

EXPORT COMPETITIVENESS AND GLOBAL TRADE DYNAMICS OF INDIA'S PAPER INDUSTRY: OPPORTUNITIES AND CHALLENGES***Shwet Vashishtha**

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Abstract

India's paper industry is becoming increasingly integrated into global trade networks, with export volumes expanding substantially over the past decade even as the domestic market remains the primary outlet for production. This review synthesizes information from government trade statistics, international trade databases, industry reports, and market studies to evaluate export competitiveness, trade patterns, market positioning, and strategic implications for Indian paper producers in international markets. Export volumes increased from approximately 0.66 million tonnes in 2016-17 to about 1.56 million tonnes in 2023-24, representing nearly threefold growth. However, exports still account for only 6-7% of total paper production of around 23-24 million tonnes, with domestic consumption absorbing the majority of output. The export portfolio is dominated by packaging grades, particularly kraft paper and paperboard, reflecting global shifts toward sustainable packaging and cost-efficient fiber utilization. Writing and printing paper exports have shown modest growth, while tissue exports have expanded rapidly due to capacity additions and rising hygiene-related demand. Major export destinations include the Middle East, Southeast Asia, and Africa, where Indian producers compete primarily through cost competitiveness and supply reliability. Key drivers of export performance include competitive production costs, availability of recovered fiber and agricultural residues, improving manufacturing standards, and favorable geographic proximity to regional markets. Nevertheless, the industry faces challenges related to quality perception in developed economies, logistics costs, raw material price volatility, and competition from major exporting countries. India continues to remain a net importer of paper and paperboard, particularly in specialty grades, premium coated papers, and technologically advanced products. This pattern highlights a structural contrast between export strength in commodity-grade products and import dependence in higher-value segments. The review concludes that while significant opportunities exist for further export expansion, long-term competitiveness will depend on product diversification, technological advancement, quality enhancement, sustainability integration, and improved participation in higher-value paper markets.

Keywords: India, Paper industry, Paper exports, Export competitiveness; International trade, Packaging paper, Trade dynamics, Export markets, Quality standards, Market positioning.

INTRODUCTION

International trade has emerged as an increasingly important dimension of India's paper industry, although domestic consumption continues to account for the majority of production. India is among the largest paper-producing countries in Asia, with total paper and paperboard production estimated at approximately 23 to 24 million tonnes annually [1]. Exports accounted for nearly 1.56 million tonnes in 2023-24, representing about 6 to 7 percent of total output [2]. Although this export share remains relatively modest, it has increased substantially from levels below 3 percent in the mid-2010s, indicating a gradual shift toward greater participation in international markets [2,3]. Export growth has been driven by several interrelated factors. Capacity expansion in packaging grades, particularly kraft paper and duplex board, has in some segments exceeded domestic demand growth, creating exportable surpluses [4]. Simultaneously, improvements in process control, product consistency, and environmental compliance have enhanced the acceptance of Indian paper products in international markets [5,6]. The increasing utilization of recovered fiber and agricultural residues has further strengthened cost competitiveness while supporting alignment with global sustainability objectives [7,8]. India also benefits from a favourable geographic location, providing relatively easy access to major importing regions such as the Middle East, Southeast Asia, and East Africa.

This proximity contributes to shorter transit times and lower freight costs compared with suppliers located in Europe and the Americas [9]. In addition, export promotion measures, trade facilitation initiatives, and policy support mechanisms have improved market access and reduced transaction barriers for Indian exporters [10]. Despite these advantages, Indian paper exports continue to face several structural challenges. A persistent quality perception gap limits penetration into developed markets, where buyers emphasize long-term supplier reliability, product uniformity, and compliance with stringent certification requirements typically associated with Scandinavian, North American, and Japanese producers [11]. Logistics costs, particularly for containerized shipments, remain a significant constraint and can adversely affect competitiveness in distant markets [12]. Furthermore, competition from regional exporters such as China, Indonesia, Thailand, and Vietnam is intense, especially in commodity packaging grades where product differentiation is limited and competition is largely price-driven [13]. At the same time, India remains a net importer of paper and paperboard. Imports were estimated at approximately 2.78 million tonnes in 2024-25, consisting primarily of specialty grades, coated papers, thermal papers, and premium tissue products [14]. This reflects a structural imbalance within the industry, where export competitiveness is concentrated in commodity and mid-value grades, while technologically advanced and higher-value paper products continue to rely on imports due to capability and quality gaps in domestic production. Although numerous industry reports and market studies have examined production

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trends and market growth within the Indian paper sector, comprehensive reviews focusing specifically on export competitiveness, trade dynamics, and strategic positioning in international markets remain limited. A systematic assessment of India's export strengths, competitive constraints, and emerging opportunities is therefore necessary to better understand the industry's evolving role in global paper trade. This review examines the export competitiveness of India's paper industry through an analysis of trade patterns, product segmentation, destination markets, and the underlying cost, quality, and logistics factors influencing international performance. It further evaluates the strategic implications of export participation for producers and policymakers while identifying the opportunities and challenges likely to shape the industry's future position in global paper markets. The review argues that selective internationalization focused on competitive product segments, quality enhancement, and value-added offerings is likely to provide a more sustainable pathway than broad-based expansion of commodity paper exports. The preceding discussion highlights the growing importance of exports within India's paper industry while also illustrating the continued dominance of domestic consumption and the industry's dependence on imported specialty grades. Key indicators describing the current trade structure of the sector are summarized in Table 1.

Table 1. Key Indicators of India's Paper Trade Structure

Parameter	Value	Interpretation
Total Production	23-24 million tonnes	Strong domestic manufacturing base
Export Volume	~1.56 million tonnes	Growing participation in international markets
Export Share	6-7%	Limited export orientation relative to total production
Import Volume	~2.78 million tonnes	Continued dependence on specialty and premium grades
Trade Balance	Negative (Imports > Exports)	Structural reliance on imported high-value paper products
Dominant Export Segment	Packaging paper and paperboard	Competitiveness concentrated in commodity and mid-value grades
Major Export Markets	Middle East, Southeast Asia, Africa	Regional market focus supported by geographic proximity
Major Import Categories	Specialty papers, coated papers, premium tissue	Domestic capability gaps in technologically advanced grades

As shown in Table 1, India's paper industry is characterized by a large domestic production base, growing but still limited export participation, and continued reliance on imports for specialty and premium paper grades. The dominance of packaging paper in the export basket indicates that international competitiveness is currently concentrated in commodity and mid-value segments. These structural characteristics provide the basis for examining export performance, competitiveness drivers, and trade dynamics in greater detail in the subsequent sections.

METHODOLOGY AND DATA SOURCES

This review is based on the synthesis and critical evaluation of secondary data to assess the export competitiveness and trade dynamics of India's paper industry. Information was compiled from multiple sources, including government trade statistics, international trade databases, industry association reports, market intelligence studies, company disclosures, and published literature. Major data sources included the

Directorate General of Commercial Intelligence and Statistics (DGCIS), International Trade Centre (ITC) Trade Map, UN Comtrade, Food and Agriculture Organization (FAO), Organisation for Economic Co-operation and Development (OECD), World Bank publications, and reports from industry organizations and market research agencies [2,3,7,9,13,14]. The review focuses on the period from approximately 2015 to 2025 to capture recent structural changes in production capacity, export performance, import dependence, and market development. Literature and data sources were selected based on relevance to paper industry trade, availability of quantitative information, and credibility of the reporting organization. Both national and international sources were examined to ensure a balanced assessment of trade patterns and competitiveness indicators. Export and import volume data were primarily obtained from official trade statistics and industry reports and were cross-verified, where possible, using international trade databases to improve consistency and reliability [2,3,14]. Product category segmentation, including packaging paper, writing and printing paper, tissue paper, and specialty grades, was derived from trade analyses, industry publications, and market reports [4,15,16,17]. Regional trade patterns and destination market distribution were assessed using trade flow statistics and market intelligence reports, with particular emphasis on the Middle East, Southeast Asia, and African markets [3,14,18,19]. Competitiveness assessment was conducted using a comparative analytical approach that considered cost structure, raw material availability, fiber utilization, quality standards, certification practices, logistics efficiency, and market access conditions. Information relating to production costs, recovered fiber utilization, environmental compliance, and quality management systems was obtained from industry studies and sectoral analyses [7,8,5,6,11,12]. Additional insights into export strategies and market positioning were drawn from publicly available annual reports and disclosures of major paper producers.

