PACKAGING INDUSTRY: A REVIEW

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INDIAN PACKAGING INDUSTRY: FEW CHALLENGES, PLENTY OF OPPORTUNITIES

Introduction

The packaging market in India seems set for the next level of growth. Strong favourable demographics aside, factors such as increasing disposable income levels, rising consumer awareness and demand for processed food, and the multinational giants taking rapid strides in the food, beverages, cosmetics & toiletries and pharmaceuticals space, are expected to be the key drivers of this growth story. These factors are forcing both packaging suppliers and end-user industry to shift from bulk packaging to retail, and unit-level and small-sized packaging. In addition, exploding organized retail growth and newly relaxed FDI investment norms in retail and other sectors, augur well for packaging market in India.

At more than USD 15.6 billion (approx. Rs. 85,000 crore at current conversion rates), India is estimated to be growing at more than 15 percent CAGR to Rs. 1,500,000 crore by 2015.

While the sector presents a lot of opportunity for larger players, there are attendant challenges due to lack of regulatory clarity arising from multiple legislations that define the sector; the need to meet more stringent packaging norms laid down by the entry of global players such as Walmart; as well as the rising consumer awareness on sustainable packaging, requiring a shift to more green materials and innovations that require investments in R&D as well as infrastructure.

Market Structure

Indian packaging industry is highly fragmented with a large number of small scale companies and a few large integrated players. According to one estimate, there are more than 22,000 registered packaging companies in India, more than 85 percent of which are MSMEs.

The larger companies are highly capitalized and usually involved across the higher value added activities like material production, innovative products and design and higher volume supplies catering to the larger demand segments like F&B and cosmetics. The MSMEs in India are usually companies involved in the lower value added activities like conversion, filling and production.

The organized sector in India accounts for roughly 50 percent of the volumes whereas the balance is highly fragmented and distributed. Globally the scenario is somewhat more consolidated – roughly 75 percent of the global packaging industry by value is accounted for by 20 percent of the largest integrated global players.

In India, as the industry grows and matures, there is expected to be a trend towards consolidation as the supply side companies merge and acquire smaller companies to increase scale, reduce competition and improve bargaining power with the customers.

Brief Market Analysis and Growth Drivers

The large and growing middle class and the current low penetration
of the organized retail sector are the catalysts for growth in this sector. With changing lifestyles the consumerist patterns are expected to change toward a greater emphasis on convenience, health and messaging. Organized retail will shift the trend from ‘loose’ items to branded packs on items like commodities, food grains, vegetable oil etc.

At US$ 9 worth, the per capita consumption package clearly shows the lack of packaging consumption currently by Indian consumers, even when compared to their Asian peers. With increased income levels, aspiration levels increase and will lend itself well to growth in packaged and processed foods which will lead to the increase in per-capita consumption levels.

Exhibit 1: Per Capita consumption of Packaging (US$)

<table>
<thead>
<tr>
<th>Region</th>
<th>Per Capita Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>200</td>
</tr>
<tr>
<td>Europe</td>
<td>150</td>
</tr>
<tr>
<td>Latin America</td>
<td>50</td>
</tr>
<tr>
<td>Asia</td>
<td>50</td>
</tr>
<tr>
<td>India</td>
<td>10</td>
</tr>
<tr>
<td>World Average</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Paper, Film & Foil Convertors Association

Higher levels of disposable income will mean a higher growth of the impulse spending category which is packaging intensive. Further, increased spending from rural households will increase the shift from bulk packages to smaller packages due to lower purchasing power.

Also as companies try to differentiate in the face of increased competition, they are expected to focus on newer packaging design, materials and formats. Organized retail and liberalization have increased the competition in the industrial goods sector. Companies are slowly but steadily changing their packaging design even in industrial segments like paints, chemicals, lubricants etc.

More than 78 percent of the total packaging market in India is contributed by rigid packaging while only the remaining comprises flexible packaging. This trend is similar to the global market where flexible packaging accounts for approximately 18 percent of the total packaging market. Flexible packaging is however, the fastest-growing sector of India’s packaging industry. The shift from traditional rigid packaging to flexible packaging mainly on account of its attractiveness, cost-effectiveness and strength is largely aided by increasing consumer demand for processed food.

**Metal Packaging**

Metal packaging is one of the fastest growing packaging categories in India driven largely by categories like aerosol packaging (deodorants, air fresheners, insect repellents etc.) and beverage cans (beer, soft drinks & health drinks). Increased income levels combined with high awareness driven by marketing by FMCG companies have led to growing aspirations amongst the middle class and lower income groups to adopt these new products. Further changing lifestyles and mindsets contribute to increased levels of spending by the higher income groups leading to increased demand for metal packaging.

Metal packaging has always been considered as a premium packaging type in India and products packaged in metal are seen as premium products that are expensive. Global advancements have made it possible to make metal packaging attractive with high quality printing and attractive shapes.

Demand growth for metal packaging is likely to remain strong. The major factors that are driving demand for metal packaging are growing per capita income, environment-friendly packaging requirements, demand for premium packaging in products like beer, soft drinks etc. and changing lifestyles in urban India leading to growth of products like deodorants and air fresheners.

**Rigid Plastic Packaging**

Rigid plastics category includes products like tubes, cups, bottles, pots, cans and closures. Rigid packaging material finds usage in all packaging related applications and is fast replacing traditional packaging materials like metal cans, glass bottles, aluminum collapsible tubes and metal caps. In India this category is driven by the companies seeking lower cost of packaging, introduction of new products that fit this category, expanding middle class consumers shift from ‘loose’ products to packaged products, modern retail formats that increase value of product presentation and growing aspirations to consume better quality products.

The major materials in rigid plastics are PET, PP and HDPE. In India, this sector is dominated by Essel Propack which is a global leader in the laminated tubes category and Pearl Polymers which has a leadership position in the glass bottles and jars segment as well.

Thin walled plastic containers have seen a huge demand boost both in packaged goods as well as retail trade sectors. New categories like margarine, cheese spreads, fruit yoghurt, frozen desserts have been launched that primarily use this packaging format. Further, there has been a growing demand for these thin
Flexible Packaging

Overall demand for flexible packaging was driven by the continued usage in existing categories and adoption into a wide range of new products like hot drinks, beauty and personal care products and home care products. Demand for flexible packaging in India is likely to remain strong, due to comparative lower cost of packaging and continuous innovation by leading players who are launching new materials and products for the industry.

Demand is likely to be further driven by smaller pack sizes, given the lower purchasing capacity in rural and semi-urban India. Indian companies have been highly innovative to reach this target market by launching products in extremely small size packs called “sachets” and “pillow packs” that contain a wide variety of products from personal care products like shampoos, toothpaste and face creams to chewing tobacco and related products. Also traditional segments like savory snacks, biscuits and condiments are being launched in smaller packages to cater to the rural market.

As in other packaging segments, growth in this sector is expected to remain strong from traditional products and with new categories migrating from other expensive forms of packaging to flexible pouches. Some recent innovations in this category are the introduction of re-closable packs and packs that have a spout and screw cap; which can be used to package condiments, sauces, juices etc. and can also be made from aseptic packaging materials. These innovations could find increased application in other categories and may take more share from rigid plastics.

A new trend is the increasing usage of flexible films in beverage and water packaging. With innovative materials being used this category is likely to see a very high growth as companies start introducing individual portions of beverages in flexible packs. Amul and Mother Dairy have launched their buttermilk and ‘lassi’ beverages in such packs that need to be refrigerated but drastically reduce the transport and packaging costs.

