

## Glass Industry

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### Overview

*Glass is an inorganic product produced by melting a mixture of silica sand, soda ash, limestone, with desired metallic oxides that serve as coloring agents. Four main segment of glass industry are container glass, flat glass, fibre glass and specialty glass.*

*Growth in global glass market is significantly dependent on the growth of building construction sector, automobiles manufacturing and the food and beverage industry. Glass is one of the most widely used end user products in daily households.*

*China, Germany, USA and France are the biggest exporters of glass globally.*

### Main highlights of industry

- This market size of glass industry in India was estimated at around Rs. 225 billion in 2012 and the share of organized market at about 55%, whereas, the unorganized market is close to 45%.

- The per capita consumption of container glass in India is at 1.8 kg; much lower compared to other nations. This provides a possibility of good upside potential.

- In FY18, India's total glass exports stood at USD 639 mn and USD 1,245 in imports, making India a net importer of glass.

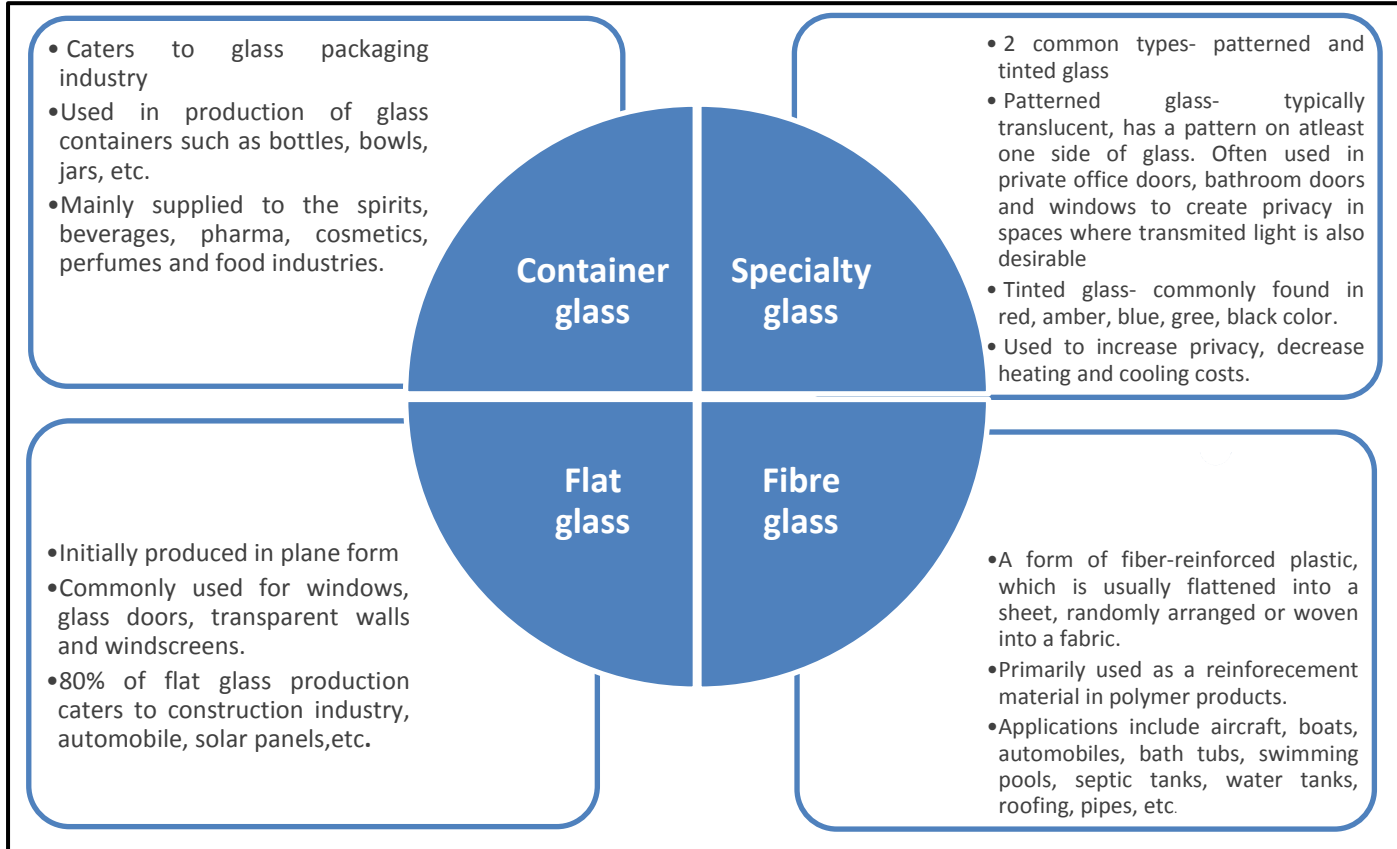
- Asahi Glass is the world's largest glass company. The top 5 players account for close to 60-70% of the organised market share.