The analysis is primarily descriptive and comparative in nature and does not employ econometric modeling. Instead, conclusions are based on the interpretation of observed trends in trade performance, product composition, market distribution, and competitiveness factors across different paper grades and export destinations. This approach is appropriate for identifying broad industry patterns, opportunities, and constraints affecting India's participation in international paper trade. Certain limitations of the review should be acknowledged. Differences in product classification systems across data sources may affect direct comparability of specific paper grades. In addition, limited availability of disaggregated export pricing data and customer-segment-level information restricts detailed value-based competitiveness analysis. Informal trade flows, re-exports, and intra-regional redistribution are not fully captured in official statistics. Nevertheless, the use of multiple data sources and cross-verification provides a robust basis for assessing the major trends and structural characteristics of India's paper export competitiveness.

EXPORT VOLUME TRENDS AND PRODUCT MIX

Historical Export Growth

Indian paper exports have exhibited significant growth over the past decade, increasing from approximately 0.66 million tonnes in 2016-17 to about 1.56 million tonnes in 2023-24,

representing nearly threefold growth in export volume [2,3]. This corresponds to an estimated compound annual growth rate (CAGR) of approximately 13%, highlighting the increasing participation of Indian paper producers in international markets. In value terms, export earnings increased substantially during the same period, reflecting both higher export volumes and favourable pricing trends in selected product categories [2,19]. The growth in exports has exceeded the overall growth rate of domestic paper production, indicating a gradual shift toward greater international market engagement among certain segments of the industry [1,2]. This trend has been supported by capacity expansion, improvements in manufacturing efficiency, increased utilization of recovered fiber, and rising global demand for packaging materials [4,7]. Growing environmental concerns and the substitution of plastic packaging with paper-based alternatives have also created new opportunities for export-oriented producers [15]. Despite the overall positive trend, export growth has been uneven across product categories and time periods. Packaging paper exports, particularly kraft paper, containerboard, and corrugated medium, have accounted for the majority of export expansion. Demand for these products has been supported by growth in e-commerce, food delivery services, consumer goods packaging, and international trade logistics, all of which require large quantities of transport packaging materials [15].

Exports of writing and printing papers have grown at a comparatively slower pace. Increasing digitalization, declining consumption of printing paper in developed economies, and limited product differentiation have constrained growth prospects in this segment [16]. In contrast, tissue paper exports have expanded rapidly from a relatively small base, driven by capacity additions, rising hygiene awareness, and increasing demand from emerging markets in Asia, the Middle East, and Africa [17]. Newsprint exports remain negligible due to the long-term structural decline in newspaper circulation and the increasing adoption of digital media platforms worldwide. In addition, domestic producers face challenges in achieving the scale and cost competitiveness required to compete effectively in international newsprint markets [16]. Overall, the evolution of India's paper export portfolio indicates a gradual transition toward packaging and hygiene-related grades, reflecting broader structural changes in global paper consumption patterns. The dominance of packaging paper exports suggests that India's current export competitiveness is strongest in commodity and mid-value segments where cost efficiency, raw material availability, and regional market access provide a competitive advantage [4,15,19]. The expansion of paper exports over the past decade reflects the growing participation of Indian producers in international markets. Although exports continue to represent a relatively small share of total production, the pace of growth has been considerably higher than the overall growth of the domestic industry. Key indicators of export growth during the period are summarized in Table 2.

Table 2. Growth Trends in India's Paper Exports (2016-17 to 2023-24)

Year	Export Volume (Million Tonnes)
2016-17	0.66
2023-24	1.56
Growth	~136%
CAGR	~13%

As shown in Table 2, Indian paper exports have grown substantially over the past decade, although exports continue to account for a relatively small proportion of total domestic production. This indicates that international markets are becoming increasingly important but remain secondary to domestic demand as the primary driver of industry growth.

Product Category Composition

India's paper export portfolio is heavily concentrated in packaging grades, reflecting both domestic production capabilities and evolving global demand patterns. Packaging paper and paperboard account for approximately 65 to 70 percent of total export volumes, making them the dominant contributors to export earnings. Kraft paper, used primarily in corrugated packaging applications, represents the largest export category, followed by duplex board and coated paperboard used in folding cartons and consumer packaging. The strong export performance of these grades is supported by growing global demand for sustainable packaging solutions, expansion of e-commerce activities, and increasing substitution of plastic packaging materials. Major export destinations include the Middle East and African markets, where demand is driven by packaging applications and the cost competitiveness of Indian products [4,15,18,19]. Writing and printing papers account for approximately 15 to 20 percent of export volumes, with uncoated writing paper, copier paper, and office paper representing the principal products. These exports are directed primarily toward Southeast Asian and selected African markets. Competitiveness in this segment is largely price-based, as Indian producers face challenges in competing with established suppliers in premium grades that require high brightness, superior printability, and stringent quality consistency. Consequently, exports of coated printing papers remain relatively limited due to higher technical requirements, greater capital intensity, and strong competition from international producers [16,19]. Tissue paper exports constitute approximately 8 to 12 percent of total exports and have recorded significant growth in recent years. Expansion in domestic tissue manufacturing capacity, coupled with increasing awareness of hygiene and sanitation in developing economies, has supported growth in this segment. Facial tissue, toilet tissue, and institutional tissue products represent the major export categories, with demand concentrated in the Middle East and African markets. The segment remains relatively small compared with packaging grades but offers opportunities for future expansion due to favorable demand fundamentals [17,18]. Specialty papers account for only a small proportion of total exports, typically around 3 to 5 percent. These include selected grades used in industrial, decorative, labeling, and technical applications. Export activity in this segment is generally confined to niche markets where domestic producers possess specific manufacturing capabilities or can meet specialized customer requirements. Limited production scale, technology constraints, and strong international competition have restricted the broader export development of specialty grades [19]. The composition of India's paper exports clearly indicates that international competitiveness is currently concentrated in packaging and other commodity-to-mid-value paper grades. In contrast, exports of technologically advanced and specialty products remain limited. This pattern highlights both the strengths and the structural limitations of the industry, suggesting that future export diversification will depend on continued investment in technology, product development, and quality enhancement.

The relative contribution of major paper categories to India's export portfolio is summarized in Table 3. The distribution highlights the dominant role of packaging grades and the comparatively smaller contribution of tissue, writing and printing papers, and specialty products.

Table 3. Product Composition of India's Paper Exports

Product Category	Share of Exports (%)	Major Markets
Packaging Paper & Paperboard	65-70	Middle East, Africa
Writing & Printing Paper	15-20	Southeast Asia, Africa
Tissue Paper	8-12	Middle East, Africa
Specialty Paper	3-5	Niche Regional Markets

As shown in Table 3, India's export basket is highly concentrated in packaging grades, reflecting the industry's cost-based competitive advantage and growing global demand for packaging materials. The relatively small share of specialty products indicates the scope for future export diversification through technological upgrading and value-added product development.

Export Value Trends and Price Realization

While export volume provides an important measure of trade performance, export value offers a more comprehensive indication of competitiveness and market positioning. India's paper export earnings increased substantially between 2016-17 and 2023-24, reflecting both growth in export volumes and changes in product pricing [2,3]. The increase in export value exceeded the growth in physical volume, indicating that favourable market conditions and product mix improvements contributed to overall export performance. Export value growth has been influenced by several factors, including fluctuations in global pulp prices, changes in freight rates, exchange rate movements, and evolving demand patterns across international markets. During periods of strong global packaging demand, particularly following the expansion of e-commerce and supply chain activities, export prices for packaging grades experienced notable improvement. Rising demand for sustainable packaging solutions also supported price realization for selected paper and paperboard products [15,20]. Despite the increase in export earnings, India's export portfolio remains concentrated in commodity and mid-value paper grades. Consequently, average export realizations are generally lower than those achieved by major exporting countries that specialize in coated papers, specialty papers, premium packaging materials, and other value-added products. This limits the industry's ability to maximize export revenue despite substantial growth in shipment volumes [13,19]. Product category plays an important role in determining export value. Packaging paper and paperboard contribute the largest share of export earnings because of their dominant position in the export basket. Tissue products, although accounting for a smaller proportion of export volume, often generate higher value per unit weight due to greater processing requirements and higher market prices. In contrast, writing and printing papers are increasingly exposed to price pressures resulting from global oversupply and declining demand in mature markets [16,17]. Regional market characteristics also influence export realization. Exports to developing markets in the Middle East, Africa, and parts of Southeast Asia are generally driven by competitive pricing and cost efficiency. In contrast, developed markets typically offer higher price realization but

require stringent quality standards, certifications, and long-term supplier credibility. The limited presence of Indian exporters in these premium markets constrains the industry's ability to achieve higher average export values [11,18]. The relationship between export volume and export value highlights an important strategic challenge for the industry. Sustained growth in export earnings cannot rely solely on increasing shipment volumes. Long-term competitiveness will increasingly depend on product diversification, movement toward higher-value grades, quality enhancement, and stronger positioning in premium market segments. These factors will play a critical role in the future development of India's paper export sector.