A few challenges have also emerged that can impact the growth of this sector. Flexible plastics have always been regarded as a necessary evil in the environmental sense. Due to the poor recycling infrastructure and low weight of flexible films, this category of products is amongst the least recycled materials in India. It’s estimated that almost 80 percent of the material that is discarded after use finds its way to landfills and garbage dumps.

Citing the impact of flexible plastics on Indian cities and environment, the Supreme Court of India banned the usage of flexible plastics/sachets for tobacco products and the use of thin plastic carry bags in retail shops. Further citing the negative effects of these products on public health the apex court has also recommended the ban of the production and sale of chewing tobacco products like Gutkha/Zarda altogether.

Glass Packaging

The primary driver of glass packaging in India remains the soft drinks and alcoholic beverages industry. Pharmaceutical applications of glass continue to reduce as the traditional glass packaged products continue to shift to rigid plastics. However, continued growth in demand is expected from alcoholic drink manufacturers, who prefer glass packaging, due to the premium image of glass packaging and better barrier properties compared to rigid plastics. Though some companies had tried introducing rigid plastic bottles and paper brick packaging for wines and beer, consumer adoption of these alternate packaging has been limited.

Returnable bottles are used only in soft drinks in India and continued to see a steady growth in demand as the rural and semi-urban market continues to expand. Due to higher state taxes in alcoholic drinks, such as wine, beer and spirits are likely to see a lower growth in the near term – however in the long term the upward growth trend remains strong which will keep the demand for glass packaging at current growth levels.

Glass packaging in India is highly fragmented with the presence of large number of localized players. Hindustan National Glass & Industries and Piramal Glass are some of the few integrated large players with presence across the country.

Liquid Cartons

Demand for liquid cartons has seen high growth in India driven by adoption across multiple new categories like oil, flavored milk, lassi, soya based drinks and some alcoholic beverages like wine and entry of new companies like Danone. Traditional categories like milk, juices and beverages also have seen a high growth in demand for this type of packaging. Further Indian consumers have high levels of awareness of the advantages of aseptic packaging due to a promotion run by the only company in this space, TetraPak.

This category will continue to show the current high growth rates as demand is expected from newer product categories, increased

walled containers from categories like salads, mushrooms, cut and semi-processed vegetables and meat products.

Demand for these plastic containers can be to a large extent attributed to the growth in organized retailing with the increased penetration of freezers that allow consumers to view and select the products themselves; thus requiring effective packaging formats suitable to this requirement. The growth of ‘take-away’ & fast-food outlets has increased the demand for disposable cups, containers and plates which are primarily catered to by small and regional packaging suppliers as these can be made with small capital investments and are not regulated by packaging standard laws.
penetration in rural and semi-urban areas, increased levels of organized retailing and growing awareness among consumers.

The advantages of these products are that they do not require refrigeration to keep contents fresh as compared to competing products in this space like rigid plastic bottles. Hence this packaging type attracts food companies that have low shelf life and is itself a cheaper alternative to metal cans and easier to transport than glass bottles. Further the package can be attractively printed in comparison to glass bottles.

**Packaging Market by Sector**

The total demand of F&B packaging segment stands at around US$13.2 billion (Rs 72,000 Cr.) and accounts for around 85 percent market share followed by pharmaceuticals and other market segments. At present, flexible, rigid and metallic food packaging materials account for around 55 percent of the total food packaging material market, while printed cartons and rigid packaging segments together represent 28 percent market shares in value terms. Flexible materials such as food packaging laminates, flexible packaging foils etc. constitute close to 24 percent of the overall packaging material market, followed by rigid food packaging material segment.

**Current and Planned Capacities of Key Market Players**

A snapshot of profiles of some key players, as well as their planned capacity expansions and capex allocations is presented below. The top players in India, based on Net Sales and Market Capitalization are as follows: Indian packaging majors have been adding capacities over recent years to meet the growing demand domestically and in the export market.

- **Uflex** commands 35 percent of the organized market, and gets about 35 percent of its revenues from the overseas market.
- They have planned a capex of US$250 million over the next two years to set up new facilities and expand capacity in existing locations. Of this, about US$ 85 million will be invested in setting up polyester films plant in the US.
- **Jindal Poly Films** is a market leader in the BOPET and BOPP segments in India. It is the eighth largest BOPET Film manufacturer in the world. In 2003, it acquired Rexor S.A.S, in France, which produces metallized and coated films. They have planned capacity expansions starting 2010, via phased capex of Rs 1600 crore due to be completed in 2013. In the coming year, they plan to create a new BOPP line with capacity 30,000 MTPA and BOPET capacity of 30,000 MTPA at a total project cost of Rs.330 crore.
- **Parekh Aluminex** is the largest manufacturer of aluminum foil containers, aluminum foil rolls and lids in India with a market share of over 80 percent in the organized sector in this segment. The company acquired a Singapore-based company in 2005 and American Foils for US$9.8 million in March 2012. Parekh Aluminex announced a capital expenditure of Rs 350-400 crore in 2011, to expand its capacities in response to the growing demand and as a critical way to improve profitability in a sector that is increasingly under pressure due to rising raw material costs.
- **Time Technoplast Ltd** (Time) is a leading manufacturer of polymer-based products with close to 70 percent market share in the domestic industrial packaging market. Over the past two years, Time has focused on expansion for its industrial packaging products in Asia and currently has a presence in 10 countries. Time Technoplast has expanded into new geographies in Asia, including China and Australia. A new plant was opened in 2011 at Hyderabad.
- **Polyplex Corp** is the world’s 4th largest manufacturer of thin polyester film with manufacturing facilities in India, Thailand, and China.

### Exhibit 2: Companies by Net Sales

<table>
<thead>
<tr>
<th>Company</th>
<th>Net Sales/Rs Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uflex</td>
<td>3,079.03</td>
</tr>
<tr>
<td>Jindal PolyFilm</td>
<td>2,366.63</td>
</tr>
<tr>
<td>Parekh Aluminex</td>
<td>1,369.75</td>
</tr>
<tr>
<td>Time Technoplast</td>
<td>920.74</td>
</tr>
<tr>
<td>Polylex Corp</td>
<td>897.2</td>
</tr>
<tr>
<td>Ausom Enterp</td>
<td>862.97</td>
</tr>
<tr>
<td>Paper Products</td>
<td>821.24</td>
</tr>
<tr>
<td>Garware Poly</td>
<td>788.36</td>
</tr>
<tr>
<td>Bilcare</td>
<td>752.6</td>
</tr>
<tr>
<td>Ester Ind</td>
<td>699.58</td>
</tr>
</tbody>
</table>

*Source: Money Control as of October 2012*

### Exhibit 3: Companies by Market Capitalization

<table>
<thead>
<tr>
<th>Company</th>
<th>Market Cap-BSE/Rs Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Technoplast Ltd</td>
<td>990.71</td>
</tr>
<tr>
<td>Jindal Poly Films</td>
<td>873.75</td>
</tr>
<tr>
<td>Uflex</td>
<td>813.10</td>
</tr>
<tr>
<td>ESS DEE Aluminium</td>
<td>809.69</td>
</tr>
<tr>
<td>Polylex Corporation</td>
<td>664.32</td>
</tr>
<tr>
<td>Bilcare Ltd</td>
<td>603.11</td>
</tr>
<tr>
<td>Essel Propack</td>
<td>594.63</td>
</tr>
<tr>
<td>Paper Products</td>
<td>467.02</td>
</tr>
<tr>
<td>Parekh Aluminex</td>
<td>441.71</td>
</tr>
<tr>
<td>Flexituff International</td>
<td>416.14</td>
</tr>
</tbody>
</table>

*Source: Money Control as of 11 October 2012*
and Turkey. They have committed US$150 million capital expenditure to construct a new production plant in Turkey, to be commissioned in 2015, and expected to generate about US$1 billion in revenues. This will help the company serve its export markets in Europe, Russia and USA.

