Evolution of Glass Industry in India: Challenges and Future Scenario

By
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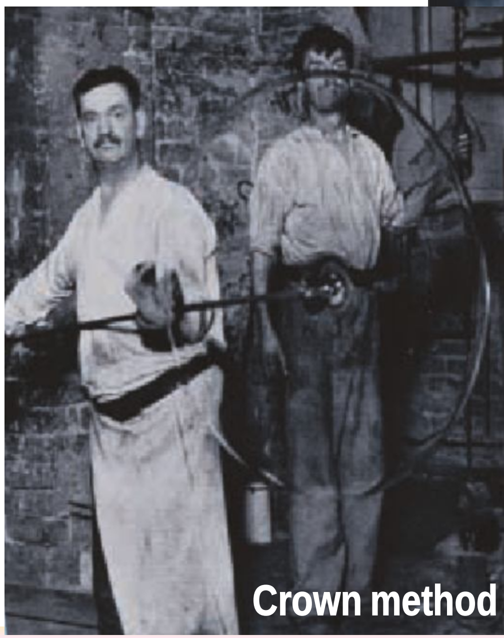
History of Glass in India

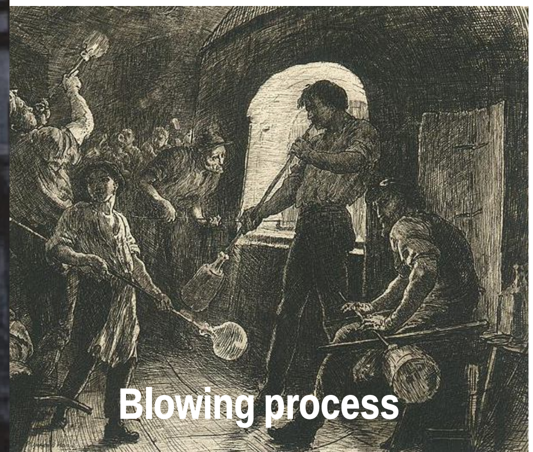
- Since Prehistoric period (2nd BC), People of Mohenjo-Daro & Harappa through trade contacts with Ancient Sumer glass fusion etc.
- Glass was discovered by Syrian 5000-7000 years ago, Latter this art reached Egypt in 2000 BC and from Egypt this technique was taken to Rome then spread across Europe and world. Glass Industry started flourishing in India post arrivals of Mughals.
- Firozabad is "Glass City of India " started production of glass back in 17th century.The modern Indian glass industry is around 100 years old.
- The first glass plant was set up in August 1908 by Lokmanaya Balgangadhar Tilak at Talegaon Maharashtra. Industry has made a steady progress since India's independence.

The old cylinder process

The Old Cylinder process



Crown method



Blowing process

History of Glass in India

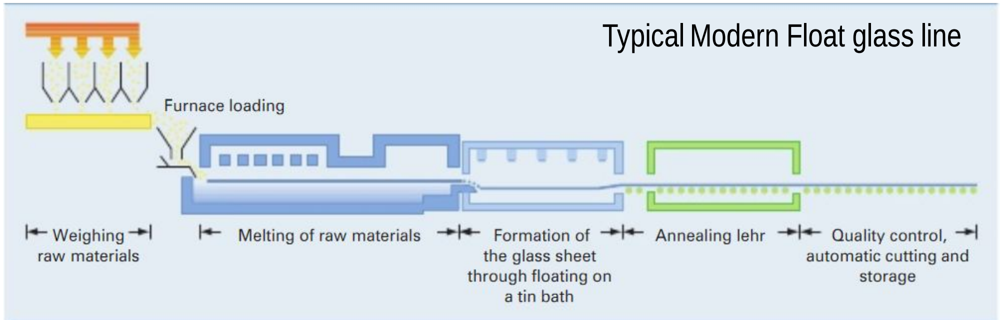
- HNGIL (1952) , AGI (1972) ,Piramal (1984), Asahi (1987) and Saint Gobain (2000) started their glass operations.

- Float glass industry also kept adopting new technologies over a period of time .
  1913 : Fourcault Process
  Pittsburg Process

