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Proliferation of Private Food Safety Standards in Indian Seafood Export Supply Chain – A Study on Kerala

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Abstract

The private standards play an important role in food safety governance and determining market access in international trade. In recent years there has been an increase in seafood certification and consumer labels in the European retail market. The seafood processors in Kerala who have the key responsibility of ensuring food quality and safety are increasingly adopting these standards. About 45 percent of the seafood processing companies in Kerala have implemented private/voluntary food safety standards such as International Organization for Standardization (ISO) 22000, British Retail Consortium (BRC), Food Safety System Certification (FSSC) 22000, Best Aquaculture Practices (BAP), and International Featured Standard (IFS). Despite the Global Food Safety Initiative (GFSI) benchmarking and harmonization of these standards, nearly 20 % of seafood exporting companies have implemented multiple food safety management systems (MFSMS) in Kerala which substantiates the inadequacy of the purpose of GFSI benchmarked standards. Hence there is a need to develop a national food quality and safety standard that can be harmonized with the private standards proliferating in the market so that the advantages can be utilized by producers and processors of all food types and food businesses in India.

Keywords: Food Safety, private standards, FSMS, seafood, Kerala, export

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Introduction

Marine product exports have created a huge demand in international trade and are acclaimed to be one of the fastest-moving commodities in the world food market (Manjunath et al., 2017). With a dramatic increase in international trade in recent decades, fish and fish products now constitute the highly traded food commodity internationally. This increase in international seafood trade could be accredited to the growth in aquaculture production and increased exports from developing countries (Asche & Smith, 2010). Fish and fishery products have emerged as the largest group in agricultural exports from India, with 13.7 lakh tonnes in terms of quantity and 7.7 billion USD in value in 2021-2022 contributing 1.07 percent to the national GDP and 6.86 percent to the agricultural GDP of the country (MOF Annual Report, 2022-23).

However, the increasing consumer concern about foodborne hazards and the international demand for effective food quality and food safety control mechanisms across national boundaries have fuelled unprecedented changes in seafood safety. Stakeholders such as consumers, inspectors, and regulators have increasingly demanded that food-manufacturing firms minimize the risk of food safety hazards (Arpanutud et al., 2009). Developing countries face increasingly stringent regulatory barriers when exporting seafood to developed markets such as the United States and Europe and hence are paying increased attention to food safety, because of the growing recognition of its potential impact on public health, food security, and trade competitiveness (Umali-Dieninger & Sur, 2007).

For many developing countries, the proliferation and increased stringency of food safety and health standards is a major concern, due to the lack of either the technical and administrative capacities

needed for compliance or the discriminatory or protectionist nature of these standards. The stringent food safety standards have been trade restrictive for Indian fishery export. The upgradation of the Indian export sector to meet the high safety and quality regulation requirements of the importing countries impacted the structure of the Indian fisheries supply chain, leading to a complete transformation (Somasekharan et al., 2015). The standards and regulations have also led to the widening of market destinations due to increased detentions and rejections of fish and fishery products from developed countries. With the export basket dominated by shrimps and cephalopods, Kerala depends on the EU and the US markets more than any other Indian state (Somasekharan, 2014). Frozen shrimp and cephalopods constituted 62.03 % by quantity and 82.61 % by value of export during 2021-22 (MPEDA, 2023). The stringent food safety regulation of the EU has made the current seafood value chain in Kerala a buyer-driven or direct network (Raymond & Ramachandran, 2017). In response to the buyers' demand from the EU and the US, Kerala seafood exporters implemented private food quality and safety standards like ISO 22000, BRC, and IFS among others (Fig. 1). The implementation of private food standards like ISO 22000, BRC, and IFC by the EU-certified firms in Kerala serves to enhance the buyer's perception of the quality of the marine product exports of the companies that choose to implement them (Parvathy, 2012). To maximize the commercial advantage of retailers, the importers and chain managers pressurize the exporters to change their production methods, cut labour costs, and impose new food safety and quality standards, and in the process, the exporters have limited bargaining power (Somasekharan et al., 2015). A survey conducted on the stakeholders in the Indian seafood sector by Nicholas et al. (2015) to identify the strength, weaknesses, opportunities, and threats, found the implementation of private food safety standards like