- Major growth drivers for the country's glass industry are government schemes like 'Housing for all', RERA; growth in automobile production, increase in demand for energy efficient products, etc.

## Segments

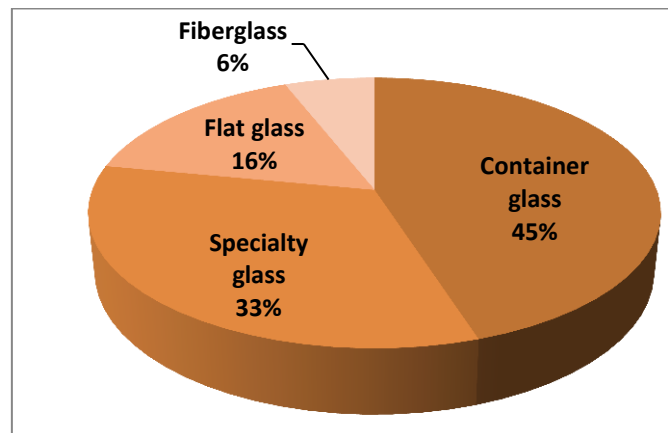
Glass is a transparent product made chiefly from silica sand, limestone, soda ash and sodium carbonate. It differs in color and density depending upon the addition of several other elements and oxides.

**Chart 1: Four main segments of glass industry**



Source: IBEF

**Chart 2: Category wise Global Glass Production**



Source: IBEF

### Glass Industry: Global Perspective

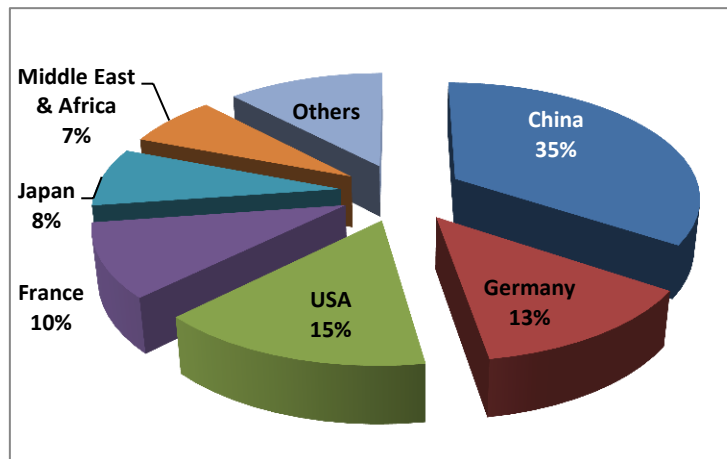
The world glass industry generates yearly revenue of \$75 billion, with leading exporters being the US, France, Japan, China, India and Germany. The most common products manufactured in the global glass industry are flat glass, glass containers, fiberglass and specialty products such as lenses, optic fibres, mirrors, glassware and TV tubes.

The global glass industry is quite concentrated, with four companies – NSG, Saint-Gobain, Asahi and Guardian, producing about 70% of the total high quality glass in the world. Rising demand from wide applications in residential and commercial infrastructure projects, increasing demand for glass substrate from automotive & transportation sector, growth in electronics and semiconductor industry, infrastructure development in emerging economies, government concerns regarding public safety and security are some factors, have propelled the demand for glass.

Asia Pacific is expected to remain the largest float glass market due to increase in urbanization, strong housing demand and increasing investment by glass manufacturers in this region.

Largest user nations of glass globally are China, Germany, USA, France and Japan. Others being Spain, Argentina, Australia, Canada, Egypt, India, Sri Lanka, etc.

