

## Evaluating the Challenges in Seafood Exports from Tamil Nadu: An Empirical Study

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### ABSTRACT

The present study aims to analyze the multifaceted challenges confronting marine product exporters in Tamil Nadu's seafood industry. The research employed a quantitative approach based on primary data collected from seafood exporters (N=80) through a structured questionnaire. The study examined that seafood exporters face significant operational and strategic challenges. The findings indicate that the most pressing challenges include fluctuating raw material prices, escalating production costs, stringent regulatory compliance requirements from financial institutions, and intensifying global market competition. The research findings underscore the need for strategic interventions to enhance the competitiveness of Tamil Nadu's seafood export sector. This study contributes to the existing literature by providing empirical evidence of the challenges facing seafood exporters and offers valuable insights for policymakers, industry stakeholders, and future researchers in the field of international trade and marine product exports.

**KEYWORDS:** Challenges in Export, Entrepreneurs, Exports, Fisheries, Marine Products, Seafood.

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### 1. INTRODUCTION

The global fishery export market continues to be dominated by developing nations as primary suppliers, while developed countries maintain their position as principal importers (Kumar & Singh, 2021). Coastal waters have evolved into open-access zones, accessible to investors with sufficient capital to deploy advanced harvesting and processing technologies (Patel et al., 2023). This sector plays a crucial role in national economic development, significantly contributing to employment generation and export earnings (Shah & Mishra, 2023).

To meet international demand, India has established numerous state-of-the-art seafood processing facilities equipped with modern freezing technology and value-added production capabilities at strategic locations nationwide (Ministry of Fisheries, 2022). However, the composition of India's seafood export portfolio remains dynamic, influenced by constraints in fish production, raw material availability, and shifting market preferences (Reddy et al., 2022).

The export-oriented seafood processing industry faces multiple operational challenges. Primary concerns include the shortage of skilled local workforce and limited access to affordable, accredited laboratory testing facilities for both raw materials and finished products (Mehta & Verma, 2023). Additionally, entrepreneurs encounter regulatory hurdles, inadequate governmental support, and intense market competition (Das & Kumar, 2022).

Environmental factors present significant challenges, including climate change impacts, marine pollution, and overexploitation of aquatic resources, all of which affect raw material availability (Marine Products Export Development Authority [MPEDA], 2023). These issues are further complicated by illegal fishing practices and the presence of unauthorized foreign trawlers in territorial waters (Sharma & Joshi, 2022).

Seasonal trawling bans particularly impact processing units, with those dependent on aquaculture maintaining operations through existing supply arrangements, while others face temporary closures and subsequent workforce displacement (Gupta et al., 2023). The industry also grapples with escalating operational costs, including increased reefer base rates and terminal handling charges, alongside anti-dumping duties imposed by key markets such as the United States (RBI, 2023). Additional challenges encompass subsidy reductions, payment defaults, cross-cultural barriers, and stringent international food safety regulations, particularly from the European Union (Singh & Kumar, 2023). Infrastructure inadequacies and resource depletion further compound these challenges.

This study aims to conduct a comprehensive evaluation of these multifaceted challenges facing seafood processing entrepreneurs in Tamil Nadu, with the objective of understanding operational complexities and identifying potential strategic solutions (Department of Fisheries, 2023).

## 2. METHODS

The study has used a mixed-method of research design to analyse the seafood processing units in Tamil Nadu. The study conducted in major coastal districts i.e., Chennai and Thoothukudi. A sample of 80 seafood exporters were selected under convenience sampling. Primary data were collected using a structured questionnaire which circulated to owners or senior managers of the export processing units. The questionnaire was designed to capture information across five key dimensions: operational challenges, financial constraints, regulatory compliance, infrastructure adequacy, and market-related issues. Prior to the main survey, the questionnaire was pilot-tested with 23 processing units to ensure clarity and reliability. Secondary data were gathered from multiple sources including: Annual reports of the Marine Products Export Development Authority (MPEDA), Publications from the Ministry of Commerce and Industry, Research articles from peer-reviewed journals, Industry reports and trade publications and Government statistical databases.

