

EXIM BANK : RESEARCH BRIEF

Packaging Sector – Potential and Way Forward



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The Indian packaging sector is among the industrial sectors witnessing highest growth potential, partly due to the presence of packaging in almost every industrial segment, and largely due to globalisation of trade in goods and services and emergence of new trade models, such as E-commerce and organised retailing. Indian packaging industry is becoming a preferred hub for global packaging industry. Despite limited activity in the packaging space in India, historically, last decade has witnessed Indian packaging industry emerging as an attractive investment avenue, largely in the flexible packaging segment. Predominantly an unorganised set up, the flexible packaging industry has undergone a certain degree of consolidation in the recent years, due to the acquisitions and mergers, which has brought in the much-needed investments in the industry in technology, scale and skill development. However, the other main segments of the packaging industry, such as folding cartons, corrugated cartons, and rigid packaging continue to be dominated by domestic players, who, though have built leadership positions in the respective sub-segments in terms of products or end markets served, have limited access to technology and reach to match with the global standards, and to position themselves internationally competitive. Increasing organized retail and the boom in E-Commerce, in the recent years, are emerging as a major growth driver for the Indian packaging industry. It is thus, for the industry to leverage the considerable opportunities being provided in this space and emerge as a significant global player in the sector. Strengthening their capabilities in terms of technology, efficiency and competitiveness will be crucial going forward.

Indian Packaging Industry

India is a net exporter of packaging materials¹. The export of packaging materials from India was estimated at US\$ 843.8 million in 2018-19, witnessing a growth of 14.1% from the estimated value of US\$ 737.4 million in the previous year. However, the share of India's exports in the global export of packaging materials remained low at 1.4% in 2018. With a share of 19.2% in the total export of packaging materials from India, in 2018, the USA remains the major export destination for the Indian packaging industry. Other major export destinations include the UK (8.3%), the UAE (5.2%), the Netherlands (3.8%) and Germany (3%). Though with a low share in total global exports, India has emerged as clear market leader in a few sub-segments of packaging, such as the Flexible Intermediate Bulk Container (FIBC) and Biaxially-oriented polyethylene terephthalate (BOPET) films. India is the second largest exporter, after China, in the FIBC segment and exports FIBC to 114 countries. Three large Indian BOPET film companies are among the top 10 global players in the industry and are market leaders in their respective BOPET sub-segments.

The industry is broadly divided into two categories viz, rigid packaging and flexible packaging. Recent years have seen a significant rise in demand for flexible packaging material driven by demands in food and beverages industries, personal care and hygiene, and pharmaceuticals. The three end-user segments are the key users of packaging in India and globally, with food and beverages sector being the largest user.

The per capita packaging consumption in India, in terms of volume, is significantly

low at 10.5 kg, compared to countries, such as the USA (109 kg), Europe (65 kg), China (45 kg), Germany (42 kg), Brazil (32kg) and Taiwan (19kg). This low consumption level indicates the untapped potential in the Indian packaging sector.

Global Packaging Industry

The global packaging market was estimated at US\$ 876 billion in 2018², registering a y-o-y growth of 2.9% over 2017 (US\$ 851 billion) at constant prices, including US\$ 61.04 billion for industrial packaging. Geographically, emerging economies, such as India, Indonesia and China, in that order, has been the drivers of growth for industrial packaging, both in the Asia-Pacific region, and globally³. The global packaging industry is projected to grow at a CAGR of 2.9% during the period 2018-2022. The packaging industry in the Asian region is projected to register a CAGR of 5.2% over the period 2018-2023, which is the highest among all the regions, globally. The developed economies are expected to grow at a rate of around 1 %, however, these economies are projected to grow from their high base value as compared to developing economies, adding big numbers in absolute value terms and volume.

Among the four dominant materials i.e., glass, paper, plastic, and wood, used in the packaging industry worldwide, plastic material is the largest exported packaging material. Average exports of the dominant four packaging materials, during 2014-2018, was estimated at US\$ 88.8 billion. Average global exports of plastic material for packaging during 2014-2018 was estimated at US\$ 52.3 billion. Globally, China was the largest exporter of plastic material for packaging, and the US was the largest importer.

¹ The packaging materials includes HS 392310, HS 392321, HS 392329, HS 392330, HS 392350, HS 392390 as per composition of packaging materials by DGCIS and further use of the word will be applicable for the mentioned HS codes

² Smithers- PIRA Report

³ Mordor intelligence industry-reports on industrial-packaging-market

Regulatory Frameworks in Packaging

The trade policy and regulatory framework for the packaging industry differs among the countries, and plays a crucial role in the trade and development of the packaging industry. The food packaging regulations are enforced by the Food and Drug Administration (FDA) in the US. Food, Drug and Cosmetic Act 1958 enforced by the FDA is the basic regulation for Food Contact Materials (FCM). There is a coexistence of national legislation and community level legislation in the European region for food packaging and FCM. The EU Framework Regulation EC 1935/2004 is used for regulating the food contact materials at the Union level. The standards and technical regulation with respect to food packaging, for GCC nations, comes under the purview of GCC Standardization Organization (GSO).