Drivers of Export Growth

The growth of India's paper exports over the past decade has been influenced by a combination of domestic industry developments and favorable changes in international market conditions. While cost competitiveness remains an important factor, export expansion has also been supported by capacity additions, changing consumption patterns, sustainability trends, and improvements in manufacturing capabilities. One of the most significant drivers has been the rapid expansion of packaging paper production capacity. Investments in kraft paper, containerboard, duplex board, and other packaging grades have enabled producers to meet growing domestic demand while creating exportable surpluses. In several market segments, production capacity has expanded faster than domestic consumption, encouraging manufacturers to seek opportunities in international markets [4,15]. Global demand for paper-based packaging has also strengthened export prospects. The growth of e-commerce, organized retail, food delivery services, and international logistics networks has increased demand for corrugated packaging and paperboard products. In addition, regulatory restrictions on single-use plastics in many countries have accelerated the transition toward paper-based packaging materials, creating new opportunities for exporters of packaging grades [15,20].

Cost competitiveness remains a major advantage for Indian producers. The widespread use of recovered fiber, combined with the availability of agricultural residues such as bagasse, wheat straw, and rice straw, provides alternative fiber sources that help reduce raw material costs. Competitive labor costs and continuous improvements in operational efficiency have further strengthened the industry's position in regional export markets [7,8,13]. Technological modernization has also contributed to export growth. Investments in process automation, quality control systems, and environmental compliance have improved product consistency and customer confidence. Many producers have adopted internationally recognized quality and environmental management systems, enabling access to export markets that require compliance with specific technical and sustainability standards [5,6,11]. Geographic proximity to major importing regions has provided an additional advantage. Markets in the Middle East, East Africa, and parts of Southeast Asia can be served with relatively shorter transit times and lower transportation costs compared with suppliers located in Europe or the Americas. These logistics advantages have enhanced the competitiveness of Indian paper products, particularly in price-sensitive market segments [9,12,18].

Government initiatives supporting trade facilitation and export promotion have also played a supporting role. Improvements

in customs procedures, export documentation systems, port infrastructure, and trade facilitation measures have helped reduce transaction barriers and improve market access. Although policy measures alone cannot create competitiveness, they can strengthen the ability of efficient producers to participate in international trade [10]. Collectively, these factors have contributed to the sustained growth of paper exports from India. However, the relative importance of each driver varies across product categories and destination markets. Future export growth is likely to depend increasingly on quality enhancement, product diversification, and the ability of producers to respond to evolving customer requirements in international markets. The principal factors contributing to the growth of India's paper exports are summarized in Table 4.

Table 4. Major Drivers of Growth in India's Paper Exports

Driver	Contribution to Export Growth
Capacity Expansion	Creation of exportable surpluses
Packaging Demand Growth	Increased demand for kraft paper and paperboard
Plastic Substitution	Greater use of paper-based packaging
Cost Competitiveness	Lower production costs and recovered fiber utilization
Technological Improvements	Better quality and consistency
Geographic Advantage	Access to Middle East and African markets
Trade Facilitation Measures	Improved market access and logistics

As shown in Table 4, export growth has been driven by a combination of production-related, market-related, and policy-related factors. Among these, the expansion of packaging demand and improvements in manufacturing competitiveness have been particularly important in strengthening India's position in regional export markets.

Emerging Export Opportunities

Although India's paper exports are currently concentrated in packaging grades and regional markets, several emerging opportunities have the potential to support future export growth. Changes in global consumption patterns, sustainability requirements, and packaging innovations are creating new avenues for producers capable of meeting evolving customer expectations. One of the most significant opportunities lies in sustainable packaging solutions. Increasing environmental awareness and regulatory restrictions on single-use plastics have accelerated demand for recyclable, biodegradable, and fiber-based packaging materials across many countries. This transition is expected to create sustained demand for kraft paper, paperboard, and other packaging grades in which Indian producers already possess manufacturing capabilities and cost advantages [15,20].

The food and beverage sector represents another promising growth area. Rising demand for food-contact packaging materials, takeaway food containers, and paper-based packaging for consumer goods is creating opportunities for producers capable of meeting stringent safety and regulatory requirements. Manufacturers with certified production systems and advanced quality control capabilities may benefit from increasing demand in both developing and developed markets [11,21]. Tissue products also present favourable export prospects. Growing urbanization, rising disposable incomes, and increasing awareness of hygiene and sanitation are supporting long-term demand growth in emerging economies.

The Middle East, Africa, and parts of Asia are expected to remain important growth markets for tissue products, particularly institutional and commercial grades [17,18]. Specialty papers offer opportunities for export diversification and value addition. Segments such as release papers, labelling papers, décor papers, barrier-coated papers, and industrial packaging papers typically command higher margins than commodity grades. Although India's current presence in these segments remains limited, technological investments and product development initiatives could support gradual expansion into selected specialty markets [19]. Africa is expected to remain an important destination for future export growth due to increasing industrialization, expanding consumer markets, and relatively limited domestic paper production capacity in several countries. Similarly, opportunities may emerge in South Asia and selected Middle Eastern markets where demand for packaging and hygiene-related products continues to grow [18,19]. However, realizing these opportunities will require more than additional production capacity. Success will increasingly depend on quality consistency, product innovation, sustainability performance, certification compliance, and the ability to develop long-term relationships with international customers. Producers that successfully move beyond commodity-based competition are likely to be better positioned to capture future growth opportunities in global paper markets [5,6,11]. The major growth opportunities for Indian paper exports are summarized in Table 5.

Table 5. Emerging Opportunities in India's Paper Export Sector

Opportunity Area	Growth Potential	Key Drivers
Sustainable Packaging	High	Plastic substitution, environmental regulations
Food-Contact Packaging	High	Growth of FMCG and food service industries
Tissue Products	Moderate to High	Urbanization and hygiene awareness
Specialty Papers	High	Higher value realization and market diversification
African Markets	High	Expanding consumption and limited local production
Barrier-Coated Papers	Emerging	Sustainable packaging requirements

As shown in Table 5, future export growth opportunities extend beyond traditional packaging grades. While sustainable packaging remains the most significant opportunity, specialty papers and value-added products may offer greater potential for improving export earnings and strengthening long-term competitiveness.

Export Destination Markets

Regional Market Distribution

India's paper exports are primarily concentrated in developing and emerging markets, where competitive pricing, geographic proximity, and reliable supply chains provide significant advantages. Unlike major global exporters that maintain a substantial presence in North America and Europe, Indian producers derive most of their export revenues from the Middle East, Southeast Asia, and Africa. These regions collectively account for the majority of India's paper export volume and continue to represent the most important destinations for future market expansion [3,18,19]. The Middle East represents the largest regional market for Indian paper exports, accounting for approximately 30 to 35 percent of total

export volume. Countries such as the United Arab Emirates, Saudi Arabia, Oman, and other Gulf Cooperation Council (GCC) members import substantial quantities of kraft paper, duplex board, packaging materials, and tissue products from India [18,22]. Geographic proximity, relatively short shipping times, established trade relationships, and strong demand for packaging materials have contributed to India's competitive position in this region [9,18].

Southeast Asia constitutes another important export destination, accounting for approximately 20 to 25 percent of total exports. Major markets include Vietnam, Indonesia, Thailand, Malaysia, and the Philippines. Writing and printing papers, packaging grades, and selected paperboard products form a significant portion of exports to these countries. However, competition is particularly intense because many Southeast Asian countries also possess large domestic paper manufacturing industries and serve as exporters themselves [3,16,18]. African markets collectively account for approximately 15 to 20 percent of India's paper exports and have emerged as important growth destinations during the past decade. Countries such as Kenya, Nigeria, South Africa, Tanzania, and Ghana import packaging paper, tissue products, and selected writing and printing grades from Indian suppliers. Rapid urbanization, population growth, expanding consumer markets, and limited domestic production capacity have supported increasing demand across several African economies [17,18,19].

Exports to developed markets remain comparatively limited. North America, Europe, Japan, and other advanced economies account for less than 10 percent of India's total paper exports. Market penetration is constrained by stringent quality requirements, advanced certification standards, established supplier relationships, and strong competition from internationally recognized producers. Although these markets offer opportunities for higher value realization, they also require sustained investments in quality assurance, product consistency, and compliance systems [11,21]. The regional distribution of exports indicates that India's international competitiveness is strongest in neighboring and regional markets where cost efficiency, logistics advantages, and established trade relationships play a significant role in purchasing decisions. At the same time, the limited presence in developed markets highlights opportunities for future expansion through quality enhancement and product diversification strategies. The major regional destinations for India's paper exports and their relative importance are summarized in Table 6.