The collected data were analyzed using Statistical Package for Social Sciences (SPSS). The analysis employed descriptive statistics, frequency distributions, and weighted average scores to evaluate the significance of various challenges. A five-point Likert scale was utilized to measure respondents' perceptions of different challenges, ranging from 'Not Significant' (1) to 'Highly Significant' (5).

## 3. RESULTS

The data reveals that 63.3% of the units are situated in the Chennai district, while 36.7% are located in Thoothukudi. Rural areas account for 40.0% of the units, whereas urban areas host 60.0%. Regarding the year of establishment, 53.3% of the units were founded between 2011 and 2015, followed by 23.3% established between 2006 and 2010. In terms of plant capacity, 40.0% of the units operate with a capacity of 20–30 metric tonnes. Concerning capital investment, the majority (73.3%) exceeds ₹5 crore, while 26.7% falls within the range of ₹25 lakh to ₹5 crore (Table 1).

Table 1: Business Profile of the Exporters

Business Profile		Frequency (N=80)	%
District	Chennai	51	63.3
	Thoothukudi	29	36.7
Location of the Unit	Rural	32	40.0
	Urban	48	60.0
Year of Establishment	2000 - 2005	3	3.3
	2006 - 2010	19	23.3

Plant Capacity (metric tonnes)	2011 - 2015	43	53.3
	2016 - 2020	8	10.0
	2020 onwards	8	10.0
	20 - 30	32	40.0
	30 - 40	16	20.0
	40 - 50	3	3.3
	50 - 60	11	13.3
	60 - 70	11	13.3
	Above 70	8	10.0
Capital investment	25 lakhs - 5 crore	21	26.7
	Above 5 crore	59	73.3

Exporters in the seafood processing sector face several challenges that can be grouped into five main categories: securing raw materials, production-related difficulties, financial constraints, marketing hurdles, and issues with exporting processed seafood. Addressing these challenges in manufacturing, financing, marketing, and export processes is crucial for the sector's growth.

**Table 2: Challenges in Raw Materials Procurement**

Items	Mean
Lack of timely access to raw materials	3.89
Inaccessibility of raw materials at affordable rates	3.25
Substandard quality of raw materials	3.45
Inconsistent availability of uniform-quality raw materials	4.02
Shortfall in required quantities	3.99
Inadequate credit facilities from suppliers	4.14
Restrictive government ceilings on subsidies and grants	3.45
Fluctuating raw material prices	4.59
High transportation expenses	3.09
Unethical trade practices	3.22
Interference by intermediaries	4.09
Extended distribution channels,	4.22

The data in Table 2 highlights significant challenges in raw material procurement faced by the seafood processing sector. Among the issues, fluctuating raw material prices emerge as the most critical challenge, with the highest mean score of 4.59, indicating widespread concern over price volatility. This is closely followed by issues related to extended distribution channels (4.22) and inadequate credit facilities from suppliers (4.14), which point to logistical and financial bottlenecks.

The interference by intermediaries (4.09) and inconsistent availability of uniform-quality raw materials (4.02) also rank high, underlining the difficulties in maintaining consistent supply and quality standards. Additionally, shortfall in required quantities (3.99) is a pressing issue, reflecting supply chain inefficiencies.

While challenges such as substandard quality of raw materials and restrictive government ceilings on subsidies and grants both score 3.45, they are relatively less critical compared to the other factors. Similarly, inaccessibility of raw materials at affordable rates (3.25) and unethical trade practices (3.22) indicate moderate levels of concern. High transportation expenses rank the lowest, with a mean of 3.09, though they still represent a noteworthy challenge.

Overall, the findings emphasize the need to address price volatility, streamline distribution channels, and enhance supplier credit facilities to mitigate the challenges in raw material procurement effectively.