**Chart 3: World’s glass exporters in 2016**

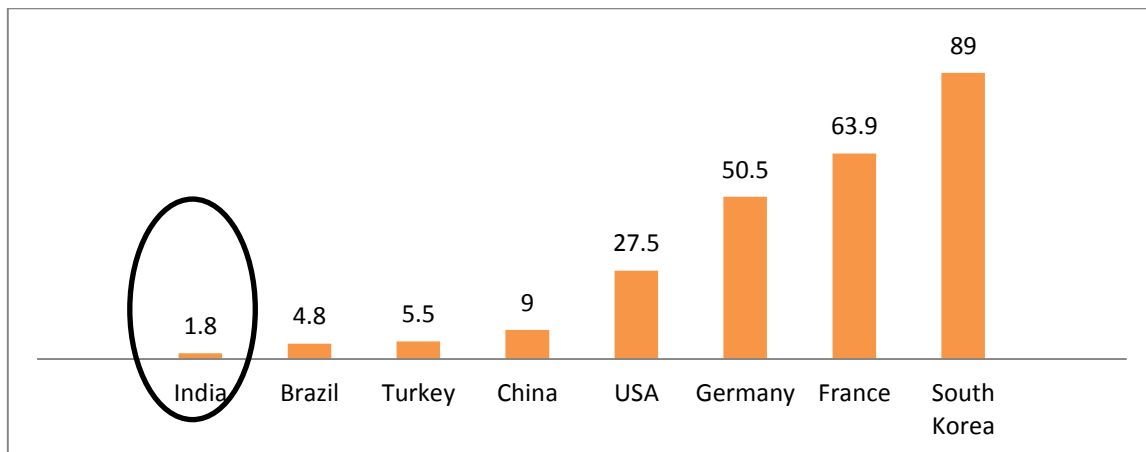


Source: [www.Worldsrichestcountries.com](http://www.Worldsrichestcountries.com)

### Glass Industry: India

The glass industry in India is quite old and well established. It remained largely a cottage industry for a long time. In recent years, the industry has transformed and developed. From rudimentary mouth blown and hand working processes, the industry has evolved to adopt modern processes and automation in a large way. The per capita consumption of container glass in India is at 1.8 kg; much lower compared to other nations. This provides a possibility of good upside potential.

**Chart 4: Per capita consumption of container glass (Kgs.)**



Source: Hindusthan National Glass & Industries Ltd. investor PPT data through Economist Intelligence Unit

India's glass market has been growing across all segments. Float glass had recorded the fastest growth, at nearly 60% CAGR between 2001 and 2005. This growth has been driven primarily by India's booming automotive and construction sectors.

This industry was estimated at around Rs. 225 billion in 2012. The share of organized market is about 55%, whereas the unorganized market accounts for close to 45%.

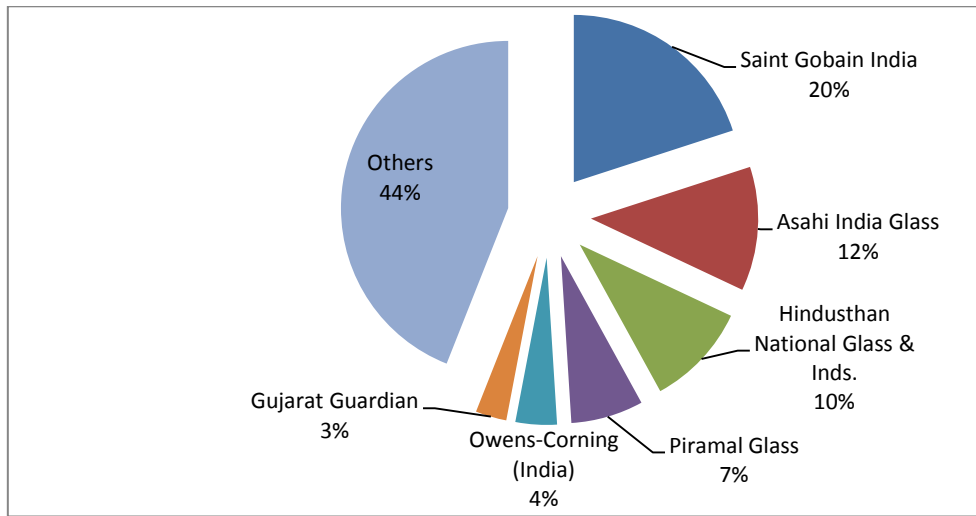
The industry is characterized by the increasing use of processed and high-performance glass in the automotive and architectural sectors. The Indian customer has become more aware about the importance of glass in effectively addressing the concerns of safety and energy efficiency.

Production of glass in India is pre dominantly found in the states of Uttar Pradesh, followed by Maharashtra, Gujarat, Andhra Pradesh, Tamil Nadu and Karnataka. The industry employs about 30 lakh people directly and provides indirect employment to 7 lakh people in all. In India, Firozabad is the central hub for many glass manufacturing industries and one of the leading manufacturers and exporters of glass products. Nearly 40% of the glass produced here is exported. Products manufactured include bangles, kada, kangan, jar, glass, candle stand, flower vase, decorative lights, etc.

### Key Players

Major glass producers in India are Saint-Gobain India, Asahi India glass (AIS), Gujarat Guardian, Hindustan National Glass & Industries, La Opala RG, Borosil Glass Works and Piramal Glass. These players account for close to 55% of the total organised market share in revenue terms.

