|
| ADB | 5.5% |
| Crisil | 6.0% |
| DBS | 5.5% |
| Goldman Sachs | 5.5% |
| Morgan Stanley | 5.2% |
| IMF | 5.4% |
| OECD | 5.6% |
| UN | 5.3% |
| World Bank | 6.1% |

Expected GDP growth rate in 2014-15 ~ 5.3-6%

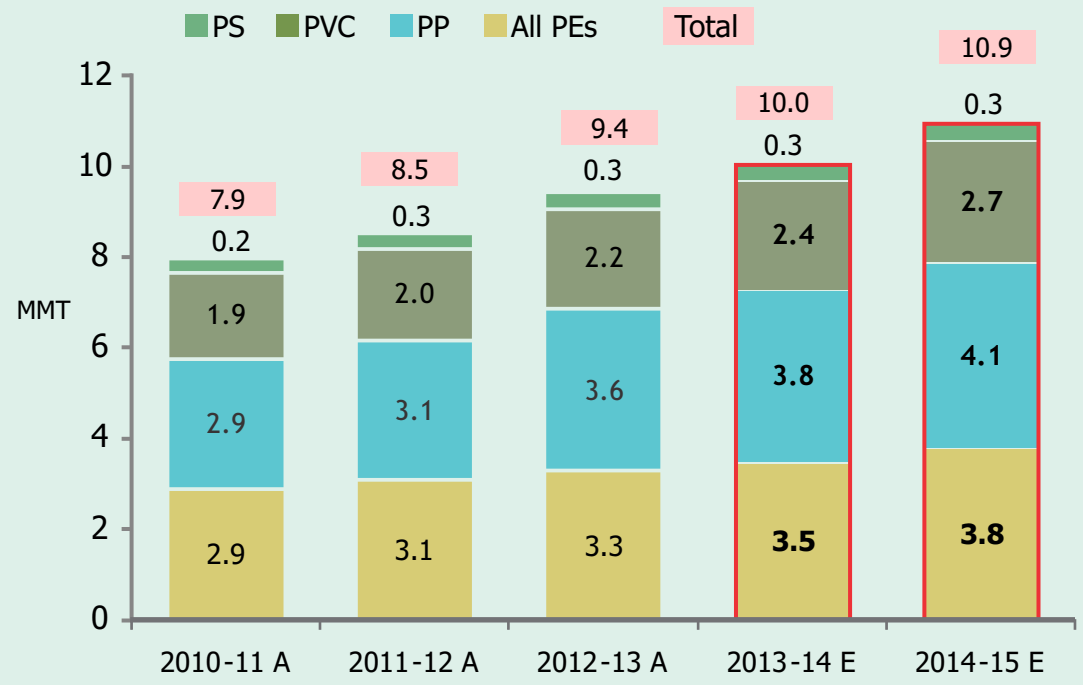
# Review & Outlook of Petrochemical Industry

# Capacity for polymers grew at 5.7% in 2012-13




Capacity addition of 440 kT PP by MRPL in 2014-15

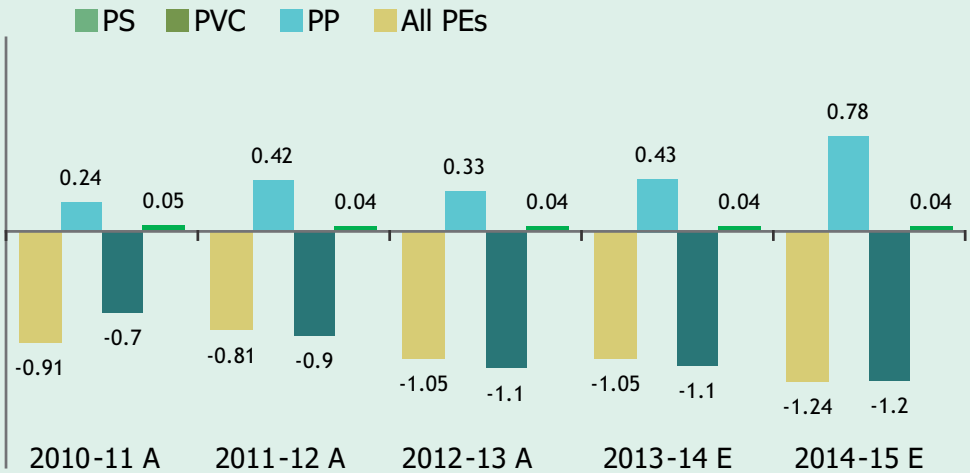
# Polymer demand grew at 11.4% in 2012-13




Demand for PE & PP is expected to register growth of 4.4% & 6.6% in 2013-14

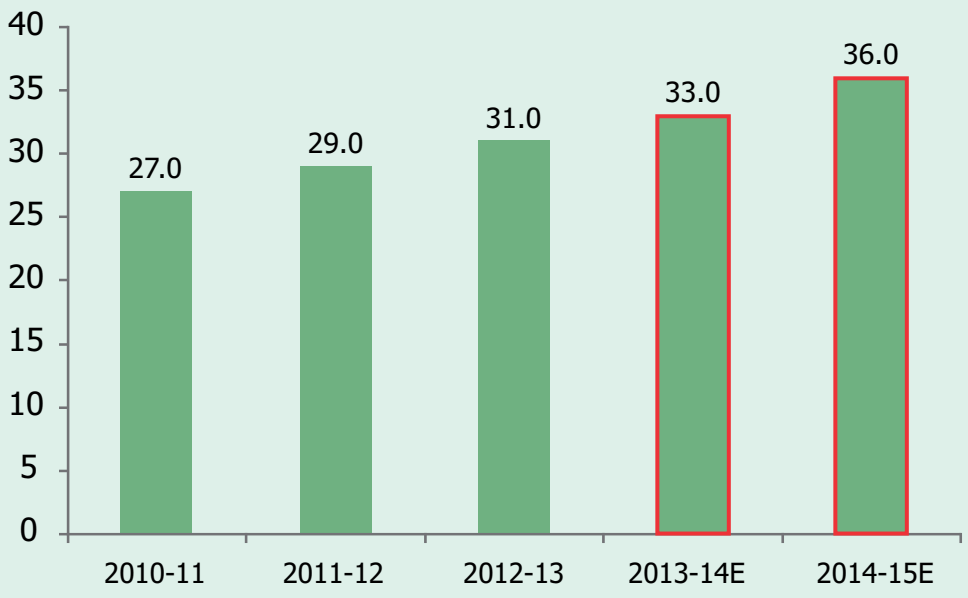
# Net exportable surplus : PP

Trend in Polymers net trade (MMT)




# Petrochemical demand continuously growing

Aggregate petrochemicals demand combining all the key sector (mmt)




....and is expected to touch 36 mmt by 2014-15

# Planned new capacities in India

| (in KTs) | Start up Year | C2 | C3 | HDPE | LDPE | LLDPE | PP | PVC |
|---|---|---|---|---|---|---|---|---|
| BCPL | 14-15 | 220 | 60 | 155 | | 65 | 60 | |
| GAIL | 14-15 | 450 | | 210 | | 260 | | |
| OPAL | 14-15 | 1100 | 340 | 720 | | 340 | 340 (15-16) | |
| RIL | 15-16 | 1400 | 170 | 200 | 400 | 350 | | |
| MRPL | 14-15 | | 440 | | | | 440 | |
| Total | Till 15-16 | 3170 | 1010 | 1285 | 400 | 1015 | 840 | |

Source: Industry

The domestic petrochemical industry is in the process of investing over ~US$25 billion to meet the surging demand

# Thank You!

# Indian Polyolefins Industry

## Review & Future Prospects

### May 2014

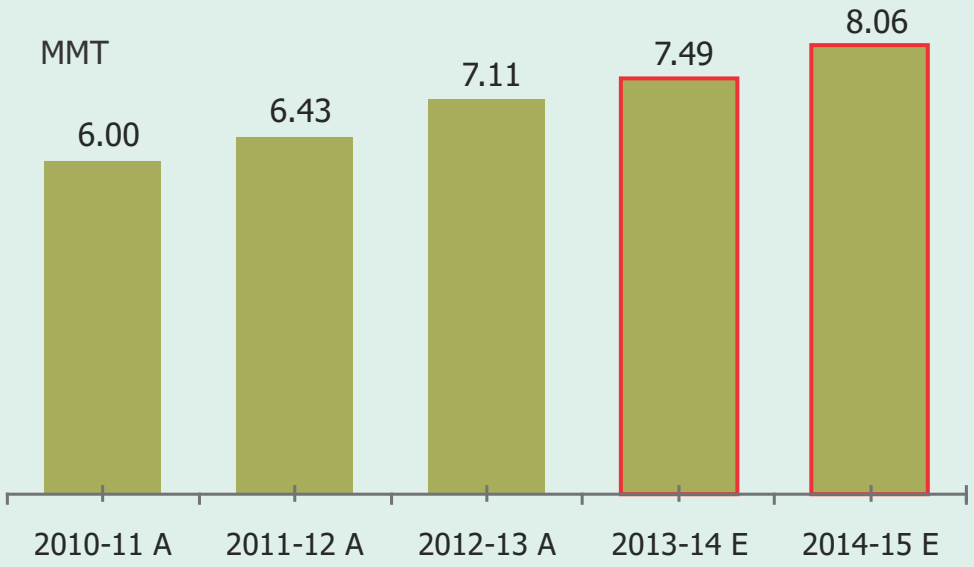
## Review of Polyolefins Sector

CPMA

**Chemicals & Petrochemicals Manufacturers' Association**

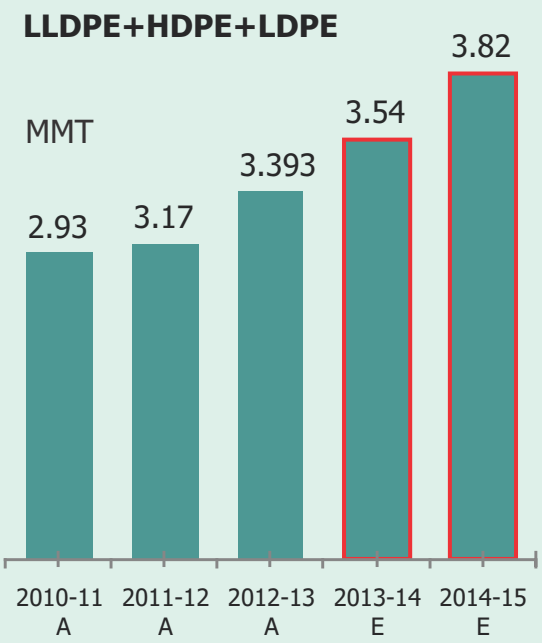
708, 7th Floor, Kailash Building, 26, Kasturba Gandhi Marg
New Delhi – 110001, INDIA
Phone: 91-11-43598337, Fax: 91-11-43598337
Email : cpmai@airtelmail.in Web : www.cpmaindia.com