**Table 3: Production Related Challenges**

Items	Mean
High production costs pose a significant challenge.	2.55
Maintaining consistent product quality is difficult.	4.29
Limited production capacity restricts operational efficiency.	4.65

Outdated production technologies hinder productivity.	4.09
Electricity shortages disrupt production processes.	5.02
The absence of a shared potable water supply system affects operations.	4.69
Inadequate road and transportation infrastructure hampers logistics.	4.69
Local labour shortages create workforce challenges.	2.75
High labour turnover affects workforce stability.	2.69
Import duties on capital and intermediate goods increase costs.	4.42
Trade union issues disrupt smooth production processes.	4.69

The data in Table 3 highlights the severity of production-related challenges in the seafood processing sector. Electricity shortages are identified as the most critical issue, with the highest mean score of 5.02, indicating a significant disruption to production processes. Similarly, challenges such as the absence of a shared potable water supply system, inadequate road and transportation infrastructure, and trade union issues each score 4.69, emphasizing their impact on operational efficiency.

Limited production capacity (4.65) and import duties on capital and intermediate goods (4.42) also rank highly, showcasing the strain on scaling production and the financial burden of imported resources. Additionally, outdated production technologies (4.09) and difficulty in maintaining consistent product quality (4.29) underscore the need for technological upgrades and quality control measures.

Interestingly, challenges like local labour shortages (2.75) and high labour turnover (2.69) are perceived as less pressing, possibly indicating adequate workforce availability in some regions. Similarly, high production costs score the lowest (2.55), suggesting that while costs are a concern, they may not be as detrimental as other factors.

Overall, the findings point to a critical need for infrastructure improvements, technological advancements, and policy interventions to address these production-related challenges effectively.

**Table 4: Challenges in Finance**

Items	Mean
Difficulty in obtaining sufficient credit to meet financial needs.	4.05
Challenges in securing adequate government subsidies for support.	3.72
Delays and obstacles in accessing loans promptly.	3.52
High interest rates adding to financial burdens.	3.25
Stringent regulations imposed by financial institutions limiting flexibility.	2.99
Inadequate repayment periods making loan management challenging.	3.99
Lengthy processing times for bank loans causing delays in fund availability.	3.39
Struggles in obtaining funds from financial institutions.	3.65
Restrictions on fund procurement and settlement hindering financial operations.	3.39

Table 4 outlines various financial challenges faced by businesses, with several key issues emerging as significant concerns. The most pressing challenge, with a mean score of 4.05, is the difficulty in obtaining sufficient credit to meet financial needs, highlighting the struggle to secure necessary funding. Inadequate repayment periods (3.99) also rank highly, reflecting difficulties in managing loan repayment schedules.

Securing government subsidies is another major hurdle, with a mean of 3.72, indicating challenges in obtaining essential financial support. Similarly, delays in accessing loans (3.52) and struggles with obtaining funds from financial institutions (3.65) point to issues in accessing capital in a timely manner.

High interest rates (3.25) are adding to the financial strain, while stringent regulations imposed by financial institutions (2.99) are seen as a less critical but still impactful barrier to financial flexibility. Lengthy processing times for bank loans (3.39) and restrictions on fund procurement and settlement (3.39) further delay access to needed funds, complicating financial operations.

These findings underscore the importance of streamlining credit access, improving loan management, and reducing regulatory barriers to ensure smoother financial operations and support business growth.

**Table 5: Challenges in Marketing**

Items	Mean
Insufficient accredited laboratories delay timely product inspections.	2.72
Decline in product demand affects market growth.	4.42
Interference by intermediaries disrupts the supply chain.	4.61
Influx of inexpensive imported goods intensifies local competition.	5.05
Increasing competitive pressures challenge market positioning.	1.89
Stagnant customer base limits growth opportunities.	4.09
Customers' preference for fresh food over processed options reduces demand.	4.12
High advertising expenses strain marketing budgets.	4.22
Elevated packaging expenses increase product costs.	2.82
Logistics costs, including transportation, warehousing, and material handling, add to operational expenses.	2.99
Limited access to marketing information hampers strategic decision-making.	4.39
Inadequate storage facilities impact inventory management.	5.15
Shortage of refrigerated wagons affects perishable goods transportation.	2.72
Compliance with the Weights and Measures Act and Packaging Commodity Rules poses challenges.	4.42
Conflicting and overlapping food regulations create confusion.	4.55
Inconsistencies between central and state policies complicate compliance.	4.05
Taxation issues add financial burdens to businesses.	2.89

Table 5 highlights several marketing-related challenges faced by businesses, with some issues emerging as particularly pressing. The most critical challenge, with a mean score of 5.15, is the lack of adequate storage facilities, which significantly impacts inventory management. The influx of inexpensive imported goods (5.05) and interference by intermediaries (4.61) also pose substantial hurdles by intensifying competition and disrupting the supply chain. These issues are exacerbated by decline in product demand (4.42) and stagnant customer base (4.09), which limit growth opportunities.