- Paper Products commands a 65 percent market share in the high-end flexible packaging industry in India. The company is the Indian subsidiary of Huhtamaki Finland, a leading global consumer packaging company. They completed a capex of Rs 38 Crore in Rudrapur, and Rs 6.4 Crore in Hyderabad in 2011. Additionally an average minimum maintenance capex for replacement will also likely be ongoing. With this their installed capacity of laminate/films is up to 40,990 tonnes.

- Garware Polyester Limited is one of the leading polyester film manufacturing companies in India with 70 percent of the market share for Sun control window films.

- Bilcare Ltd (BILC) is a leading pharmaceutical packaging company with about 60 percent market share in its segment. With its Rs 607 crore acquisition of INEOS’ plastic film making division, it became the second largest pharmaceutical packaging company in the USA and the largest in Europe.

- Ester Industries Ltd. is a leading producer of polyester films and engineering plastic compounds. It is the second-largest Thin BOPET film producer in India in terms of installed capacity with a global marketing footprint across 75 countries including the US, Europe and Latin America. They have continuously invested in brownfield expansions. In 2010, they announced the setting up of a Polyester Film Line of 30,000 MTPA capacity at an estimated capital expenditure of Rs 175 crores.

- Balmer Lawrie is the largest producer of metal containers in the country with a 23.95 per cent market share. It has a diversified business with its industrial packaging business accounting for Rs. 445 crore or 20 percent of its revenue.

- Hindustan National Glass & Industries is the largest container glass solutions provider in India with about 55 percent market share. In 2011, Hindustan National Glass & Industries announced plans to invest up to Rs 5000 crore in the next five years to set up new facilities and expand existing capacity.

- Essel Propack is the largest laminated tube-manufacturing company, holding an international market share of 32 per cent. It has 23 plants spanning 14 countries and has wholly owned subsidiaries in the UK, China, Mexico, Mauritius, USA, Cyprus, Russia, Venezuela, Colombia, Philippines, Panama and Nepal.

Allied industries, such as packaging equipment supplier like Bosch Packaging too are adding capacities to service the needs of the packaging sector. Bosch Packaging recently opened a new manufacturing facility in Goa, with an investment of Rs 34 crores, to cater to the growing needs of the packaging industry. The plant is expected to be able to produce 400 machines annually, a doubling from its current capacity.

### Global Market Overview

As per estimates by Pira International Ltd., globally, paper and paper board rigid packaging products form the largest segment of the packaging market, totaling some US$210 billion in 2010 and estimated to grow to US$250 billion by 2016. Comparatively in India paper and paper board accounts for around 10 percent of the total packaging materials.

Rigid plastic is the second largest slice of the worldwide market, at over 21 percent or US$144 billion in 2010, expanding to over US$200 billion by 2016, while the flexible packaging market will increase from US$130 billion in 2010 to over US$163 billion by 2016. The consumption of metal packaging represented over 15 percent of the 2010 market compared to less than 10 percent in the Indian context.

In global markets, metal packaging will be losing market share to competing products, especially rigid plastic, to enjoy only 14 percent of the 2016 market, while demand for glass containers is also anticipated to slow down over the medium term, increasing from some US$45 billion in 2010 to around US$53 billion by 2016.

The US was the largest user of packaging in 2010 (US$137 billion), China was second (US$80 billion), India is estimated to have a demand that grows to US$24 billion by 2017.

![Exhibit 4: Global Flexible Packaging Market – by Region](source)
Trends: India – Where Are We Now?

In a cost-sensitive market such as India, the pressure to reduce packaging costs is intense. While the demand for more sophisticated packaging is on the rise in India, with it comes additional pressures on cost for packaging suppliers. With a shifting socio-economic landscape, a move towards the consumption of more processed foods has resulted in a doubling of the growth of the food processing sector to 13.7 per cent in the past four years. There is also growing consumer awareness and government focus on going green.

The government has taken steps to promote recycling under the National Action Plan on Climate Change. Studies indicate that sustainable packaging is likely to see its greatest growth in the Asia Pacific region owing largely to the size of the food and beverage market in the region, driven in large part by India, China and Indonesia.

Consumer Awareness and Education

Consumer awareness and education is a challenge that will need to be met for the drive towards reusable packaging to be truly successful in India. Hindustan Unilever’s Go Recycle campaign that was run with Bharti Walmart India, was a first of its kind effort to get customers into the habit of recycling and reducing packaging waste. Under the scheme, consumers were offered discounts against future purchases in exchange for returning used/empty plastic bottles and pouches to Bharti stores across Delhi.

Sustainability – Small Steps, But a Long Way To Go?

Global developments in some areas of sustainability and recycling, such as green plastics are yet to enter the Indian market, an opportunity that some are likely to seize in the coming years. Packaging design as an area also lacks the due focus it deserves, according to some industry experts. An ASSOCHAM study on Domestic Green Packaging notes that while the packaging industry is growing at about 20 percent, the sustainable packaging segment is outpacing it, at 25 percent.

Food manufacturers like Dairy & Food player Mother Dairy have introduced reusable and recyclable packaging, the thermoformed tray, the use of refill packs for packaging shampoos, hand wash and other personal care products has been championed by FMCG majors like Unilever.

Hindustan Unilever as part of Project Galvanise replaced the previous three-piece plastic closure of Ponds Talcum Powder with a two-piece rotating cap. The new packaging reduced polymer material by 640 tons, and eliminated 200 tons of PVC shrink sleeve while also helping them garner an additional market share of 9 percent.

Light Weighting...An Opportunity For Smaller Players

The demand for thin walled containers in India, too, is on the rise as processed foods such as instant noodles, spreadable cheeses and ice creams are increasingly consumed. These thin walled containers are lightweight and appropriate for refrigeration. Production of thin walled containers, does not require significant investment and presents a significant opportunity for smaller players.

Cadbury India’s innovation on a new lightweight Short Neck Jar with Snap-Fit as a replacement for the old long-neck, screw cap design was well received in the market and also received recognition at the Innovation in Packaging Awards in 2012.

IT – Tapping Into Software Expertise For New Opportunities In Packaging

The AIDC industry is one of the most rapidly growing segments in packaging with huge potential for India to build on its IT strengths to capture a large share of the global market for the software, solutions and products. The segment is growing at 40 percent year on year in India.

As a key player in the supply chain for multinationals, Indian firms too are adopting RFID-Electronic Product Code (EPC) technology to allow for tracking of products as they travel through the supply chain.

Shift in demand from rigid (metal/glass) to flexible (plastic/paper/laminated) packaging

Expected shift from bulk purchases to smaller consumer packs and focus on higher levels of processing and quality amongst the urban consumers will be the key drivers to higher packaging material consumption in India. Rural income growth and rising inflation has also caused a shift towards smaller pack sizes, in flexible packaging. As such, the growth in sachet usage for personal care continues while the growth in demand for flexible packaging in foods is likely to be driven by rural demand for packaged foods like biscuits and snacks.

Reforms: Creating a Conducive Environment for Packaging Industry’s Growth?

The reforms reboot, announced by the government in September 2012, has raised the expectations of the packaging industry. The easing up of norms for multi-brand retail FDI promises to open up a whole new demand for packaging as multinational players enter the Indian market.