The food packaging and labelling requirements in India are notified by the Food Safety and Standards Authority of India (FSSAI) under the Food Safety and Standards (Packaging) Regulations 2018 that stipulates the conditions for the use of FCMs in food packaging in India.

Challenges

The packaging industry is constantly faced by various challenges in terms of cost, design, knowledge, regulations and environment. The changing economic conditions and taste and preferences of the consumer also possesses a challenge for the packaging industry to stay relevant in the dynamic environment.

Technological Challenges

Packaging, being dominated mostly by the unorganized sector, for the small players in India, automation and technology upgradation, is often faced by the challenges, such as inadequate knowhow, skillset for adaptation and implementation, and investments. Technology challenges in the Indian packaging industry are also predominant in use and adaptation of material in packaging. In the absence of adequate research, health safety of new packaging technologies also poses considerable challenge for the industry in its development and further implementation.

Innovation and Raw Materials

Cost of raw materials have been significantly impacting the Indian packaging industry across most segments

and is putting profitability of the Indian packaging industry under pressure. The net margins in the packaging industry has been declining on account of the rising raw materials cost and depreciation cost. Increase in cost of packaging have a substantial impact on the cost of the end product, subsequently impacting the demand of the product.

Availability of Skilled Manpower

Availability of skilled manpower has been a continuous challenge for the labour intensive packaging industry. As per the industry sources, more than 35000 packaging experts are required currently for the Indian packaging industry, while only 1.5% of the demand is produced each year in the country. The lack of skilled manpower is often also observed at the top management positions in the industry largely due to the dearth of skilled packaging professionals.

Flow of Credit

Availability of institutional finance has been a major challenge for the MSMEs engaged in packaging sector. Timely credit is required for meeting the working capital requirements as well as for innovation and technology upgradation. It is more crucial for the MSME sector, to maintain raw materials base and inventory.

Packaging Machinery Sector

In order to keep pace with the rapid changes in technology in packaging, imported machineries dominates the Indian packaging sector predominantly among the large players. Packaging manufacturers in the MSMEs find it difficult to keep up with the changes mainly due to limited professional knowhow in the sector and costs involved in upgradation. Lack of competitive advanced packaging machinery produced within India is considered as a challenge for small manufacturers in the industry. The absence of indigenous availability of advanced packaging machineries has often exposed the MSME manufacturers to depend on imports of low cost sub-standard machineries resulting in low performance and frequent breakdowns. After sales services and maintenance have also emerged as limiting factors in the absence of adequate skill set. Packaging industry as a user of machine tools in India has been insignificant. Majority of the players in the machinery sector has a comparative disadvantage with respect

to both product and process technologies, and are unable to produce high quality products due to limited availability of supporting process technologies, such as precision measuring, material engineering and process control.

Research and Development

Indian packaging sector is challenged by limited indigenous R&D capability for design innovation, low research productivity, high capital investment requirement, and marketing and after sales service. Firm level innovation in India has been considerably low. The R&D spending by the industry has been low at around 0.36%⁴ of sales. Total trademarks filed in India pertaining to the packaging Industry are also low at 1.28% out of the total trademarks filed⁵. Packaging as a subject has never been into mainstream education and applied research has been mostly confined to industries having packaging as part of their operations, hence, leaving gaps and delays in solutions in the supply chain needs, related to the packaging industry.

Packaging Design and Right Packaging

With rapid changes in commerce, demography, environmental concerns and consumer preferences, packaging design companies are also under constant pressure to consistently re-innovate to suit the requirements. In India, packaging design innovation, measured in terms of intelligent and smart packaging, as a percentage of total packaging is considerably low and is mostly concentrated in export product packaging. Particularly for food, packaging innovations, even for exports, have been primarily focused on packaging of primary processed products.

Certification Multiplicity and Complexities

International certifications in packaging industry. Besides being complex and tedious, multiple certification processes for packaging are also cost intensive. Different operations have different procedure of evaluation, hence, there are no 'standard templates' or 'one fit for all' process for the operators or manufacturers. Cost and compliance requirement have often been inhibitive for small operators for certifications. India's domestic packaging certification infrastructure is at a much nascent stage, and restricted to mostly bulk cargo packaging for hazardous products.