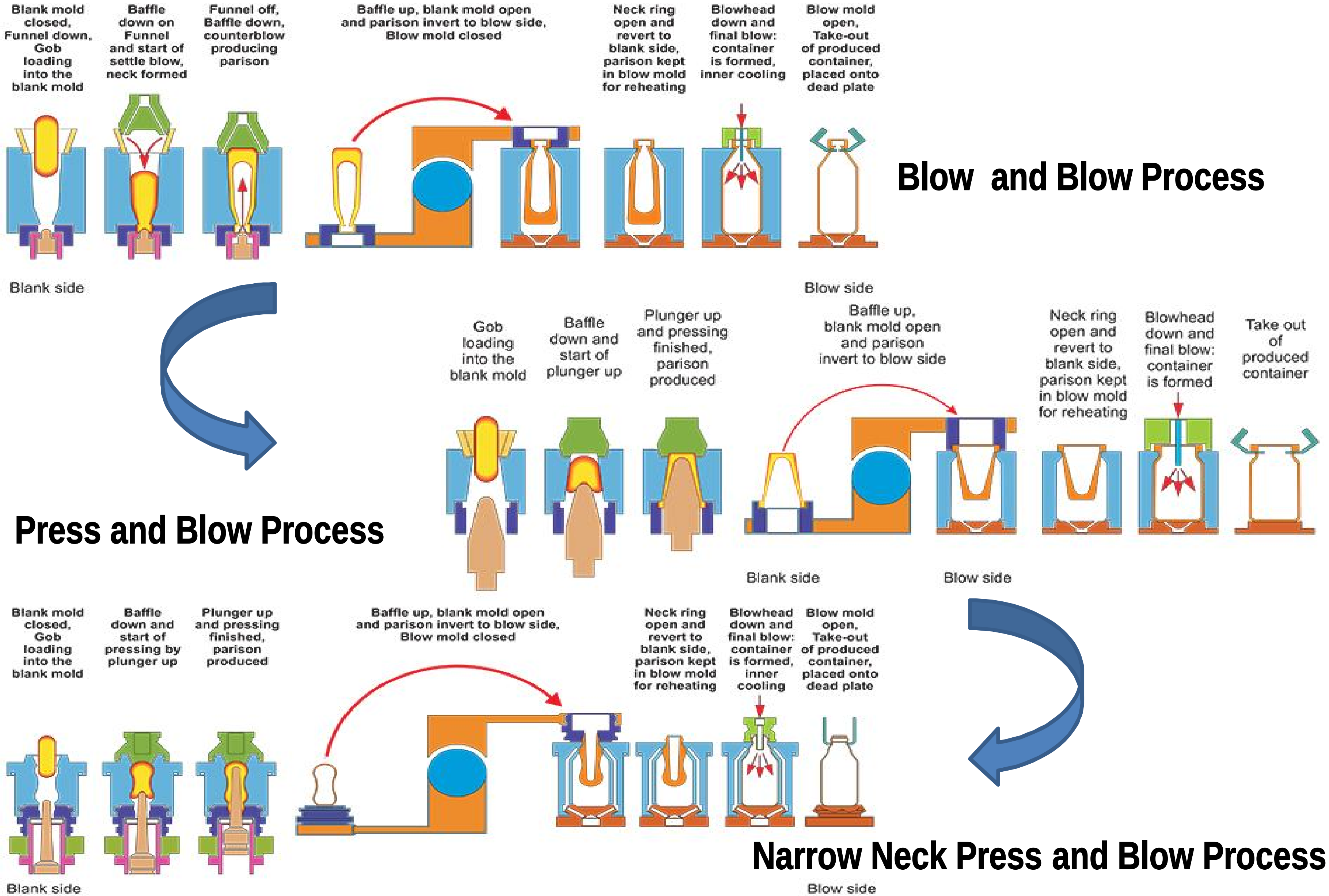
- Quantum leap came in 1958- Pilkington process where Molten glass being floated on a shallow bath of molten tin, while being heated on top surface.

- The manufacture of glass bangles has moved to semi automatic process and India has its own technology in the bangle and glass bead

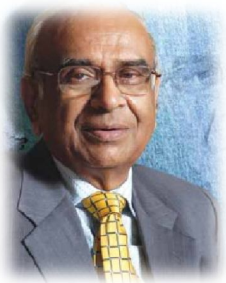
- India Glass sector kept on adapting most modern technology producing containers.



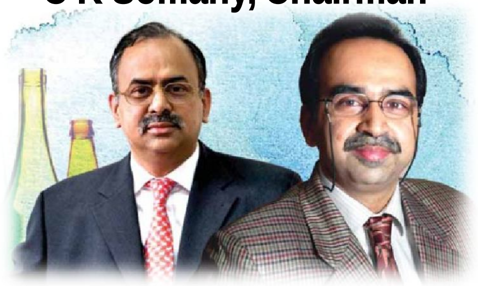
Technological changes in Container Glass Manufacturing



HNG History – Serving our esteemed customers over 60 Years



C K Somany, Chairman



Sanjay Somany   Mukul Somany

1952

Foundation stone for First plant
Rishra, 25 MT

Expansion of capacity to 1,100 tones per day

2001

Acquisition of plants at **Rishikesh** and **Puducherry** from Owens

2002

Acquisition of the glass division of L&T at Nashik

2005

Merger with associate, Ace Glass Containers Ltd

2007

-Set up Float Glass plant in Halol
Acquisition of Neemrana unit of Haryana Sheet Glass

2008

Acquisition of Agenda Glass AG, GERMANY, 2011

2011

-Start up of 650 MT/day at Nashik.
-Start up of 650 MT/day at Naidupeta .