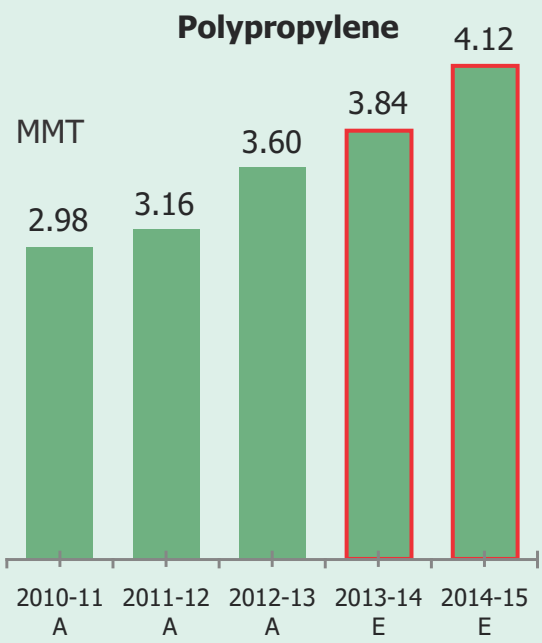
# Polyolefins demand grew at ~11% in 2012-13




Expected to register a healthy growth of 5.3% - 7.5% in 2013-14 & 2014-15

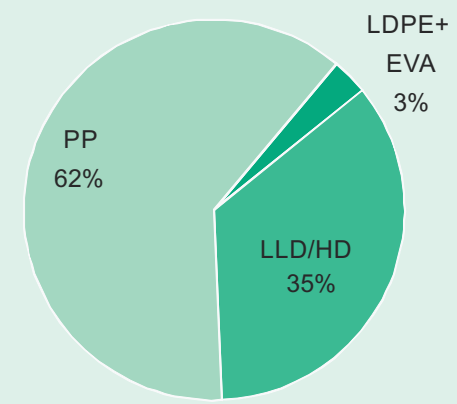
# Healthy demand of Polyolefins in 2012-13



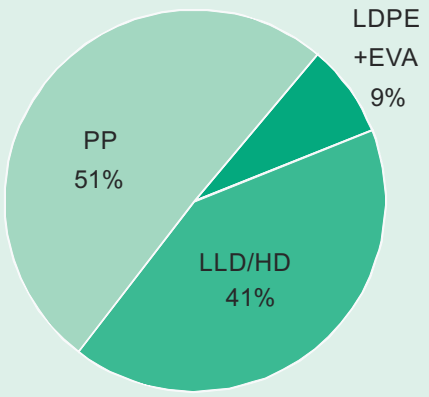




PE & PP demand grew at 12% & 15% respectively in 2012-13;
expected to maintain healthy growth trend in next two years

# Polyolefin production increased by ~5% in 2012-13



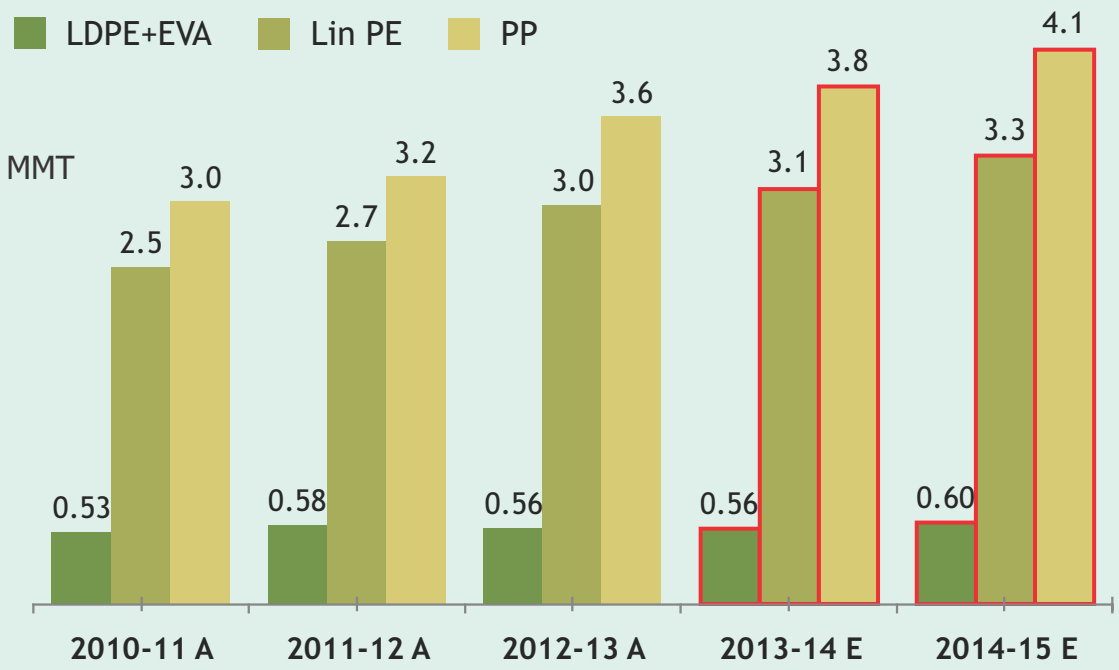

Polyolefin Production – 6.45 MMT




Polyolefin Demand – 7.1 MMT

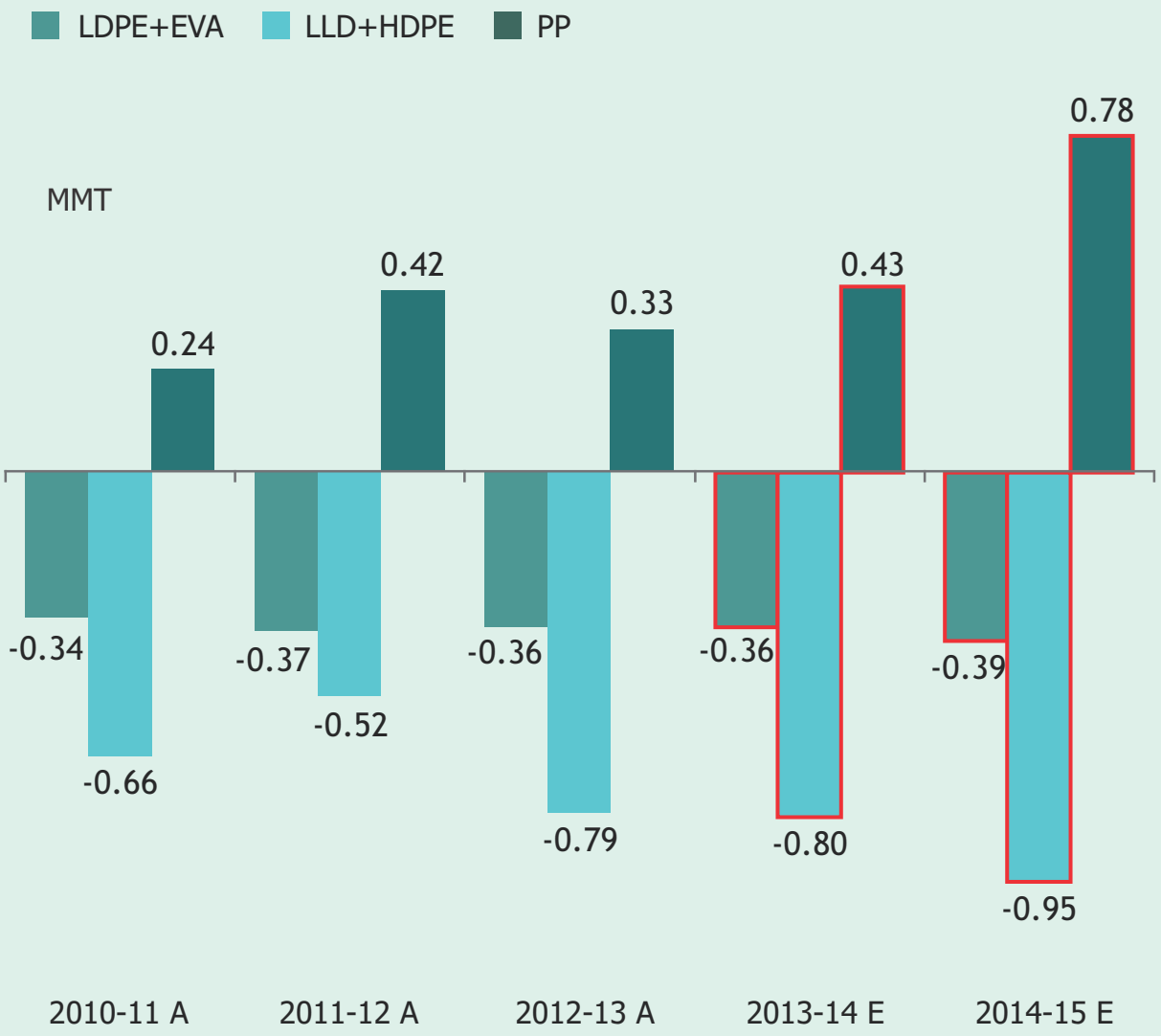
Polyolefin consumption is dominated by Lin PE & PP demand