⁴ R&D spending as percentage of sales of 9 listed companies

⁵ Class 39 of the trademarks is taken which is for Transport, Packaging and storage of goods; travel Arrangement for the latest available year 2017-18

Food Safety Regulations in Packaging

Safety regulations in food packaging worldwide is a complex system involving global authorities, country specific authorities and applicability of multiple laws. The food packaging laws are often stringent and are subject to frequent revisions, modifications and amendments with shifts in preferences, dynamism in food supply chain, implementation of new technologies, outbreaks of diseases and implications in trade. The multiplicity and stringency of the laws, frequent changes in specifications, and resultant compliance remains the another dominant challenge for the food packaging manufacturers, particularly for the MSMEs.

Environmental Concerns

Packaging processes has a direct and indirect impact on the environment. Wastes from plastic packaging has been lately under the scanner, due to the multiple challenges it presents in terms of recovery due to the composition, and diversity of the plastics used, and the fact that the mixed wastes are often contaminated. A complete elimination, however, of plastic from packaging industry may not be feasible as it may impose considerable direct and indirect impact on the packaging sector, especially on employment. Alternatives to plastic packaging, such as recycling and biodegradables have been emerging as probable solutions to addressing the plastic waste management. Adequate and effective labelling of bioplastics for classified disposal has also been a challenge.

Policy Framework

India's policy of import-substitution helped India achieve self-reliance in technologies for domestic production and consumption; however, the country could not adequately build capacities to create internationally competitive technologies to produce for the international markets, and also efficiently upgrade to advance technologies for the domestic market. As a result, there is a considerable lag and gap in acquiring export competitiveness across industries, including the packaging industry. Although Indian organizations are served by a network of national laboratories and institutional infrastructure, the quality is relatively poor when compared to those in the industrialized countries – putting India at a comparative disadvantage.

Way Forward

The Indian packaging industry is expected to reach US\$ 72.6 billion by FY20, growing at a CAGR of 18% during 2016-21⁶. The food packaging industry is expected to reach around US\$ 55 billion by 2020. Currently, urban regions account for 80% of the packaged food in India. With rising urbanization, growing largest pool of young and middle to high income population, the industry is slated to undergo a transition from loose to packaged, processed food and beverage products in the next five years. This trend is projected to aid the growing consumption of packaged food and beverages even in semi-urban and rural areas in the country, while opening up of new avenues for packaging development and trade. Store retailing, which constitute largely of food products is projected to grow at a CAGR of 10.5%, (2013-2023) to reach US\$ 984 billion by 2023⁷, indicating inroads of packaged products in the semi-urban and rural regions.

E-commerce in India is projected to grow rapidly at a CAGR of 27% from 2017 to 2026 to reach US\$ 200 billion by 2026. Currently, India's share in the overall parcel shipments (transit packaging) worldwide is less than 1%⁸. With steep growth of e-commerce and e-retailing globally and in India, transit packaging and omni-channel packaging are emerging as the most potential segments where Indian packaging industry have considerable scope of expansion.

Procurement of machineries with latest technologies and partnering with manufacturers in China, Taiwan and other Asian and European countries, in order to fasten the production and achieve product accuracy, is also expected to drive the future of Indian flexible packaging and corrugated box industry.

In terms of technology, potential for Indian packaging sector lies in the expansion of various segments of flexible packaging, active and intelligent packaging, corrugated packaging, FIBC and robotics. Among the sub-segments, potential area for growth is seen in retort packaging, aseptic packaging, print packaging, packaging films, edible films and wraps and sustainable packaging. With respect to design development, Indian packaging sector has considerable potential in incorporating Indian aesthetics, heritage compositions, and in the use of traditional raw materials, such

as jute, hemp, banana fibres, and other alternative eco-friendly textiles.

Strategies and Recommendations

Packaging sector in India is still at a nascent stage of developments and much trade reactive. With the rapidly growing trends in e-commerce and convenience driven consumerism, the sector has considerable potential to grow, provided the sector can leverage the market drivers effectively, and through concerted efforts in diverse areas needing focussed approach. Key recommendations pertaining to the development of Indian packaging sector are:

Policy interventions

- Package manufacturing and packaging services are the two potential segments for the sector. Developing the traditional packaging manufacturing units in the MSMEs with appropriate policies for encouraging investments, R&D, technology influx and standardization may make the units viable, productive and export oriented. This may also curtail the sector's import needs.
- With increasing penetration of e-commerce, e-retailing and aggregators and importers preferring packaging at source, packaging services for MSMEs may be encouraged through adequate policy interventions.
- Encouraging public private partnerships in establishing Packaging Parks at centers where manufacturing clusters are active may help in scaling up the objectives of MSMEs and enhance their productivity.
- Encourage development of indigenous technologies in packaging through R&D initiatives, and investment policies to create an ecosystem for the players in the packaging industry to integrate the strategic marketing and promotional channels.
- Mandating national packaging laboratories and public R&D services to focus on developing technologies that have impact on manufacturing of packaging materials and machine tool applications.
- The Government, through its institutions like the Indian Institute of Packaging (IIP), may encourage firms to acquire packaging technology that would best suit for India. In order to achieve this, the Government may establish Technology Trackers in leading countries, such as Germany, Taiwan, Japan and the USA, to track the development of technology