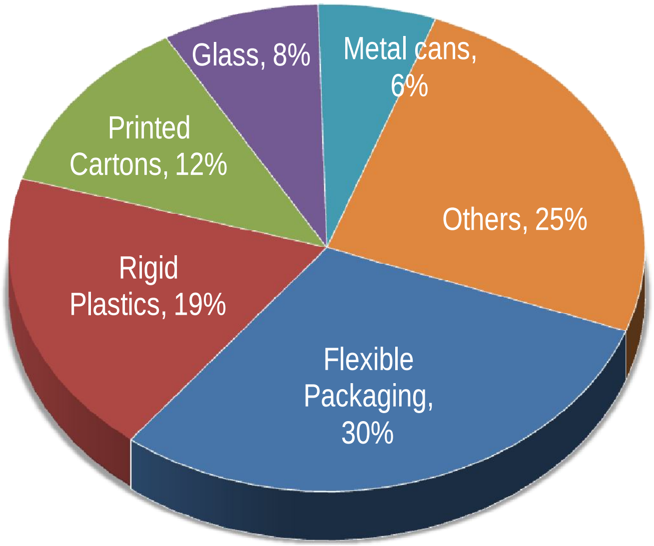
2012-13

Container Glass : 4350 MT
Float Glass : 650 MT

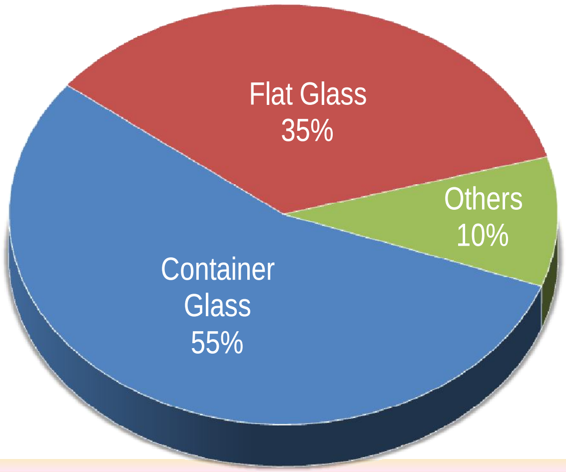
Indian Glass Market Overview

- Indian packaging industry is estimated to be $15 Billion ,grown at 14-15% CAGR in previous years.
- Indian glass market is only 8% of the overall Indian packaging industry and it is estimated to be around USD 1.19 bn.
- The glass industry represents a number of definable product segments:
    - Flat glass including Float Glass
    - Containers Glass and Hollowware
    - Others
        - Vacuum glass
        - Domestic and industrial glassware
        - Crystal glass I Fibreglass
        - Glass wool TV picture tube glass shells
        - Laboratory glass.
- Low per capita glass container consumption of 1.8 kg in India as compared to 9 kg in China , 27 kg in USA.
- The demand for Glass is expected to increase driven by growing consumer awareness about health ,Hygiene ,eco friendly and energy conservation products..

Indian Packaging Industry



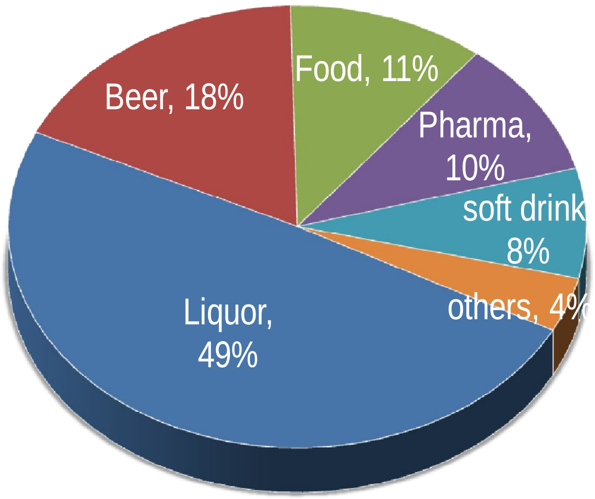
Indian Glass Industry



Indian Glass Market Overview

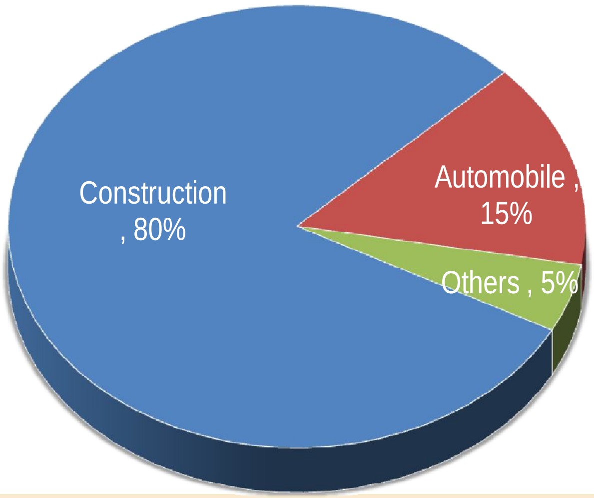
- Flat glass market stands at @ 5473 TPD, Container glass is at 9305 TPD and Other glass @ 1,500 TPD.
- Liquor contributes to 49% of container glass and Construction industry contributes to 80% of Flat glass demands.
- Liquor and Beer segment has grown over 12-15% CAGR on account of changing lifestyles and rise in disposable incomes. The Indian Pharma market is currently growing at CAGR of 18-20%.
- Construction(13%) and automotive (16%) segment is also bound to regain the growth segment