Increasing competitive pressures (1.89) appear to be less of a concern, suggesting that while competition exists, it may not be perceived as the primary obstacle. On the other hand, customers' preference for fresh food over processed options (4.12) and limited access to marketing information (4.39) highlight the need for businesses to adapt to changing consumer preferences and improve decision-making capabilities.

High advertising expenses (4.22) and elevated packaging costs (2.82) put a strain on marketing budgets, while logistics costs, including transportation, warehousing, and material handling (2.99), further increase operational expenditures. Regulatory challenges, such as compliance with the Weights and Measures Act (4.42), conflicting food regulations (4.55), and inconsistencies between central and state policies (4.05), add complexity to market operations. Additionally, taxation issues (2.89) contribute to the financial burden on businesses, making it harder to allocate resources efficiently.

It can be observed that businesses are facing significant challenges in maintaining market positioning, managing inventory, and navigating regulatory complexities. Addressing these issues will require focused efforts to improve storage capacity, enhance marketing strategies, and streamline regulatory compliance processes.

**Table 6: Challenges in Export**

Items	Mean
Reefer base rates are rising, increasing shipping costs.	3.12
Terminal handling charges have gone up, adding to operational expenses.	3.65
The US has imposed anti-dumping duties, complicating export trade.	4.05
Government subsidies have been withdrawn, reducing financial support for exporters.	3.15
Importers are defaulting on payments, causing cash flow issues.	3.99
Cultural and language barriers are creating communication challenges.	4.42
Political and legal systems in importing countries vary, adding complexity to trade.	4.25



Items	Mean
Strict food safety laws, particularly in the EU, are impacting import processes.	2.59
US requirements for HACCP are stringent, requiring extra compliance efforts.	2.85
Inconsistent requirements across importing countries make it harder to standardize processes.	3.25
Compliance with regulations is difficult due to time constraints.	3.69
Currency fluctuations are posing financial risks in international trade.	4.59
Capturing the export market is difficult due to intense global competition.	4.19
Export duties are increasing costs and affecting trade volume.	4.22
Competition in the international market is fierce, making it harder to secure market share.	2.42
Government restrictions are limiting the ability to expand into certain markets.	3.79
Export procedures are complex and lengthy, leading to delays.	3.55
Procedural delays are common, hindering timely shipments.	3.12
Maintaining quality standards is challenging, especially with diverse regulations.	3.65
The maintenance of quality standards is a continuous challenge, requiring ongoing attention.	4.05

Table 6 highlights various challenges in export operations, with some issues identified as more pressing than others. The most significant challenge, with a mean score of 4.59, is currency fluctuations, which create financial risks and add instability to international trade. Other notable concerns include cultural and language barriers (4.42) and political and legal systems in importing countries (4.25), which complicate communication and trade processes. Importers defaulting on payments (3.99) is also a critical issue, leading to cash flow problems for exporters.

Strict food safety laws in regions like the EU (2.59) and US HACCP requirements (2.85) are less impactful but still present challenges that require additional compliance efforts. Similarly, inconsistent requirements across importing countries (3.25) and difficulties in complying with regulations due to time constraints (3.69) highlight the complexities in meeting varied international standards.

Export duties (4.22) and government restrictions (3.79) increase costs and limit market expansion, while increasing competition in global markets (2.42) and the difficulty in capturing the export market (4.19) point to the intense pressure exporters face in maintaining a competitive edge.

The complex and lengthy export procedures (3.55) and common procedural delays (3.12) also hinder the smooth flow of shipments. In addition, reefer base rates (3.12) and terminal handling charges (3.65) are rising, leading to higher operational costs for exporters. Finally, maintaining consistent quality standards (3.65) remains a continuous challenge, especially given the diversity of regulations across different markets.