While the entry of multinational supermarket chains is imminent,
the existing food and beverage manufacturers are expanding their portfolio of products with custom-made for India SKUs as well as new categories that have not been available in the Indian market until now. For instance, FieldFresh Foods, Del Monte’s JV with Bharti has recently added fruit based snacks as a new category in the Indian market. As the uptake of such packaged health foods rises, so will the demand for packaging for this segment. India’s current share of the health food market in packaged food is not yet as high as global levels, promising much room for growth.

Meanwhile, limited progress on technical innovation for certain India specific categories of foods, like Indian sweetmeats or ‘mithai’ with a long shelf life, has held back bigger players from foraying into their production. As packaging research in the area evolves, so too will the product lines and in turn the demand for packaging in some new segments.

**Key Regulatory Developments and Their Impact**

**New Packaging Norms on Standard Pack Sizes**

After some delays in implementation due to opposition from the sector, the new norms on packaging set by the Consumer Affairs Ministry in India came into effect on 1st November 2012. As per this, players will have to mandatorily pack items in standard sizes only, taking away the leeway to tweak weight to accommodate rising raw material costs, without impacting prices for the consumer. Small pack sizes, vital as recruiter packs for new consumers, are exempt from the new rules.

**Food Safety And Standards (Packaging And Labeling) Regulations, 2011**

The Food Safety and Standards Authority of India proposed to make Food Safety and Standards Regulations in 2011 and came out with its guidelines regarding the same. The regulation provides clearly defined labeling requirements for all the foods packaged in India.

It gives clear guidelines on labeling a packaged food, covering things like date of manufacture and best used by, date of packaging, not for infants, etc. The law also covers the general requirements for packaging a food product and gives clear legal guidelines regarding this.

To meet new food packaging industry norms, Indian companies will need to look at technological innovation, to meet higher quality standards. While it was earlier required only to meet certain technical guidelines on material usage, the process of packaging was not under the scanner, as it will now be. This may be a challenge at first for smaller players who might need to upgrade their processes and infrastructure to meet the newer, more stringent norms of standardization. Players who are able to rise to the challenge, have a lot to gain as this presents an opportunity to improve India’s footing in the global market as well, on the perception front, as this marks a shift to quality management from quality control.

**Ban on usage of flexible plastics for tobacco products / Ban on Gutkha /Chewing tobacco**

In February 2011, the Supreme Court of India banned the usage of flexible plastics for tobacco products. This notification was aimed at clearing the impact that these millions of smaller sachet packs were having on the overall environment and also the cities’ ecological systems. Further, many states have banned the production and sale of Gutkha products altogether. This is expected to highly impact the consumption of packaging material by this sector. Consumption of Polyester Film in Pan Masala and Gutkha accounts for around 30 percent – 35 percent of the domestic demand, thus severely impacting players for whom this was a core business.

**Environmental Issues Impact on Plastic Materials**

The Indian packaging industry accounts for more than 50 percent of the plastics produced in the country. Due to the growth in packaged goods consumption, the Indian packaging industry has been under the lens of environmental agencies and regulators. This has resulted in increased legislation and regulations to minimize the environmental impact of packaging materials.

Companies especially in the flexible and rigid plastics are being targeted by the regulators as in the regulator’s view, these are seen to have the maximum impact on the environment.
The key priorities that are dominating discussions in the global packaging majors’ boardrooms are centered around the need to improve operational efficiency, expand into new growth markets such as China and India, and innovate and launch new packaging products and services. While the first measure is internally focused and the second is strategic in nature, the last priority is largely customer demand-led, and to an extent, regulation driven.

Among several trends that are taking shape, the following are the most widely recognized.

- Cut Costs: Packaging Is Expensive Though It Delivers ROI
- Focus on retaining freshness for longer period/waste reduction
- ‘Green’ packaging: Not just recycle but reuse
- Eco-friendly packaging
- Lightweighting of packaging
- Build track-&-trace elements into packaging
- Square pegs in, well, square holes: Optimal shapes help reduce logistics costs

Cut Costs: Packaging Is Expensive Though It Delivers ROI

Packaging being a critical component of cost for producers of manufactured goods, suppliers of packaging are under constant pressure to innovate to bring down overall costs. The current emphasis is on reduction of secondary packaging, lightweighting of material, through design innovations that allow for ease of shipping of larger quantities at the same costs as well as through durable and re-sealable materials. The suppliers are also expected to reduce the quantum of energy consumed in production of the packaging, and use automation during production to reduce labor costs and increase efficiency.

Reforms and Regulations

Worldwide, government reforms are pushing hard on industries to reduce cost by reducing packaging weight, Europe offers saving on packaging tax as a reward. Internationally recognized specifications, rules and requirements for the proper packaging of goods moving by motor carriers, the National Motor Freight Classification regulations to control freight cost are mandatory for all LTL shipments in USA. Even in India, medical device manufacturers have to comply by regulations of ISO 11607 and design methods of cost cutting.
**The Twin Challenge**

Larger consumers of packaging like retail giant Walmart have issued directives to their global suppliers to reduce the cost and weight of packaging. The challenge for packaging companies, is to ensure that quality and product safety/integrity is not compromised while bringing down costs, as the resultant waste would push costs up in the overall scheme of things. Since packaging is also a carrier of the brand for the company, the lower costs cannot reduce appeal to the consumer which would in turn have an adverse affect on sales.

**Technical Innovations**

Recent trends show many technical innovations to cut down the cost of packaging without compromising the performance. Reduction of cost while dealing with packaging for the hygiene sector is very challenging due to specific requirements on hygiene, safety and efficiency. Use of resins has provided an edge in this regard by finding their applications for peelable sealants. One of the biggest breakthroughs in this domain was introduction of Surlyn by DuPont which allows multiple adaptations to reduce cost. Smooth and peelable seals such as Flexiform P use Surlyn for sealed packing for food and pharma products. New package designs such as DuPont’s O斯塔sis reinforced pouch has provided a cost effective solution for requirement of sturdy packs in medical domain. These pouches have provided an alternative to high cost puncture resistant films. Also, they help avoid cost related to repeated distribution testing.

Creating pre-formed boxes has helped reduce labor cost that is needed to assemble the packaging, while pre printing boxes reduces printing costs. Automation and the use of robotics has also helped in process improvements, increased production efficiency and reduced wastage during production.

Another interesting technology gaining popularity in developing cost effective packaging is co-extrusion technology to form multilayered plastic films having high performance for food and specialty packaging. Recent advances in this area have been to produce ultra clear films such as ShielLD QE, NBP and NCB films by Amcor. This technique eliminates the use of laminations, reduces thickness of packs and at the same time provides puncture, abrasion and crack resistant packages.

Besides the direct impact on production costs, innovation on cost cutting also impacts attendant costs on logistics/transportation/storage. Pepperidge Farm Deli Flats new packaging reduces the quantum of material used by 65 percent enabling 25 percent more packages to be shipped in the same space as the original packaging, bringing down costs further.

**Focus On Retaining Freshness For Longer Period And Reduce Wastage**

For the food and pharmaceutical sectors, ensuring freshness of products (in shape, form, color, nutritional benefit), increasing shelf life and reducing waste are critical requirements. While there have been moves to use vacuum packaging, modified atmosphere packaging, controlled atmosphere packaging and skin packaging to wrap food products, the world is now adopting active packaging and smart packaging.

While active packaging plays a key role in retaining freshness through absorbing excess moisture or being antimicrobial for instance, smart packaging can track quantities of carbon dioxide and offer indicators on product quality. Smart/intelligent and active packaging is already in use in the pharma and food sectors for the role they play in informing the consumer of product freshness and in promoting a longer shelf life. Others may even be a core product feature as in the case of ScentSational Technologies’ Aroma Waters where fruit scents are infused into bottled water via the bottle cap.

