*White Paper on*

# Enhancing Competitiveness of Indian PVC & Caustic Soda Industries

*Enabling 'Make in India' by Strengthening Indian Manufacturing & Reducing Country's Import Dependency*

Knowledge and Strategic Partner

TATA STRATEGIC MANAGEMENT GROUP

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*Enabling 'Make in India' by Strengthening Indian Manufacturing & Reducing Country's Import Dependency*

Knowledge and Strategic Partner

TATA STRATEGIC MANAGEMENT GROUP

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# Message

PVC and Caustic Soda industry (both of which are inter-linked) are two basic segments of Indian industry which facilitate a chain of down stream industry such as agriculture, infrastructure, housing and sanitation etc. These sectors are stagnating in the country, with increasing dependence on imports. The last greenfield investment for a PVC plant in India was conceived in the year 2002-03 and operations started in 2007.This is not a sustainable scenario with a long term perspective for a large economy like India.

It is gratifying that an initiative has been undertaken for bringing out a White Paper which provides a holistic approach to issues and challenges being faced by the Chloro Vinyl industry as also the way forward. I am sure, it will be found useful by all stake-holders.

Yours sincerely,

Vinay Mathur

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Chairman-FICCI National Petrochemicals Committee
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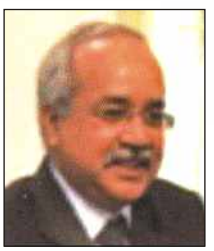

## Message

The Chloro Vinyl industry is an important component of national economy comprising the Poly Vinyl Chloride (PVC) and the chlor-alkali industries. These are basic industries which are essential to the growth of Indian economy. They provide products with applications in a variety of sectors. Indian Poly Vinyl industry is presently not doing well. Import of PVC, which was less than 5% of the country's demand ten years ago, is now at almost 50% and is growing. The PVC industry also has a linkage to the Caustic soda industry. Majority of Chlorine produced goes into PVC manufacture, and if there is no PVC capacity addition, there can be no Caustic Soda capacity addition. As a result imports are increasing.

That is not a healthy sign and has long term implications for national economy. To bring out the challenges and issues of the sector, a White Paper on enhancing competitiveness of Indian Choloro Vinyl industry has been prepared. It is evident that the situation is grave and needs attention from all stake-holders.

**PRABH DAS**

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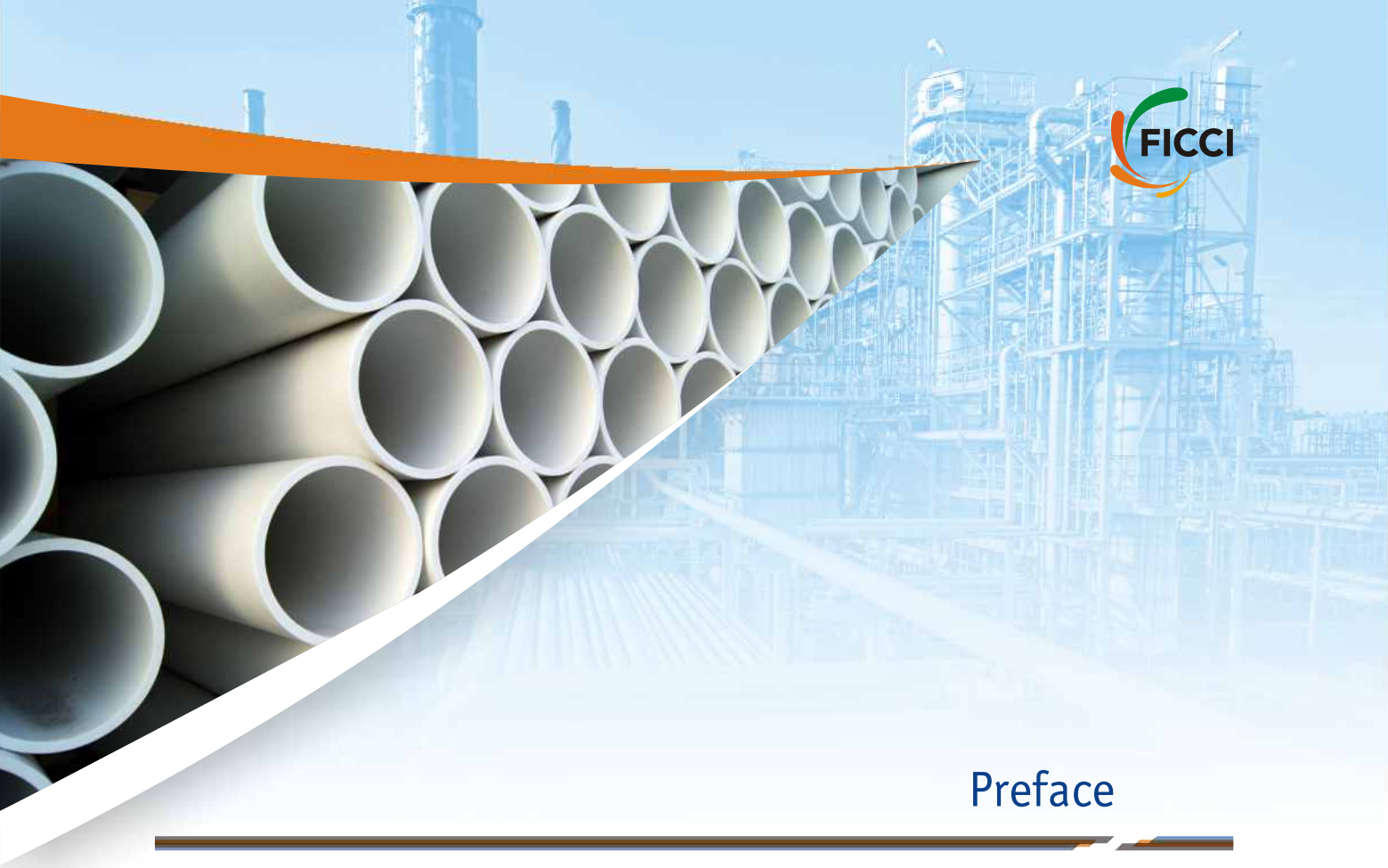


# Preface

Poly Vinyl Chloride (PVC) industry is important for national economy. Investments are not happening despite the rapidly growing Indian PVC market. The last greenfield investment for a PVC plant in India was conceived in the year 2002-03, when duty differential was a little over 15%. However, while demand has grown by almost 1.6 million tons no new capacity addition has even been envisaged. Indian import duties on PVC are lower than those in the developed world and in the ASEAN Region. Imports of PVC, which were less than 5% of the country's demand ten years ago, are now at almost 50% and growing rapidly every year and are expected to reach to $3 billion in a few years. Appropriate fiscal measures can propel investments in the PVC sector. It also has a very serious long term deleterious effect on the Indian Caustic Soda industry. The majority of Chlorine produced goes into PVC manufacture, and if there is no PVC capacity addition, there can be no Caustic Soda capacity addition, and the country will become reliant on the import of yet another basic growing product, Caustic Soda.

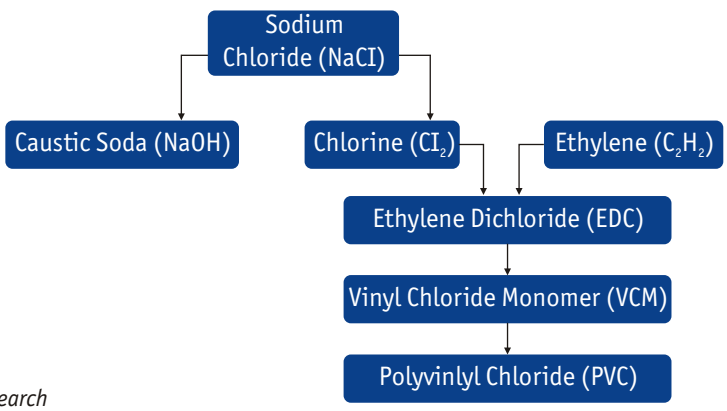
The issue has been well debated in the FICCI National Petrochemical Committee, which decided that a White Paper on the subject may be brought out. The ultimate objective of same is Enabling 'Make in India' by Strengthening Indian Manufacturing & Reducing Country's Import Dependency. The result is this Paper which, it is hoped places these important segments of Indian industry in proper perspective thus facilitating appropriate actions by stake holders, including the Policy makers.

# Why focus on PVC and Caustic Industries? 01

The PVC industry in India is valued at over Rs. 20,000 crores with five major producers and over 6,000 processors, employing tens of thousands of people, making consumer and industrial products. In spite of strong economic growth, India still has a long way to go to realize its infrastructural needs - nearly USD 650 billion will be required for urban infrastructure in the next twenty years. Also, the construction sector contributes to 10% of the GDP. This provides great opportunity for investment and hence for PVC products that are used in these sectors.

Caustic soda is a basic building block finding application in a variety of industries and chlorine is an essential element, finding application in products of everyday use, including in life saving medication. The Indian caustic & chlorine industry is estimated at over Rs.7, 000 crores annually, provides employment to about 1.5 lakh people (direct & indirect) and contributes over Rs.100 crores to the exchequer by way of duties and taxes.

**Figure 1: PVC value chain**




*Source: Market Research*

PVC is a product which is derived at the end of a value chain (ref fig 1) that begins with common salt (NaCl). Caustic and chlorine are produced from NaCl. Chlorine and ethylene gives EDC which is used to produce VCM. PVC is derived from VCM. There is an enormous gap between supply and demand in both PVC and caustic industries, which would only increase at a rapid pace as we go forward. Capacity creation doesn't seem to be taking place, even to the extent of part of the demand growth. In the case of caustic soda, the inadequate means to sink incremental chlorine has been a bother for the industry for long. The vinyl industry is the single largest consumer of chlorine globally. Unless this sector expands in India, there is no real chance for substantial capacity addition in caustic. Even the existing capacities are threatened by the increased arrival of imports that has depressed margins for domestic players over the course of the last few years, thus resulting in inadequate utilization/augmentation of domestic capacities.