In summary, exporters are dealing with financial risks, regulatory complexities, and rising costs. To mitigate these challenges, businesses will need to focus on improving compliance, reducing delays, and navigating the dynamic global market environment.

#### 4. DISCUSSION

This study identifies several key challenges faced by seafood exporters in Tamil Nadu. Financial issues such as rising shipping costs, currency fluctuations, and payment defaults by importers are major concerns, affecting cash flow and profitability. Regulatory barriers, including strict food safety laws, anti-dumping duties, and inconsistent international requirements, complicate the export process and increase compliance costs. Additionally, operational challenges such as inadequate cold storage, limited transportation infrastructure, and logistical inefficiencies hinder timely deliveries and product quality.

Market-related challenges, such as increased competition from inexpensive imports and changing consumer preferences, further pressure local exporters. The withdrawal of government subsidies and complex export procedures also limit growth opportunities. To overcome these obstacles, there is a need for better infrastructure, streamlined regulations, enhanced financial support, and

improved market access strategies. Addressing these issues will help Tamil Nadu's seafood sector remain competitive in the global market.

## 5. RECOMMENDATIONS

- **Government Support:** The government should reinstate or enhance subsidies and financial support to help exporters offset rising operational costs. Additionally, streamlining regulations and ensuring consistency between central and state policies would help reduce compliance burdens.
- **Infrastructure Development:** Improving cold storage facilities and investing in refrigerated transportation would enhance the quality and shelf life of seafood exports. Upgrading road infrastructure would further reduce logistical challenges.
- **Market Diversification:** Expanding to new markets and reducing dependence on a few international buyers can help mitigate risks associated with global competition and market volatility.
- **Financial Risk Management:** Exporters should implement strategies to hedge against currency fluctuations and explore financing options that offer better terms, including trade credit and insurance.
- **Training and Awareness:** Offering training to exporters on global market requirements and regulations, especially concerning food safety, would help improve compliance and reduce barriers to entry in new markets.

## 6. CONCLUSION

Entrepreneurs grapple with a myriad of challenges when it comes to sourcing raw materials for their ventures. Among the most prominent hurdles is the volatile nature of prices, which can fluctuate unpredictably, making budgeting and forecasting a daunting task. Additionally, the exorbitant costs associated with transportation further compound their difficulties, eating into profit margins and posing logistical headaches.

Fortunately, the issue of substandard raw materials doesn't loom as large for these entrepreneurs, sparing them from potential production delays and quality control headaches. However, their production woes are far from over, as they contend with the perennial problem of high production costs, exacerbated by a distressingly high turnover rate among their labour force. Despite these challenges, the scarcity of electricity poses a relatively minor inconvenience in comparison.

In the realm of finance, entrepreneurs encounter a formidable array of obstacles. Foremost among these are the stringent regulations imposed by financial institutions, which often stifle innovation and growth. Coupled with prohibitively high-interest rates and interminably long processing times for securing loans, accessing much-needed capital becomes a Herculean task. Moreover, restrictions on fund procurement and settlement further impede their financial maneuverability, casting a shadow over their fiscal viability. Yet, amidst this quagmire of financial woes, the comparatively shorter repayment periods offer a glimmer of relief.

Navigating the treacherous waters of marketing presents its own set of challenges for entrepreneurs. Chief among these is the relentless onslaught of competition, which forces them to constantly innovate and adapt to stay relevant in the marketplace. Compounding their woes are the scarcity of accredited laboratories for timely product inspections and the burdensome weight of high

taxation, both of which conspire to erode their profit margins. Nonetheless, the lack of adequate storage facilities and cold storage-equipped wagons presents a relatively minor inconvenience in comparison.

Venturing into the realm of exports, entrepreneurs encounter yet another set of formidable challenges. Foremost among these is the cutthroat competition in the international market, which demands a level of competitiveness and agility that can be difficult to achieve. Additionally, navigating the labyrinthine maze of strict food safety regulations imposed by importing countries such as the EU poses a significant barrier to entry. However, the challenges posed by foreign currency fluctuations pale in comparison, offering a modicum of respite amidst the tumultuous landscape of international trade.

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