# PE & PP Demand




PP demand growth expected to rise from 2013-14 onwards

# Polyolefins net trade deficit was 0.82 MMT in 2012-13




LLD + HDPE registered net trade deficit of 0.79 MMT and
PP registered trade surplus of 0.33 MMT in 2012-13

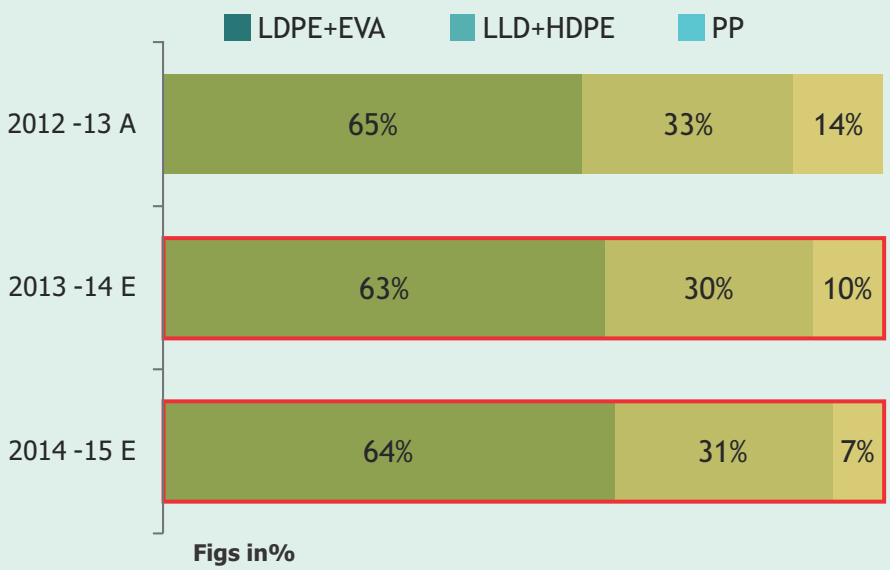
# Outlook for Polyolefins Sector

# Projected demand for Polyolefins in India

| (KTA) | Actual | | Projected | | % change year on year | | |
|---|---|---|---|---|---|---|---|
| | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2012-13 | 2013-14 | 2014-15 |
| LDPE+EVA | 581 | 559 | 562 | 604 | -4% | 0% | 8% |
| LLDPE | 1135 | 1257 | 1306 | 1378 | 11% | 4% | 6% |
| HDPE | 1549 | 1694 | 1782 | 1953 | 9% | 5% | 10% |
| PP | 3160 | 3605 | 3843 | 4121 | 14% | 7% | 7% |
| Polyolefins | 6425 | 7115 | 7493 | 8056 | 11% | 5% | 8% |

Healthy demand growth expected for polyolefins in 2013-14

# PE import dependency to remain




**Figs in%**

Net exportable surplus for PP expected to increase with new capacities coming on stream in 2013-14 & 2014-15

# Thank You!

# VINYL

# Vinyls in India

## Review & Future Prospects

### May 2014

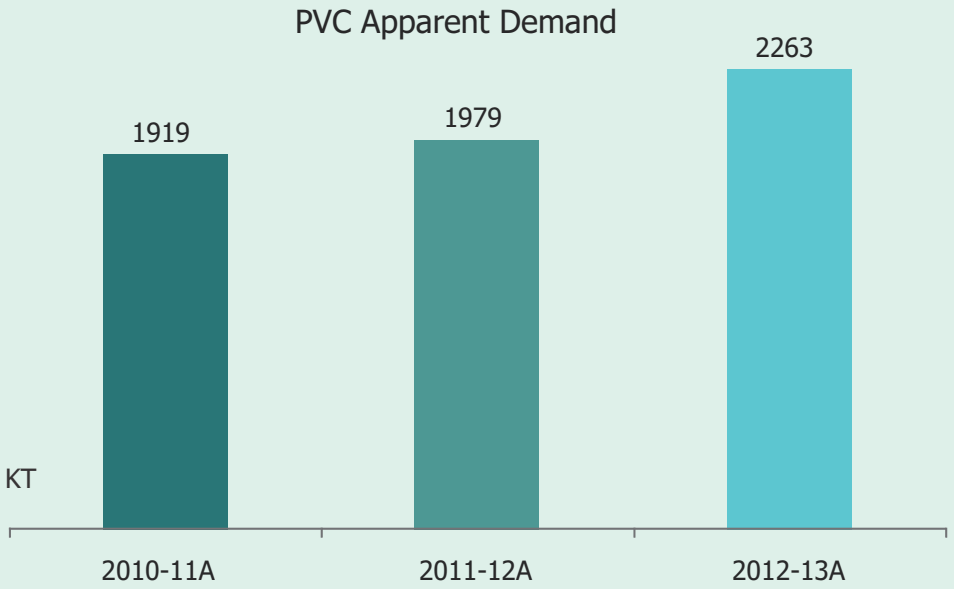
## Review of Vinyl Sector

CPMA

**Chemicals & Petrochemicals Manufacturers' Association**

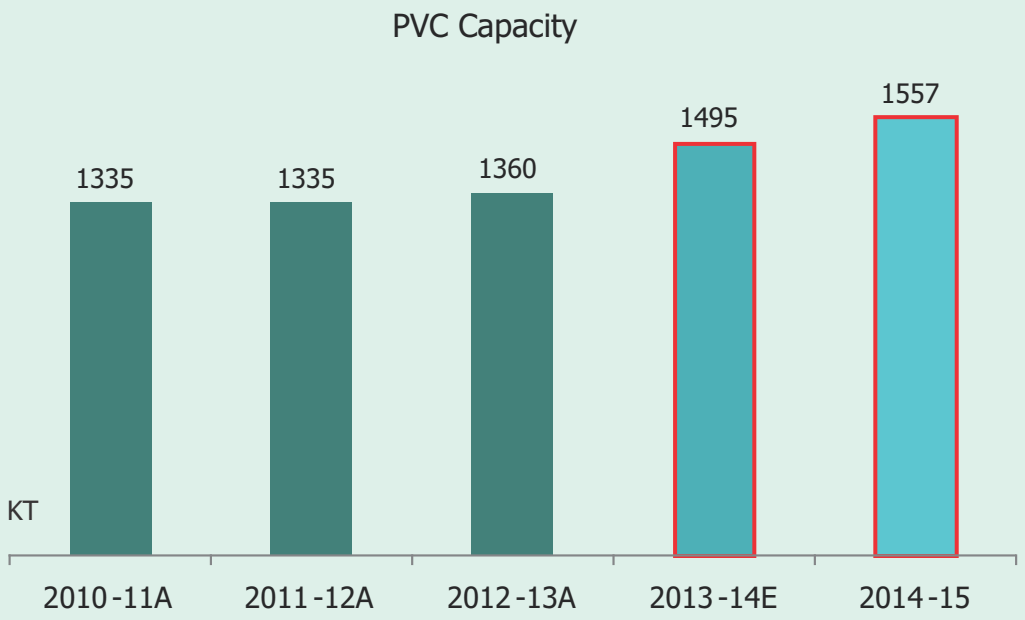
708, 7th Floor, Kailash Building, 26, Kasturba Gandhi Marg
New Delhi – 110001, INDIA
Phone: 91-11-43598337, Fax: 91-11-43598337
Email : cpmai@airtelmail.in Web : www.cpmaindia.com