**Chart 5: Revenue share of Indian glass manufacturers in FY17**



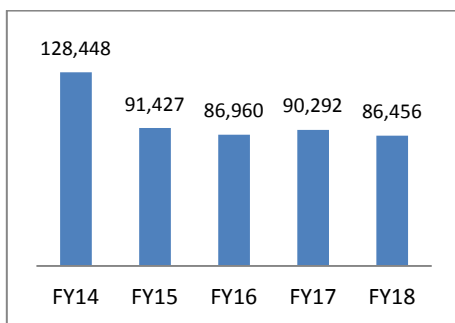
Source: CMIE

Asahi Glass Co. Ltd. (AGC), Japan, is the largest glass manufacturer in the world with 12% global market share in the flat glass segment and 30% global market share in the automotive glass segment. Various kinds of glass produced by AGC are laminated glass, insulating glass, wired glass, toughened glass, integrated glass antennas, decorative and patterned glass, etc. which cater to the automobile and construction industry.

**Production**

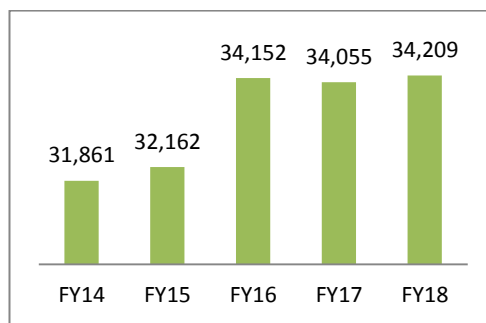
Sluggish demand from user industries impacted output of most varieties of glass in FY18. The output of glass sheet and fibre glass declined 4.2% and 7.1%, as its user industry- construction witnessed a decline in new business orders. Output of glassware remained flat at Rs.34 bn in FY18.

**Chart 6: Glass sheet ('000 sq. mts.)**



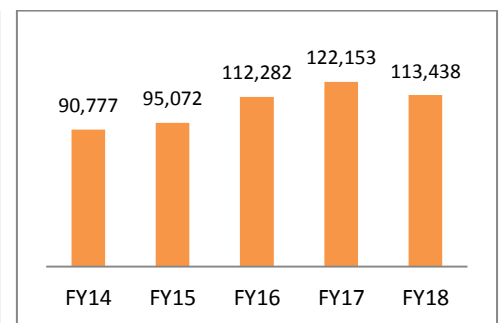
Source: CMIE

**Chart 7: Glassware (Rs. Mn)**



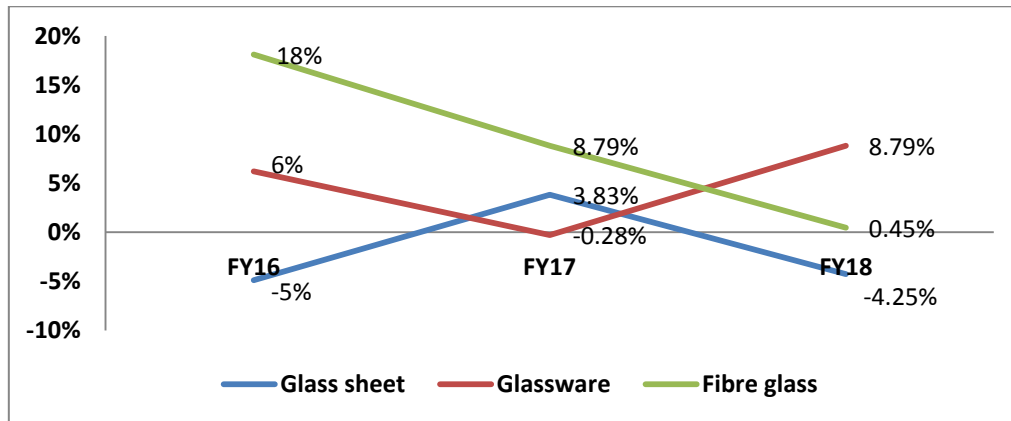
Source: CMIE

**Chart 8: Fibre glass (tonnes)**



Source: CMIE

Chart 9: Production of glass (y-o-y growth %)



Source: CMIE

## Demand Drivers

- Automobile industry to drive growth for glass  
Glass in various forms is used in automobiles for sidelites & backlites, windshields, windows, rear view mirror, etc. India's automobile production in FY18 stood at 29.08 mn vehicles, registering a sharp growth of 14.8%. An increase in growth of automobiles segment will lead to an increase in demand for glass.
- Construction sector witnessing major growth:  
Construction industry not only in India, but globally, has been experiencing rapid growth over the past few years, driven primarily by real estate construction. This, in turn, is driven by demand for housing and retail construction. Glass of various types is used in the construction industry and heavily contributes to its share of total sales. In the recent years, there has been an increasing demand for improving and better aesthetics in commercial complexes, which has further fuelled the growth of the use of glass in various forms in this industry.
- Government schemes:  
Government schemes and initiatives like Housing for all by 2022, smart cities, RERA, etc. are driving the level of development, construction, infrastructure, employment opportunities, etc. in these cities, which will in turn lead to demand for glass.
- Solar energy glass demand:  
Demand for glass used in solar energy glass applications is rising, and therefore demand for glass processing machines serving the solar energy segment, is expected to offer significant growth potential for glass industry. Greater use of solar energy is being supported by growing environmental awareness, the effort to reduce dependence on non-renewable energy sources, and by cost factors. This is expected to trigger the demand of the glass industry.
- Packaging industry:  
Growing use of glass in the packaging industry is driving the container glass industry globally. With glass having properties of reusability and being 100% recyclable, customers are becoming more and more conscious about safety and hygiene and increasingly making use of glass as containers.