In addition, there have been advancements with the emergence of transparent, evaporated and light-blocking films as well as nanocomposites. The FDA in the US has begun to monitor this evolving area closely and has issued draft guidelines on the use of nanotechnology particles in packaging. Companies will be required to first prove the safety of the material before they can go into production.

**Technical Innovations**

Modified Atmospheric Packaging (MAP) is said to have great potential to increase the shelf life of a number of perishable products including dairy, meat (both cooked as well as raw) fruit and vegetables. Because these foods get spoiled due to the development of oxidative rancidity and or the growth of microorganisms, MAP packaging holds great promise.

In the area of meat packaging, anaerobic MAP improves quality of flavor retained by the meat over aerobic packaging or high-oxygen MAP – there are no oxidized flavours, bone darkening is prevented and there is less spoilage due to the reduced growth of bacteria. FreshCase packaging has improved the look of vacuum packed meat which traditionally has had an unappetizing purple tinge to it, by the addition of a substance to the film’s contact layer. Meat packed in FreshCase is believed to last up to ten times longer than meat packaged in the store, and its visual appeal means that consumers perceive it as being fresher simply by virtue of its more natural colour. The DuPont Awards for
Packaging Innovation 2012, diamond award went to FreshCase for innovations in vacuum packaging technology for helping food maintain its freshness and nutritional value. In its award citation, Dupont says, “FreshCase enables 75 percent less mark downs/ waste than store-wrapped meats, less landfill waste and reduces packaging materials up to 75 percent, compared to other case-ready formats, thereby improving sustainability.”

Pharma products, besides retaining their freshness in terms of shelf life, also need to be stable during storage. The addition of a desiccant in the blister bottom foil sealing layer, by Amcor in their Formpack Dessiflex Plus protects each blister cavity on its own and does away with the need for separate desiccants.

‘Green’ Packaging: Not Just Recycle But Reuse

While recycling has been the mantra that both governments and manufacturers are learning to live by, reusability is an area where the packaging sector has much to offer by way of innovation. With the introduction of landfill taxation, stringent rules on waste management and landfills, the reduction of waste is a focus area for most countries – developed and developing. There is an urgent need to find ways to cut waste at the production stage, in materials and also to find ways to increase reusability of both the finished products and the raw materials that go into the creation of them.

Technical Innovation – Reusability of Packaging

THE CUBE (Packaging System) by Smart Packaging Systems is a multi-dimensional packaging solution that is ready to ship, display-ready and ready to sell, besides being reusable. The usage of this patented system eliminates the need for corrugated material, reduces quantity of shrink wrap needed and allows for easy display. The material used in its production is 100 percent paperboard lamination and uses recycled fibers as well as new fibres. The system also meets the norms set by Walmart under their ISTA Testing directive.

Eagle Flexible Packaging’s compostable, renewable pet food pouches developed in partnership with pet food manufacturer Steve’s Real Food is one such innovation. A ZIP-PAK Press-to-Close system means that consumers can open and then re-seal the pouch.

UK based retailer, Tesco introduced the Reseal-it packaging system for its strawberry packs, developed by Macfarlane Labels and Sampak. This system creates packs that are resealable as well as being tamper-proof.

The Zipbox from T.H.E.M. overcomes some of the issues with traditional reusable zip pouches – its rectangular shape allows for better stacking in transit and in stores, while retaining the ability to be reusable.

Technical Innovation – Reusability of Raw Materials

Ciclo Verde Taeq is a closed-loop system that makes use of recycled materials to manufacture high-value products. Under this system, recyclable materials from the packaging after usage are collected at Grupo Pão de Açúcar stores, from where the materials are given to a group of low income families in Brazil who then sort the material and sell it to Papirus. Papirus is a paperboard manufacturer that in turn supplies raw materials made from their own recycled cellulosic material to Taeq, thus closing the loop. As per estimates, over 600 tons of cellulosic material had gone through the recycling system and been fed back into production of new packaging.

Eco-Friendly Packaging

Consumers are highly sensitive to sustainability issues and perceived over packaging, prompting major retailers like Tesco and Walmart to gear up their supply chains and production lines to be eco-friendly and ‘green’. A report by The Freedonia Group estimates that “the world demand for green packaging is projected to rise 5.7 percent per year to US$212 billion in 2015.”

The challenge for packaging companies, is to find a middle path that balances the various dimensions of being eco-friendly. Biodegradable packaging, optimal sizes that reduce transport volumes, and packaging that does not consume huge quantities of energy in its production are multiple goals that need to be balanced. The Danish EPA quotes an instance of cat food in plastic jars that lowered emissions from transportation because of the lower space occupied by these jars compared to traditional cans. However, biodegradability was an issue.

The emergence of eco-friendly focused packaging companies is another trend with players like Green Earth Packaging, Be Green, Green Packaging Inc and Vegware, to name a few.

Technical Innovation

Certain classes of packaging are an obvious choice, such as corrugated boards – materials that are biodegradable and have a low carbon footprint. Consequently, several companies are investing in this material, through M&A by acquiring companies with production capabilities in this area or by broadening their own product range through addition of new capacities. One such innovation in corrugated boards is Interstate Container’s GREENCOAT wax-replacement corrugated boxes are completely recyclable and repulpable with the added advantage of offering potential cost savings over wax boxes.

National Flexible’s Chalk-based film for thermoforming is being hailed as an eco friendly alternative to oil polymer based films, and can be laminate replacement for flow-wrap, form-fill-seal or
Thermoform applications. Their SuperEco laminate film was used by Infinity Foods for their pre-packed health foods – the package itself was oxy-degradable. The sealing layer helps keep foods fresh just like standard films, except that post use, it can break down into biomass, carbon dioxide and water.

Eagle Flexible Packaging’s pet food pack uses water based printing inks that are more environmentally friendly than solvent based inks. ThermoPod that produces cold chain packaging, now offers biodegradable/recyclable temperature-controlled shipping containers. FreshCase, an innovation primarily for retaining freshness of the food, results in less landfill waste and reduced consumption of packaging materials.

As an alternative to metallized films, foil laminated papers and foil, which are not always easy to recycle, compostable metallized packaging has entered the market. Vacumet Corp. launched 100-percent compostable metallized papers. AirOPack is another patented technology to dispense fluids and creams using a patented pressure control device that makes use of air instead of conventional hydrocarbon chemical propellants.

Large food and beverage companies too are making the shift to eco-friendly packaging - Coca Cola has a vision to sell all beverages in sustainable packaging by 2020, starting with the recyclable PET plastic bottle launched in 2009; Heinz has followed suit with a similar initiative for their 20 oz bottles of ketchup; UK based Innocent Ltd., uses a 100 percent RPET bottle for its Ribena fruit drinks.

As is the case with reusable packaging, Eco-friendly packaging initiatives need to be backed by the industry and owners of the brands. Walmart’s Packaging Scorecard lists the 7 Rs of sustainable packaging – Remove, Reduce, Reuse, Recycle, Renew, Revenue, and Read; a clear signal to their global suppliers to get with the eco-friendly program. The Walmart Sustainable Packaging Value Network, brought together representatives from the global packaging industry, government, NGOs, academia and industry.

Energy Conservation

Energy conservation has an attendant benefit of helping cut costs for the packaging sector and has resulted in innovations in some feeder industries as well. Schneider Packaging Equipment Co’s Sustainability Measurement Option, allows tracking of energy consumption and equipment performance which means companies can now track their carbon footprint more precisely. Replacing virgin content with recycled material helps reduce energy consumption besides waste reduction. Interestingly, the current demand for recycled materials outpaces the supply of it, thus limiting the extent to which substitution can be done – until such time as more closed loop systems like Ciclo Verde Taeq or recycling efforts in general scale up from the consumer side.