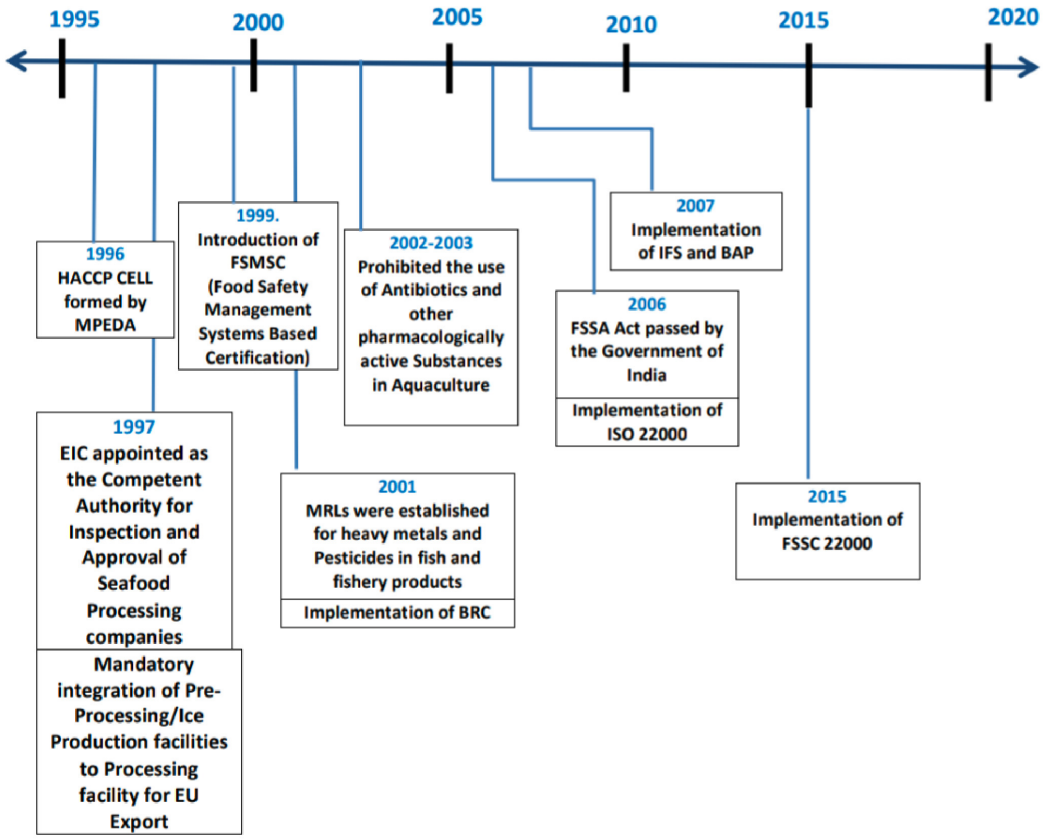

Fig. 1. Timeline of Food Safety Regulatory Reforms in Kerala Seafood Export Sector

ISO/EU/ BAP/BRC as a real opportunity for India in the international seafood trade.

Although some of the studies have addressed the private food safety standards in the Kerala seafood processing sector (Parvathy, 2012; Ancy, 2015), the recent proliferation of private food safety standards in the industry has not been reasoned comprehensively (Raymond & Ramachandran, 2017).

Materials and Methods

The study uses primary and secondary sources of data. Primary data was collected by surveying seafood export units of the Kerala state. Three major coastal districts of the state that possess the largest number of seafood export units (Ernakulam, Alappuzha and Kollam) were selected. The total list of registered seafood manufacturer exporters in Kerala and the categorized list of the EU and non-EU-approved units were obtained from MPEDA. For the survey, 110 seafood processing and export units (88 EU exporters and 22 non-EU exporters) were chosen. The secondary data was obtained from sources like scientific articles, reports, and websites and also from government institutes like MPEDA, Kochi, India, and EIA, Kochi, India.