Indian Container Glass Industry



Companies	TPD
HNGIL	4350
HSIL	1600
Piramal Glass	860
Haldyn Glass	296
Others	2199
Total	**9305**

Indian Flat Glass Industry



Companies	TPD
Saint Gobain	1850
Asahi India Glass	1300
Gujarat Guardian	630
HNG Float Glass	650
Gold plus Glass	450
Triveni Glass	355
Others	238
Total	**5473**

CHALLENGES

Indian Glass industry – Current Challenges

1

Low GDP growth

- General slowdown in economy .End user segments resulting in lower demand.
- India's GDP growth rate during last 2 years has plummeted to 5.2%
- Current projections indicate that Indian economy will be below 5% in FY 13-14.

2

Lack of Demand

- Sluggish demand from Construction and automotive segment
- Slower growth rate in alcoholic beverage sector
- Float creation in beer market –branding of bottles.
- Constrained financial condition of key player USL , Unitech , DLF etc.

3

Surplus Capacity

- HNG, HSIL, Piramal & Firozabad cluster have added capacities in last 2-3 years.
- Capacity utilization of Float glass & Container glass segment is below 75%.
- Price bargaining power reduced . No rate increase due to demand supply mismatch

4

Rising Input Cost

High increase in Input cost – Raw material

- Mining issues across state , Govt delaying mining leases.
- HSD Price increase impacting freight cost
- Levy of Anti dumping duty led to soda ash price increase by 20% in last 2 years

Power and Fuel costs contribute to 61% of product cost

- Power Tariff revisions
- Steep Hike in Fuel oil ,Natural Gas and LPG prices

Indian Glass industry – Current Challenges

5 **Long Working Capital cycle**

- Continuous nature operation of Glass furnaces.
- Lack of demand has led to increased FG inventories
- High debtors & Inventory of FG & RM have lead to High working capital cycle
- Working capital cycle ~ 100-125 days
- Many small players forced to close down operations.

6 **Exchange rate Fluctuations**

- Fuel Prices and Gas Price have direct impact
- Soda Ash , one of the Key Raw material , for glass Manufacturing – Forex impact
- Direct impact on cost of borrowings .

7 **Buyer Concentration Risk**

- Companies need to work on diversifying the Glass usage in other sectors
- Too much concentration in alcoholic and construction segment .
- Volume dependent models -problematic

8 **Import of Glass**

- Float glass import from Middle east – Dumping in Indian market
- Container glass import from china and other countries

9 **Alternate Packaging**

- Switch over to Plastics – LDPE , PP , PET and Other Plastics materials
- Food processing , Pharma and Beverage have started shifting to Tetra and PET.
- Country liquor switch over to Tetra pack and PET bottles in some states, .
- Poor Concern of Govt / regulators on Plastic usage – Impact on Human health & Environment neglected .

Indian Glass industry – Current Challenges

PET & Tetra in India – Silent killer

PET

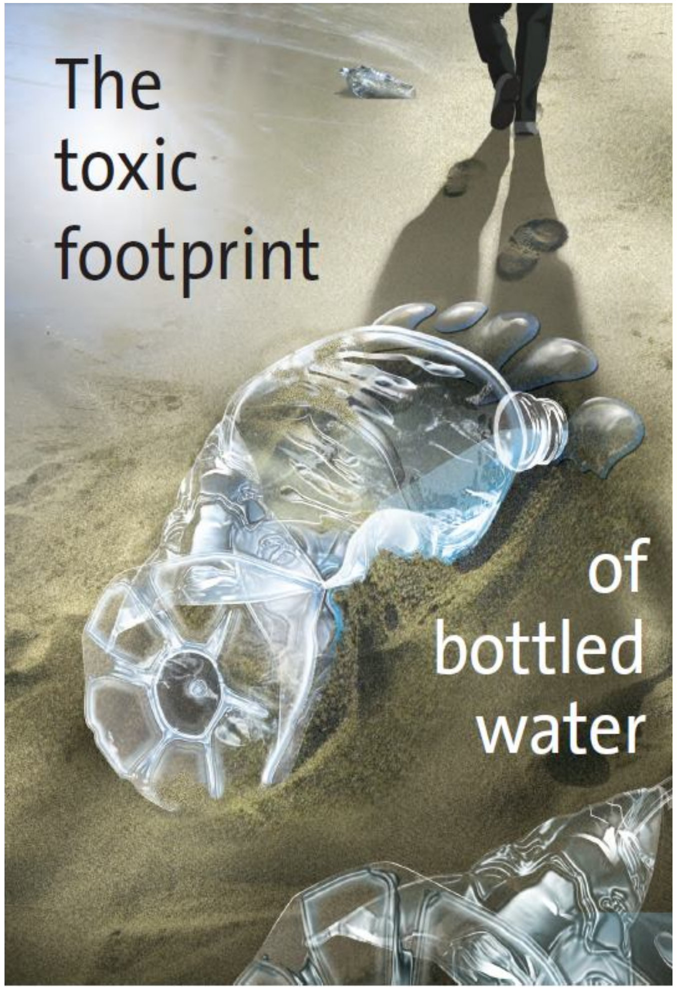
- Chemical additives that give PET products desirable performance also have have grave negative environmental and human health effects . These includes