Lightweighting Of Packaging

Environmental legislation requires manufacturers to reduce the quantity of packaging through use of reduced quantities of material and light weighting. Light weight corrugated containerboard is a significant development in paper and board packaging. Europe has seen a high uptake of this new material, while in North America the trend is slower. Overall however, the average weight of packaging is expected to go up as regions like China that have become increasingly large users of packaging, tend to still use heavier weight packaging.

Technical Innovation

Light weighting trend is an outcome of the focus on sustainability and a need to reduce costs and material and energy usage. Light weighting of packaging directly impacts shipping costs which are critical for certain sectors such as beverages. As such, companies like Coca Cola are constantly innovating on their packaging to create lightweight and more sustainable packaging - in 2010 they saved US$90 million by reducing packaging waste.

Recycling body WRAP is working with international wine sector players to promote the development of lightweight glass containers that can reduce waste.

Swedish company Ecolean says that their packages weigh about 50-60 percent less than a regular liquid food cartons and bottles, the plastic in a 1 litre Ecolean Air package is said to weigh just 10 grams.

Weight Watchers Smart Ones Environmentally Friendly Trays are CPET microwavable trays for frozen foods, that reduce weight by 15 percent and plastic consumed by 40 percent.

Nestlé scientists have developed PLOC (Packaging Low Weight Ovoid Container), a one-piece packaging concept. This led to the development of special light weight pouches for Nestlé Chilled Dairy products. As per Nestlé estimates, “the new pouches weigh less than half of regular pouches, and being made of PET they can be recycled.”

Build Track-&-Trace Elements Into Packaging

A powerful tool against counterfeiting, track and trace elements have come into focus to prevent rampant counterfeiting, particularly in sensitive sectors such as pharmaceuticals. European borders have seen a sharp rise in the number of confiscated counterfeit medicines in recent times, prompting the need for such tracking systems.
Technical Innovation

Bosch Packaging developed a Track and Trace system for pharmaceutical companies, where a unique identifying code is printed on each product post packaging, so each item is traceable through the supply chain. Bosch Packaging say on their website that, “The CPS printer and camera module is designed to minimize impact on overall production output. It maintains a consistently high Overall Equipment Effectiveness (OEE) as it is designed to minimize impact on overall production output, and the solution can be perfectly integrated into the overall system, which results in unrivaled print quality and reliability but still maintains speed and the flexibility to handle different product formats.”

The Mettler Toledo PCE (Pharmacontrol Electronic GmbH) Datamatrix Station DMS XMV Marking and Verification system is another such complete serialization solution that also offers a lot of flexibility.

Also in use are holograms, color-shifting inks and covert markings.

Square Pegs In, Well, Square Holes: Optimal Shapes Help Reduce Logistics Costs

Well designed packaging can increase the quantity of products that can be shipped per truck, eliminate void and reduce transport costs overall, plus reduce emissions from transport. In terms of storage as well, the space needed to stock goods significantly reduces.

Technical Innovation

Minimizing or modifying tertiary packaging while retaining modularity is critical in reducing transport costs. One way this is achieved is by replacement of one-time-use cardboard boxes in tertiary packaging with reusable containers.

Ice cream manufacturer Weis, in Australia, did away with secondary packaging by making the inner wrapper the primary packing. In addition, film thickness was also reduced, as per reports from The Australian Packaging Covenant. Capilano Honey substituted round glass jars with PET and pail packs to improve space utilization in cartons.

Innovation in shape/design

Cube shaped containers are gaining popularity for their ease of stacking in transit and warehouses, and also for the minimizing/eliminating void. The STI Group’s cube-shaped corrugated package for detergent is supplied flat instead of as a round container drum, thereby reducing the volume of packaging to be transported and stored by 80 percent. When empty, Swedish company Ecolean’s packages lie flat like an envelope occupying very little space, and reducing transport and storage costs.
There has been tremendous growth in the packaging industry over the last few decades. While several technical innovations have happened in the field of containers, labels, conveying filamentary material, machines/apparatuses, transport and so on, packaging technology needs to match the increasing demand of more sophisticated, safe, convenient and environmentally friendly packaging. This requires major technology evolutions in the field of packaging containers.

The innovators and inventors are seized of this need. To understand the R&D activity and filings, we studied approximately 92,000 patents filed since 2007 in the domain of packaging containers. We looked at patents filed between 2007-2012 and classified under International Patent Classification of ‘Packaging Containers’ (B65D) and excluded patents classified for closures and accessories in packaging containers. In addition, we looked at insights related to consumer industries based on IPC sub classes under B65D/85, for articles to be packaged.

During 2008-09, the filing activity declined owing to global financial crisis and depressed market conditions, as companies were forced to re-examine their patent management strategies. The trend showed a marginal increase in the year 2010 before dipping in 2011 and October 2012. It must be noted here that data for 2011 and 2012 may not be comprehensive as all the patents filed after 2010 are not available in the public domain. In other words, the figures may look completely different if patents are reported.

Geographical Distribution

When it comes to the geographical distribution of patents filed for packaging containers, Asian countries like Japan, China, and Korea along with US and Europe have led the march, with Japan topping the league table with China and US following closely in 2007.
By 2010 however, the scenario changed with China taking a significant lead over US and Japan. Several factors led to this role reversal. Significant investments by both multinationals and Chinese manufacturers and demand-led R&D created this spurt in filings. Additionally, remarkable growth in consumer and cosmetic industries including food, pharmaceuticals, retail and beverages aided this growth. We believe innovations and filings from Japan will be lower in the next few years as the Japanese economy battles a slowing economy, falling demand while simultaneously dealing with the impact of the 2011 earthquake.

Top Patent Filers

While Japan as a whole might seem to be losing steam in the patent filing for packaging containers space, top filers are dominated by Japanese majors including Yoshino Kogyosho Co Ltd, Dainippon Printing Co Ltd, and Toppan Printing Co Ltd. Others in the list come from food and FMCG sector such as Proctor & Gamble, Unilever, Kraft Foods, Nestle and the like.

We see a clear shift in the direction of innovation, as the key players are working on eco-friendly, universal and user-friendly packaging material.

Interestingly, the key filers are not averse to collaborating among themselves. For instance, Dainippon Printing has collaborated with Kraft foods and Toppan Printing with Nestle. However, we see very little collaboration of top players with any research organizations.

With the increasing demand for flexible packaging driven by safe, single, resealable and reusable packaging in food sector and more sophisticated and hygienic requirements of medical sector the flexible packaging material segment is expected to show better IP trends in recent years. Requirements of other consumer segments for rigid & semi-rigid packaging and growing needs for universal and reusable packaging will drive more innovations in the rigid/semi-rigid segment also.

Filing Trends

We examined key global filers in both rigid/semi-rigid packaging and in flexible packaging space during 2007- October 2012.
Rigid/Semi-rigid Packaging

Key players in the field of rigid packaging material include the three Japanese companies that are also overall top filers for the containers domain with Yoshino Kogyosho Co Ltd as the largest filer. Surprisingly, not many innovations in the materials are filed by the leading food and FMCG players. This is perhaps because their R&D is focused for designs and structures for packaging and not specifically for materials.

Only one research institute figures among the top 20 filers in this space. Only two percent of the total inventions in rigid material domain are contributed by research organizations.

While very little collaboration is seen with research institutes, there is much collaboration among the corporates. The top filer Yoshino Kogyosho Co Ltd has co-owned inventions with Procter & Gamble, Coca Cola, Kao Corp to name a few. Dainippon Printing and Toppan Printing co-own their innovations with many food and FMCG giants. House Foods for instance co-owns inventions with both Dainippon Printing and Toppan Printing.