# PVC witnessed a growth of 12.3% in 2012-13



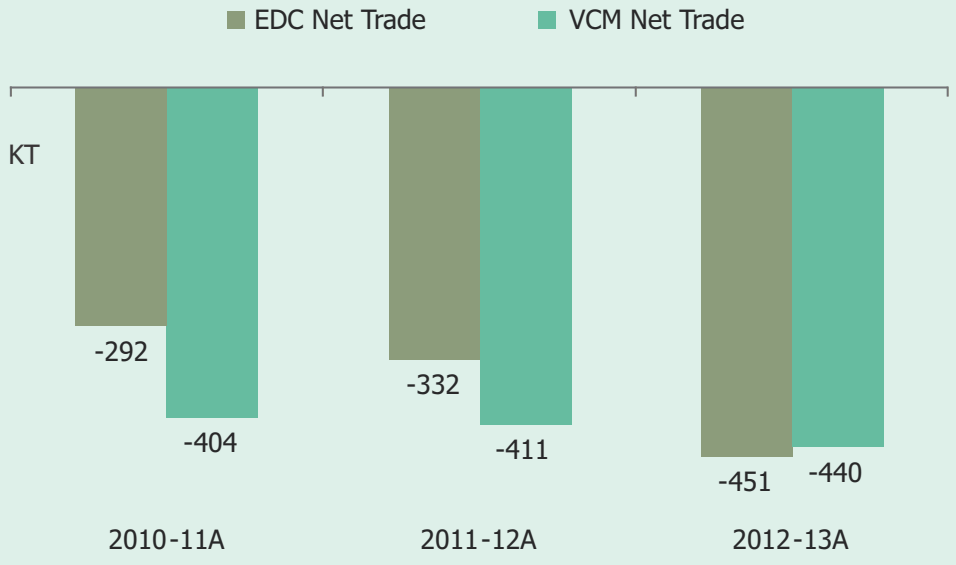

Demand has gone up from 1919 Kt in 2010-11 to 2263 Kt in 2012-13

# PVC Capacity addition in next two years



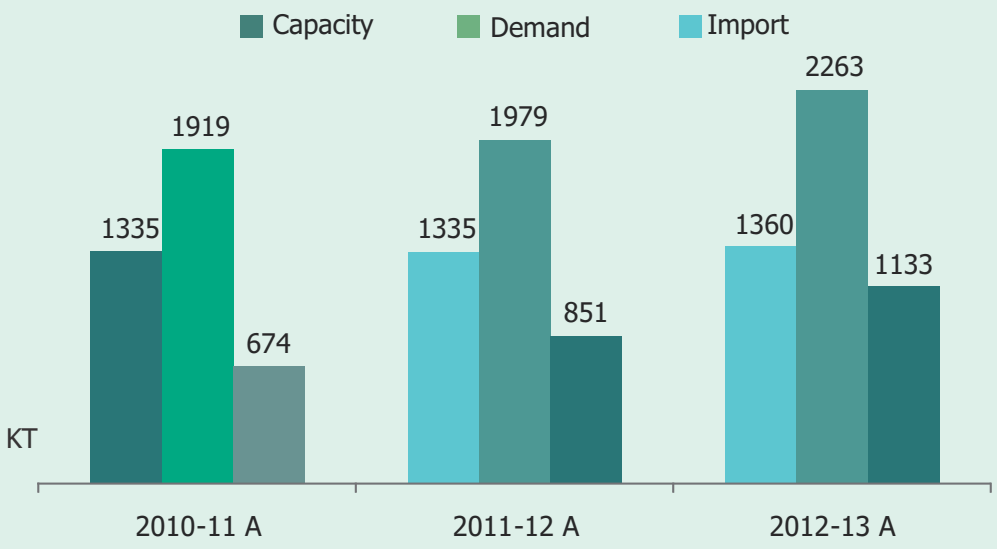

Capacity addition through debottlenecking by RIL and Chemplast in 2013-14 and 2014-15

# Net trade of EDC & VCM




Imports dependency remained high

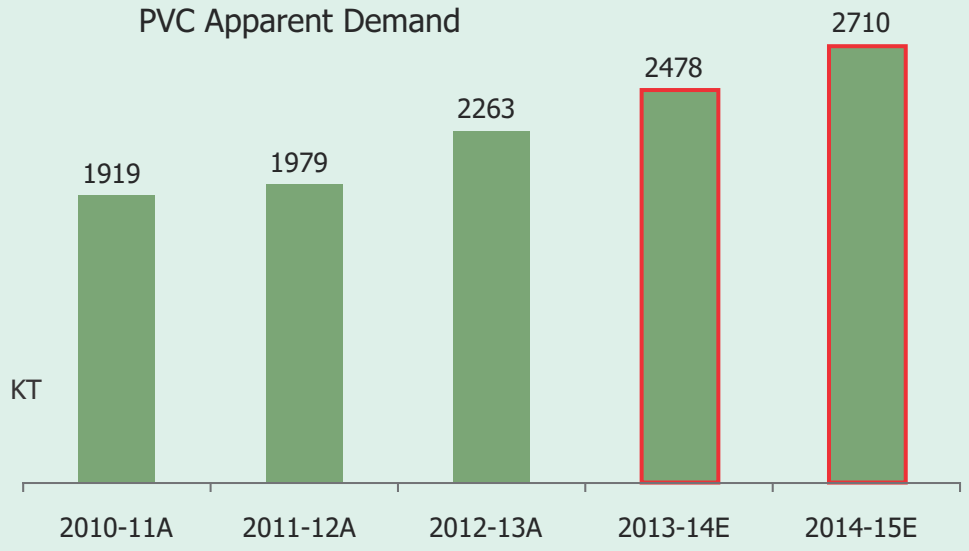
# PVC demand supply balance in India




PVC deficit has increased from 848 KT in 2011-12 to 1132 KT in 2012-13

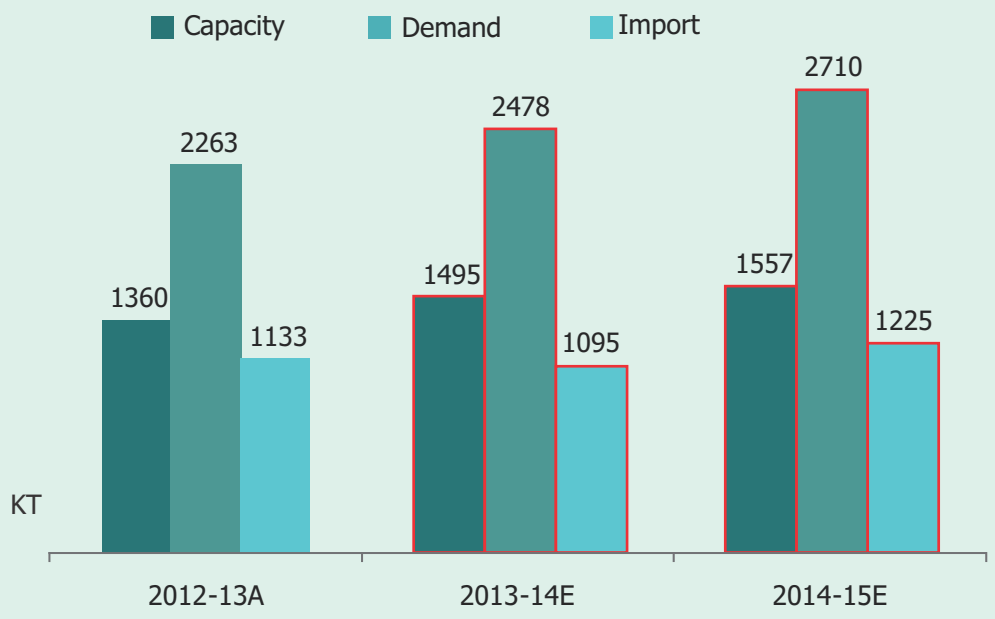
# Outlook for Vinyl Sector

# PVC demand expected to register strong growth



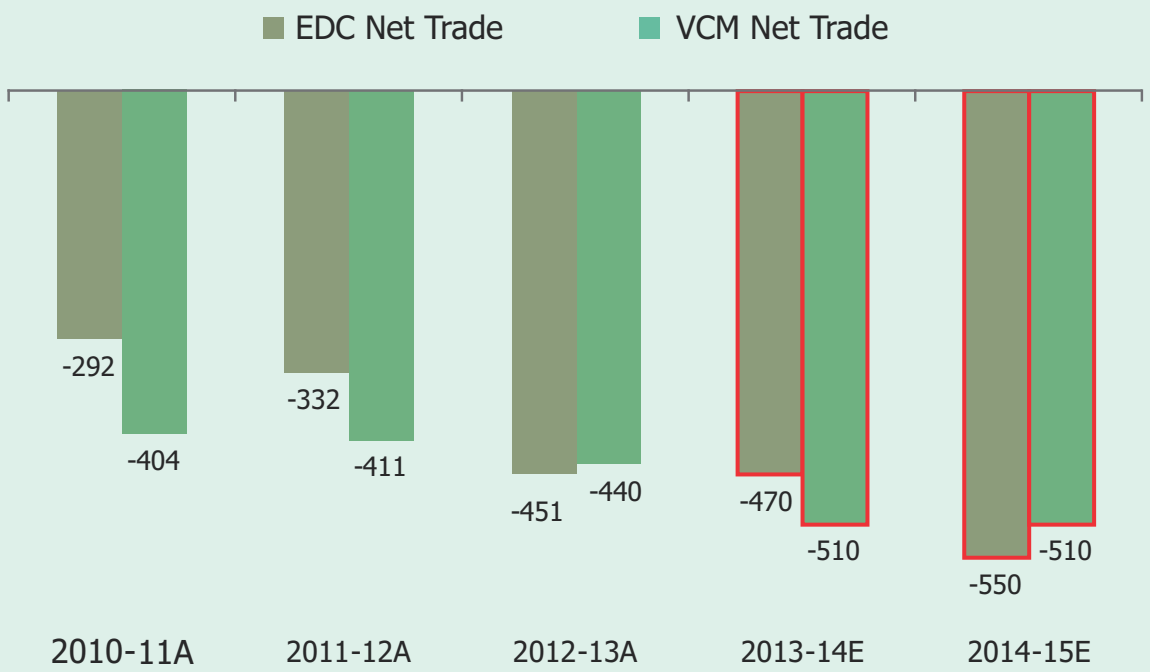

Demand to touch 2710 KT in 2014-15

# PVC deficit to increase in future




No new substantial capacity coming on-stream to meet the rising domestic consumption

# EDC & VCM Net Trade




Import dependency to increase!

# Thank You!

# Indian Styrenics Industry

## Review & Future Prospects

### May 2014

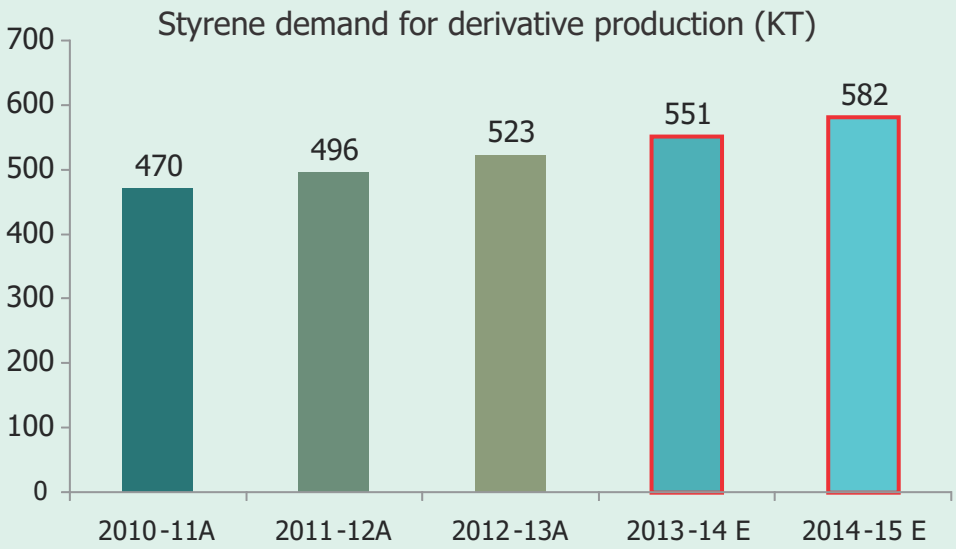
## Review of Styrenics Sector

CPMA

**Chemicals & Petrochemicals Manufacturers' Association**

708, 7th Floor, Kailash Building, 26, Kasturba Gandhi Marg
New Delhi – 110001, INDIA
Phone: 91-11-43598337, Fax: 91-11-43598337
Email : cpmai@airtelmail.in Web : www.cpmaindia.com