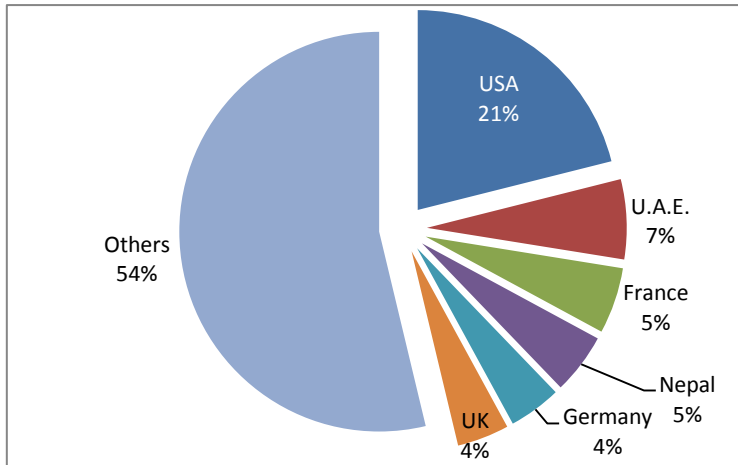
- Increasing awareness of energy saving products:

An increasing awareness of saving of electricity and use of energy saving products makes glass the best source of sunlight and reduces the cost of artificial light in offices and residential complexes. Energy Conservation Building Code (ECBC) launched by Ministry of Power, Government of India, was the first step towards promoting energy efficiency in the building sector. ECBC-compliant buildings use 40-60% less energy than similar buildings being designed and constructed at that time, etc.

**Import and Export**

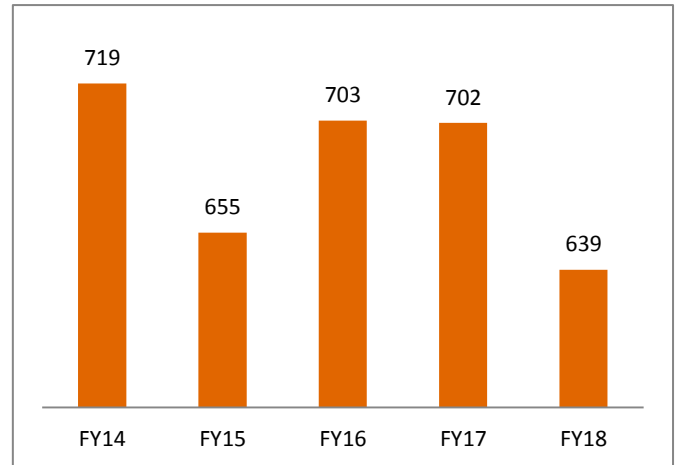
The global market for Indian glass is spread across several countries. The value of exported glass was USD 639 mn in FY18. USA is been the biggest market for Indian glass, followed by U.A.E., France, Nepal and Germany. Other countries include Belgium, Italy, Iran, China, etc. The products exported have primarily been fibre glass, bottles and jars, mirrors, glass beads, bulbs, float glass and sheets, etc.

**Chart 10: Share of country wise glass exports from India in FY18 (USD mn)**



Source: Department of Commerce

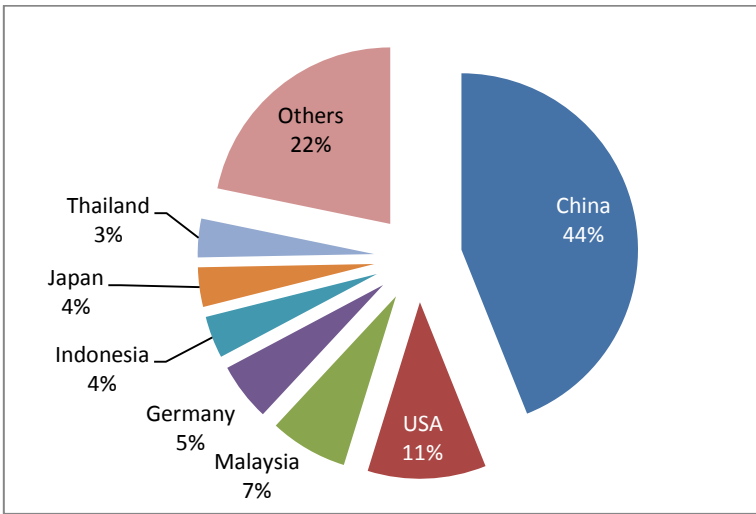
**Chart 11: India's total glass exports (USD mn)**