  - Direct toxicity, as in the case of Antimony , Lead, cadmium and mercury;
  - Carcinogens, as in the case of diethylthexyl phthalate (DEHP);
  - Endocrine disruption, which can lead to cancers, birth defects, immune system suppression and developmental problems.

- Pharma - The shelf life of medicines have been reduced to 18 months from the earlier 36 months

- Liquor - Alcohol is acidic , resulting in a leaching .

- PET (being non-bio-degradable) is leading to huge solid-waste accumulation posing insurmountable pollution threat



Indian Glass industry – Current Challenges

PET & Tetra in India – Silent killer

Tetra packaging

- It actually consists of 75% paper, 20% plastic and 5% aluminum foil.
- Aluminum is toxic, associated in studies with Alzheimer's, Kidney disease & bone disease in children
- Studies have shown leaching of estrogen hormone from plastic chemicals into the content of the pack. Also ultra violet heating during the tetra pack manufacturing only accelerates leaching of plastic materials.
- Unlike glass, one uniform material, only the paper in Tetra Paks can be recycled & the rest goes into landfill.

Indian Glass industry – Current Challenges

Manori Beach near Malad Borivali

PET – Global Threat

- PET is clogging all habitats of the world and destroying the ecosystem.

- The only logic one can raise over regulation of food contact with PETs is profit at the expense of our health, the economy, society, and the environment.

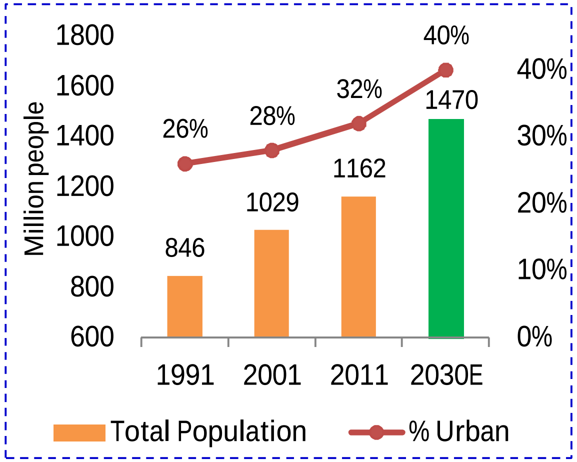
- **Legislation, research and mass communication is the need of the hour to restrict unabated use and spread of PET in our day to day life.**

Yamuna River – New Delhi KMC Dump Dhapa

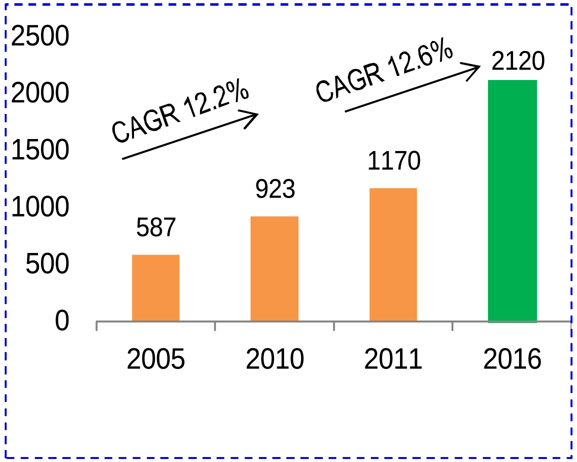
FUTURE

Indian Glass Industry – poised to grow

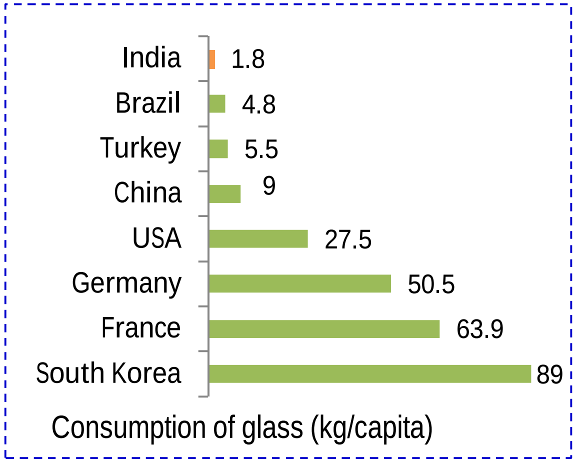
Increasing urbanisation and..



..rising disposable income..



..in underpenetrated market..