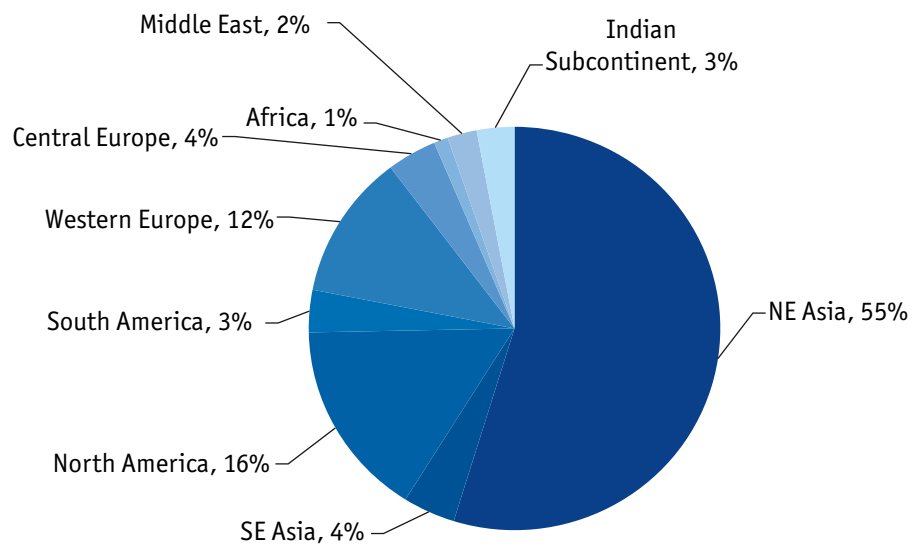
## Introduction

Fundamentally, PVC is a synthetic resin made from the polymerization of vinyl chloride. It is the third largest plastic in production and consumption. Technology has gradually improved over time with improvements in safety, product quality, production volume, environmental issues and cost. A key feature of PVC is that it can be combined with additives and fabricated into a wide variety of forms. These include pipes and fittings, profiles and tubes, windows and doors, sidings, wires and cables, film and sheets, toys and other moulded products and floorings. This quality, together with features such as durability, self-extinguishing property, resistance to most chemicals and oil, mechanical strength and ease of processing, means that PVC is a competitive and attractive option for many end uses in construction and infrastructure, agriculture, electrical products and healthcare. Further, only 43 % of PVC's content comes from oil. The balance 57% comes from salt, meaning that PVC is less dependent on fossil fuels compared to other materials. This feature, coupled with the fact that PVC products can last up to 100 years, can be recycled and can provide products with good quality to price ratio, greatly reduces life cycle costs of PVC.

## Global scenario

Globally, the growth of the industry over the last 100 years has been spectacular. Production capacity has grown from a few thousand tons in the 1930s to over 50 million tons today. The global capacity break-up is given below.

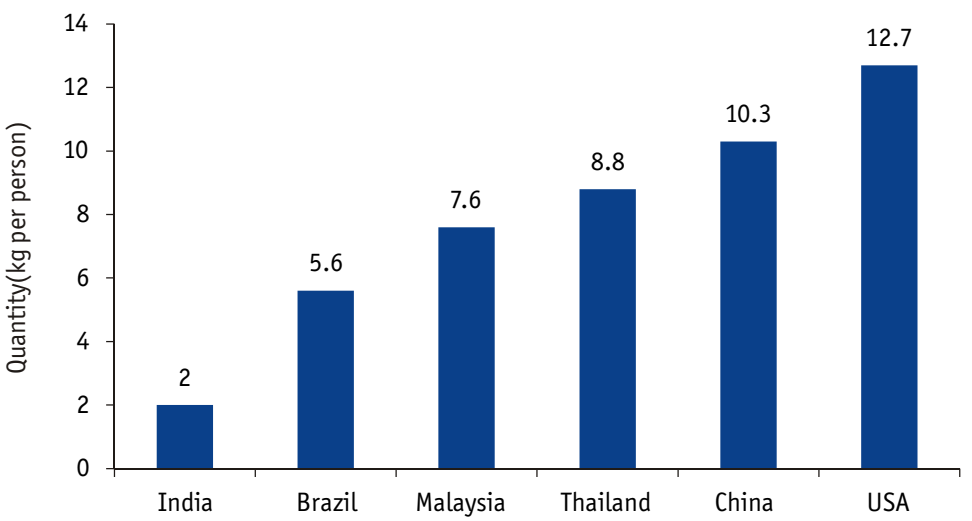
**Figure 2 - Global PVC capacity break-up (%)**




*Source: Industry Reports*

Growth in demand will be concentrated in developing countries in Asia, Africa, Latin America and the BRICS. The per capita consumption in India of 2kg is low compared to 11.8kg per capita in the US and 10.3 kg per capita in China (ref to figure 3). The forecasts for the PVC industry are bright. The global market, currently at US$ 56 billion, is expected to reach revenue of US$65 billion in 2019, with average annual demand expected to increase at 3.9%.

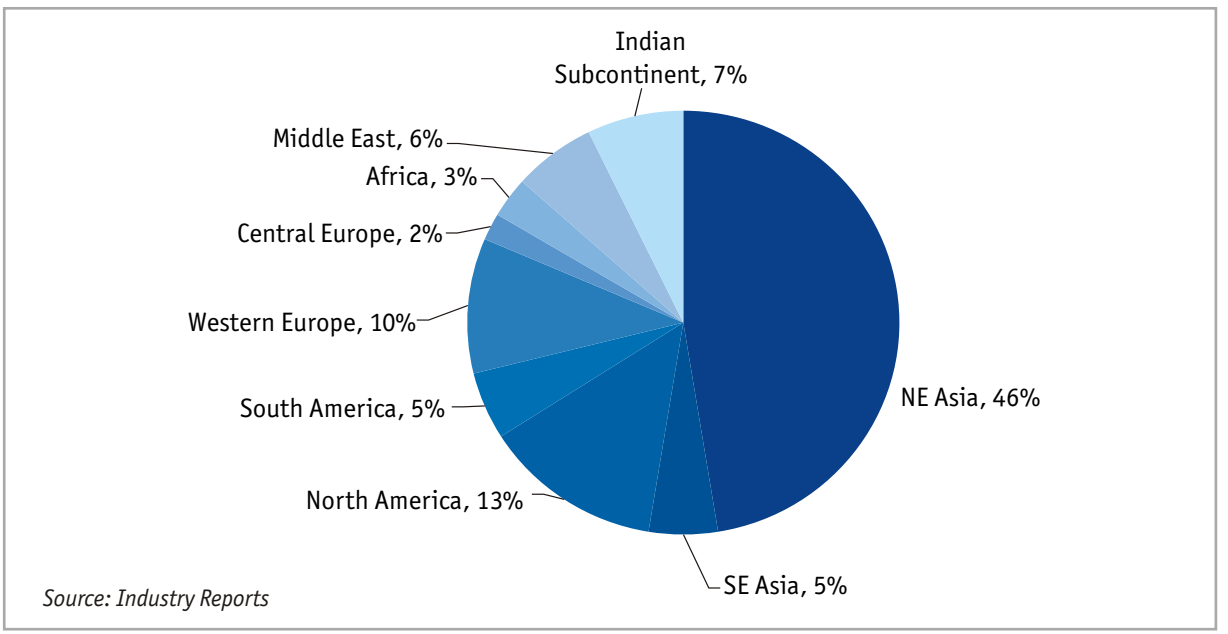
**Figure 3 - Per capita consumption of Suspension PVC**




*Source: Industry Reports*

The global consumption of PVC in 2014 was estimated at 40 million tons. The region wise break-up is given below.

**Figure 4 - Global PVC demand break-up**

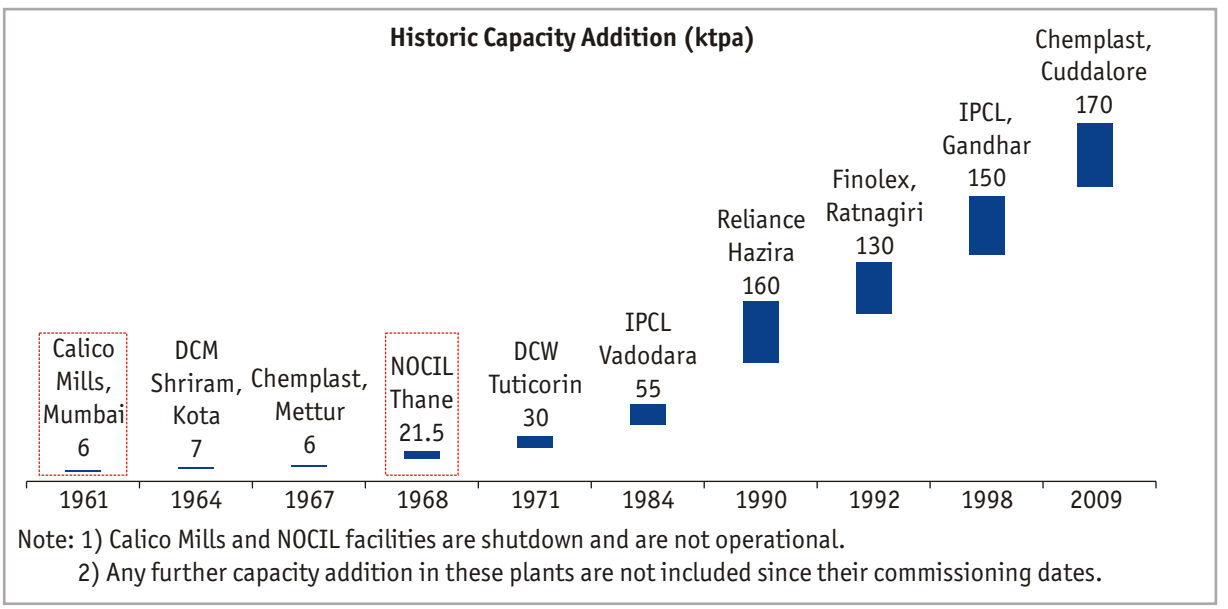



*Source: Industry Reports*

## Indian Scenario

India has been producing PVC for over 50 years now, with the first plant of 6ktpa capacity set up by Calico Mills Ltd., in Mumbai in 1961. After this, India never looked back till about the mid-2000s (ref to figure 5), with capacity keeping pace with demand.