Table 6. Regional Distribution of India's Paper Exports

Region	Approximate Share (%)	Major Products
Middle East	30-35	Kraft paper, duplex board, tissue
Southeast Asia	20-25	Writing paper, packaging paper
Africa	15-20	Packaging paper, tissue products
South Asia	5-10	Mixed paper grades
Developed Markets	<10	Specialty and selected premium grades

As shown in Table 6, India's export portfolio is heavily concentrated in regional and developing markets. While this provides advantages in terms of logistics and market familiarity, it also exposes exporters to regional economic fluctuations and highlights the need for greater market diversification over the long term.

Market Positioning and Competitive Dynamics

India's position in international paper markets is primarily based on cost competitiveness, regional accessibility, and reliable supply rather than premium product differentiation. Unlike producers from Europe, North America, and Japan, which often compete through advanced technology, strong brand recognition, and specialized products, Indian exporters are generally positioned in the value-oriented segment of the market. This positioning has enabled Indian producers to establish a strong presence in developing economies where purchasing decisions are heavily influenced by price and supply reliability [13,19].

In packaging paper and paperboard markets, Indian producers compete mainly through cost-effective production and flexible supply capabilities. The extensive use of recovered fiber, availability of alternative fibrous raw materials, and relatively competitive labor costs support favorable production economics. These advantages are particularly important in markets where buyers prioritize affordability and consistent supply over premium quality specifications [7,8,13]. The Middle East and African markets have proven particularly attractive because customer requirements often align with the strengths of Indian producers. In these regions, acceptable quality, dependable delivery schedules, and competitive pricing frequently outweigh the premium quality attributes demanded in developed markets. As a result, Indian exporters have been able to build long-term commercial relationships and maintain a stable presence in these markets [18,22].

However, competitive pressures remain intense. China continues to be one of the world's largest paper exporters and benefits from large-scale production capacity, integrated supply chains, and significant economies of scale. Indonesia and Thailand possess strong positions in packaging and pulp-based paper products due to access to plantation fiber resources and modern manufacturing infrastructure. Vietnam has also emerged as a competitive exporter, supported by increasing investments in paper manufacturing and export-oriented industrial development [13,23]. Competition in regional markets is often influenced by factors beyond product quality. Exchange rate fluctuations, freight costs, energy prices, and raw material availability can significantly affect export competitiveness. Consequently, market shares may change rapidly in response to shifts in production costs and international trade conditions. This environment makes sustained competitive advantage difficult to achieve solely through price competition [9,12,13]. Quality perception remains one of the principal challenges for Indian exporters seeking to expand into developed markets. Although many Indian paper mills have significantly improved manufacturing practices, certification systems, and environmental compliance, international buyers often continue to associate premium quality with long-established suppliers from Europe, North America, and Japan. Overcoming these perceptions requires sustained investment in product consistency, customer service, certification compliance, and long-term relationship building [5,11]. The competitive landscape therefore presents both opportunities and challenges. While cost-based advantages have enabled Indian producers to establish a strong presence in regional markets, future growth will increasingly depend on the ability to differentiate products, improve quality perception, and expand participation in higher-value market segments. The transition from commodity-oriented

competition to value-based competition is likely to be a critical determinant of long-term export success. The principal competitive factors influencing India's position in international paper markets are summarized in Table 7.

Table 7. Competitive Positioning of Indian Paper Exports

Competitive Factor	India's Position	Competitive Impact
Production Cost	Favourable	Supports price competitiveness
Recovered Fiber Utilization	Strong	Reduces raw material costs
Geographic Location	Favourable	Shorter transit times to regional markets
Product Quality	Improving	Supports gradual market expansion
Brand Recognition	Moderate	Limited presence in premium markets
Specialty Products	Limited	Restricts participation in high-value segments
Supply Reliability	Improving	Strengthens customer relationships

As shown in Table 7, India's competitive strengths are concentrated in cost efficiency, raw material utilization, and geographic advantages. However, further improvements in quality perception, product differentiation, and specialty paper capabilities will be necessary to strengthen competitiveness in higher-value international markets.

Comparative Positioning Against Major Exporting Countries

A meaningful assessment of India's export competitiveness requires comparison with other major paper-exporting countries in Asia. China, Indonesia, Thailand, and Vietnam represent important competitors in many of the same regional markets served by Indian producers. These countries differ significantly in terms of production scale, raw material resources, technological capabilities, and market positioning, resulting in varying competitive strengths. China remains the dominant exporter among Asian paper-producing nations due to its large manufacturing base, extensive industrial infrastructure, and integrated supply chains. Chinese producers benefit from economies of scale and strong domestic demand, enabling efficient utilization of production capacity. However, rising labor costs, increasing environmental compliance requirements, and trade-related uncertainties have created opportunities for competing suppliers in selected market segments [13,23]. Indonesia has established a strong international position through access to plantation-based fiber resources and large-scale integrated pulp and paper operations. The country's competitive advantage is particularly evident in packaging grades, paperboard, and pulp-based products. Modern manufacturing facilities and relatively low production costs have enabled Indonesian producers to maintain a significant presence in global markets [19,24]. Thailand possesses a well-developed paper industry characterized by efficient production systems, strong export orientation, and established regional distribution networks. Thai producers generally focus on quality consistency and operational efficiency, allowing them to compete effectively in both domestic and export markets. The country's strategic location within Southeast Asia further strengthens its position in regional trade [18,24]. Vietnam has emerged as a rapidly growing participant in international paper trade. Industrial expansion, foreign investment, and export-oriented manufacturing policies have supported the development of its paper sector. Although production capacity remains lower than that of China and Indonesia, Vietnam has become increasingly competitive in selected packaging and paperboard grades

[18,23]. Compared with these competitors, India's strengths are primarily derived from cost competitiveness, diversified raw material sources, and geographic proximity to key markets in the Middle East and Africa. The widespread utilization of recovered fiber and agricultural residues provides flexibility in raw material sourcing, while a large domestic market supports industry growth and investment. However, India continues to face challenges related to logistics costs, specialty paper production, and quality perception in premium export markets [7,8,9,11]. The comparison indicates that India occupies a distinct position within the Asian paper trade landscape. While the country may not currently match the scale of China or the integration levels of Indonesia, it possesses significant advantages in regional market access and cost-efficient production. Future competitiveness will depend on the ability to improve product quality, expand specialty paper manufacturing, enhance sustainability performance, and strengthen participation in higher-value market segments. The relative competitive position of India and major Asian paper-exporting countries is summarized in Table 8.

Table 8. Comparative Positioning of Major Asian Paper Exporters

Country	Key Competitive Strengths	Major Limitations
China	Large scale production, integrated supply chains, economies of scale	Rising labour and environmental compliance costs
Indonesia	Plantation fiber resources, integrated pulp and paper operations	Dependence on global pulp market conditions
Thailand	Efficient production systems, quality consistency	Limited domestic market size
Vietnam	Export-oriented manufacturing, increasing investments	Smaller production capacity
India	Cost competitiveness, recovered fiber utilization, proximity to Middle East and Africa	Limited specialty paper exports, quality perception challenges

As shown in Table 8, India's competitive position differs from that of other major Asian exporters. Rather than competing primarily on production scale, India's strengths are concentrated in cost-efficient manufacturing, diversified raw material utilization, and favorable access to regional markets. Strengthening technological capabilities and expanding higher-value product offerings will be essential for narrowing the competitiveness gap with leading international producers.