1 Increasing urbanisation and higher disposable income to drive demand in the end user segments such as IMFL, Beer, F&B, etc.

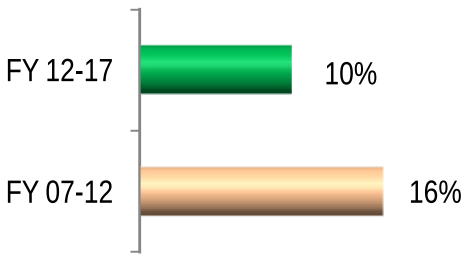
2 Low per capita container glass consumption in India provide tremendous growth opportunity

3 Attractive cost economics given refillable nature of glass

4 Stimulus measures to revive economy

Indian Glass Industry – poised to grow – End User Segment

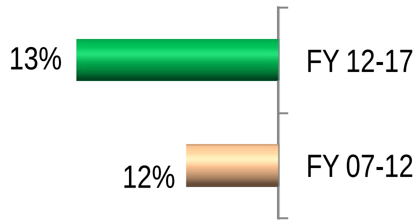
IMFL



Volume growth (CAGR)

Beer

Volume growth (CAGR)



- ✓ Increasing middle class resulting in rising discretionary spending levels (middle class to increase to 37% of population by 2025 from 13% in 2011) and increasing acceptance for social drinking.
- ✓ Low per capita consumption in India of 1.8 litres as against 8.7 litres in Europe and 8.5 litres in USA.
- ✓ Well developed retail network in urban areas to push premium products.

TOP BEER MARKETS

India's per-capita consumption of beer is expected to grow to 2.6 litres by 2016.

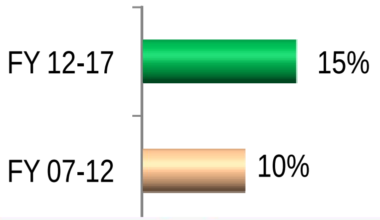
	Per-capita consumption (in litres) 2012	2016*	Volume in 2012 (in hectolitres)	% growth by 2016*
China	37	44	502.5	5%
US	78	75	244.1	0.2%
Brazil	68	74	134.3	2.7%
Russia	67	71	95	1.1%
Germany	110	104	89.7	-1.7%
Mexico	59	63	67.3	2.8%
Japan	45	44	57.9	-1.4%
UK	70	65	44.5	-1.5%
Poland	100	104	37.8	0.7%
Spain	77	72	35.9	-1.3%
India	2	2.6	20	13.2%