# Styrene Demand Trend




Styrene derivative demand to register 5.5% growth in next two years

# Styrene derivatives : Demand

| Demand for Styrenics in India | | | | | | |
|---|---|---|---|---|---|---|
| (KT) | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | CAGR 2011-15 |
| PS | 248 | 250 | 263 | 263 | 263 | 1.1% |
| EPS | 81 | 78 | 86 | 86 | 86 | 1.2% |
| ABS | 125 | 120 | 137 | 151 | 166 | 5.9% |
| SBR | 174 | 201 | 239 | 255 | 270 | 9.2% |
| SAN | 74 | 81 | 83 | 89 | 94 | 4.9% |
| Others | 49 | 49 | 50 | 52 | 54 | 2.0% |

Source: CPMAI, E- Estimated

SBR is expected to grow over 9% CAGR in 2011-15 period

# Outlook for Styrene Sector

# Projected demand for Styrenics in next two years

| (KTA) | Actual | | Projected | | % change year on year | | |
|---|---|---|---|---|---|---|---|
| | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2012-13 | 2013-14 | 2014-15 |
| PS | 250 | 263 | 263 | 263 | -5% | 0% | 0% |
| EPS | 78 | 86 | 86 | 86 | 10.4% | 0% | 0% |
| ABS | 120 | 137 | 151 | 166 | 914.2 | 9.9% | 10% |
| SBR | 201 | 239 | 255 | 270 | 18.9% | 6.7% | 5.9% |
| SAN | 81 | 83 | 89 | 94 | 2.5% | 6.9% | 5.6% |
| Others | 49 | 50 | 52 | 54 | 2.0% | 4.0% | 3.8% |

Source: CPMA

ABS, SBR and SAN to grow at ~10%, 7% and 7% in 2013-14 respectively

# Thank You!

ELASTOMERS

ELASTOMERS

# Indian Elastomers Industry

## Review & Future Prospects

### May 2014

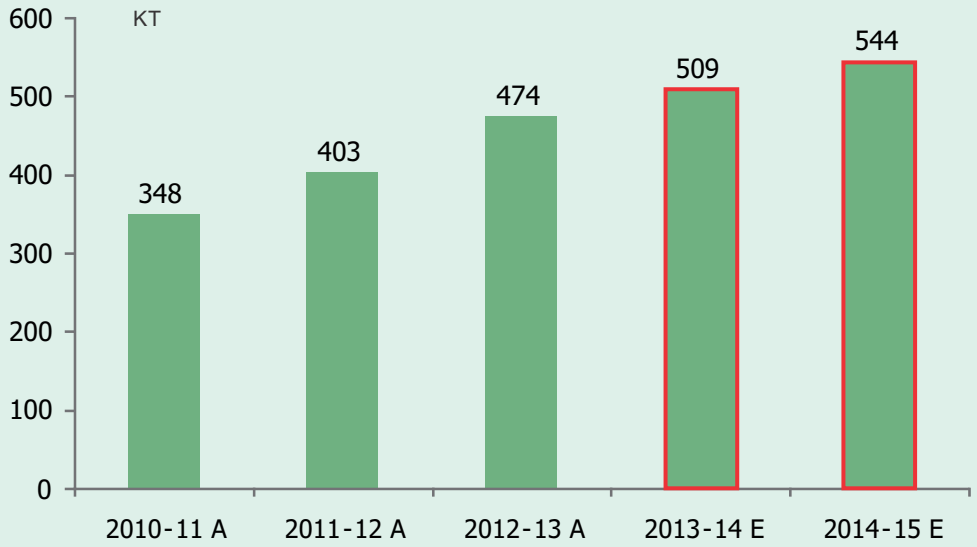
## Review of Elastomers

CPMA

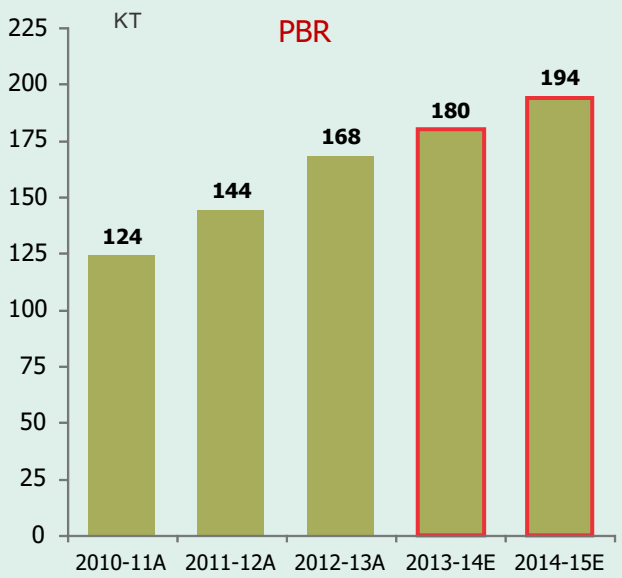
**Chemicals & Petrochemicals Manufacturers' Association**

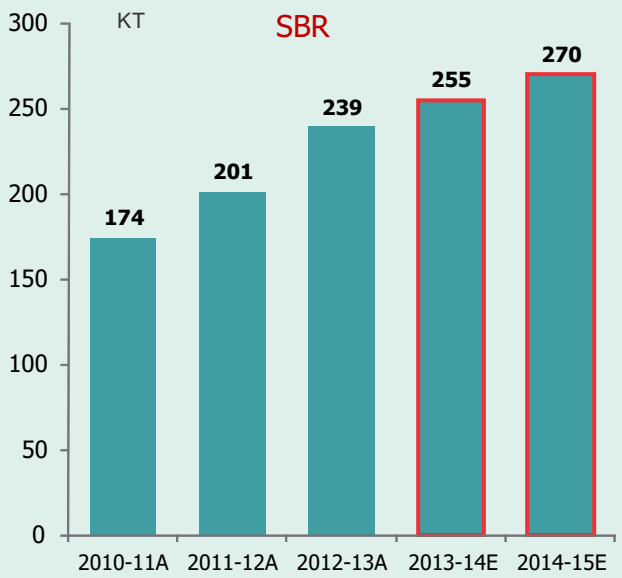
708, 7th Floor, Kailash Building, 26, Kasturba Gandhi Marg
New Delhi – 110001, INDIA
Phone: 91-11-43598337, Fax: 91-11-43598337
Email : cpmai@airtelmail.in  Web : www.cpmaindia.com