COMPETITIVENESS DRIVERS AND ADVANTAGES

Cost Structure Advantages

Cost competitiveness remains one of the most important factors supporting India's participation in international paper markets. In commodity and mid-value paper grades, where product differentiation is often limited, production costs play a critical role in determining export performance. Indian producers have been able to maintain a competitive position in regional markets through a combination of relatively favorable labor costs, diversified raw material utilization, and continuous improvements in operational efficiency. Labor costs in India remain lower than those in most developed economies and are generally competitive with several major exporting countries. Although labor expenses constitute a smaller proportion of total production costs in modern paper mills than in labor-intensive industries, they continue to contribute to overall cost advantages, particularly in operations involving material handling, maintenance, logistics, and support functions

[13,23]. Raw material utilization practices also influence production economics. The extensive use of recovered fiber has enabled many Indian mills to reduce dependence on more expensive virgin fiber sources. In addition, the utilization of agricultural residues such as bagasse, wheat straw, and rice straw provides alternative fiber options that can lower raw material costs while supporting resource efficiency. This diversified fiber base contributes to production flexibility and reduces exposure to fluctuations in global pulp markets [7,8]. Operational improvements and technological modernization have further strengthened cost competitiveness. Investments in process automation, energy management systems, machine upgrades, and quality control technologies have improved production efficiency and reduced waste generation. Higher machine efficiencies and improved resource utilization contribute directly to lower manufacturing costs and improved export competitiveness [5,13]. Despite these advantages, several factors continue to limit cost competitiveness. Energy costs remain relatively high compared with some competing countries, particularly for mills dependent on purchased electricity and fossil fuels. Transportation expenses, port handling charges, and container freight rates also add significantly to export costs, especially for shipments to distant markets. Consequently, the cost advantages enjoyed by Indian producers are often more pronounced in regional markets than in destinations requiring long-distance transportation [9,12,25]. Currency movements can also influence competitiveness. Depreciation of the Indian rupee may improve export pricing competitiveness in international markets, whereas appreciation can reduce cost advantages relative to competing exporters. As a result, export performance is affected not only by production efficiency but also by broader macroeconomic and trade-related factors [13]. Overall, India's cost structure provides a solid foundation for export competitiveness, particularly in packaging paper and other commodity-grade products. However, sustaining this advantage will require continued improvements in operational efficiency, energy management, logistics performance, and resource utilization as competition in global paper markets becomes increasingly intense.

Raw Material and Fiber Availability

Raw material availability is one of the most critical determinants of competitiveness in the global paper industry. Unlike many major paper-exporting nations that rely heavily on plantation forests or imported pulp, India's paper industry utilizes a diversified fiber base consisting of recovered paper, agricultural residues, and wood-based raw materials. This diversity provides flexibility in fiber sourcing and reduces dependence on any single raw material category, thereby supporting production stability and export competitiveness. Recovered paper represents the largest fiber source for the Indian paper industry and accounts for a substantial share of total fiber consumption. The increasing use of recovered fiber has helped reduce production costs, improve resource efficiency, and align manufacturing practices with global sustainability objectives. Recovered fiber-based production is particularly important in packaging grades, which constitute the largest segment of India's paper exports [7,19]. Agricultural residues such as bagasse, wheat straw, rice straw, and other non-wood fibers also play a significant role in the industry's raw material structure. India is one of the few major paper-producing countries with extensive experience in the commercial utilization of agricultural residues for papermaking. These materials provide an alternative fiber

source for mills located near agricultural regions and contribute to resource diversification while reducing pressure on forest resources [8,19]. Wood-based raw materials continue to support the production of several paper grades, particularly in integrated mills with captive plantations or long-term procurement arrangements. Farm forestry initiatives have contributed to the availability of pulpwood species such as eucalyptus, poplar, and subabul, helping to supplement domestic fiber requirements. However, domestic wood availability remains lower than that observed in countries possessing extensive plantation forestry resources, resulting in continued dependence on imported pulp for certain grades [26]. Despite the advantages of a diversified fiber base, several challenges remain. Collection and segregation of recovered paper continue to present logistical and quality-related difficulties. Variability in recovered fiber quality can affect product consistency and increase processing requirements. Similarly, agricultural residue availability may fluctuate depending on seasonal conditions, competing uses, and regional supply patterns [7,8]. Dependence on imported waste paper and market pulp also exposes the industry to international price volatility and supply chain disruptions. Fluctuations in global recovered paper markets can significantly influence raw material costs and affect export competitiveness, particularly for mills heavily dependent on imported fiber sources [7,19]. Nevertheless, India's diversified fiber resource structure remains an important competitive advantage. The ability to utilize multiple fiber sources provides greater flexibility than many competing producers and supports cost-effective production across a wide range of paper grades. Continued improvements in recovered paper collection systems, farm forestry programs, and fiber processing technologies are expected to further strengthen the industry's raw material security and long-term export competitiveness.

Quality and Standards Compliance

Quality performance and compliance with international standards have become increasingly important determinants of export competitiveness in the global paper industry. While cost competitiveness remains a significant advantage for Indian producers, sustained participation in international markets increasingly depends on the ability to consistently meet customer specifications, regulatory requirements, and certification standards. This is particularly relevant in developed markets, where purchasing decisions are often influenced by quality assurance systems, product consistency, and sustainability credentials [11,21]. Over the past decade, substantial investments have been made by Indian paper manufacturers in process modernization, automation, quality control systems, and testing infrastructure. These improvements have enhanced product uniformity, dimensional stability, strength characteristics, surface properties, and overall manufacturing consistency. As a result, many Indian producers are now capable of meeting the technical requirements of international customers across a range of packaging, tissue, and printing paper grades [5,13]. Certification to internationally recognized management systems has become increasingly common among export-oriented producers. Quality management systems based on ISO 9001 and environmental management systems based on ISO 14001 have helped strengthen customer confidence and improve access to international markets. Such certifications provide assurance regarding process control, continuous improvement practices, and environmental responsibility, all of

which are increasingly valued by global buyers [27]. Food-contact packaging represents a particularly important area where compliance requirements are becoming more stringent. Exporters supplying packaging materials for food and beverage applications must satisfy regulatory requirements related to product safety, hygiene, migration limits, and traceability. Compliance with these requirements has become an essential prerequisite for participation in international food packaging supply chains [21]. Sustainability-related certifications are also gaining importance in global trade. Customers increasingly seek evidence of responsible sourcing, environmental stewardship, and sustainable manufacturing practices. Certifications related to forest management, chain of custody, environmental compliance, and responsible resource utilization can enhance market acceptance and strengthen competitiveness, particularly in premium export markets [6,11]. Despite significant progress, quality perception remains a challenge in certain markets. International buyers often associate premium quality with long-established suppliers from Europe, North America, and Japan. Consequently, Indian exporters must not only achieve objective quality standards but also demonstrate long-term consistency, reliability, and customer service performance to strengthen market confidence and improve brand perception [11,23]. Testing and certification infrastructure also plays an important supporting role. Laboratories accredited to internationally recognized standards contribute to product verification, regulatory compliance, and customer assurance. Continued strengthening of testing capabilities and quality assurance systems will therefore remain important for supporting export growth and market diversification [28]. Overall, improvements in quality management, certification practices, and compliance systems have significantly enhanced the international competitiveness of Indian paper products. However, maintaining and further strengthening these capabilities will be essential for expanding market access, improving export realization, and increasing participation in higher-value paper segments.

Geographic and Logistics Advantages

Geographic location and logistics performance play an important role in determining export competitiveness in the paper industry. Since paper and paperboard products are relatively bulky and transportation-intensive commodities, freight costs, transit times, and supply chain reliability can significantly influence purchasing decisions. India's strategic location between the Middle East, Africa, and Southeast Asia provides important advantages for exporters serving these rapidly growing markets. One of India's principal geographic strengths is its proximity to major importing regions. Compared with suppliers located in Europe, North America, or South America, Indian producers can often offer shorter shipping times to markets in the Gulf region, East Africa, and South Asia. Reduced transit times improve inventory management for customers and enhance the attractiveness of Indian suppliers in time-sensitive supply chains [9,18]. The Middle East represents a particularly favorable market from a logistics perspective. Shipping routes from major Indian ports to Gulf Cooperation Council (GCC) countries are relatively short, resulting in lower freight costs and faster delivery compared with suppliers located in more distant regions. Similar advantages exist for exports to East African markets, where geographic proximity supports competitive logistics performance [18,22]. India's extensive coastline and network of major ports provide a foundation for international trade.

Ports such as Mumbai, Mundra, Kandla, Chennai, Visakhapatnam, and Kochi handle substantial volumes of export cargo and serve as important gateways for paper and paperboard shipments. Continued investments in port modernization, cargo handling infrastructure, and digital trade facilitation systems have contributed to improvements in export logistics efficiency [29]. Despite these advantages, logistics-related challenges remain significant. Inland transportation costs are often high due to long distances between production facilities and export ports. Road congestion, rail capacity constraints, and variations in logistics infrastructure quality can increase transportation costs and transit time uncertainty. These factors can partially offset the geographic advantages enjoyed by Indian exporters [9,12]. Container availability and freight rate volatility also influence export competitiveness. Global supply chain disruptions, fluctuations in shipping demand, and changes in international freight markets can significantly affect transportation costs. Since many paper products are relatively low-margin commodities, even modest increases in freight rates can have a substantial impact on export profitability [12,25]. Trade facilitation measures have helped improve the efficiency of export operations. The adoption of digital customs procedures, electronic documentation systems, and improvements in port connectivity have reduced administrative burdens and accelerated cargo clearance processes. These developments contribute to a more favorable trading environment and support export growth [10]. Overall, India's geographic position provides a natural advantage in serving regional markets across the Middle East, Africa, and South Asia. However, sustaining this advantage will require continued improvements in logistics infrastructure, transportation efficiency, port operations, and supply chain integration. Enhancing logistics performance remains one of the most effective pathways for strengthening the international competitiveness of Indian paper exports.