Source: Department of Commerce

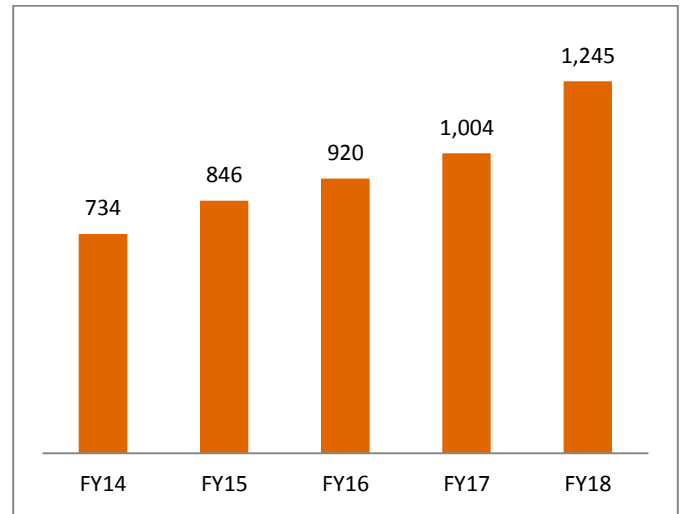
India's glass imports include products like float glass, cullet, glassware, etc. Highest imports are from China, followed by USA, Malaysia, Germany, Indonesia and Japan. Other countries being Austria, Taiwan, France, U.A.E., Czech Republic, etc. In FY18, the country's glass imports were at USD 1,245 mn, which makes India a net importer of glass.

Chart 12: Share of country wise glass imports to India in FY18 (USD mn)



Source: Department of Commerce

Chart 13: India's total glass imports (USD mn)

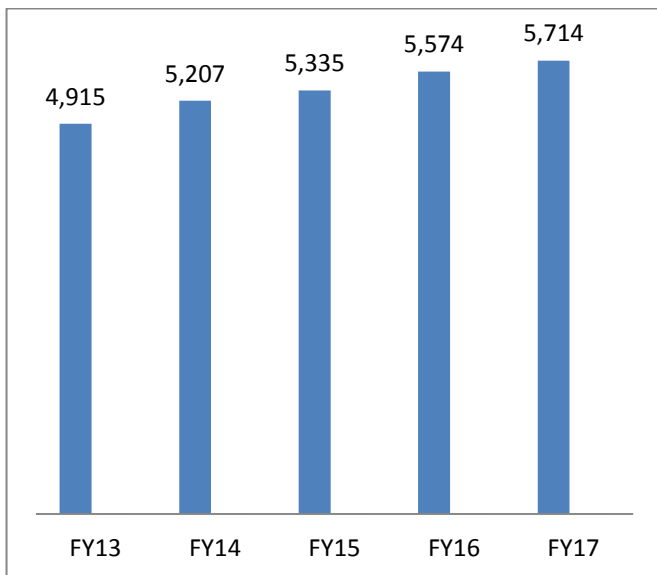


Source: Department of Commerce

**Financials**

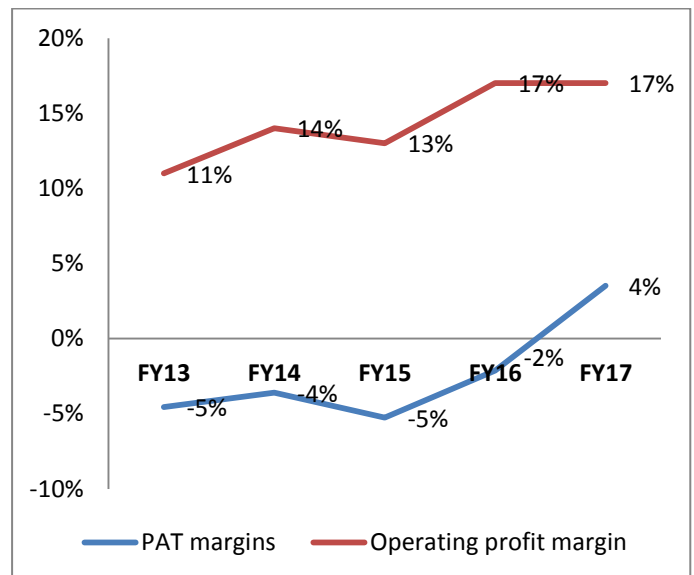
Net sales in FY17 grew marginally by 3%, whereas, FY16 registered a net sales growth of 4%. The operating margin grew to 17% in FY17, from 11% in FY13. For the first time in FY17, there was a positive PAT margin of 4%, after a registering a negative PAT margin consistently for the past 5 years.