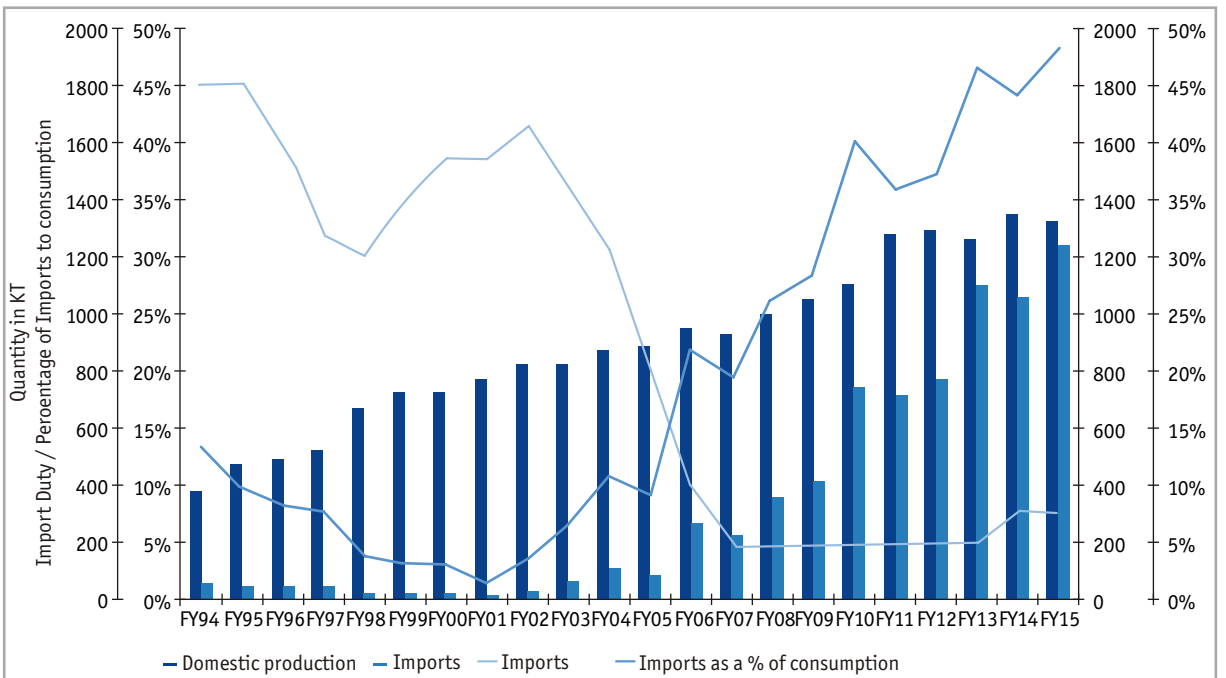
**Figure 5 : Historic PVC Capacity Additions in India**




Note: 1) Calico Mills and NOCIL facilities are shutdown and are not operational.
2) Any further capacity addition in these plants are not included since their commissioning dates.

The figure below illustrates how, after the drop in duty levels in mid 2000s, capacity addition completely lagged demand growth, resulting in the zooming import numbers.

**Figure 6 : PVC production and imports in India**

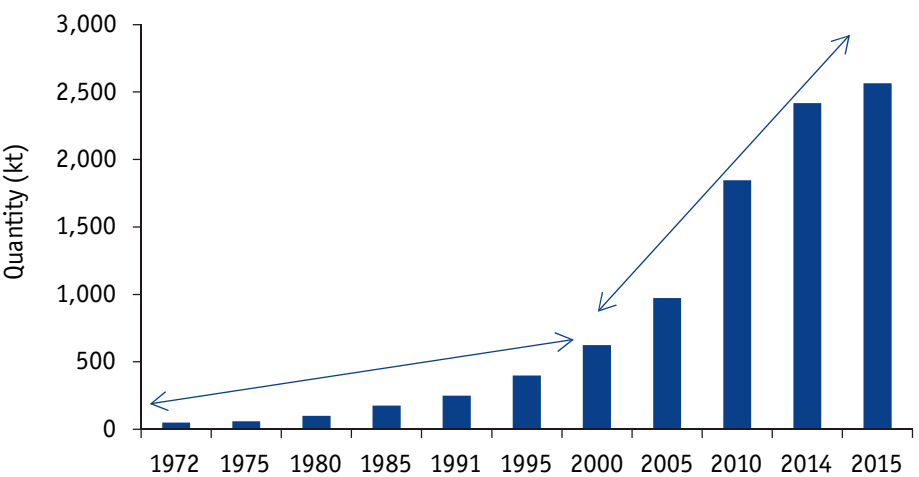



***Note: In case where importy duty has been changed within the the FY, the customs duty that has been levied for majority of the months with in that FY has been taken***

*Source: Industry research, EXIM data, CPMA*

The PVC industry in India has historically been driven by agriculture till 2000. Thereafter, the main driver for PVC consumption has been infrastructure growth. For instance, Pipes & Fittings, that constituted only 14% of the total consumption in 1975, has grown to over 70% now (ref to figure 7).

**Figure 7 - PVC demand in India - History**



Currently, in India, approximately 73% of the PVC is consumed by the Pipes & Fittings industries with the other sectors comprising only 27%. Globally, Pipes & Fittings account for only 43% of the PVC consumption, showing that PVC applications in India other than Pipes & Fittings are still in the early stages and are primed for growth. This, along with the relatively low per capita PVC consumption in India, shows that future prospects for the Indian PVC processing industry are bright.

**Figure 8 - Application break-up of PVC – India**

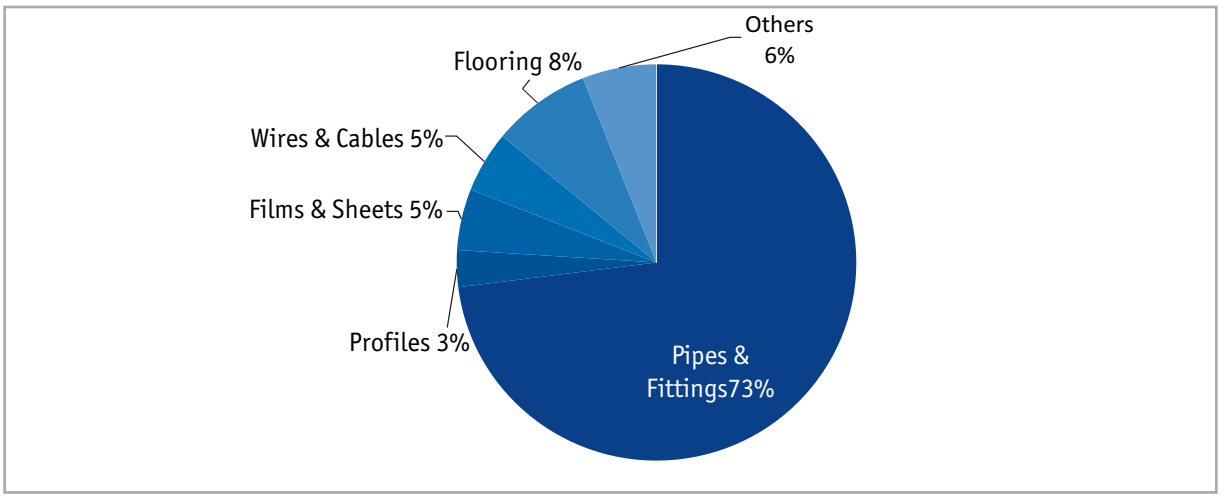
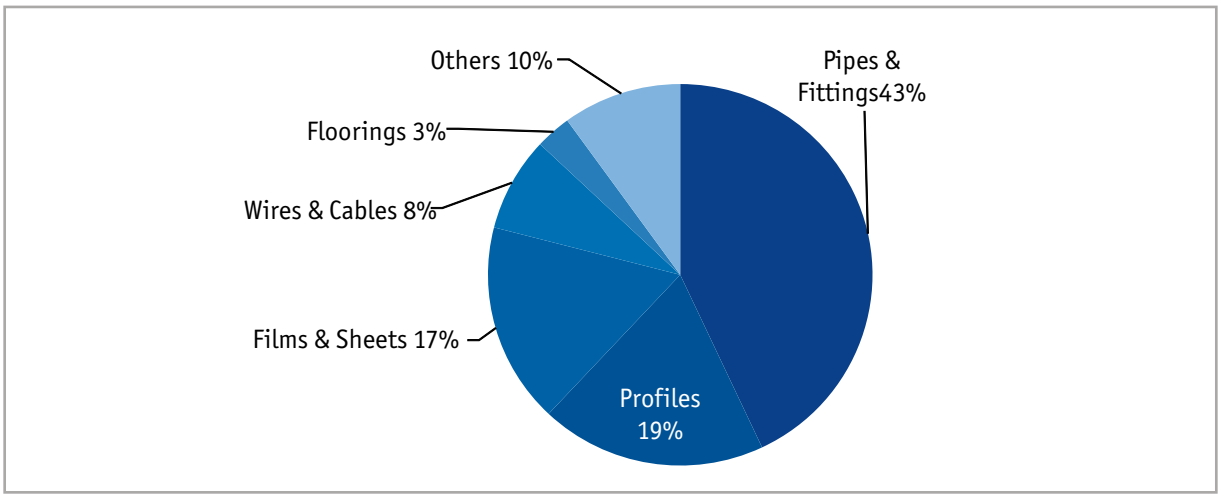


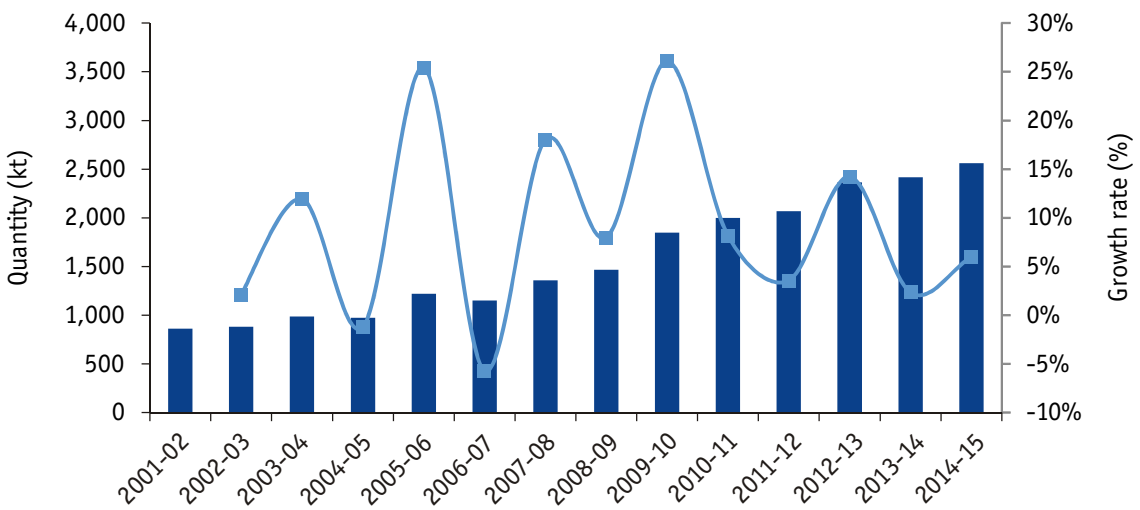

**Figure 9 - Application break-up of PVC - Global**




The total demand for PVC in the country in 2014-15 was at 2,564kt. The demand grew by 6% compared to 2013–14 (ref to figure 10).

The figure below illustrates how, after the drop in duty levels in mid 2000s, capacity addition completely lagged demand growth, resulting in the zooming import numbers.