# Elastomers demand to grow @7% in next two years



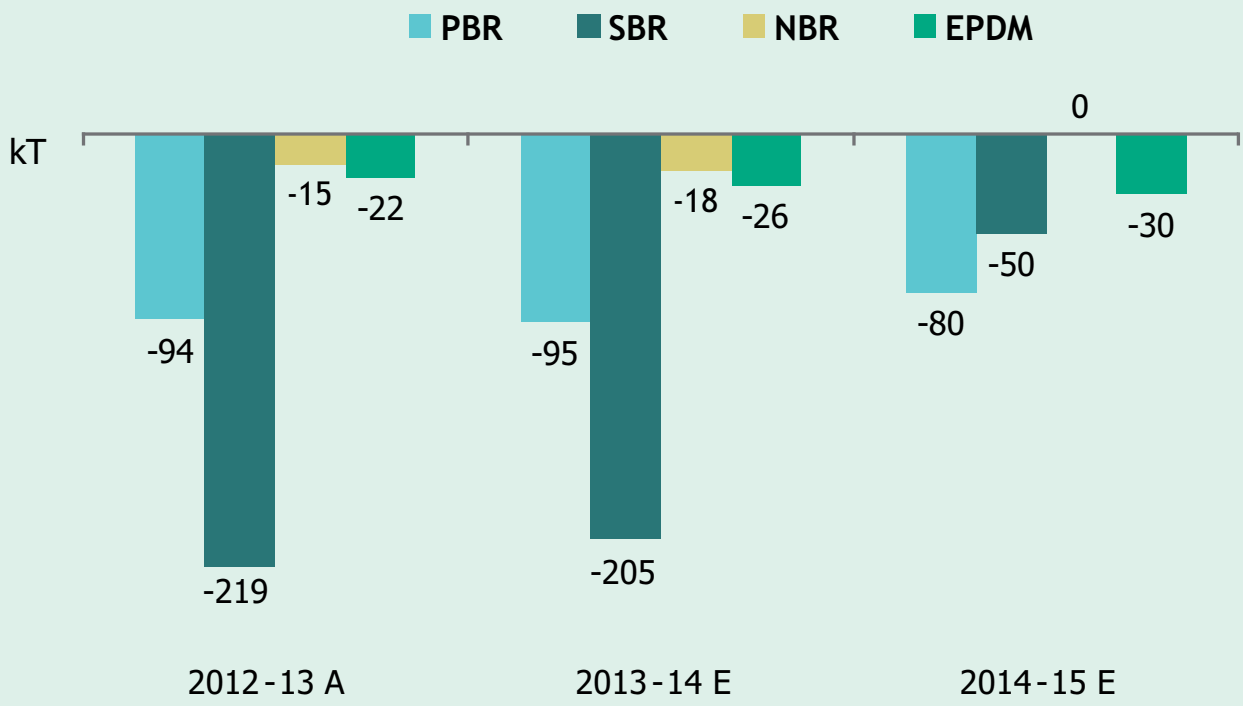

# PBR demand increased by 16.4%; SBR increased by 18.9% in 2012-13




Demand for PBR & SBR is expected to grow at 8% ~ 6% in 2014-15

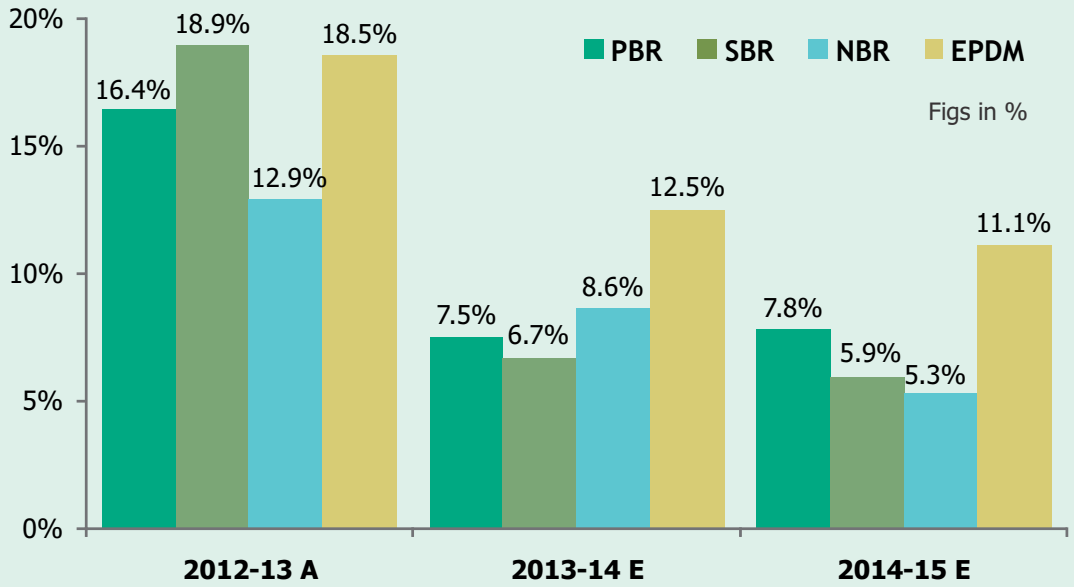
## Elastomers deficit was 344 KT in 2012-13




SBR deficit stood at 205 kT in 2012-13

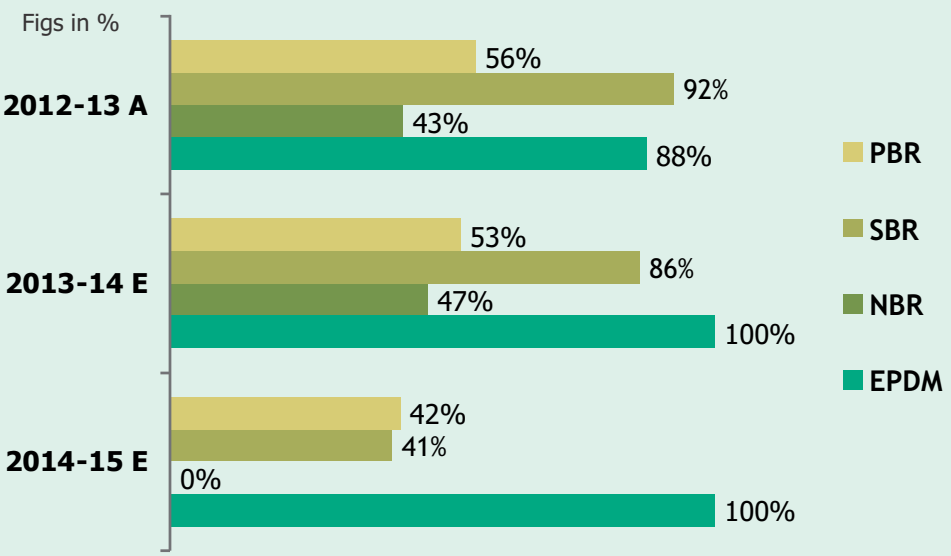
# Elastomers Outlook

# Outlook for 2013-14 & 2014-15 is positive but subdued




Elastomers to register growth rate of 7% in 2013-14 and 2014-15

# Elastomers import dependency to decrease by 2014-15




New capacity being added in next two years in SBR and PBR

# Thank You!

# Fibre Intermediate

## Review & Future Prospects

### May 2014

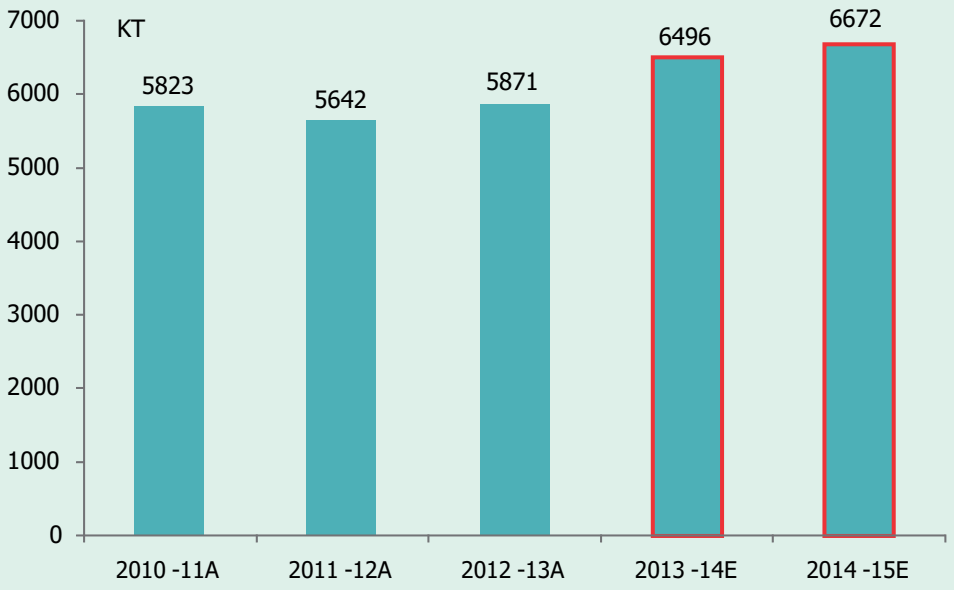
# Review of Fibre Intermediate Sector

CPMA

**Chemicals & Petrochemicals Manufacturers' Association**

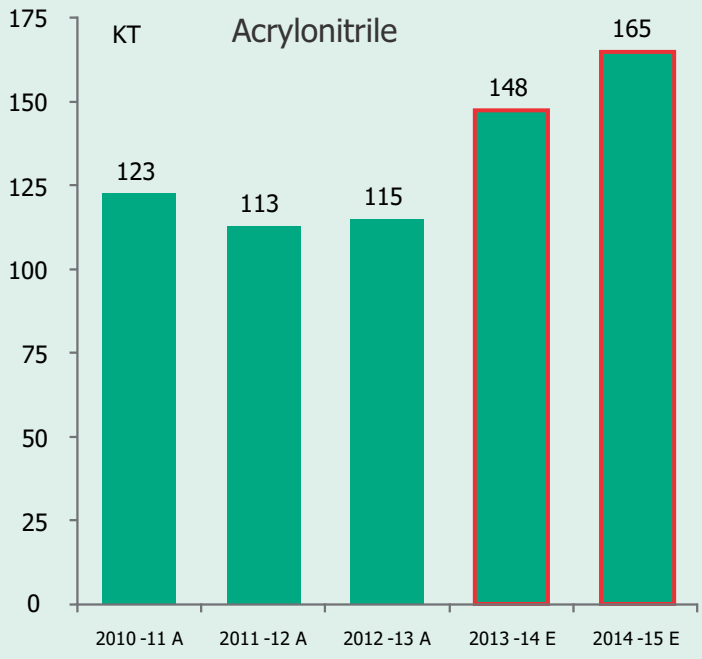
708, 7th Floor, Kailash Building, 26, Kasturba Gandhi Marg
New Delhi – 110001, INDIA
Phone: 91-11-43598337, Fax: 91-11-43598337
Email : cpmai@airtelmail.in Web : www.cpmaindia.com

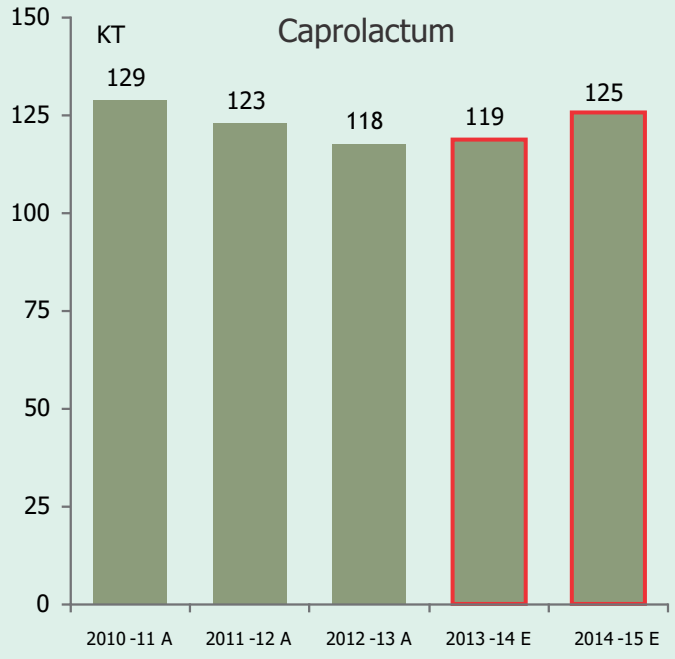
# Fibre Intermediate witnessed a 4% growth in 2012-13




and is expected to grow at ~11% in 2013-14

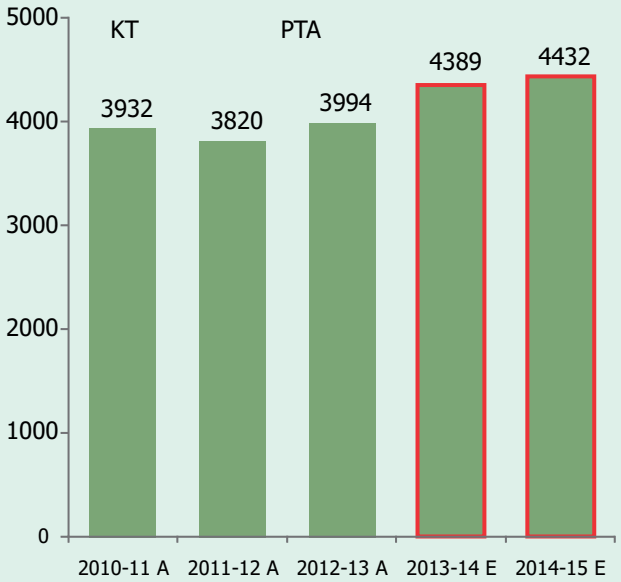
# Acrylonitrile demand grew by 2% in 2012-13

