Value Chain Analysis and Export Competitiveness of Indian Marine Products in the Global Market

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Abstract

India's marine products sector has emerged as one of the fastest-growing contributors to the country's export earnings, generating substantial employment and income in coastal regions. This study examines the value chain of Indian marine products and evaluates their export competitiveness in the global seafood trade up to the year 2021. The analysis covers production, processing, distribution, and market linkages, highlighting key product categories, export destinations, and challenges affecting competitiveness. Although India has shown remarkable progress in shrimp aquaculture and seafood processing, issues such as inadequate infrastructure, limited value addition, and dependence on a few markets remain persistent. Strengthening the value chain through technological, institutional, and policy support is essential to ensure long-term sustainability and competitiveness of the Indian marine products industry.

1. Introduction

India's marine products industry occupies a crucial position in the country's economy, contributing significantly to foreign exchange earnings and coastal employment. With its 8,000 km coastline and rich Exclusive Economic Zone (EEZ), India has vast potential for both capture and culture fisheries. Over the years, the sector has transformed from traditional fishing practices to modern aquaculture and export-oriented production systems.

By 2020–21, India had become one of the largest seafood exporters globally, with frozen shrimp being the principal export commodity. However, challenges such as global competition, fluctuating demand, pandemic-induced disruptions, and environmental sustainability concerns have influenced the structure and efficiency of the value chain.

2. Objectives of the Study

1. To trace the structure of the Indian marine product value chain up to 2021.
2. To analyze trends in marine product exports in terms of volume and value.
3. To identify strengths, weaknesses, and bottlenecks in the marine export system.
4. To suggest strategies for improving competitiveness and sustainability.

3. Methodology

The study adopts a descriptive and analytical framework, based on secondary data compiled from official export statistics up to FY 2020–21. Data were analyzed using trend analysis and tabular representation. Qualitative interpretation was used to understand the factors influencing competitiveness across the value chain.

4. Export Performance of Indian Marine Products (2016–2021)

Table 1: India's Marine Product Export Performance (2016–17 to 2020–21)

Year	Quantity (MT)	Value (₹ Crore)	Value (US$ Million)
2016–17	1,134,948	37,870.90	5,780.19
2017–18	1,377,244	45,106.89	7,076.71
2018–19	1,392,559	46,589.37	6,728.50
2019–20	1,289,651	46,662.85	6,680.00
2020–21	1,149,341	43,717.26	5,960.00

Source: Marine Products Export Development Authority (MPEDA), Ministry of Commerce & Industry, Government of India, Annual Report 2020–21.

Marine exports showed steady growth between 2016 and 2019, driven by aquaculture expansion and favorable global demand. A slight decline occurred in 2019–20 and 2020–21 due to COVID-19-related disruptions, logistic bottlenecks, and reduced market access. However, India remained a leading seafood exporter, maintaining resilience through strong demand for frozen shrimp in major destinations such as the USA and China.

5. Composition of Exports and Major Markets

Table 2: Composition of Indian Marine Product Exports (2020–21)

Product Category	Export Value (US$ Million)	Share (%)
Frozen Shrimp	4,426.19	74%
Frozen Fish	403.17	7%
Cuttlefish	165.39	3%
Squid	350.58	6%
Dried Items	118.93	2%
Others	495.74	8%
Total	**5,960.00**	**100%**

Source: Marine Products Export Development Authority (MPEDA), Export Statistics, 2020–21.

Frozen shrimp continued to dominate India's marine export portfolio, contributing nearly three-fourths of the total export earnings. Frozen fish, squid, and cuttlefish formed the secondary segments. The main destinations were the USA (41%), China (15%), the EU (12%), Japan (10%), and Vietnam (8%), demonstrating India's dependence on a few major markets.

6. Value Chain Analysis

The marine products value chain in India encompasses a range of activities from input supply to international marketing. Its efficiency determines both product quality and export performance.

6.1 Input Supply and Production

The introduction of improved broodstock and hatchery management systems has strengthened shrimp aquaculture. However, dependence on imported broodstock and disease outbreaks remain vulnerabilities.

6.2 Harvesting and Handling

Mechanized fishing has improved catch efficiency, yet traditional vessels still dominate coastal fisheries. Post-harvest losses due to poor onboard storage and handling practices are common, especially among small fishers.

6.3 Processing and Value Addition

Seafood processing facilities have expanded in coastal states such as Andhra Pradesh, Kerala, Tamil Nadu, and Gujarat. Most plants focus on freezing and peeling operations with limited emphasis on high-value or branded products.

6.4 Cold Chain and Logistics

Cold storage infrastructure exists in major ports, but inland transport and small landing centers often lack adequate refrigeration. Strengthening logistics and reducing transit time are key to maintaining freshness and competitiveness.

6.5 Quality and Certification

Adoption of quality standards such as HACCP and ISO has improved India's international reputation. However, smaller exporters face difficulties meeting the high compliance costs and documentation standards required by importing nations.

6.6 Export Marketing and Distribution

Export marketing is dominated by large private players with established networks. Small-scale producers often sell through intermediaries, reducing their share of export value. Direct access to global buyers remains limited.

7. SWOT Analysis

Strengths	Weaknesses
Extensive coastline and marine biodiversity.	Over-reliance on shrimp exports.
Growing aquaculture sector with modern techniques.	Limited cold chain coverage and high logistics costs.
Established export processing infrastructure.	Low domestic value addition and branding.
Strong institutional support (MPEDA, EIA, CIFT).	Fragmented supply chains and weak integration.

Opportunities	Threats
Expansion of value-added and ready-to-eat seafood.	Global competition from Vietnam, Thailand, and Ecuador.
Entry into new markets in Africa and the Middle East.	Market volatility and trade restrictions.
Sustainable aquaculture and eco-certification.	Environmental degradation and disease risks.
Technological upgrades in traceability systems.	Climate change impacts on marine ecosystems.

8. Policy Recommendations

1. **Promote Value Addition:** Encourage R&D and entrepreneurship in processed seafood segments to reduce dependence on raw frozen exports.
2. **Improve Cold Chain Infrastructure:** Establish integrated cold-chain corridors linking farms, harbors, and processing centers.
3. **Support Small Fishers:** Create cooperatives and clusters that allow small producers to benefit from export-oriented value chains.
4. **Diversify Markets:** Explore new destinations to reduce reliance on the US and China.
5. **Digital Traceability:** Implement blockchain-based systems for real-time monitoring and quality assurance.
6. **Skill Development:** Conduct capacity-building programs in handling, packaging, and hygiene practices.
7. **Sustainability Focus:** Promote eco-friendly aquaculture practices and environmental monitoring in coastal areas.

9. Conclusion

By 2021, India had consolidated its position as a major seafood exporter, supported by strong aquaculture growth and improving processing infrastructure. However, value addition, diversification, and sustainability remain the key areas requiring focused attention. The pandemic highlighted vulnerabilities in logistics and overdependence on a few export destinations. Going forward, a strategic policy mix emphasizing innovation, technology, and sustainability can strengthen India's position in the global marine value chain and ensure inclusive growth for coastal communities.

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