**Figure 10 - PVC consumption in India (2001-2015)**

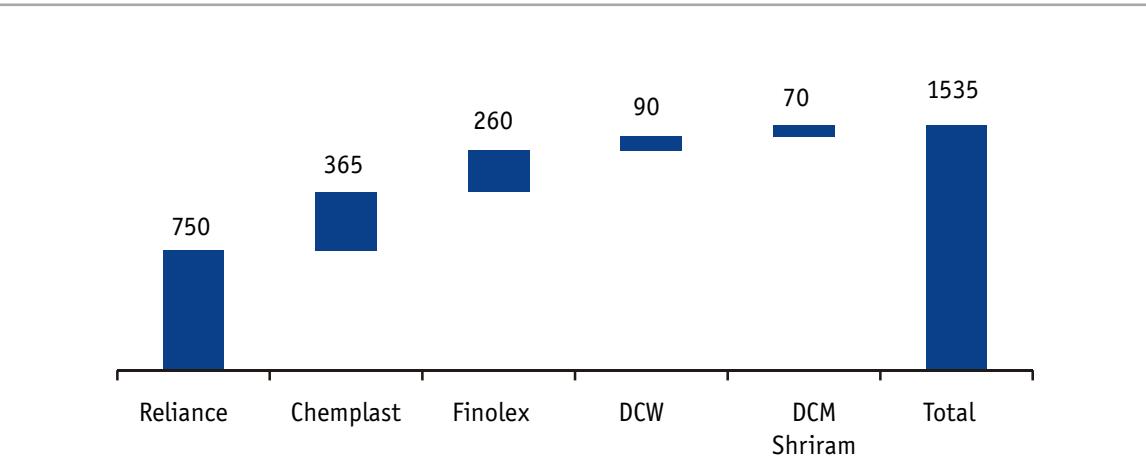



*Source: CPMA Industry research*

For the period between 2002 and 2015, the total demand for PVC in the country grew at a CAGR of 8.7%. During the same period domestic production capacity grew at a CAGR of 4.6 % whereas imports grew at a CAGR of 32.5%.

The domestic manufacturers and their respective current capacities are given below:

**Figure 11 : Domestic manufacturers and capacities (kT)**




*Source: CPMA Industry research*

## Future Potential in India:

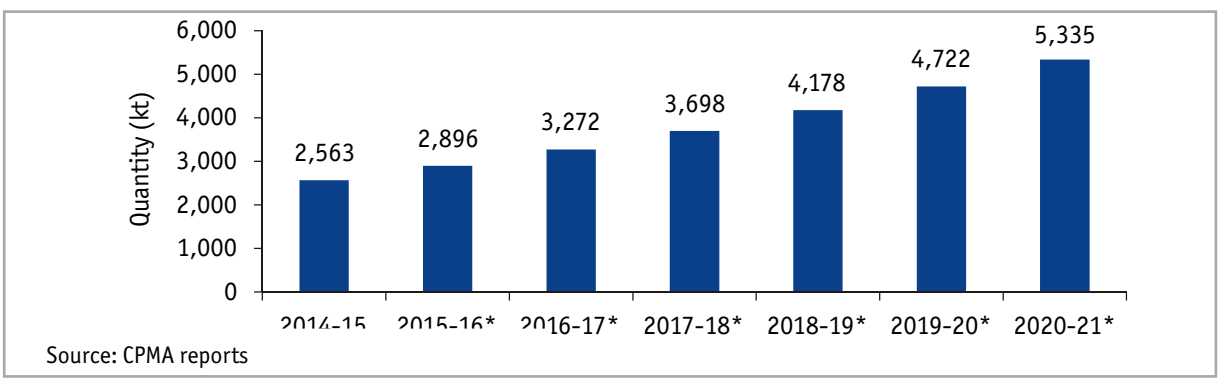
Indian PVC demand in the future will be driven by the following sectors

1) Agriculture: The government has emphasized on bringing in increased land under irrigation.
2) Infrastructure: The Government is focusing on rural water and sanitation infrastructure which will be a huge consumer of PVC pipes. The development of 'smart cities' will be a further boost to PVC consumption in India due to the huge requirement of urban infrastructure in these cities.
3) Housing: The demand for housing from the middle income group in India is expected to increase in the coming years and the Government is taking active steps to bridge the gap in supply. It is estimated that every year, 2 million housing units are built in urban areas while 4.5 million units are built in rural areas. One typical urban unit will require about 200 kg of PVC in major applications like pipes, doors & windows, conduits, wires & cables, etc. while one rural unit requires approximately 75 kg of PVC. Thus, the potential for PVC in the building and construction sector alone is over 700 ktpa (without taking smart city development into account). Moreover, introduction of green building concepts is picking up. PVC, being recyclable, less energy intensive and having longer life will be in demand in these segments. Furthermore, development of smart cities initiative from government will further drive the urban housing demand.
4) Other sectors: PVC has packaging as well as other applications in the FMCG, pharmaceutical & retail segments. These sectors are expected to grow in the coming years as the customer base comprising India's young population increases.

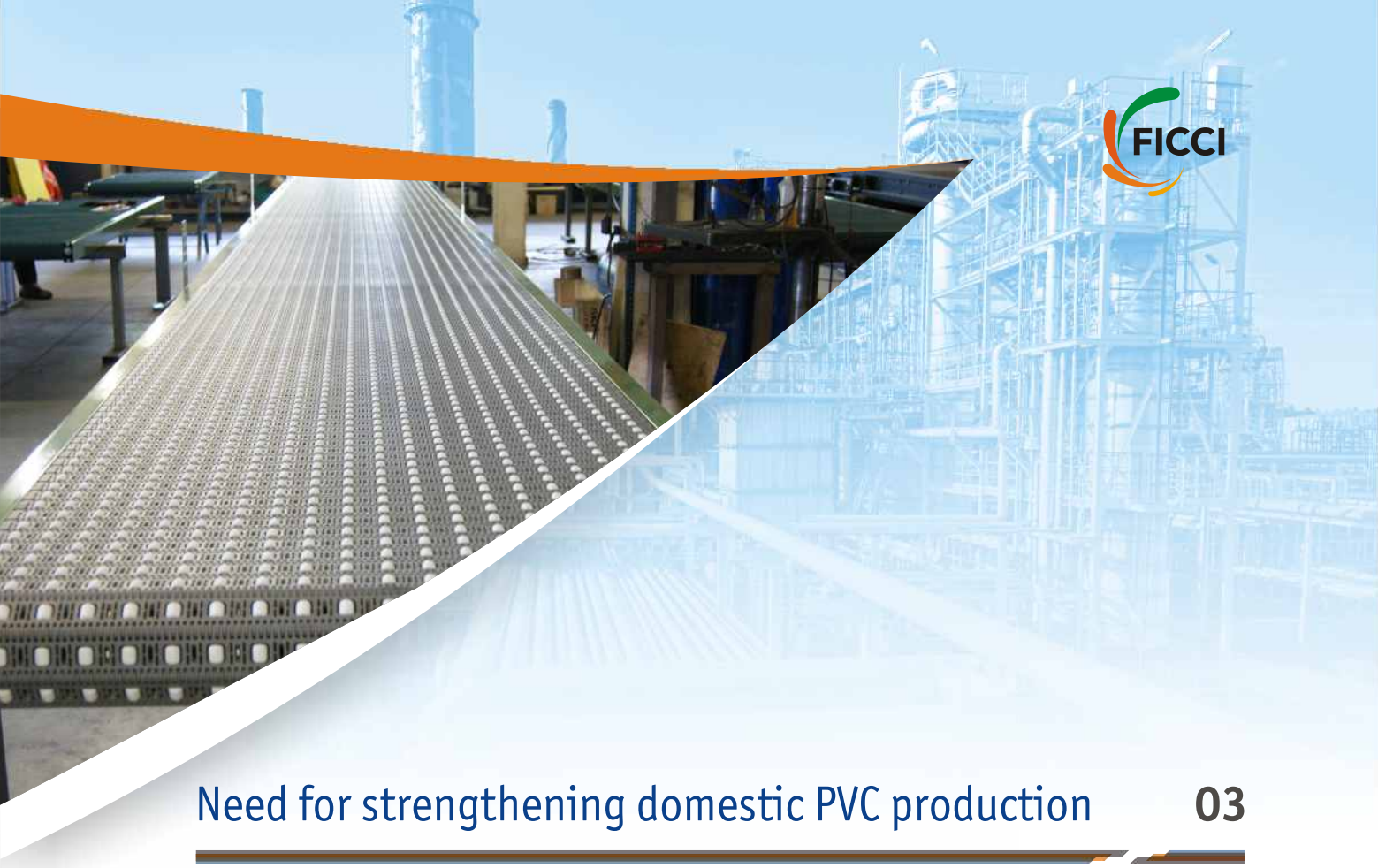
   Further, there are a number of applications in India, which are still nascent or currently unexploited like, wall cladding, technologically-advanced pipes for sewerage application, liners for landfill applications, decking, furniture applications, waterproofing membranes and food grain storage.

These products are well established abroad and with ever-increasing urbanization, changing lifestyles, new technologies in construction and other factors, investments in these sectors are expected in the future. This bodes well for the PVC industry. Taking into account the above demand drivers and the CAGR in demand of around 9% from 2002-2015, it is estimated that annual demand growth for PVC will be at least 13% in the next five years. Demand is expected to cross 5 million tons in 2020.