⁶ ASSOCHAM-EY Study

⁷ Rabobank

⁸ Aventus

- in key packaging segments.
- Promote technology-based FDI partnerships among foreign and local enterprises especially in the medium-scale enterprises with the view to developing India as global outsourcing and subcontracting base.
- The Government may also consider developing goal oriented entrepreneurship development programs at engineering and R&D institutes. Further, it may also consider promoting knowledge building and implementation of global standardizations to create export competitiveness.
- Encourage subcontracting to MSMEs to well integrate the MSMEs in the overall manufacturing. It is also essential to design vendor improvement and certification programs for the participating MSMEs, as suppliers of raw materials, intermediates, and components.
- Strengthening of IIP with appropriate investment so that the research and development and technology upgradation efforts are strengthened. IIP could also serve as a one-point source of classified information on Indian packaging industry for the MSME segment.
- Facilitating simplified dissemination and collection of information on quality, traceability, and certification needs, preferably with options in regional languages, may bridge the information asymmetry in the MSME sector.
- Securing international accreditations of national certifying agencies may also help addressing the issues with high cost of certifications.
- Increasing the number of institutions in the area of packaging education and training may address the acute shortage of skilled manpower at various levels in the sector.
- The Skill India Program, of the Government of India, may include modules for training and skill development in the field of packaging.
- Developing a robust waste management and recycling policy for addressing the environmental challenges with plastic and paper packaging, and creating an effective implementation mechanism may help addressing the waste disposal of plastic packaging.

Technology Development and R&D

- Industry players should focus on investing in developing, upgrading, channelizing and accurizing the

indigenous technologies and integrate them with marketing and advertising of the packaged products, addressing the local needs. Technology development should also focus on quality of the end product, minimising defect rates and cost competitiveness.

- Indian packaging machinery industry needs to scale up significantly in terms of investments in R&D driven technology, skilled manpower, production capacities, speed and quality of production, and testing abilities, supported adequately by post sales and upgrading services.
- In order to minimise the loss and maximise the profit, packaging technology development in the food sector should focus on entire value chain viz., production, post-harvest, distribution, processing, wholesale, retail, and final consumption.
- Creating 'Centres of Excellence' through mergers and consolidation of institutions working in similar areas of packaging research may aid scaling up of the public R&D infrastructure.
- Implementing packaging engineering/ studies as mainstream subject and applied research area in the universities and public and private educational institutions, and mandatory industry interaction by way of R&D driven internships, may address the shortage of skilled manpower in the industry hindering the advancement in packaging technologies.
- Significantly raising the investments in R&D, by the players in the sector, from the current dismal rate of less than 0.36% of sales, is imperative to achieve competitiveness in R&D and technology development in the industry.

Optimising Cost and Investments

- Pre-packing and Contract packing arrangements may be an impactful option for MSMEs to effectively address the cost and investment concerns on sourcing of raw materials, equipment and technology for packaging.
- Consolidation of the unorganised players in the packaging sector, led by the large organised players, may open up opportunities for reducing the competitive intensity in the MSME segment, mostly driven by cost.
- Working out a cost index for packaging, with appropriate weightage, may be an alternative for the packaging industry in optimizing the cost. One of the prominent practices by the global players in working out the index has

been to evaluate the performance of all the materials and determine their costs, and rate them.

- Increasing institutional credit flow to the industry particularly to the MSMEs by easing of norms and or priority lending may help in fulfilling their technology needs, and also maintain liquidity in their working capital cycle.

Conclusion

The Study essentially evaluates the performance of the Indian packaging sector and predominantly focuses on the developments and challenges in the food packaging sector. Based on a thorough analysis, comprising desk research, inputs from the Indian Institute of Packaging and other survey inputs received from the industry, the Study analyses key aspects of the sector's competitiveness in the international market, identifies major challenges for the sector in India, and recommends pertinent strategies for alleviating the concerns.

The strategies identified by the Study, across key dimensions, such as systemic integration of the MSMEs in the sector, greater financing support for the MSMEs, operational improvements through consolidation, strategic institutional collaborations, building capacities in technology and skill, considering inclusion of environmental factors, encouraging collaborative R&D, addressing data issues, and bridging infrastructure gaps through policy interventions and investments, will be crucial for propelling the sector on a higher growth trajectory.

For further information, please

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