A structured questionnaire was prepared related to the implementation of the private food safety standards in seafood processing companies in Kerala with sections on Respondent Demographics and Contextual factors. Out of the 110 seafood manufacturer exporters in Kerala approached for the survey valid responses to the questionnaire were obtained from 92 exporters (75 out of 88 EU exporters and 17 out of 22 non-EU exporters). Direct personal interviews, E-mail surveys and telephonic interview methods were used for data collection (Sept 2017-March 2018). The survey responses were analyzed using the Statistical Package for Social Sciences computer software (SPSS 20.0)

Results and Discussion

Private food safety standard certifications in the Kerala seafood export sector started in 2001 (Raymond & Ramachandran, 2017). The establishments involved in seafood processing and export in Kerala get certified by these private food standards in addition to having HACCP, a mandatory requirement for all seafood exporting units in Kerala (Kulkarni, 2005). The trend showed an increase in the implementation of BRC global standards in the seafood export sector which is a global standard mainly required by EU customers (Fig. 2). The Implementation of the ISO 22000 standard shows a downward trend since 2011 due to the discontinuation of the standards by several exporters owing to its arbitrary nature and increasing preference for FSSC 22000 adoption. The trend also showed an increase in the implementation of BAP and IFS food standards. Some seafood exporters have implemented individual retailer standards like Walmart, Metro, and Carrefour among others. Besides the standards related to food safety and quality, the seafood processing exporters in Kerala have also implemented environmental, social, and organic standards like ISO 14001, ASC and Naturland, respectively.

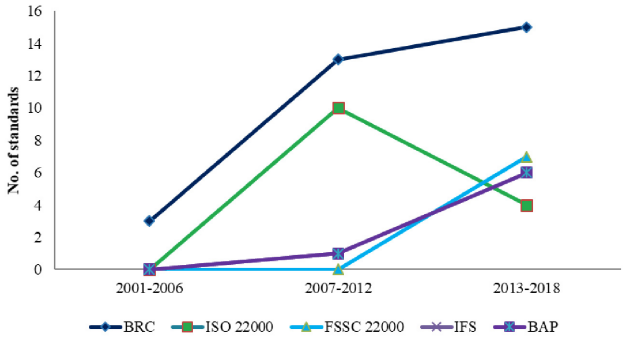

Fig. 2. Graphical representation of the proliferation of Private FSMS standards in the Kerala seafood export industry (2001-2018)

The seafood processing and exporting companies in Kerala selected for the survey were classified based on the firm size in terms of the total number of employees (Macheka et al., 2013; Escanciano & Santos-Vijande, 2014a, 2014b). The categorization of firms' size (Fig. 3a), in terms of the number of employees, is as follows: 70.7 % enterprises (<100 employees), 21.7 % firms (101-200), 3.3 % firms (201-300 employees), and 4.4 % firms (above 300 employees). The classification of companies based on daily production capacity (Fig. 3b) is as follows: 71.7 % of firms (< 50 tonnes), 26.1 % of firms (51-100 tonnes), and 2.2 % of firms (151-200 tonnes). The categorization of companies based on the age or years of operation (Fig. 3c) revealed 20.7 % of firms had 1 to 10 years, 27.1 % had 11-20 years, 35.9 % had 21-30 years, and 16.3 % had above 31 years of operation. The classification of companies based on product categories (Fig. 3d) shows that 79 % of firms produced frozen products for re-processing, 46.7 %

of firms produced frozen products for retail sale, 14.1 % of firms produced Ready-to-Eat (RTE) products and 8.7 % firms produced chilled products. 82.5 % of the firms were purely export-oriented and 17.5 % of the firms were sourcing to export and domestic markets. None of the firms involved in the study exclusively targeted the domestic market.

Pearson's correlation test was conducted to establish the statistical relationship between the number of private food safety standards adopted by each firm and demographics such as size (in terms of the number of employees), the total number of product categories, production capacity, and the age of the firms. A significant positive correlation was found between the number of employees and the number of private food safety standards ($r = 0.469$, $p<0.05$, $n=92$) as well as product categories and the number of private FSMS standards adopted ($r = 0.322$, $p<0.05$, $n=92$). It shows that with the increase in the firm size and the number of product categories, there is a higher tendency to adopt private FSMS standards. However, Pearson's correlation test between the daily production capacity of firms and the number of private food safety standards adopted ($r = -.062$, $p<0.05$, $n=92$) and the age of the firms and number of private FSMS standards adopted showed a negative correlation ($r = -.134$, $p<0.05$, $n=92$), which shows that the companies with private FSMS standards tend to have a low production capacity as they focus more on value-added processed seafood products and newer firms are finding it easier to adopt these private FSMS standards when compared to the older firms.