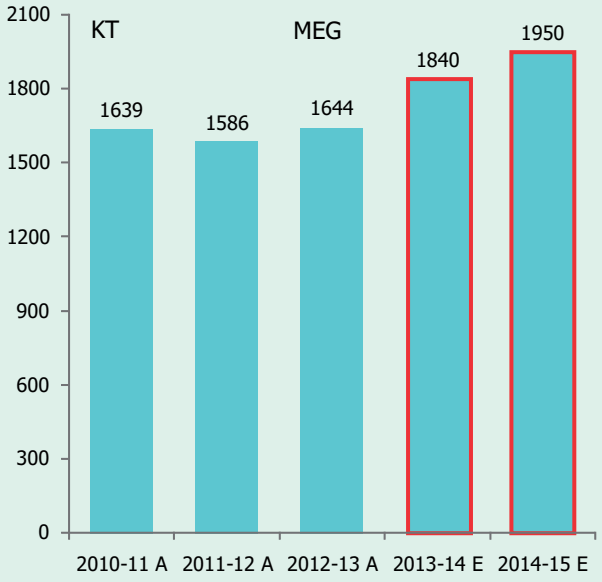



Acrylonitrile demand expected to grow at ~28% in 2013-14

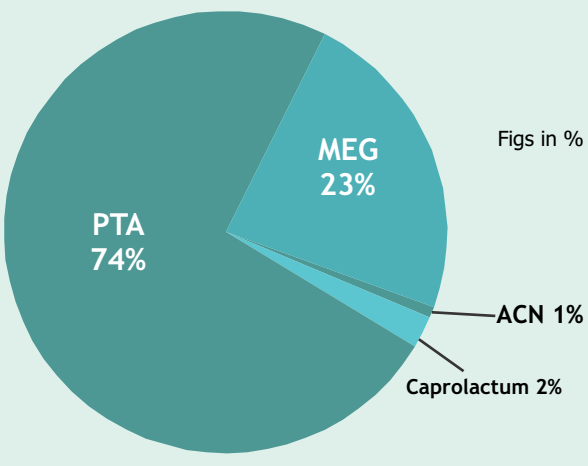
# Demand 2012-13: PTA ~5% & MEG ~4%

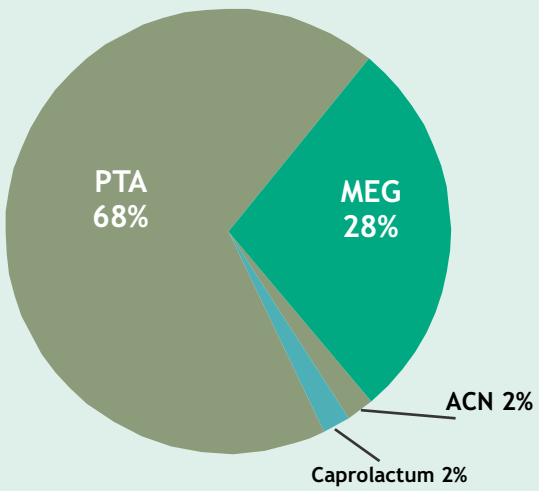



In 2013-14 demand for PTA is expected to grow at ~10% and MEG at ~12%

# Fibre intermediate Demand supply : 2012-13



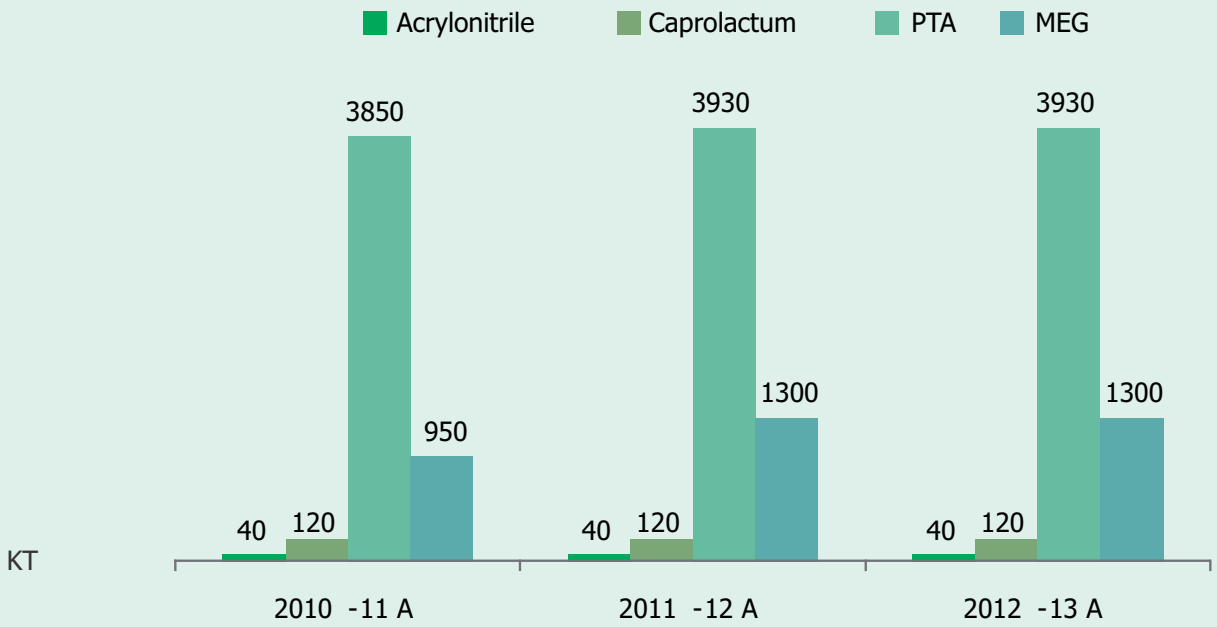




Fibre intermediate Demand
5871 KT

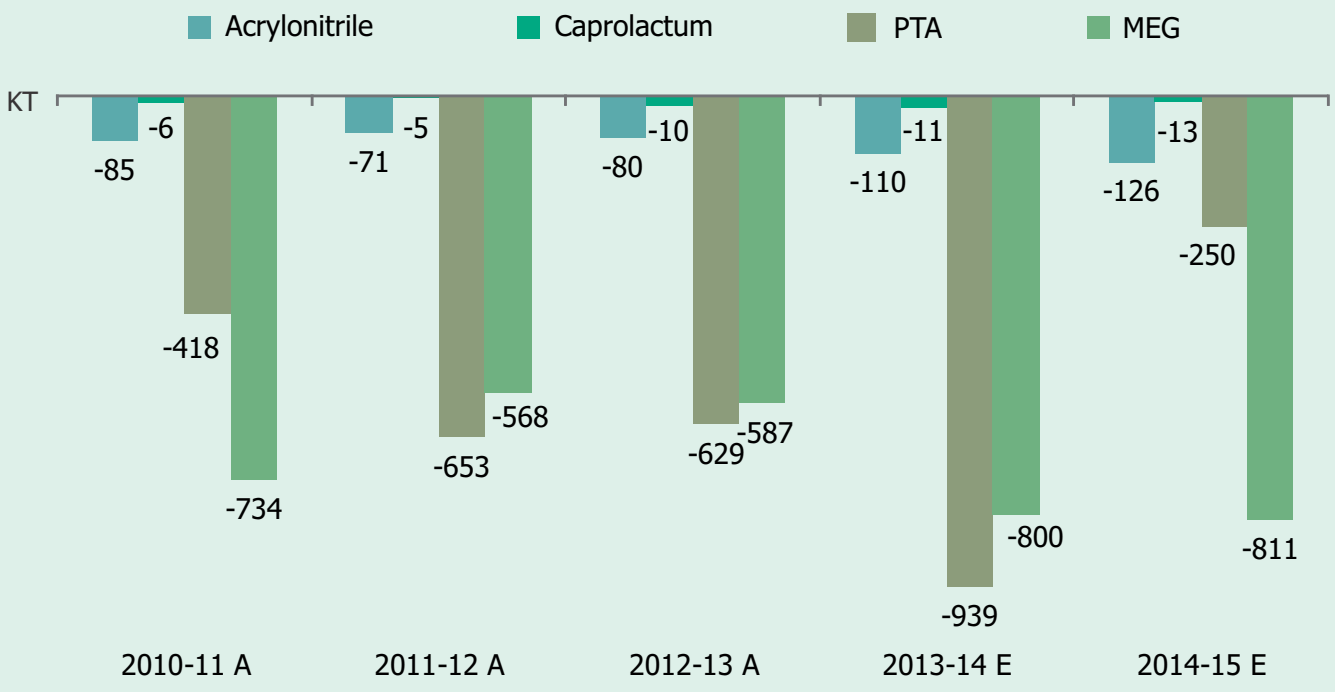
Fibre Intermediate Production
4563 KT

Fibre intermediate production is dominated by PTA & MEG
97% share in total production in 2012-13