IMPORT COMPETITION AND SPECIALTY GRADE DEPENDENCE

Import Volumes and Categories

Despite the steady growth of paper exports, India continues to be a significant importer of paper and paperboard products. Import volumes are estimated at approximately 2.78 million tonnes annually, exceeding export volumes and highlighting the continued dependence of the domestic market on selected imported paper grades [14,19]. This situation reflects structural differences between India's export strengths and its import requirements rather than a simple imbalance in trade performance. The composition of imports differs substantially from that of exports. While exports are dominated by packaging paper, kraft paper, duplex board, and other commodity-to-mid-value grades, imports are concentrated in specialty papers, premium coated papers, high-quality tissue products, and technologically advanced paper materials [14,30]. These imported products typically require sophisticated manufacturing technologies, specialized coating systems, advanced raw materials, and stringent quality control capabilities that are not yet widely available within the domestic industry. Specialty papers constitute a major component of imports. These include thermal papers, release papers, décor papers, carbonless papers, security papers, and various industrial grades designed for specific end-use

applications. Demand for such products has increased with industrial growth, expanding consumer markets, and technological development across multiple sectors of the economy [30]. Coated papers represent another important import category. High-quality coated grades used in premium printing, publishing, advertising materials, luxury packaging, and specialized commercial applications are often sourced from international suppliers. These products require advanced coating technologies and highly consistent manufacturing processes that can be difficult to achieve economically at smaller production scales [16,30]. Premium tissue products also contribute to import demand. Although domestic tissue production capacity has expanded considerably in recent years, certain imported tissue products continue to maintain a market presence due to perceived advantages in softness, strength, product consistency, and brand recognition. Demand for such products is concentrated mainly in urban and premium consumer segments [17]. Market pulp and recovered paper imports also play an important supporting role in the industry. Many paper mills rely on imported raw materials to supplement domestic fiber availability and maintain production efficiency. Consequently, fluctuations in global pulp and recovered paper markets can influence both production costs and export competitiveness within the Indian paper sector [7,19,31]. The structure of India's paper imports therefore reflects technological and product-specific gaps rather than a general lack of manufacturing capacity. Understanding the nature of these imports is essential for assessing the industry's competitive position and identifying opportunities for future import substitution and value-added production.

Competitive Implications

India's continued dependence on imported specialty and premium paper grades has important implications for the competitiveness and future development of the domestic paper industry. While the growth of exports demonstrates strength in selected product categories, the persistence of substantial imports highlights capability gaps in technologically advanced and higher-value segments. As a result, the industry exhibits a dual structure characterized by export competitiveness in commodity grades and import dependence in specialized products. One important implication is the limited participation of domestic producers in high-value market segments. Specialty papers, advanced coated papers, and premium tissue products generally command higher profit margins than commodity packaging grades. Continued reliance on imports in these categories indicates that a significant portion of value creation remains concentrated among foreign producers rather than within the domestic industry [30]. The import structure also reflects differences in technological capability. Production of specialty grades often requires advanced coating technologies, highly controlled manufacturing environments, specialized raw materials, and sophisticated quality management systems. These requirements create substantial barriers to entry and limit the ability of many producers to compete effectively in premium market segments [16,30]. At the same time, import competition can generate positive effects by encouraging technological upgrading and quality improvement. Exposure to internationally competitive products creates pressure for domestic manufacturers to improve product performance, invest in process modernization, and adopt advanced production technologies. Such competitive pressures can contribute to long-term industry development and innovation [5,32].

The coexistence of growing exports and substantial imports indicates that competitiveness varies significantly across product categories. Indian producers have achieved considerable success in packaging paper and other commodity-to-mid-value grades where cost efficiency and regional market access provide advantages. However, competitiveness remains relatively limited in specialized segments where technological capability, product differentiation, and stringent quality requirements are the primary determinants of market success [4,15,30]. These patterns suggest that future industry development should not be assessed solely on the basis of export growth. Equal attention must be given to the ability of domestic producers to reduce dependence on imported specialty grades and expand participation in higher-value segments. Achieving this balance would strengthen overall industry competitiveness, improve trade performance, and enhance the sector's contribution to value-added manufacturing. Consequently, the strategic challenge facing the Indian paper industry is not merely to increase export volumes but to broaden its technological capabilities and product portfolio. Success in this area would enable producers to capture greater value within both domestic and international markets while reducing vulnerability to external supply and price fluctuations.

Import Substitution Potential

The continued import of specialty and premium paper grades presents significant opportunities for import substitution within the Indian paper industry. As domestic manufacturing capabilities improve and investments in advanced technologies increase, several imported paper categories could potentially be produced competitively within the country. Successful import substitution would not only reduce dependence on foreign suppliers but also strengthen industrial competitiveness, create value-added manufacturing opportunities, and improve the sector's overall trade balance. Among the most promising opportunities are specialty papers used in industrial, packaging, and consumer applications. Thermal papers, release papers, décor papers, labeling papers, and selected technical papers continue to be imported in substantial quantities due to technological limitations and quality requirements. However, growing domestic demand for these products may justify investments in specialized production facilities and advanced coating technologies [30,32]. Premium coated papers represent another important area for potential import substitution. Demand for high-quality coated grades used in commercial printing, luxury packaging, advertising materials, and publishing applications remains significant. Although the production of these papers requires sophisticated coating systems and strict process control, technological advancements and increasing market scale could improve the economic feasibility of domestic manufacturing [16,30]. The packaging sector also offers opportunities for value-added product development. Increasing demand for food-contact packaging, barrier-coated papers, and sustainable packaging materials is creating new market segments that are currently served partly through imports. Domestic production of such products would enable manufacturers to capture a greater share of value addition while supporting the transition toward environmentally sustainable packaging solutions [15,20,21]. Tissue products represent another segment with potential for import reduction. While domestic production capacity has expanded considerably, opportunities remain in premium tissue grades that require superior softness,

absorbency, strength, and product consistency. Continued investment in modern tissue machines, converting technologies, and quality management systems could improve competitiveness in these higher-value categories [17,27]. However, successful import substitution requires more than production capacity expansion. Investments in research and development, product innovation, quality assurance systems, and specialized manufacturing technologies are essential for achieving the performance standards expected by domestic and international customers. Collaboration among industry, research institutions, equipment suppliers, and policymakers can further support technology development and knowledge transfer [32,33]. Economic viability also remains an important consideration. Not all imported products can be produced competitively under existing market conditions. Decisions regarding import substitution should therefore be based on market size, technological feasibility, investment requirements, and long-term demand prospects rather than solely on reducing import dependence. Overall, import substitution presents a strategic opportunity for strengthening the Indian paper industry's competitiveness and expanding its participation in higher-value segments. By addressing capability gaps in specialty and technologically advanced grades, the industry can simultaneously reduce import dependence, improve value creation, and enhance its position in both domestic and international markets. The major opportunities for import substitution within the Indian paper industry are summarized in Table 9.

Table 9. Potential Areas for Import Substitution in the Indian Paper Industry

Product Category	Current Import Dependence	Import Substitution Potential
Thermal Papers	High	Moderate to High
Release Papers	High	Moderate
Décor Papers	High	Moderate
Premium Coated Papers	Moderate to High	Moderate
Food-Contact Packaging Papers	Moderate	High
Barrier-Coated Papers	Moderate	High
Premium Tissue Products	Moderate	Moderate to High
Technical and Industrial Papers	High	Moderate

As shown in Table 9, substantial opportunities exist for reducing import dependence in several specialty and value-added paper categories. Realizing these opportunities will require investments in technology, product development, and quality enhancement, but successful implementation could significantly strengthen the industry's long-term competitiveness and improve the overall trade balance.

STRATEGIC IMPLICATIONS AND FUTURE OUTLOOK

Implications for Producers

The findings of this review indicate that export growth opportunities for Indian paper producers are likely to remain concentrated in specific product categories and geographic markets rather than across the industry as a whole. While packaging paper and paperboard currently dominate export performance, future competitiveness will increasingly depend on the ability of producers to move beyond cost-based competition and develop differentiated products capable of generating higher value realization. One of the most important strategic implications for producers is the need to balance volume growth with value creation. Historically, export expansion has been driven largely by commodity and mid-value grades where competitive pricing and production

efficiency are the primary determinants of success. Although this strategy has enabled penetration into regional markets, long-term profitability may be constrained by intense competition and limited product differentiation. Producers may therefore need to increase their focus on value-added packaging materials, specialty papers, and premium paper products that offer stronger margins and greater customer loyalty [15,30,33].