Interestingly, these top players are actively involved in providing packaging for electronic components. Innovations in paper, plastic and composite materials to provide better barrier functions and also considering environment friendly aspect are key areas considered by these leaders.

Flexible Packaging Material

Japanese companies are top filers for the flexible materials. Dainippon Printing Co Ltd is the top filer closely followed by Toppan Printing Co Ltd. Toyo Seikan Kaisha which has total filings that are just one-third of the filings from Yoshino Kogyosho Co Ltd, is among the top three players. It has almost 38 percent percent of its total filings in packaging material for flexible materials.

Again, corporations seem happy collaborating with each other, while research institutes remain isolated. Dainippon, the top player in this segment has co-owned patents with food companies like Nissin Food, House Foods, Morinaga Milk, etc. Toppan Printing has
include manufacturing, electrical, tobacco, specifically cigarette/cigar packaging, chemicals, etc.

Only two consumer industries, food and manufacturing have recorded an increase in filings for packaging inventions during 2007-10. The compound annual growth rate (CAGR) for filings in the food packaging industry and the manufacturing industry has been 2.6 percent and 3.5 percent, respectively. Surprisingly, despite innovations happening in flexible films and increased health awareness, the patent filings in the health and personal care industry declined 12 percent. On the other hand, filings in the tobacco sector dropped by 8.5 percent largely due to environmental clampdowns and health concerns.

### Sectoral Breakdown of Filing Trends

Major consumer industries using packaging materials/containers include food, healthcare, personal care. Other important industries include manufacturing, electrical, tobacco, specifically cigarette/cigar packaging, chemicals, etc.

Only two consumer industries, food and manufacturing have recorded an increase in filings for packaging inventions during 2007-10. The compound annual growth rate (CAGR) for filings in the food packaging industry and the manufacturing industry has been 2.6 percent and 3.5 percent, respectively. Surprisingly, despite innovations happening in flexible films and increased health awareness, the patent filings in the health and personal care industry declined 12 percent. On the other hand, filings in the tobacco sector dropped by 8.5 percent largely due to environmental clampdowns and health concerns.

### Exhibit 12: Overview – Innovations in Rigid Packaging Material

<table>
<thead>
<tr>
<th>Rigid or Semi-Rigid</th>
<th>Flexible</th>
<th>Singly Owned</th>
<th>Co-owned</th>
</tr>
</thead>
<tbody>
<tr>
<td>62%</td>
<td>25%</td>
<td>9%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Source: Thomson Innovation

co-owned patents with food companies like Nestle, DSM and also other players in chemical domain like Takeda Chemical, Kureha Chem. Toppan’s technologies in flexible materials like GX and GL films provide highest standards for moisture barrier films.

If we look at the ownership of patents, about 62 percent of rigid and semi-rigid packaging material and approximately 25 percent flexible packaging patents are singly owned by corporations. In other words, about 13 percent of all patents filed in the packaging material space, are co-owned by two or more entities.

### Exhibit 13: Growth Rate – Consumer Industries

![Graph showing growth rate of consumer industries from 2007 to 2012.](image)

Source: Thomson Innovation

### Exhibit 14: Filing Trend - Innovations in Food Packaging

![Graph showing filing trend in food packaging from 2007 to 2012.](image)

Source: Thomson Innovation
Filings in Food Packaging

An overview of the food industry shows edible liquids and semi-liquids segment is the most growing segment. Interestingly, it does not show any dip in the number of filings even during the recession hit period (2008-09). The number of filings for this segment has been consistently increasing. Even the recent year’s filings (2011) indicate strong growth since 2007. Similarly, packaging for fruits, eggs and bakery has been growing since 2007. Filings in sweets and confectionary segment slightly declined in 2008-09, but recorded maximum filings in 2010 in the six years. Milk packaging is facing a constant decline in number of filings since 2007.

Filings in Other Consumer Industries

Among other industry sectors only manufacturing and dangerous chemicals sectors have noticed consistent increase in the number of filings over the last six years. For other industries including electrical, electronics and tobacco, the number of filings has decreased in

Exhibit 16: Filing Trend - Innovations in Packaging for Other Consumer Industries

Source: Thomson Innovation
M&A Volumes Picking Up Pace

For this report, we have sourced information from ThomsonReuter's to understand deals and the dynamics. We found that the total number of completed deals in the global packaging industry averaged close to 93 during the last five years (2007-11). Till September 2012, 98 deals including both completed and pending deals were announced. After a slowdown during 2008-09 period,

Exhibit 17: Packaging Industry - Global M&A Activity

recent years. The electrical and electronics industries were largely hit by the 2008 dip leading to decreasing innovations in packaging for this domain. Similarly, a combined effect of recession and growing awareness is seen in the tobacco industry. We see an interesting trend in the textile industry which recorded maximum number of filings in the year 2009, but the number of filings has declined since then.

After a relatively quiet first half of 2012, the global mergers and acquisitions (M&A) activity in the packaging sector seems to be gathering pace. Standard & Poor's has rated the US packaging industry as "mostly stable," stating that companies in the industry have improved their operating performance since 2010 and are in their healthiest condition in several years. Packaging companies have been posting stellar revenues and operating margins.

While expanding capacities and product portfolios, access to new markets and customers and gaining critical technology edge, have been the core factors that are driving M&A activity in the packaging sector, they are helped in no small measure by improving global sentiments and trends. With US and European countries inching towards stability, the consumption-led economies such as India and China present compelling markets. In addition, large players are divesting non-core businesses to focus on developing vertical integration and economies of scale. Mid-sized packaging companies are attractive targets now.
deal-making both in terms of number and value has picked up and is expected to continue. About 18 percent of deals have happened in the US. Thirteen or close to 72 percent of the deals in the US involved domestic companies, signifying market consolidation within the US packaging industry. China, Germany US and UK together represent nearly 40 percent of all M&A deals in the packaging industry during the period.

Trends and Drivers in M&A in Global Packaging Industry

Consolidation by the Top Players

According to a 2011 analysis by Blaige & Company, more than half of the packaging sector’s top 50 companies as of 2001, have undergone elimination or a change in the ownership. Additionally, on average, 20 percent of surviving companies have used M&A as a strategy, raising the total percentage of companies substantially involved in M&A activity to about 70 percent over the past decade. That signifies hectic activity in the sector over the past decade and the effects are evident. In the glass bottle segment for instance, from a highly fragmented industry in the 1980s, the industry now constitutes three major global players controlling nearly 90 percent of the industry. Top players have been consolidating the industry through aggressive acquisitions and divestitures.

Indeed, in a survey of 279 leading global packaging industry executives, the research firm Canadean reported that the executives expect increased levels of consolidation, with 55 percent of respondents anticipating that there will be either a ‘significant increase’ or an ‘increase’ in merger and acquisition (M&A) activities over the next 12 months. The deal rationales seem to be straightforward. Large packaging companies are seeking small and specialized companies to strengthen their core competencies, reduce costs, and resist competition with their enriched product mix. The respondents also mentioned that the higher expected levels of consolidation in the global packaging industry may also come in due to new cost or demand pressures, repayment of debts, the potential need to meet new compliance procedures, or gain quick access to new markets, business expansion, and attempts to increase market share.

And this trend is likely to continue in other relatively more fragmented segments such as plastics and fiber packaging.

Flexible Packaging Dominates

The approximately $670 billion global packaging industry is fragmented and is overcrowded with small players. This fragmented structure of the industry lends itself to higher merger and acquisition activity. Despite the pace of consolidation in the global packaging industry accelerating over the last few years through mergers and acquisitions, the market remains fragmented, especially in the flexible packaging industry. And it is this sector of the industry that sees the most activity in mergers and acquisitions.