**Figure 12 : Demand forecasting for PVC**




Source: CPMA reports

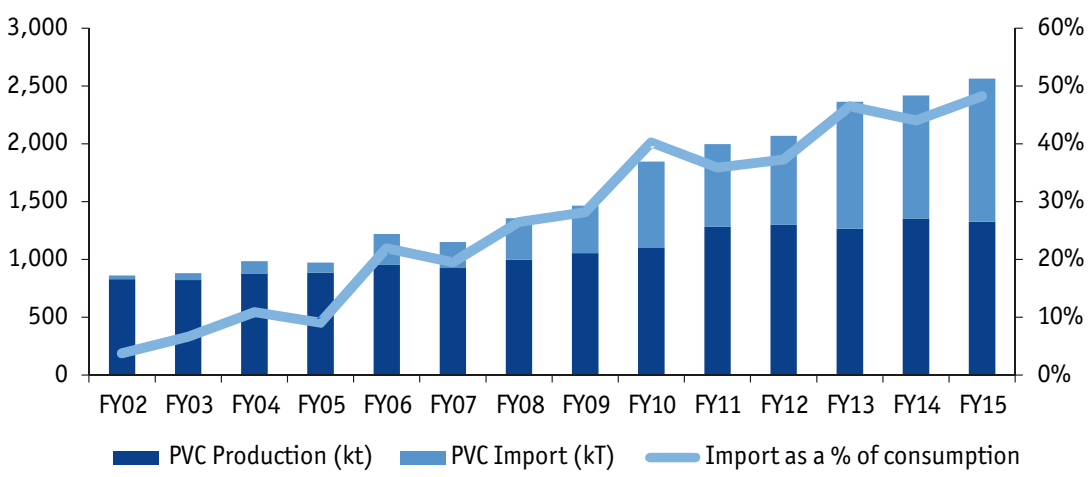


# Need for strengthening domestic PVC production 03

## Rising supply – demand gap in PVC will make imports unsustainable

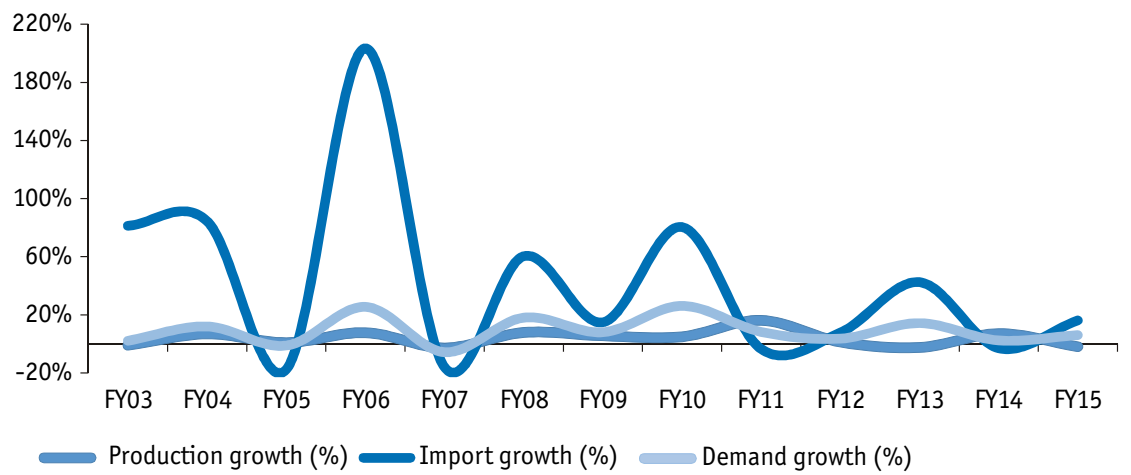
India's supply – demand imbalance in PVC means that the deficit in demand is met by imports. As seen earlier, for the period between 2002 and 2015, the total demand for PVC in the country grew at a CAGR of 8.7%. During the same period domestic production grew at a CAGR of 3.7 % whereas imports grew at a CAGR of 32.5%.

**Figure 13 : Supply-Demand for PVC (kT)**




*Source: CPMA, Exim Data, Industry Research*

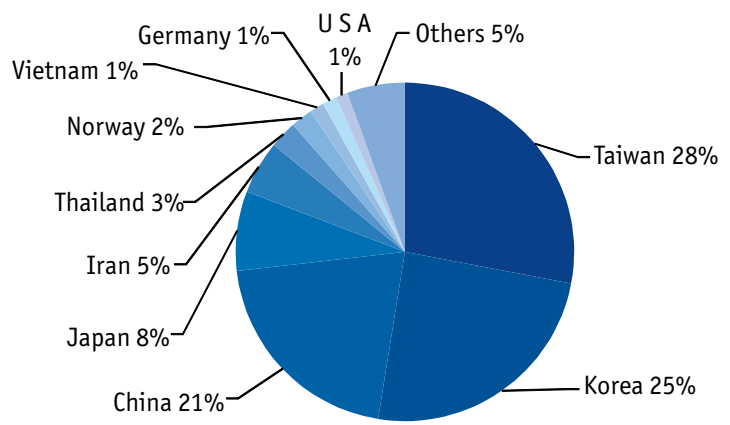
**Figure 14 : Annual growth rate of industry (%)**




*Source: Industry Reports*

Looking at the imports statistics for the period April 2014 – September 2015, it is seen that the top five countries that export to India, namely, Taiwan, Korea (South), China, Japan and Iran, account for 87% of the total imports into India, with just Taiwan & Korea (South) alone contributing to over 50%.

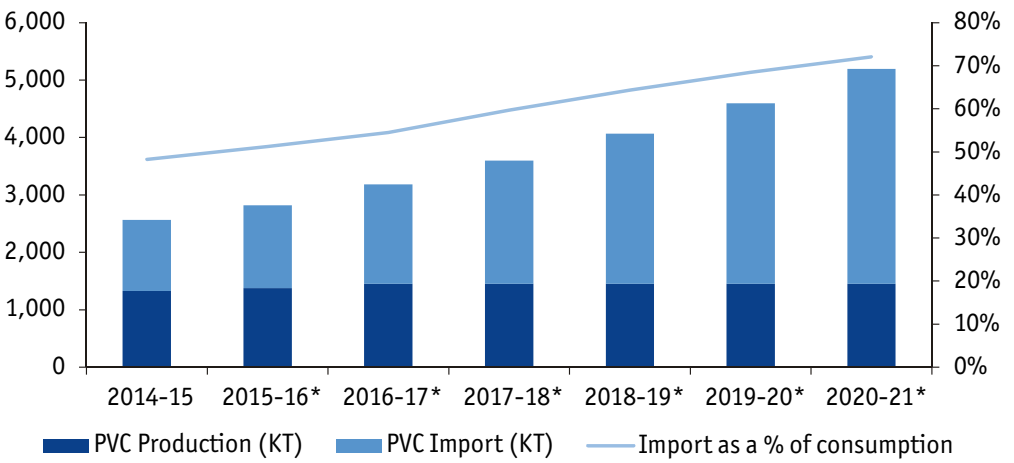
**Figure 15 - Region wise break-up of PVC imports (April 2014- September 2015)**




*Source: Exim Data*

As mentioned earlier, demand growth is expected to increase at 13% in the coming years. With any grass root plant taking almost 4-5 years to fructify and with no announcement as on date on creation of fresh capacity in the country, domestic production capacity, and therefore production, is expected to increase marginally or remain at around the same levels during this period. As a result, by 2020, India would need approximately 3,700kt of imports i.e. an additional 2,300kt from the present level to meet its PVC demand.

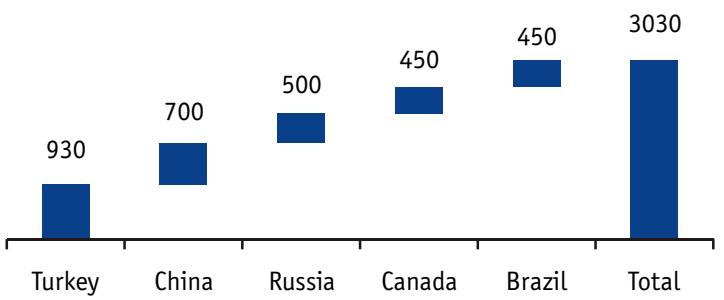
**Figure 16 - PVC import projection in India**




*Source: CPMA Industry research*

This level of imports will be highly unsustainable. For instance, the top 5 importing countries (excluding India) & their quantum of imports expected in FY16, is given here:

**Figure 17 : Top Five Importing Countries (kT)**




*Source: Exim reports*

As can be seen, even today, no other country imports over a million metric tons per year. This is a clear reflection of the difficulty level in trying to import 3-4 million tons per year. Such high levels of imports will also have a deleterious effect and the resultant net outflow of foreign exchange could be of the order of US $5 billion. Another factor that goes to show that this level of import is almost impossible is the estimated global trade in PVC resin by the year 2020 which is at around 10 million tons. It will again be not prudent for India to expect that almost 37% of this will be an inflow into the country.

If we look at countries with sizable consumption volumes, it can be seen that these are the ones with adequate – in fact surplus – resin capacity, except for India. The following table will illustrate this fact.

**Figure 18 - Countries with surplus capacity**

| Country | Capacity (kt) | Domestic Demand (kt) | Surplus Capacity (kt) |
|---|---|---|---|
| Taiwan | 1,930 | 700 | 1,230 |
| Korea | 1,470 | 700 | 770 |
| Japan | 2,090 | 1,450 | 640 |
| China | 24,300 | 14,800 | 9,500 |
| Iran | 730 | 350 | 380 |
| USA | 7,950 | 4,600 | 3,350 |

*Source: Industry reports*

A hypothetical analysis of the projected supply – demand balances in the top five exporting countries in 2020 would also show that, even if they were to stop exporting to all other countries and divert their entire surplus to India, it still would not be adequate to meet our demand. The following assumptions are taken into account.

I. Setting up petrochemical plants requires high lead times. Capacity expansion has stagnated in both Taiwan and Korea. Taiwan is expected to gradually increase production by way of better capacity utilization. Growth of Chinese capacity addition has decreased drastically and capacity is expected to be at 25,200 kt in 2020. Production is expected to increase by way of capacity utilization in China, Japan and Iran

II. Demand is assumed to be same in Taiwan, Korea, Japan & Iran while it is assumed to grow at a CAGR of 4% in China.

**Figure 19 – Exportable surplus from top five importing countries**

| Countries | Taiwan | Korea | China | Japan | Iran | Total |
|---|---|---|---|---|---|---|
| Capacity (kt) | 1,930 | 1,470 | 25,200 | 2,090 | 730 | 31,420 |
| Domestic Demand (kt) | 700 | 700 | 18,000 | 1,450 | 350 | 21,200 |
| Production (kt) | 1,814 | 1,400 | 18,900 | 1,881 | 657 | 24,652 |
| Exportable quantity (kt) | 1,114 | 700 | 900 | 431 | 307 | 3,452 |
| Likely exports to India in 2015-16 (kt) | 470 | 390 | 220 | 250 | 110 | 1,440 |
| Further quantity exportable from top 5 in 2020 (kt) | 644 | 310 | 680 | 181 | 197 | 2,012 |

*Source: Industry reports*

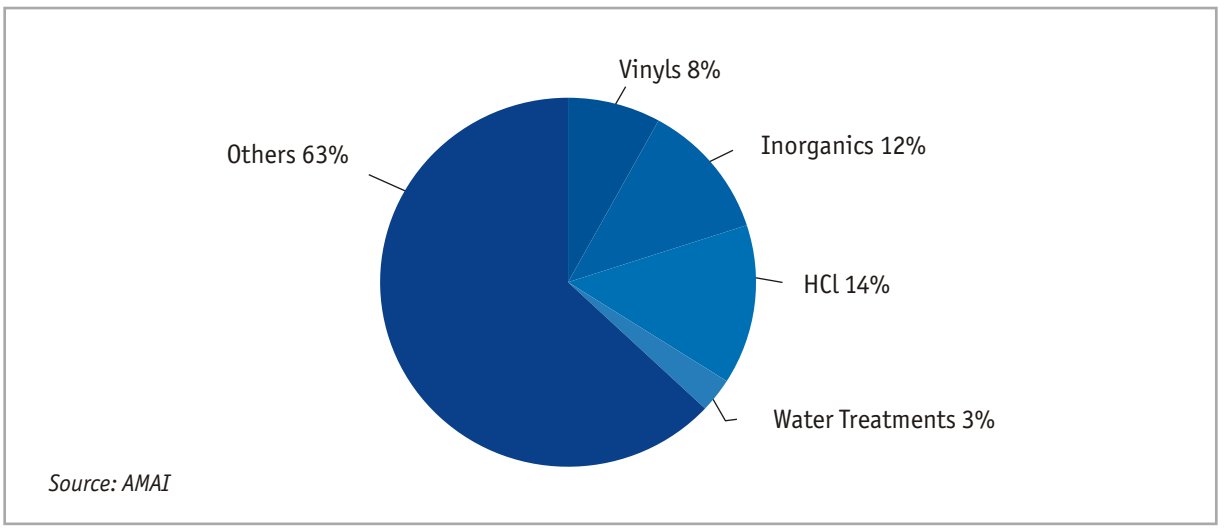
As seen in the above table, the further quantity that can be exported from the top five countries is 2 million tons. It would however be naïve to assume that these countries would export only to India and no one else. There could also be growth in demand within these countries that can further depress availability. The risk of Chinese capacity coming down is very real. The PVC manufacturing industry in