Quality enhancement represents another critical priority. As international markets become increasingly quality-conscious, consistent product performance, certification compliance, and customer service capabilities will become more important sources of competitive advantage. Investments in process automation, quality management systems, testing infrastructure, and product development are likely to play a central role in supporting future export growth [5,27,28]. Sustainability considerations are also becoming increasingly important in global paper markets. Customers and regulators are placing greater emphasis on responsible sourcing, environmental performance, resource efficiency, and carbon footprint reduction. Producers that successfully integrate sustainability into manufacturing operations and product development strategies are likely to gain stronger acceptance in international markets and improve their long-term competitiveness [6,11]. Export market diversification should also receive greater attention. Although the Middle East and Africa remain important destinations, excessive dependence on a limited number of regional markets may expose producers to economic fluctuations, policy changes, and geopolitical risks. Expanding market presence in South Asia, Southeast Asia, and selected developed markets could help improve resilience and reduce market concentration risks [18,19]. Technology investment will remain a key determinant of future competitiveness. Advanced coating technologies, specialty paper manufacturing capabilities, digital process controls, and product innovation platforms can enable producers to enter higher-value market segments that are currently dominated by imported products and international competitors. Such investments may also support both export growth and import substitution objectives [32,33,34]. Overall, the strategic direction for Indian paper producers should emphasize quality improvement, product diversification, technological modernization, and sustainability integration. Companies that successfully combine cost competitiveness with innovation and value addition are likely to be best positioned to capitalize on emerging opportunities in global paper markets.

Implications for Industry Structure

The increasing participation of Indian paper producers in international markets is likely to influence the future structure and competitive dynamics of the industry. Although domestic demand will continue to remain the primary driver of growth, export opportunities are expected to play an increasingly important role in shaping investment decisions, production strategies, and technological development across the sector. One significant implication is the growing importance of scale and operational efficiency. Export markets often require consistent supply volumes, stable product quality, and competitive pricing over extended periods. As a result, larger and technologically advanced producers may be better positioned to serve international customers than smaller mills operating with limited resources and outdated equipment. This could accelerate industry consolidation and encourage investments in modernization and capacity expansion [13,23].

The export market may also contribute to greater specialization within the industry. Rather than producing a broad range of products for diverse domestic applications, manufacturers may increasingly focus on specific grades where they possess competitive advantages. Packaging paper, tissue products, food-contact packaging materials, and selected specialty grades are examples of segments that may attract targeted investment due to their export potential [15,17,21]. Increasing exposure to international competition is likely to encourage technological upgrading throughout the industry. Export-oriented producers must continuously improve product quality, manufacturing efficiency, environmental performance, and compliance systems to meet evolving customer expectations. These requirements can drive wider adoption of advanced technologies and best manufacturing practices across the sector [5,27,32]. Sustainability considerations are expected to exert a growing influence on industry development. International buyers increasingly evaluate suppliers based on environmental performance, resource efficiency, responsible sourcing practices, and carbon management initiatives. Consequently, investments in renewable energy, water conservation, fiber recovery systems, and sustainable raw material sourcing may become increasingly important components of long-term industry strategy [6,11]. Export expansion may also strengthen linkages between the paper industry and related sectors. Increased demand for recovered paper, agricultural residues, logistics services, packaging materials, and testing and certification activities can generate positive spillover effects across broader industrial and agricultural value chains. Such linkages may contribute to employment generation and regional economic development in areas where paper manufacturing is concentrated [7,8,29]. However, greater integration into international markets may also increase exposure to external risks. Fluctuations in global demand, exchange rate movements, freight costs, trade regulations, and international competition can affect profitability and market stability. The industry will therefore need to balance export growth ambitions with the continued importance of the domestic market as a source of resilience and long-term demand [9,12,13]. Overall, the future structure of the Indian paper industry is likely to be shaped by a combination of domestic demand growth, export market development, technological modernization, and sustainability-driven transformation. Producers that successfully adapt to these changing conditions are expected to strengthen their competitive position in both domestic and international markets [35].

Implications for Policymakers

The findings of this review suggest that policymakers have an important role in supporting the long-term competitiveness of India's paper industry. While market forces and private sector investments will continue to drive industry development, appropriate policy interventions can help address structural constraints, facilitate technological upgrading, and enhance the sector's integration into international markets. One important priority is the improvement of logistics and trade infrastructure. Transportation costs remain a significant component of export expenses, particularly for paper products that are bulky and freight-intensive. Continued investment in ports, multimodal transportation networks, rail connectivity, and digital trade facilitation systems can improve supply chain efficiency and strengthen the competitiveness of Indian exports in regional and global markets [9,10,29]. Support for

technology modernization and innovation is equally important. Several specialty paper grades continue to be imported because of technological limitations and capability gaps within the domestic industry. Policies that encourage investment in advanced manufacturing technologies, research and development activities, and industry-academia collaboration can support the development of higher-value paper products and reduce import dependence [32,33,34]. Raw material security should remain a strategic policy objective. Expansion of farm forestry programs, promotion of sustainable fiber resources, and improvements in recovered paper collection and recycling systems can strengthen domestic fiber availability while supporting environmental sustainability goals. A stable and diversified raw material base is essential for maintaining long-term industry competitiveness [7,8,26]. Trade policy measures should seek to balance export promotion with the need for fair competition in domestic markets. Export facilitation initiatives, market access negotiations, and participation in international trade agreements can help expand opportunities for Indian producers. At the same time, policymakers must monitor import trends and ensure that domestic manufacturers compete under equitable market conditions [10,14]. Environmental sustainability is expected to become an increasingly important component of industrial policy. Global markets are placing greater emphasis on responsible sourcing, resource efficiency, emissions reduction, and circular economy principles. Policies that encourage cleaner production technologies, energy efficiency improvements, water conservation, and waste reduction can simultaneously strengthen environmental performance and international competitiveness [6,11,25]. Skill development and workforce training also require attention. The transition toward advanced manufacturing technologies and specialty paper production will increase demand for skilled personnel in areas such as process engineering, quality management, product development, and sustainability management. Investment in technical education and industry-oriented training programs can help address these emerging requirements [36]. Overall, policy frameworks should focus on creating an enabling environment that encourages innovation, sustainability, and value-added manufacturing. By addressing infrastructure constraints, supporting technological advancement, and strengthening resource security, policymakers can help position the Indian paper industry for sustained growth and enhanced competitiveness in international markets.

Strategic Pathways for Enhancing Export Competitiveness

Enhancing the export competitiveness of India's paper industry requires a coordinated approach involving technological advancement, product diversification, sustainability integration, and market development. While the industry has achieved significant progress in expanding export volumes, future growth will increasingly depend on the ability to compete in higher-value segments rather than relying solely on cost advantages in commodity grades. A key strategic priority is the development of value-added paper products. The current export basket remains heavily concentrated in packaging paper and other commodity-grade products where competition is primarily price-driven. Expanding production of specialty papers, barrier-coated papers, food-contact packaging materials, premium tissue products, and industrial paper grades would enable producers to access higher-margin markets and reduce vulnerability to price fluctuations [15,21,30]. Technology modernization represents another critical pathway

for improving competitiveness. Investments in advanced papermaking equipment, coating technologies, automation systems, and digital process controls can improve product consistency, operational efficiency, and manufacturing flexibility. Such investments are particularly important for entering specialty paper segments where technical performance requirements are significantly higher than those of commodity grades [5,32,33]. Quality enhancement and certification compliance must also remain central strategic objectives. International customers increasingly demand consistent quality, traceability, and compliance with recognized standards. Expanding certification coverage, strengthening testing infrastructure, and adopting advanced quality management systems can improve customer confidence and support access to premium export markets [27,28]. Sustainability is expected to become an increasingly important source of competitive advantage. Growing emphasis on circular economy principles, responsible sourcing, carbon footprint reduction, and environmentally sustainable packaging solutions is reshaping global paper markets. Producers that integrate sustainability into product development and manufacturing operations are likely to benefit from stronger market acceptance and improved long-term competitiveness [6,11,20]. Market diversification offers another important strategic opportunity. Although the Middle East and Africa will continue to remain important export destinations, expanding market presence in South Asia, Southeast Asia, and selected developed economies can reduce dependence on a limited number of regions and improve resilience against market-specific risks. Diversified market exposure may also provide access to customers seeking higher-value paper products [18,19,22]. Strengthening domestic capabilities in specialty paper production can simultaneously support export growth and reduce import dependence. Investments in research and development, industry collaboration, and technology acquisition can help address capability gaps in advanced paper grades that are currently imported. This approach would contribute to both trade competitiveness and domestic value creation [32,33,37]. Ultimately, the future competitiveness of India's paper industry will depend on its ability to transition from a predominantly cost-based competitive model toward a value-driven model characterized by innovation, quality, sustainability, and product differentiation. Producers that successfully implement these strategic pathways are likely to achieve stronger market positions and greater resilience in an increasingly competitive global environment. The principal strategic priorities for strengthening the international competitiveness of India's paper industry are summarized in Table 10.