Chart 14: Net Sales in for 15 Cos.(Rs Crore)



Source: Ace Equity

Chart 15: PAT & Operating profit margins of 15 players



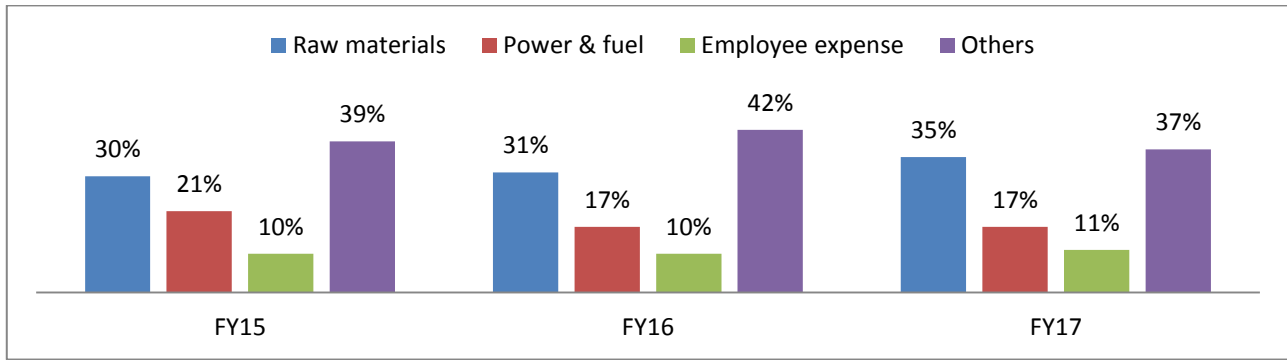
Source: Ace Equity

**Cost structure**

Raw materials, employee compensation, power and fuel account for about 60-70% of the total expenses for every firm operating in this industry. Other operating costs are selling and distribution expenses, administration expense, depreciation and interest, etc.



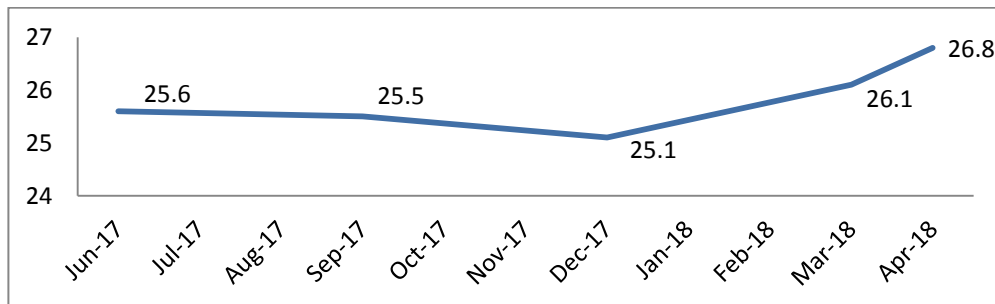
**Chart 16: Major costs as a % of net sales for 15 companies**



Source: Ace Equity

Major raw materials in making glass are silica sand, soda ash, limestone and cullet (broken glass). Soda ash, one of the major raw materials, accounts for about 50-55% of the total cost of raw materials, followed by cullet and silica sand. Cullet can be recycled into the furnace to reduce energy consumption (1% cullet increase = saving of 2.5 Kcal/Kg glass). Prices of soda ash increased 6% y-o-y from Rs. 25.3/kg in April 2017 to Rs. 26.8/kg. April 2018 was the third consecutive month in which prices had risen. Prices were on a decline from December 2016 to January 2018.

**Chart 17: Price movement of soda ash (biggest raw material of glass) in Rs./kg**



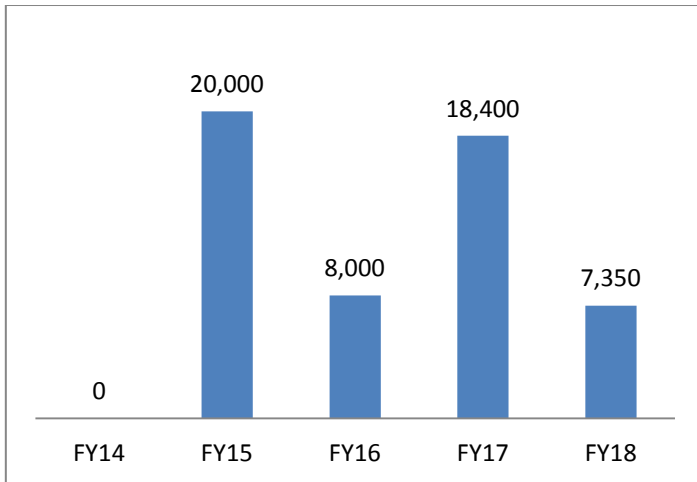
Source: CMIE

### Expansions

Hindusthan National Glass, Gujarat Borosil and Saint Gobain India have announced capacity expansion plans in India, aggregating to Rs.50 bn spread across three projects, from FY 17-19. The addition in capacity is expected to accommodate the demand growth for glass in India.