China is currently facing technological challenges. Currently, only 20% of its manufacturing process is based on the ethylene route while the remaining 80% is based on the acetylene route, which is the coal based calcium carbide process. This process has come under pressure on account of air pollution, mercury pollution, international conventions on Mercury and depletion of Mercury resources in China. The Minamata Convention on Mercury requires reduced usage of Mercury in VCM manufacturing, in terms of per unit production by 50% by 2020 compared to levels in 2010. The Chinese Government has already issued a directive asking manufacturers to switch to low mercury catalysts. This involves considerable capital expenditure and considering that the Chinese manufacturing capacity is fragmented with many players having capacities lower than 100kt, it remains to be seen how many can economically take on this kind of a capital expense. This would bring into doubt not only the exportable surplus of PVC that would be available in China but also the ability of the local manufacturers to meet domestic demand, thereby providing manufacturers based in Taiwan and Korea a market closer than India to offload their surplus. All these point to clear possibilities of international suppliers not being able to meet the demand in India in the future, thereby making capacity addition in the domestic industry an absolute must.

## Caustic Soda domestic capacity additions being hindered by lack of PVC capacity growth

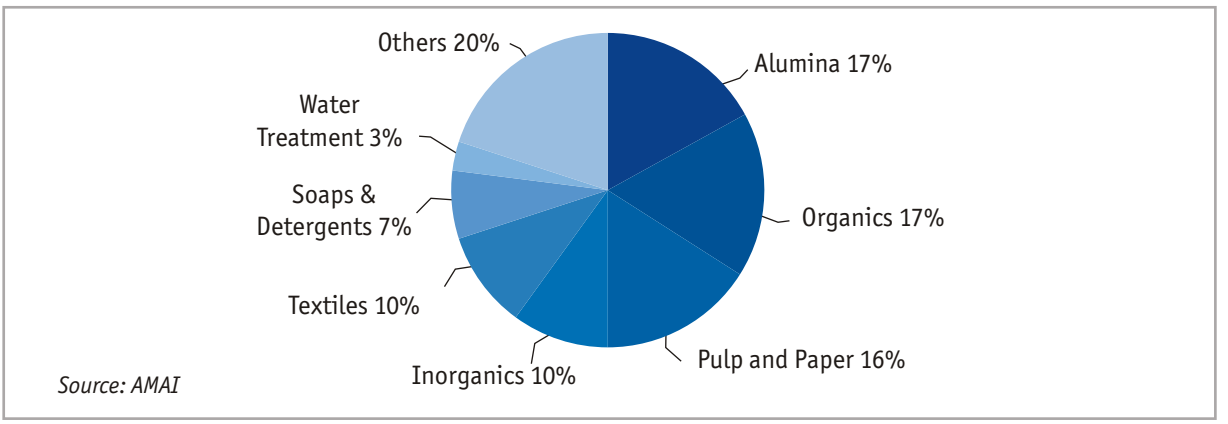
Caustic soda finds applications in a wide variety of sectors including Textiles, Alumina, Pulp & Paper and others. The application mix varies slightly when compared to global consumption patterns as the use of Caustic soda in textiles is relatively more prevalent in India. With respect to chlorine, there is a marked variation when compared to the global scenario. Globally, 40% of the chlorine produced is used by the vinyl industry whereas only 7.8% of the chlorine produced in India is used. This is due to lack of expansion in PVC production capacity in India. As a consequence, the chlor-alkali industry in India is a caustic driven industry unlike the rest of the world, where it is a chlorine driven industry. The sectoral consumption of Caustic Soda & Chlorine, both at the global and country level, is given below:

**Figure 20: Indian Caustic Soda Segment Breakup (%)**



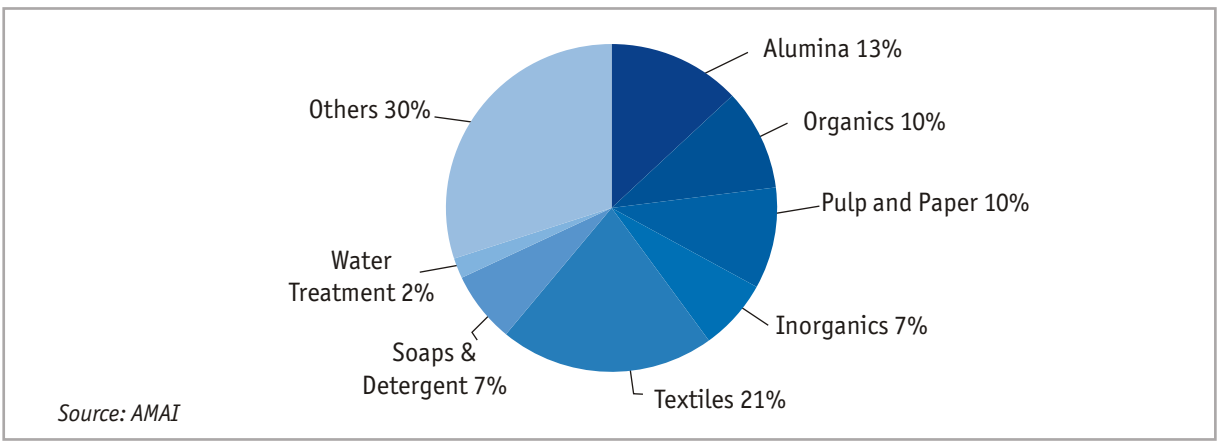

*Source: AMAI*

**Figure 21: Global Caustic Soda Segment Breakup (%)**



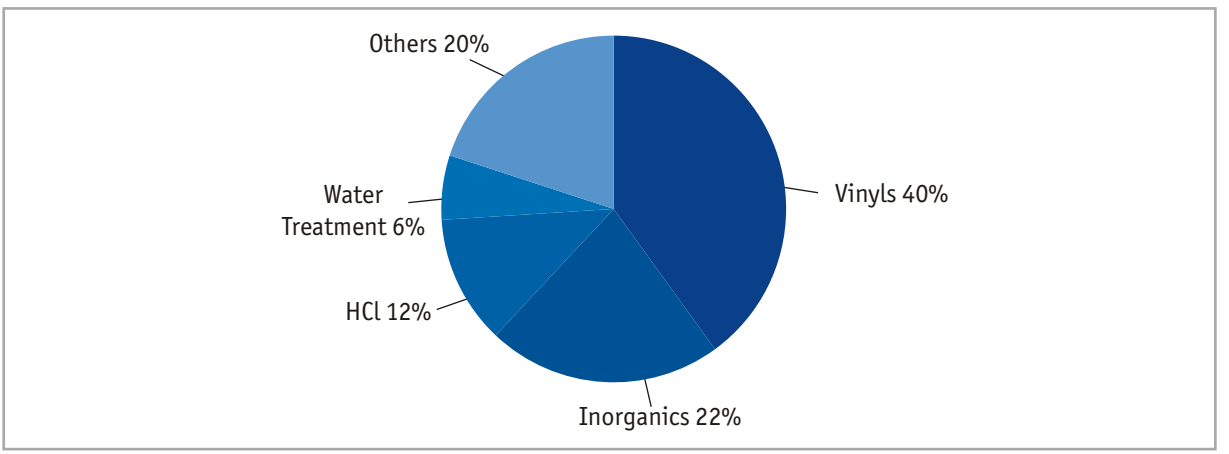

*Source: AMAI*

**Figure 22: Indian Chlorine Segment Breakup (%)**



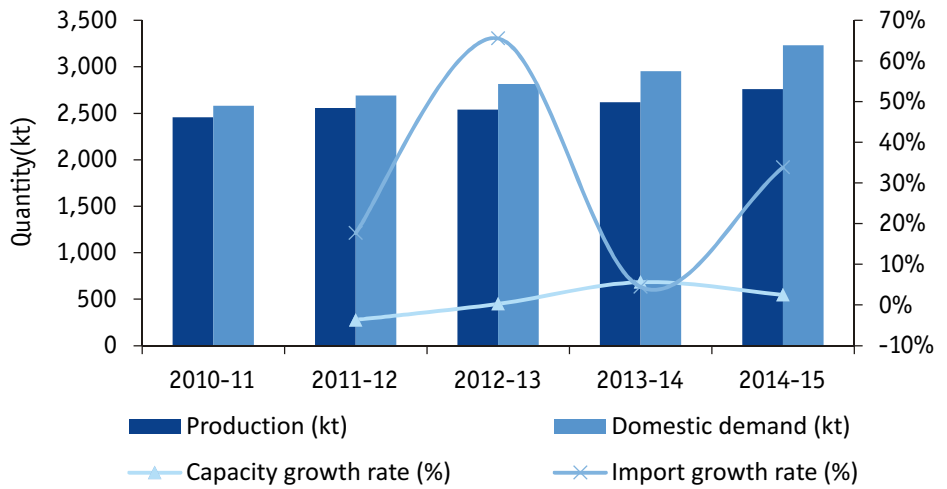

*Source: AMAI*

**Figure 23: Global Chlorine Segment Breakup (%)**




The domestic demand for Caustic soda was at 3,231 kt in 2014-15. Total domestic production stood at 2,761kt while imports were at 508kt. Imports has been increasing over the past few years at a rate faster than capacity addition (ref to figure 24).