*estimated

Source: Beeronomics 2013

Indian Glass Industry – poised to grow –End user segment

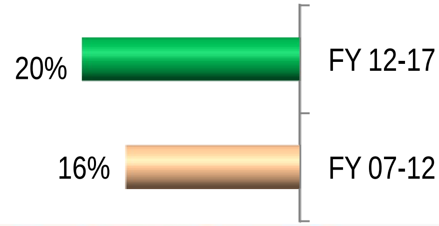
Food & Beverage

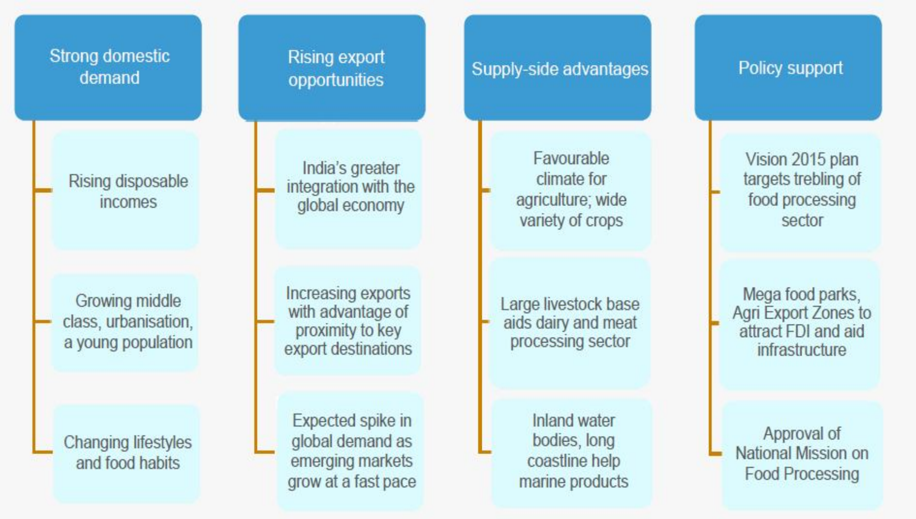


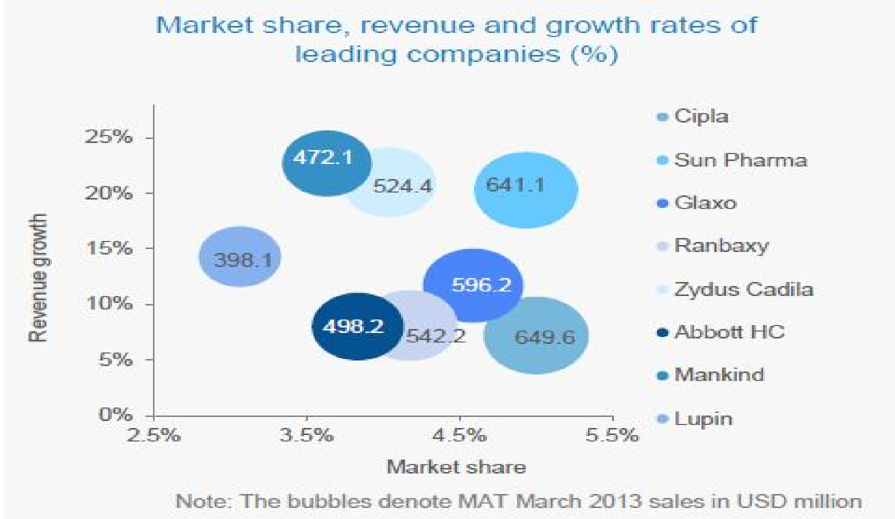
Volume growth (CAGR)

Pharmaceutical

Volume growth (CAGR)







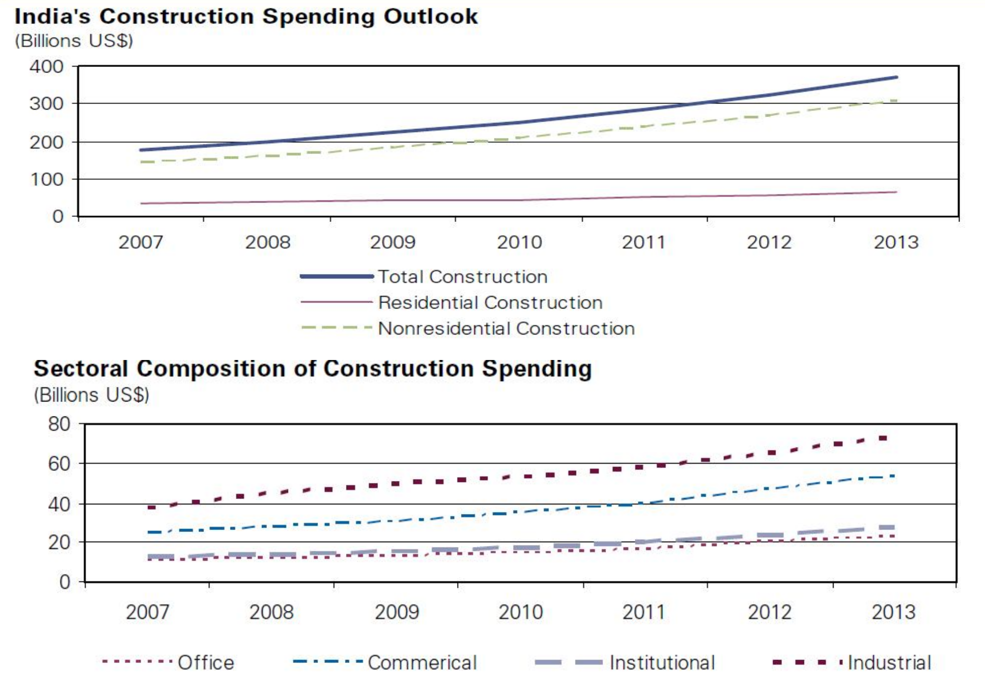
Indian Market	FY 10 (Rs Cr.)	FY15 (Rs Cr.)	CAGR	Position of glass vis-à-vis others
Ketchup	800	2000	20%	• Being hot filled, glass is the most suitable product globally. • There is no re-use of bottles by the established players. • All the major SKUs are present almost exclusively in glass bottles. • Sauce is a fast moving item & hence does not require a high shelf life.
Sauce	200	500	20%	
Jam	275	550	15%	• Jam is a slow moving item & requires a shelf life of over an year which is not possible in PET. • With the growth of smaller SKUs, Tubs and sachets are strongly growing.
Pickle	450	535	3.5%	• Glass has more shelf life (48 months) compared to PET (7) / Pouch (5). • Despite poor shelf life, pouches and PET have 45% market share.

- The country's pharma industry accounts for about 1.4 per cent of the global pharma industry in value terms and 10 per cent in volume terms
- The Indian pharmaceutical industry revenue is expected reach USD36 billion by 2016.