Table 10. Strategic Pathways for Enhancing Export Competitiveness

Strategic Area	Key Actions	Expected Benefits
Product Diversification	Expand specialty and value-added paper grades	Higher margins and reduced commodity dependence
Technology Modernization	Invest in automation, coating technologies, and process control	Improved quality and productivity
Quality and Certification	Strengthen quality systems and international certifications	Better market access and customer confidence
Sustainability Integration	Promote resource efficiency and sustainable production	Enhanced acceptance in global markets
Market Diversification	Expand into new geographic regions and customer segments	Reduced market concentration risk
Research and Development	Develop innovative products and applications	Increased competitiveness and value addition
Import Substitution	Build domestic capability in specialty grades	Reduced import dependence and improved trade balance

As shown in Table 10, strengthening export competitiveness requires action across multiple dimensions rather than reliance on a single competitive advantage. A combination of technological advancement, product diversification, quality enhancement, sustainability integration, and market development is likely to provide the most effective pathway for achieving sustained growth in international paper markets.

CHALLENGES AND CONSTRAINTS

Despite the encouraging growth in exports and the emergence of new market opportunities, the Indian paper industry continues to face several challenges that may limit its ability to achieve sustained improvements in international competitiveness. These constraints originate from structural, technological, logistical, and market-related factors and affect both export performance and long-term industry development. One of the most significant challenges is the persistent quality perception gap in international markets. Although many Indian producers have made substantial investments in process modernization, quality management systems, and certification programs, buyers in developed economies often continue to associate premium quality with suppliers from Europe, North America, and Japan. Establishing stronger brand recognition and demonstrating long-term consistency remain important requirements for expanding market access in higher-value segments [11,23,27]. Logistics costs represent another major constraint. Paper products are transportation-intensive commodities, making freight costs a critical component of export competitiveness. Inland transportation expenses, port handling charges, container availability issues, and fluctuations in international freight rates can significantly affect export profitability. These challenges are particularly relevant when competing in distant markets where logistics costs constitute a substantial proportion of delivered product costs [9,12,29]. Raw material availability and price volatility also create uncertainties for producers. Dependence on imported recovered paper and market pulp exposes the industry to fluctuations in global commodity markets. Variations in fiber quality, supply disruptions, and changing international trade conditions can influence production costs and affect the competitiveness of export-oriented manufacturers [7,19,31]. Competition from major exporting countries remains intense. Producers in China, Indonesia, Thailand, and Vietnam continue to expand capacity, improve efficiency, and strengthen their positions in regional markets. Many competitors benefit from large-scale operations, integrated pulp and paper facilities, or access to plantation-based fiber resources, enabling them to compete aggressively in both commodity and value-added segments [13,23,24].

The relatively limited presence of Indian producers in specialty paper markets represents another challenge. Although exports have grown significantly, they remain concentrated in packaging grades and other commodity-to-mid-value products. The industry's ability to capture greater value from international trade will depend on expanding participation in technologically advanced and specialized product categories [30,32,33]. Environmental and sustainability requirements are becoming increasingly stringent in global markets. Customers, regulators, and investors are placing greater emphasis on carbon emissions, responsible sourcing, circular economy practices, and environmental compliance. Meeting these expectations may require additional investments in cleaner technologies, energy efficiency improvements, and

sustainability reporting systems [6,11]. Market concentration presents a further risk. A substantial proportion of India's paper exports are directed toward the Middle East, Africa, and selected Asian markets. While these regions offer important growth opportunities, excessive dependence on a limited number of destinations can increase vulnerability to economic downturns, political instability, trade policy changes, and currency fluctuations [18,19,22]. Addressing these challenges will require coordinated efforts by industry stakeholders, policymakers, research institutions, and supply chain partners. Continued investment in technology, quality enhancement, sustainability initiatives, logistics efficiency, and market diversification will be essential for maintaining export growth and strengthening India's position in international paper markets. The principal challenges affecting the export competitiveness of India's paper industry are summarized in Table 11.

Table 11. Major Challenges Affecting India's Paper Export Competitiveness

Challenge	Impact on Competitiveness
Quality Perception Gap	Limits penetration into premium markets
High Logistics Costs	Reduces price competitiveness in distant markets
Raw Material Price Volatility	Increases production cost uncertainty
Intense International Competition	Reduces market share opportunities
Limited Specialty Paper Capability	Restricts participation in high-value segments
Sustainability Compliance Requirements	Requires additional investment and adaptation
Market Concentration	Increases exposure to regional economic risks

As shown in Table 11, the challenges facing India's paper industry extend beyond production capacity and include issues related to quality perception, logistics efficiency, technological capability, sustainability compliance, and market diversification. Addressing these constraints will be critical for sustaining export growth and enhancing long-term competitiveness in global paper markets.

CONCLUSION

India's paper industry has gradually expanded its participation in international markets over the past decade, with export volumes increasing substantially despite the continued dominance of domestic demand. Export growth from approximately 0.66 million tonnes in 2016-17 to around 1.56 million tonnes in 2023-24 demonstrates the increasing ability of Indian producers to compete in selected global markets. However, exports still account for only a small proportion of total production, indicating that the industry remains primarily domestic-market oriented. The analysis reveals that India's export competitiveness is concentrated largely in packaging paper and paperboard grades, particularly kraft paper, containerboard, and duplex board. Growth in these segments has been supported by capacity expansion, competitive production costs, increasing global demand for sustainable packaging solutions, and favorable geographic access to regional markets. The Middle East, Africa, and Southeast Asia have emerged as the principal destinations for Indian paper exports, reflecting the importance of logistics advantages, competitive pricing, and established trade relationships. Several factors contribute to India's competitive position in international paper trade. These include a diversified fiber base

consisting of recovered paper, agricultural residues, and wood-based raw materials; relatively competitive production costs; improving manufacturing capabilities; and increasing adoption of quality management and environmental compliance systems. Continued investments in technology, process efficiency, and product quality have further strengthened the industry's ability to participate in export markets. Despite these strengths, important structural challenges remain. India's export portfolio continues to be dominated by commodity and mid-value grades, while imports remain concentrated in specialty papers, premium coated grades, and technologically advanced products. This situation highlights a dual industry structure characterized by export competitiveness in selected segments and continued dependence on imports for higher-value products. Quality perception challenges, logistics costs, raw material price volatility, and intense competition from major exporting countries such as China, Indonesia, Thailand, and Vietnam further constrain international competitiveness.

The review also highlights significant opportunities for future growth. Expanding demand for sustainable packaging, food-contact paper products, tissue grades, and selected specialty papers offers promising avenues for export diversification. At the same time, investments in advanced manufacturing technologies, product development, certification systems, and sustainability initiatives can support entry into higher-value market segments and reduce dependence on imported specialty grades. From a strategic perspective, the future competitiveness of India's paper industry will depend less on increasing export volumes alone and more on enhancing value creation. Success will require a gradual transition from cost-based competition toward a model centered on product differentiation, technological capability, quality consistency, sustainability performance, and market diversification. Producers that successfully combine these elements are likely to achieve stronger positions in both domestic and international markets. India's paper industry possesses a solid foundation for continued participation in global trade, supported by a large manufacturing base, diverse fiber resources, and growing export capabilities. However, long-term competitiveness will depend on the industry's ability to move beyond commodity-oriented exports and strengthen its presence in higher-value and technologically advanced paper segments. Achieving this transition will be critical for improving trade performance, reducing import dependence, and securing a more prominent position in the evolving global paper industry.

Future Research Directions

Future research should focus on quantitative competitiveness assessment using revealed comparative advantage (RCA) indices, trade specialization indices, export price competitiveness measures, and econometric analysis of export determinants. Additional studies examining firm-level export performance, sustainability-related trade requirements, and the impact of logistics efficiency on export competitiveness would further enhance understanding of India's position in global paper markets.

Abbreviations

CAGR – Compound Annual Growth Rate
 DGCIS – Directorate General of Commercial Intelligence and Statistics
 FAO – Food and Agriculture Organization

GCC – Gulf Cooperation Council
 IBEF – India Brand Equity Foundation
 INR – Indian Rupee
 ISO – International Organization for Standardization
 ITC – International Trade Centre
 OECD – Organisation for Economic Co-operation and Development
 R&D – Research and Development
 UN Comtrade – United Nations Commodity Trade Statistics Database

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