**Figure 24 - Caustic Soda supply - demand**



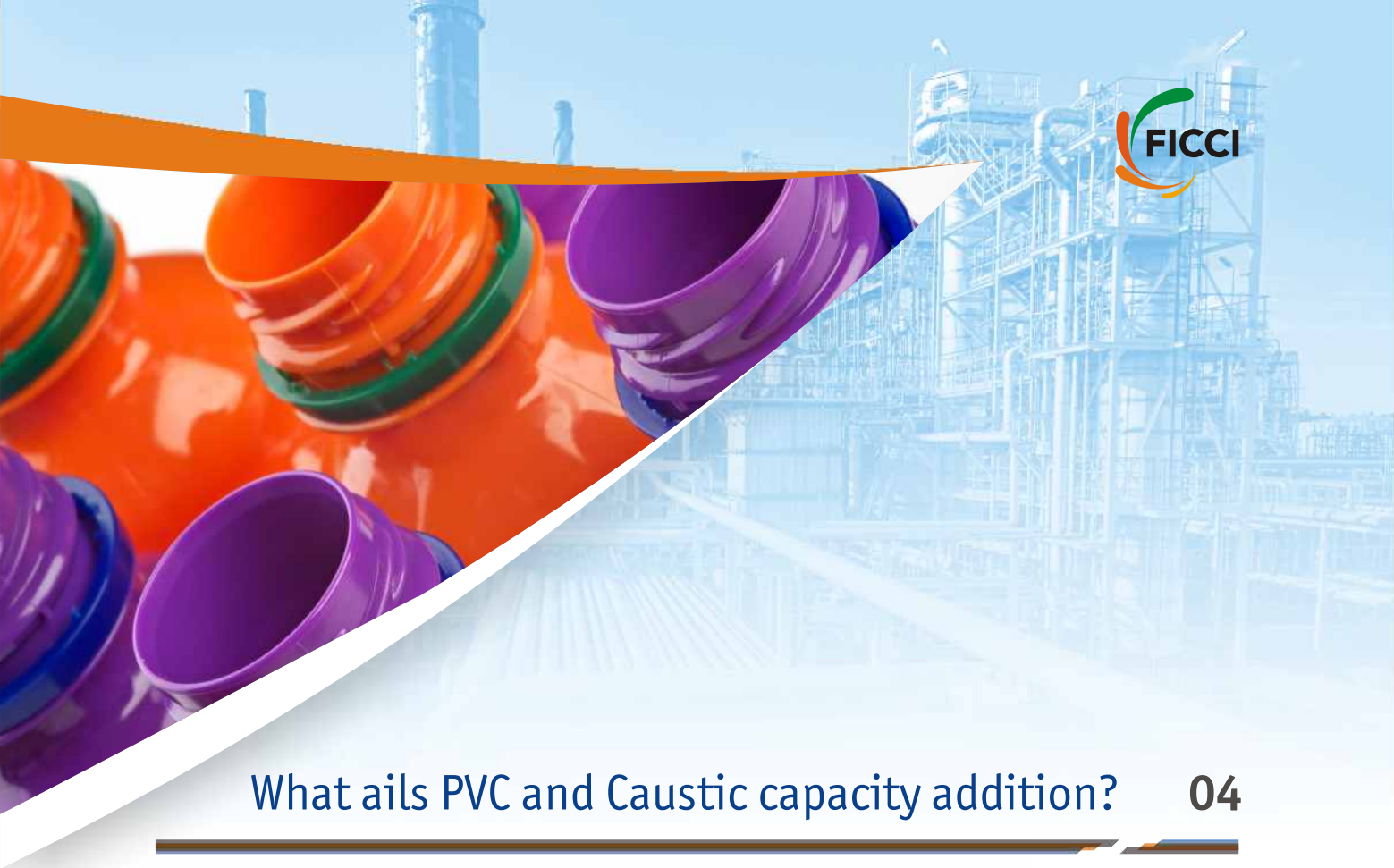

*Source: AMAI*

Indian caustic demand, in addition to its steady growth as a basic alkali that goes into very many sectors, will also be greatly driven by the expanding alumina capacity along the East Coast. Several projects have been announced and are at various stages of implementation. The impact of these on caustic soda demand is tabulated below.

**Figure 25 : Alumina producer's overview in India (KTPA)**

| Alumina Producers | Location | Refinery Capacity | | | Refinery Lye Demand | |
|---|---|---|---|---|---|---|
| | | Current | Proposed | Total | Current | After expansions |
| | | mtpa | mtpa | mtpa | ktpa | ktpa |
| Vedanta | Lanjigarh - Orisa | 1.40 | 3.60 | 5.00 | 168 | 600 |
| Nalco | Damanjodi - Orisa | 2.10 | - | 2.10 | 252 | 252 |
| Hindalco | Belgaum - Karnataka | 0.35 | | 0.35 | 42 | 42 |
| | Muri - Jharkand | 0.45 | | 0.45 | 54 | 54 |
| | Renukut - UP | 0.70 | | 0.70 | 84 | 84 |
| Utkal Alumina Project | Rayagada - Orisa | 1.50 | - | 1.50 | 135 | 135 |
| Aditya Alumina & Aluminium Project | Kanariguda - Orisa | | 1.50 | 1.50 | | 180 |
| Anrak Aluminium | Makavarapalem - AP | | 1.50 | 1.50 | | 180 |
| Jindal Aluminium | Vizianagaram - AP | | 1.40 | 1.40 | | 168 |
| **Total** | | **6.50** | **8.00** | **14.50** | **735** | **1,695** |

There is thus enormous scope for adding to the caustic soda capacity in the country, if only a fix can be found for sinking the additional chlorine volume. And there is no better solution to this than expanding the vinyls capacity.

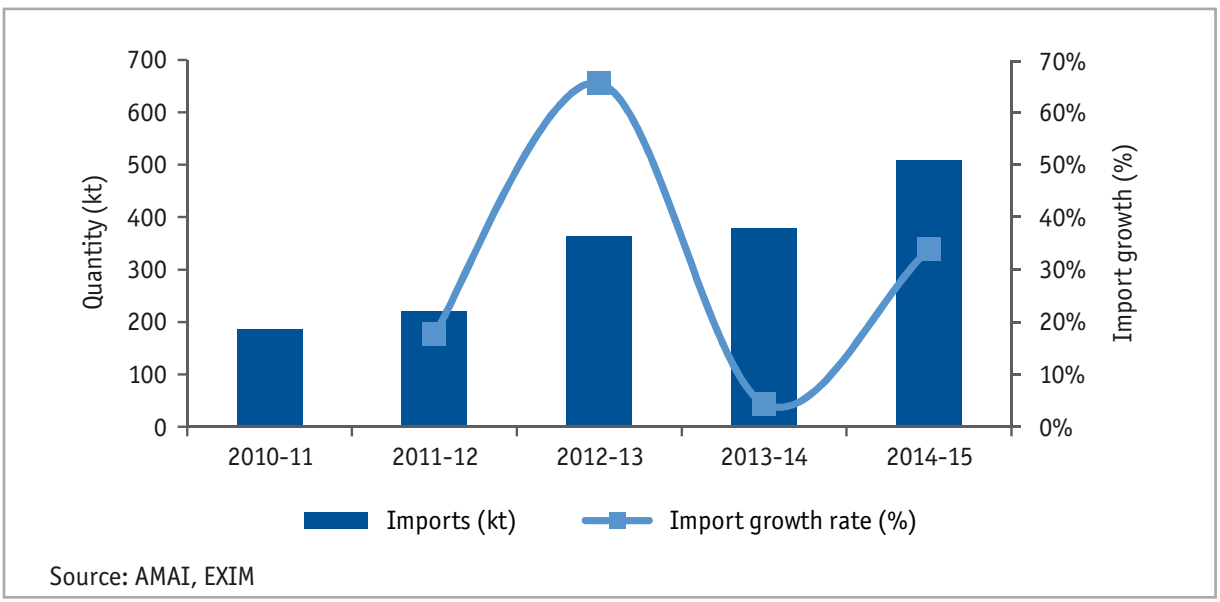


# What ails PVC and Caustic capacity addition? 04

From the foregoing, it is very evident that there is enormous gap between supply and demand in both PVC and caustic industry, which would only increase at a rapid pace as we go forward. This then begs the question – why capacity creation is not taking place, even to the extent of part of the demand growth?

Caustic soda imports have increased over the last five years at a CAGR of 22% while demand has grown at a CAGR of 4.6%. Capacity and production have grown only at 0.8% and 2.4% CAGR respectively. The increased arrival of imports has resulted in lower average capacity utilization of 80% in the domestic caustic soda industry (ref to figure 26).

**Figure 26 - Imports of Caustic Soda (2010-2015)**




Source: AMAI, EXIM

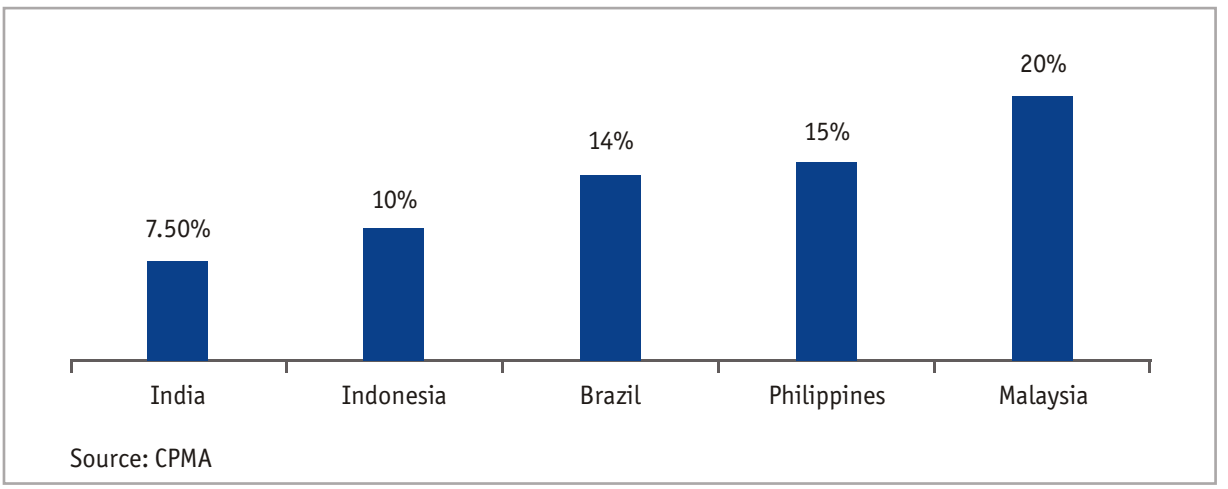
Caustic soda capacity growth has also been stunted due to the lack of addition of vinyl capacity as well as derivatives industry for off- take of chlorine. Chlor-alkali industry is a power and water intensive industry. Huge imports are arriving into India from countries in the Middle East where power is cheap.

Inadequate trade control measures are resulting in unregulated imports leading to low capacity utilizations in the domestic vinyl industry. Also, capacity addition has stagnated and has not kept up with demand. This can be attributed to the lack of availability of merchant ethylene and higher input costs due to non-availability of adequate feedstock (EDC & VCM) in India (except for chlorine from the caustic soda industry). The delay in PCPIR – Petroleum, Chemicals & Petrochemical Investment Regions has resulted in non availability of merchant ethylene for stand alone downstream use. The low duty on PVC and low duty differential is leading to inadequate margins in the end market.