Glass Recycles

Indian Glass Industry – poised to grow –End user segment

Construction

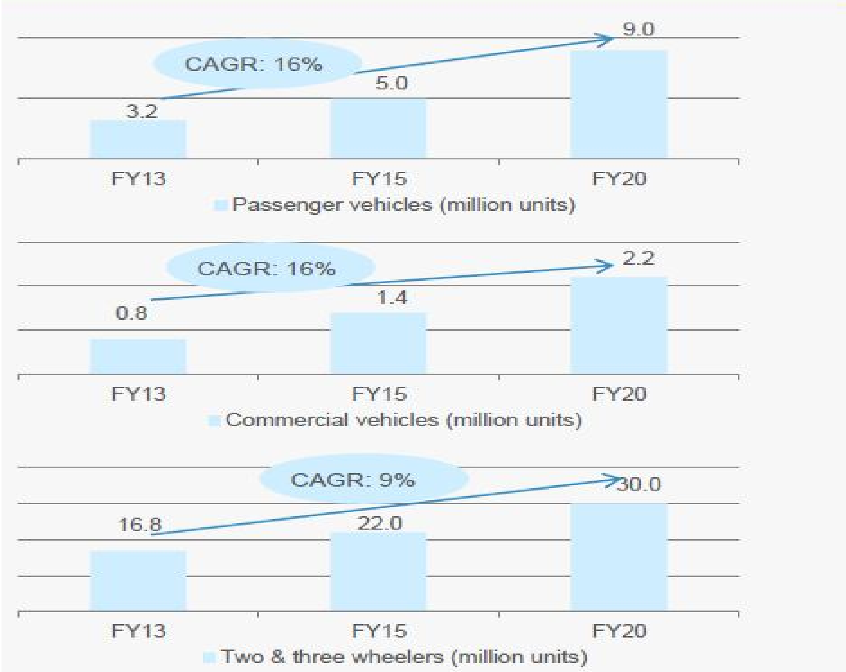


Expected CAGR 13.9%

Source: IHS Global Insight

- Rapid urbanisation
- Decreasing household size
- Favourable demographics and growth in the services sector, especially the IT & ITES sector.
- The demand for affordable housing is growing,
- 100% FDI in real estate has increased due to the growing interest of foreign players in the Indian market.

Automotive



Expected CAGR 16%

Source: SIAM, Vision 2020, Aranca Research

- Automobiles production increased at a compound annual growth rate (CAGR) of 12.2 per cent over FY05-13 while the export volumes CAGR of 19.1 %
- Strong demand growth due to rising incomes, growing middle class, and the young population
- Segment expected to grow at 16% CAGR up to 2017.

Potential Avenues for Future revival

1

Recovery of Indian Economy

- ✓Economy have bottomed out and it will revive back to 6.5% levels in FY 14-15.
- ✓RBI & Government are taking needful measure to bring stimulus to Indian economy .
- ✓Rupee has regained some losses .

2

Strong growth in End user segment

The outlook is optimistic and the Indian glass segment is witnessing new players.

- ✓Canpack, Polish MNC, is putting up 750 TPD plant in Maharashtra
- ✓Trakya Cam joint venture with HNG Float glass.
- ✓Oak tree capital has acquired 64% equity stake in Cogent Glass, Hyderabad
- ✓Construction (100% FDI in Construction) & India as Manufacturing hub for automotive
- ✓End user segment -Beer -Molsoon coor , Cobra , Budweiser , Carlsberg etc has entered in Indian economy.

3

Consolidation in liquor

- ✓Liquor is the largest end user segment of glass bottles and comprises over 50-55% of total volumes.
- ✓Diageo- USL deal has been signed off. Diageo has completed the 25.2% equity stake
- ✓Various other players are also reported to be talking to multi nationals.
  - ✓Pernod Ricord is evaluating a JV / take over of ABD, Tilaknagar Industries.
  - ✓Radico Khaitan likely to sell stake to Suntory holdings japan.

Potential Avenues for Future revival

4

Product premieumization & diversification

- Focus on high margin premium segment by liquor manufacturers would result in demand for premium quality glass bottles which is expected to result in higher off-take.
- Diversification by float glass players in value added segments – automotive , processed glass , Solar panels etc

5

Technological developments

- New technologies like NNPB and P&B enable containers to be lighter and thinner.
- These technologies offer significant costs reductions, allowing the benefit to be shared by manufacturer and the customer

6

Regulatory intervention

- Regulatory intervention in country liquor segment to check leakage of revenue is expected to convert packaging of country liquor from pouches and pet bottle to glass bottles.
- Regulatory authorities are also studying the impact of leaching on medicines packaged in other mediums. Glass being an inert material stands to gain from any adverse findings.
- Glass is an environment friendly material which can be recycled indefinitely and is a better green alternative.

Expectations from CSRI-CGCRI – Scientific community

Driving Public Opinion about glass –Glass Promotion

- Environment aspect--Cradle to Cradle- Recyclability & Eco-friendly
- Human Health aspect – betterment over alternate media
- Inert to packaging media , Taste , Aroma , Appearance etc
- Long self life of packaged media

Regulatory Legislation to Promote Glass

- Health , Hygiene and Environmental laws
- Sharing of legislation across Globe
- Legislation for food & pharma sectors

Technological Research

- Innovative ways overall energy Optimization in Glass Melting
- Designing of Highly Efficient Furnaces with low investments
- How to improve Process Reliability and efficiency of Glass forming machines (90%) wrt Alternate packaging M/c (99%)

Solution to Glass Characteristics

- Fragility
- Bulkiness

THANKS