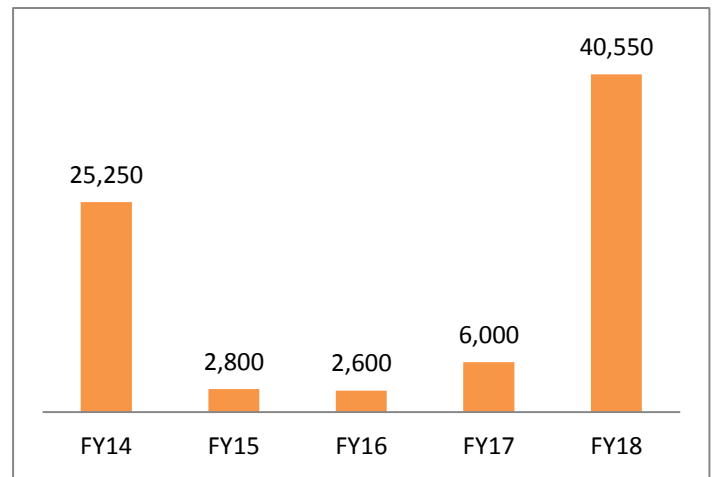
Asahi India Glass announced a major greenfield expansion for its 5th automotive plant in Gujarat, with investments of up to Rs. 500 crores, in 2 phases, set up mainly to meet the requirements of Maruti Suzuki in Gujarat. In the first phase, the plant will have capacities to produce about 1 million laminated and 1.2 million tempered glass sets. This will not only increase capacity, but also have the ability to make the highest grades of glass for the architectural market directly and for value added purposes like mirroring, hard coating, soft coating and high level processing.

**Chart 18: New projects announced in India (Rs. mn)**



Source: CMIE

**Chart 19: Projects completed in India (Rs. mn)**



Source: CMIE

### Challenges, Risks and Concerns

- **Input costs:**  
The Indian glass manufacturers are facing a challenge of increasing prices of raw materials in the process of glass manufacturing. Fuels used by the industry (HFO and NG), soda ash, packing material, freight, manpower, electricity costs etc. have taken a huge toll on margins of the industry. Soda ash, being one of the key raw materials for glass manufacturing is largely imported from Romania, USA, Bulgaria and Kenya. Any hike in prices of raw materials, power and fuel, changes in government policies with regards to employees and depreciation of rupee with regards to employees, will have an impact on the total expense and the cost of production.
- **Long working capital cycle:**  
High debtors & inventory of finished goods & raw materials, has led to glass manufacturers operating at a long working capital cycle of about 100-120 days. High liquidity constraints have made many small players to close down their operations. Glass furnaces which have to be run continuously, makes power a major fixed cost.
- **Alcohol beverage market:**  
Bihar government has banned the sale and consumption of liquor, hitting the industry sales hard. Also, the sector has been excluded from GST, forcing companies to continue to deal with a web of central & state agencies.
- **Capex:**  
In glass industry, capacity comes in large chunks with huge capex involved. So anytime a new capacity comes in the excess of supplies over demand means pricing power is never in the hands of the suppliers. If the costs spiral up during the period of excess supply, then the manufacturers experience margin squeeze before stabilizing operations. Further if the capex is largely debt funded, high interest costs (dictated by domestic inflation or Rupee depreciation) have a huge negative impact on cash flow. Therefore, investments by the industry in anticipation of growth can turn out to be high risk affairs.

## Outlook

Fuelled by growth in sectors like real estate, infrastructure, retail, automotive and food and beverages, the country's glass industry is expected to register good demand from its user industries in FY19, giving a boost to sales and production volumes.

- From Rs. 1,47,500 Cr. in 2016, the Indian alcohol market is expected to increase to Rs. 1,75,400 Cr. by 2021, giving a boost to the container glass segment in India. A 7.5 % CAGR growth rate is expected for beer market for next 5 years.
- As Indian economy is recovering from the transitory impacts of demonetisation and GST, the real estate sector is expected to pick sales, giving a boost to the flat glass segment.
- Higher outlay in budget for FY19, for infrastructure, transportation and agriculture segment, is expected to be positive for the commercial vehicles demand. As per our estimations of commercial vehicles sales growth at 18-20% and passenger vehicles of 8-10%, with the increase in production of user industries, the glass industry will see a pick in demand.

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