# Fibre Intermediate Total capacity @ 5390 KT : 2012-13



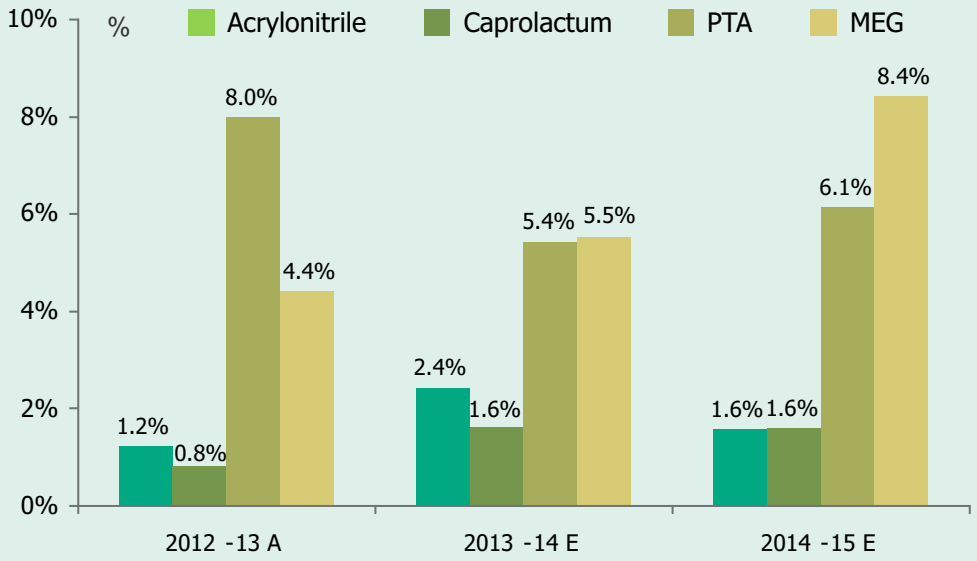

# Fibre Intermediates deficit was 1381 KT in 2012-13




PTA and MEG constituted 46% & 43% of the total 1306 KT fibre intermediates imported in 2012-13

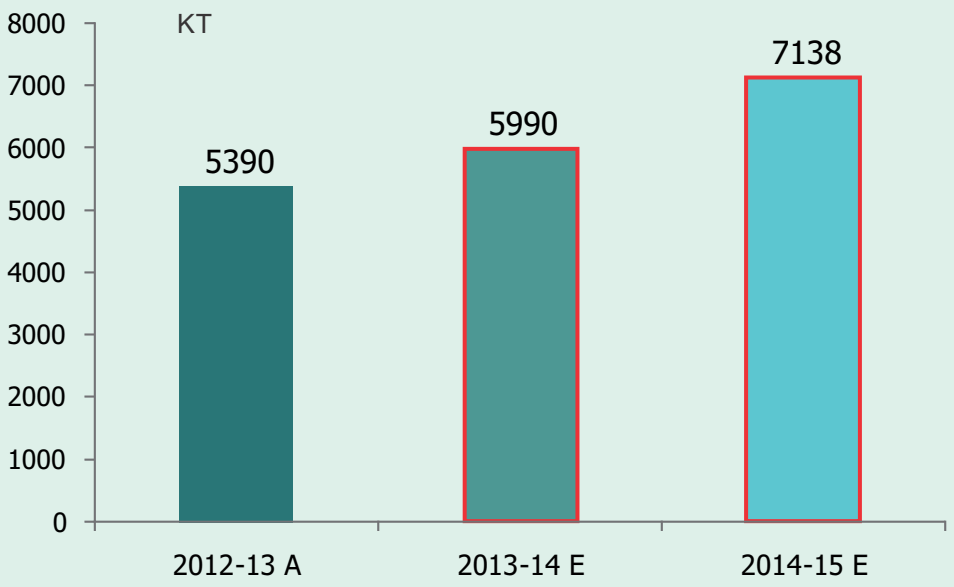
# Outlook for Fibre Intermediate Sector

# Outlook for next two years



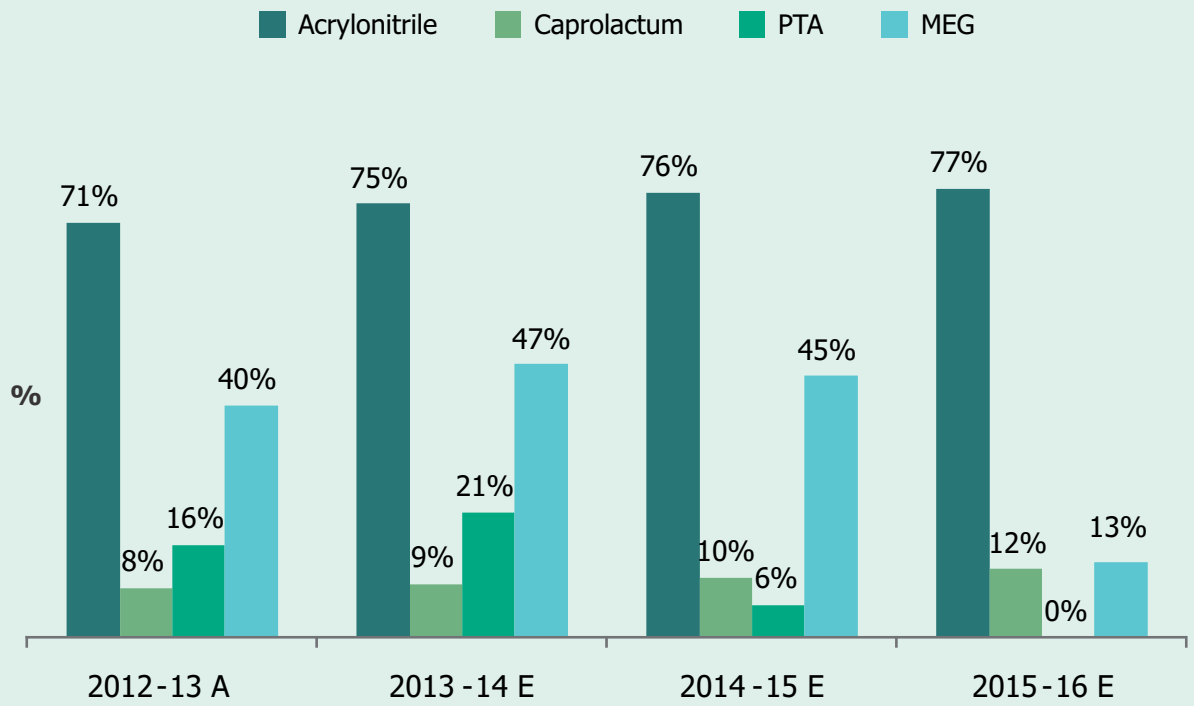

Fibre intermediate demand to grow in the range of 5%-7%, in 2013-14 & 2014-15

# Fibre Intermediate Capacity Addition in next two years




Capacity addition by RIL – PTA – 2013-14 & 2014-15

# Import dependency to decrease for PTA




Exportable surplus from 2015-16 in case of PTA

# Thank You!

CPMA

Chemicals & Petrochemicals
Manufactures' Association

CPMA is the apex forum representing the Indian Petrochemical Industry, Established in 1993, and the Association offers its members a podium to collectively present their ideas, voice their concerns and offer suggestions on relevant issues. It provides a linkage between the industry, the Government and society. It interacts with policy makers and industry associations to develop and maintain harmonious and conducive business conditions.

The Association, registered under the Indian Societies Act, is widely recognized as one of the national apex bodies of the Indian Petrochemical Industry by all Ministries and Departments of Government of India, apex Chambers of Commerce and Industry and other related Associations in India and abroad.
CPMA is affiliated to the Confederation of Indian Industry (CII). The Association is also a Steering Committee Member of the Asia Petrochemical Industry Conference (APIC) and had successfully hosted the annual APIC 2010 conference on May 13-14, 2010 in Mumbai.

CPMA comprises various sub-committees constituted to effectively focus on key areas within petrochemicals like Polyolefins, Vinyls, Styrenics, Glycols, Elastomers, Fibre Intermediates and Surfactants. CPMA has also taken the lead to set up and promote the India Centre for Plastics in the Environment (ICPE) to deal with all environmental issues connected with the usage of plastics.

## CPMA Members:

1. Chemplast Sanmar Ltd.
2. DCM Shriram Consolidated Ltd.
3. DCW Ltd.
4. Finolex Industries Ltd.
5. Engineers India Ltd.
6. GAIL India Ltd.
7. Gujarat State Fertilizers & Chemicals Ltd.
8. Haldia Petrochemicals Ltd.
9. HPCL – Mittal Energy Ltd.
10. Indian Oil Corporation Ltd.
11. LG Polymers (India) Pvt. Ltd.
12. MCC PTA India Corpn. Pvt. Ltd.
13. ONGC Petro Additions Ltd.
14. Reliance Industries Ltd.
15. Styrolution ABS (India) Ltd.
16. Styrolution India Pvt Ltd.
17. Supreme Petrochem Ltd.
18. Tamilnadu Petroproducts Ltd.

**708, 7th Floor, Kailash Building, 26, Kasturba Gandhi Marg, New Delhi – 110001, INDIA**

**Phone: 91-11-43598337, Fax: 91-11-43598337**

**Email : cpmai@airtelmail.in  Web : www.cpmaindia.com**

**Contact : Mr. Mahinder Singh, Secretary General**

CPMA

Chemicals & Petrochemicals
Manufacturers' Association, India

**Chemicals & Petrochemicals Manufacturers' Association**

708, 7th Floor, Kailash Building, 26, Kasturba Gandhi Marg, New Delhi – 110001, INDIA
Phone: 91-11-43598337, Fax: 91-11-43598337
Email : cpmai@airtelmail.in  Web : www.cpmaindia.com