In 2011, the flexible packaging industry had four top players accounting for 34 percent of the market share. Within this sector, deal volume is dominated by the plastic and fiber-based packaging which accounted for 63 percent of the deals during the 2006-2012 period. In 2011, plastic packaging alone accounted for 50 percent of the deals.
Increased Mid-Market Activity

Mid-market packaging manufacturers are saddled with many challenges such as high raw material prices and tightening environmental regulatory environment. Moreover, the cost advantage that larger players have due to economies of scale as well as off shore low cost production plants makes it very difficult for the mid-market manufacturers to survive. Another driver for this trend is its attractiveness for private equity (PE) investment, especially in a tight credit environment.

Valuations Increase

Since 2009, there has been a steady increase in EBITDA multiples paid by financial sponsors for packaging companies. The valuations in 2012 were consistent with 2011, but improved compared to 2009 and 2010. Businesses are healthier in this sector due to the non-cyclical nature of the business and the diverse use of products. As a result, investors are attracted to the sector’s resilience to economic scenario and are vying to acquire healthy companies, which in turn, is driving up the valuations.

Search for New Technologies and Patent Protection

Increased number of players and higher fragmentation ensures that there is stiff competition in the packaging industry. Innovation is key, in food and beverages packaging as well as for pharmaceutical packaging, making IP especially important here. On the other hand, there are also potential risks with high M&A in segments that are sensitive with patented technologies being differentiators. Cross border M&A is seeing IP coming into play, particularly in the sustainable packaging area. US targets have thus become very attractive to international players seeking to gain control of their patented technologies and technical knowhow.

Major Transactions in 2012 by Segment

Flexible

- Australia-based Amcor Ltd. agreed to acquire Aperio Group Pty Limited for approximately AUD238.0 mn. Aperio manufactures flexible food, beverage and industrial packaging.
- An investor group led by Germany-based PINOVA Capital GmbH acquired an undisclosed majority interest in CLARUS Films GmbH, a company that manufactures plastic film packaging products for the food market.

Search for High Growth Regions

With the emergence of a truly global economy and increasing global trading, a global strategy is increasingly a core trend among the large players. Apart from being high-growth regions, low cost destinations like the BRIC nations also offer the cost advantage. A recent example is Amcor’s acquisition of a specialist packaging plant in Mexico for $40 million. Myers Industries purchase of Plásticos Novel SA of Brazil is another such case.
India: Amcor Ltd acquired Uniglobe Packaging Pvt Ltd, a Daman-based provider of flexible packaging services for USD21 mn. India-based Uniglobe manufactures flexible packaging products for the food, personal care and healthcare markets.

Rigid

- Michigan-based Dart Container agreed to acquire Solo Cup Co. for approximately US$1.0 billion from Vestar Capital Partners Inc. Illinois-based Solo Cup manufactures disposable packaging for the consumer and foodservice markets and has revenues of approximately $1.6 billion.
- Finland-based Huhtamäki Oyj agreed to acquire Josco (Holdings) Limited for approximately US$88.4 million. Hong Kong-based Josco manufactures paper and plastic disposable packaging products for the foodservice market.
- Michigan-based TriMas Corporation acquired a 70 percent stake in Arminak & Associates, Inc. for approximately US$64 million. California-based Arminak manufactures foamers, pumps, spray bottles and other packaging products for the personal care and household product markets.
- Chile-based Coca-Cola Embonor SA acquired a 50 percent stake in Envases CMF SA for approximately CLP13.1 billion (US$27.1 million). Envases manufactures plastic bottles for the beverage market.
- Ring Container Technologies, Inc. agreed to acquire the blow-moulded plastic bottle business of BWAY Corporation that had revenues of approximately $21.0 mn
- New York-based Lindsay Goldberg LLC acquired Germany-based Weener Plastik AG that manufactures plastic packaging products for the food, household, chemical and pharmaceutical markets.

Paper

- UK-based DS Smith plc agreed to acquire the packaging division of Svenska Cellulosa AB (SCA Packaging) for approximately €1.6 billion (US$2.0 billion). This transaction represents an enterprise value of approximately 6.3 times EBITDA. Sweden-based SCA Packaging manufactures recycled packaging cartons for consumer products. With this deal, DS Smith becomes a major European player and expects to achieve cost efficiencies of €75m by 2015.
- Japan-based Daio Paper Corp acquired an additional 35.7 percent stake in Kyushu Daio Paper Package Co Ltd. for approximately ¥1.1 billion (US$13.8 million). Daio’s stake now stands at 48.6 percent in Kyushu, a company that manufactures corrugated and solid paperboards and boxes.

Metal

- Luxembourg-based Ardagh Group acquired Boxal Group for approximately €685 million (US$111.0 million) from Exal Holdings BV. France-based Boxal Group manufactures aluminum aerosol cans and containers for the food and beverage, cosmetics and pharmaceutical markets. Boxal Group has an annual capacity of 900 million containers.
- Australia-based ESK Holdings Pty Ltd. agreed to acquire a 49.1 percent stake in National Can Industries Ltd. for approximately AUD60.3 million (US$63.2 million). Australia-based National Can manufactures metal and plastic packaging products for the paint, chemical, aerosol, industrial and food packaging markets.

Glass

- Ardagh Group acquired Leone Industries; a New Jersey-based Leone manufactures glass containers for the food and beverage market. Leone produces approximately 500 million containers annually.
- Japan-based Nipro Corporation acquired MGlas AG for approximately €25.9 million (US$34.2 million). Germany-based MGlas manufactures glass vials, ampoules and other packaging products for the pharmaceutical market.

M&A: India

- India accounts for about 2-3 percent of the global market. It has about 40 large players that dominate the industry accounting for 70 per cent of the total market and nearly 5 lakh small and medium enterprises.
- During the period 2007 till September 2012, 25 deals have been announced involving Indian packaging companies. All these deals barring one involved plastic based packaging firms. Of these, four deals involved foreign companies from the US, Germany, Australia and Malaysia. Some major deals above the value of $10 million include:
  - Treofan Germany GmbH & Co KG acquired Max Speciality Films division of Max India Ltd, a New Delhi-based provider of insurance, health and allied services, for INR 5.4 bil (USD 97.405mil).
  - Amcor Ltd of Australia acquired Uniglobe Packaging Pvt Ltd, a Daman-based provider of packaging services, for INR 1.048 bil (USD 20.737 mil).
• India Agri Business Fund Ltd, a unit of Cooperatieve Centrale Raiffeisen-Boerenleenbank BA’s Rabo Equity Advisors Pvt Ltd subsidiary, acquired a 23.92 percent stake in Vacmet India Ltd, an Agra-based manufacturer of packaging materials, for INR 519.751 mil (USD 11 mil).

• Morgan Stanley acquired a 5.07% stake or 1.41 mil new ordinary shares, in Ess Dee Aluminum Ltd, an aluminum foil manufacturer, for 575 Indian rupees ($14.292 US) per share or a total value of 810.75 mil rupees ($20.152 mil), in a privately negotiated transaction.

• Essel Propack Ltd acquired the entire share capital of Packaging India Pvt Ltd, a packaging materials manufacturer, for 1bil Indian rupees ($21.604 mil US).

During the same period, two Indian companies acquired foreign companies in Romania, UK and Belgium.

• Time Technoplast Ltd in 2010 acquired a chemical production facility of Romanian company Solutia.

• Neo Corp International Ltd in 2008 acquired Europlast Ltd, a UK-based manufacturer of plastic packaging products.
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