Lack of institutional support in growth segments like crop protection chemicals, water treatment, etc. are stymieing growth in chlorine consumption while growth in alumina capacity triggers growth in caustic soda capacity. For caustic capacity to grow, the chlorine that is generated would need to be consumed and for this vinyl capacity addition is a must

When we look at PVC, it is apparent that India has been attractive to capacities worldwide. For instance, import data over the last six months shows that India has imported material from over 24 countries, which include Korea, Taiwan, Japan, China, and EU countries along with U.S.A, U.K. as well as Brazil and Colombia. Due to the low import duty for PVC in India and the availability of a fast growing market, international suppliers are able to offload their surplus material easily in India. The import duty is lower than most developed and developing countries (ref to figure 27).

**Figure 27: Import duty in other countries**




Source: CPMA

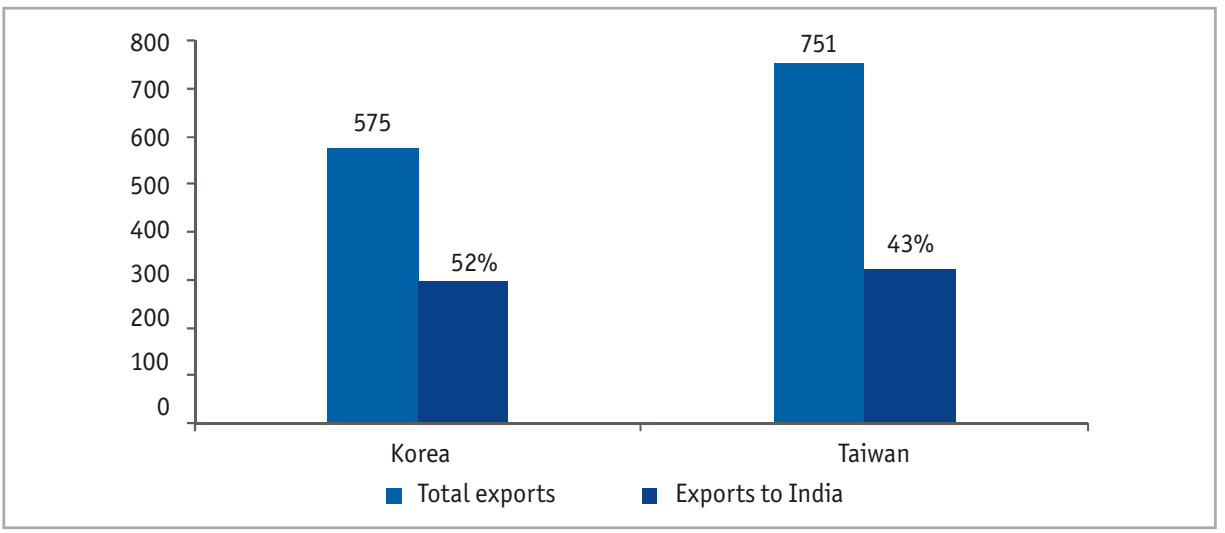
Moreover the lower duty differential between PVC and imported feedstock compared to that in other countries that similarly depend on imported feedstock further discourages local capacity creation (ref to figure 28).

**Figure 28 - Duty Differential comparison**

| Product | Countries dependent on imported feedstock | | |
|---|---|---|---|
| | India | Malaysia | Philippines |
| EDC | 2 | 0 | 3 |
| VCM | 2 | 0 | 0 |
| PVC | 7.5 | 20 | 15 |
| Duty Differential | | | |
| PVC - EDC | 5.5 | 20 | 12 |
| PVC - VCM | 5.5 | 20 | 15 |

In fact, MNCs are not interested in creating capacities in India, despite this sector being open to FDIs from 90s onwards, but do so outside India, which is also borne out by the proportion of exports in 2014 by Korea & Taiwan (the top two exporting countries to India) to India in relation to their total exports.

**Figure 29 – PVC – Importance of Indian market for Korea & Taiwan (kT)**




Thus, while their supply levels easily support an establishment of a global scale plant in India, they do not find it attractive to invest.

The Government has imposed ADD on imports from certain countries. However, ADD is not enough to curb imports as this only addresses part of the gap between fair price and unfair price at which dumping takes place, and, imports still arrive into the country using tariff concessions available through FTA, including misuse of anomalies in the tariff classification, as well as from countries where ADD is not applicable. Moreover, the relatively high interest rate environment and the poor development of infrastructure in the country increase transaction costs for businesses which further serves as an impediment to growth in the vinyls industry.

## Free Trade Agreements - Relevance

Over the last few years, India has entered into a number of Trade Agreements (TAs) including free trade agreements, preferential trade agreements, comprehensive economic cooperation agreements and comprehensive economic partnership agreements in order to increase its foreign trade, particularly exports. Some of the agreements signed by India are Comprehensive Economic Cooperation Agreement (Singapore), Comprehensive Economic Partnership Agreement (South Korea & Japan), India – Malaysia Free Trade Agreement, India – ASEAN Free Trade Agreement, etc.

India has committed to reducing import duties on imports of PVC, EDC or VCM in almost all the TAs, but timing and extent of reduction varies. There is a risk of inversion of import duties across the PVC value chain as a result of the trade patterns between India and the TA as well as non-TA countries. Today, the PVC industry imports most of its feedstock from countries with which India does not have TA. As a result of the TAs, India will have lower or no import duty for some TA countries on PVC but will continue to have to import EDC and VCM from non-TA countries at the current import duty of 2%. This would further narrow the duty differential, if not turning them in to negative, which has already impacted capacity addition in the industry. As an illustration, in the case of Japan, duty on PVC will be reduced to zero by the end of 2019. This has helped imports of PVC from Japan jump from an average of 3kt per month in FY15 to an average of 18kt per month in FY16. This number is expected to further increase. Granted, by 2019, duty on imports of EDC and VCM from ASEAN member countries, South Korea and Japan will also be removed. However, India imports only a minor share of its requirements of these products from this set of countries, and as such, this is not likely to benefit local PVC industry in any great way. Indonesia is the only TA country that supplies EDC and Japan is the only significant supplier of VCM, with which India has a TA. India actually imports most of its EDC & VCM from Arab countries, the USA & Europe with which it does not have any TAs. It is also thus critical that India does not agree for any duty concession on any PVC product in its negotiations on RCEP and keeps all three HS codes – 390410, 390421 & 390422 – under "exempt" category.

# Recommendations for augmenting PVC & Caustic Soda Capacities 05

Given below are some suggested measures, both fiscal and policy, that can go a long way in enthusing investments in capacity augmentation, both by Indian companies as well as MNCs.

- Increase import duty of PVC & caustic soda from 7.5% to 10%. This will help revive the investment sentiment for the PVC industry in India. It will lead to increase in domestic PVC manufacturing in India and reduce imports thereby saving foreign exchange. Another impact would be local value addition and increase in jobs locally. Moreover, there would be minimal impact on prices i.e. downstream industry would be unaffected
- Reduce tariff on intermediates (EDC & VCM) to zero. As there is no local manufacture of EDC or VCM for merchant sale, any duty reduction will not adversely affect any domestic company. Facilities that are used to manufacture these intermediates are usually set up only for captive use. This proposal will therefore also not impact setting up of such facilities
- Revisit tariff concessions extended to countries with which India has signed Trade Agreements, especially the ones that export into India
- Give thrust to the PCPIR policy, ensuring availability of ethylene for downstream units. Developed petrochemical infrastructure can greatly reduce logistics cost. E.g., in countries with developed petrochemical infrastructure, intermediary feedstock is sourced off a pipeline. In India, these products are shipped across long distances involving huge logistics cost which makes domestic manufacturers uncompetitive compared to international counterparts

All these measures can result in a potential investment of over Rs. 20,000 crores over the next 5-7 years, in addition to possible investments in the upstream and downstream sectors.

# 6. Conclusions

Both the PVC and the caustic soda industries are essential to the growth of the Indian economy with both products finding applications in a variety of sectors as well as being a source of employment. Today, close to 50% of the demand for PVC in the country is met by imports. Though the level of imports have been increasing over the years and thereby meeting the supply-demand deficit for PVC in the country, it remains to be seen whether this can be sustained over the medium to long term when domestic demand grows. Very little capacity expansion is seen in the countries which are currently exporting to India, meaning that there is an upper threshold beyond which these countries cannot supply. There could be a case in the future where Indian demand for PVC could possibly outstrip supply. This would lead to processed PVC products not being available for use as well as a lot of downstream processing facilities having poor capacity utilization levels. The immediate effect would be loss of employment. Considering that tens of thousands of people are employed by the PVC downstream industry, the effects would be detrimental. It would also have a deleterious impact on the foreign exchange outflow and the trade deficit. Increase in domestic production capacity of PVC would give processors a secure and stable source of supply whereby plant capacity utilizations levels can be high leading to wealth creation in the economy.

Increase in PVC production capacity will also facilitate increase in chlorine utilization leading to better ECU economics and enhancement in caustic soda capacity. Caustic soda production capacity enhancement is also reducing due to the influx of cheaper imports from the Middle East, where power costs are lower. When the country's goal today is to 'Make in India', increased imports and lower manufacturing levels contribute to loss of potential employment and widening the current account deficit

As such, unless certain corrective fiscal measures are taken, India runs the risk of missing out on the growth opportunities in both these sectors.

# 7. Abbreviations

ADD – Anti Dumping Duty

AMAI – Alkali Manufacturer's Association of India

ASEAN – Association of South East Asian Nations

BRICS – Brazil, Russia, India, China and South Africa

CAGR – Cumulative Average Growth Rate

CPMA – Chemicals and Petrochemicals Manufacturer's Association

EDC – Ethylene Dichloride

FICCI – Federation of Indian Chambers of Commerce and Industry

FMCG – Fast Moving Consumer Goods

FTA – Free Trade Agreement

GDP – Gross Domestic Product

MNC – Multi National Company

PVC – Poly Vinyl Chloride

PCPIR – Petroleum, Chemicals and Petrochemicals Investment Region

RCEP - Regional Comprehensive Economic Partnership

TSMG - TATA Strategic Management Group

VCM – Vinyl Chloride Monomer

# 8. About Tata Strategic

Founded in 1991 as a division of Tata Industries Ltd, Tata Strategic Management Group is the largest Indian own management consulting firm. It has a 50 member strong consulting team supported by a panel of domain experts. Tata Strategic has undertaken 1000+ engagements, with over 300 clients, across countries and sectors.

It has a growing client base outside India with increasing presence outside the Tata Group. A majority of revenues now come from outside the group and more than 20% revenues from clients outside India.

Tata Strategic offers a comprehensive range of solutions covering Direction Setting, Driving Strategic Initiatives and Implementation Support

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|---|---|---|
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Results and Benefits*

| | | |
|---|---|---|
| • Revenue | • Cost | • Profit |
| • Market Share | • Throughput | • Lead Time |
| | • Key Milestones | |

*Ilustrative

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## ABOUT FICCI

Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies.

FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community.

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