The survey conducted on the seafood exporting firms in Kerala to understand the proliferation of private food safety standards in the sector revealed that about 16 % of firms have implemented ISO 22000 standard, 34 % have BRC standard, 7.6 % each of the firms have implemented FSSC 22000, IFS, and

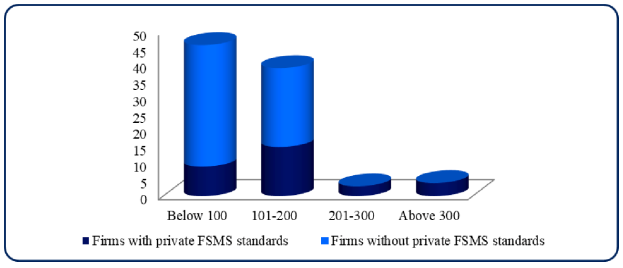

Fig. 3a. Classification of seafood companies in Kerala based on the total Number of Employees

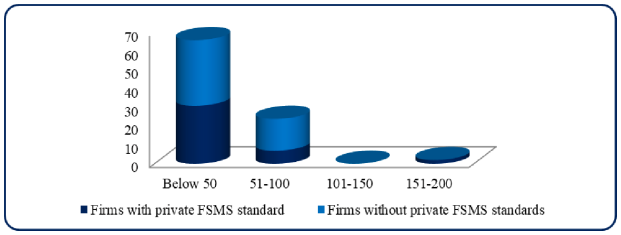

Fig. 3b. Classification of seafood exporting companies in Kerala based on Daily Production Capacity (in Tonnes)

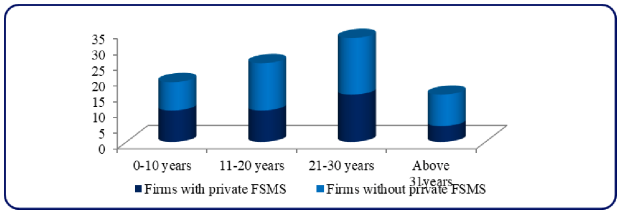

Fig. 3c. Classification of seafood exporting companies in Kerala based on Years of Operation

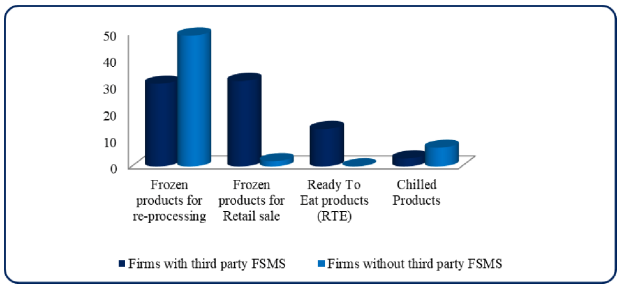

Fig. 3d. Classification of seafood exporting companies in Kerala based on Product Categories

BAP standards (Fig. 4a). A total of 82.5 % of seafood processors who only catered to the export markets were keen in implementing standards like BRC, FSSC 22000, IFS and BAP while the rest 17.5 % of seafood processors in Kerala who catered to both the domestic and export markets had focused mainly on the improvements in food quality and safety aspect and hence implemented the ISO 22000 standard (Ramath et al., 2016) as their exports were mostly limited to the markets of Southeast Asia and Middle East. Overall, about 43.5 % of seafood processing and exporting companies have implemented the private voluntary standards in Kerala of which about 20.7 % of firms have implemented multiple food standards concerning private FSMSs. Among the multiple private food safety standards implemented, 15.2 % of firms had implemented 2 standards, 4.3 % had 3 standards and 1.1 % had 4 standards within the firm. The survey also showed

that about 9.6 % of firms had discontinued their compliance with a particular standard due to various reasons (4.3 % of firms found a better standard and 3.3 % had a financial crisis) and about 17.4 % of firms were planning to adopt these private food safety standards in the future (4.3 % BAP standards, 3.3 % IFS standards, 2.17 % FSSC standards, and 7.6 % BRC standards) (Fig. 4b). The private FSMS standard implementation was done by the firm managers in 17.5 % of firms, by an external consultant in 47.5 % of firms, jointly by own managers and consultants in 17.5 % of firms while a certification body was involved in the implementation process in 17.5 % of the firms (Fig. 4c).

The way fishery products are prepared, marketed, and delivered to consumers has changed significantly in recent years (Raymond & Ramachandran, 2017). The private food safety management systems that emerged as an alternative to public regulations have become a significant element of the food control systems of the global food supply chain. These standards have become an increasing concern for exporters, especially in developing countries.

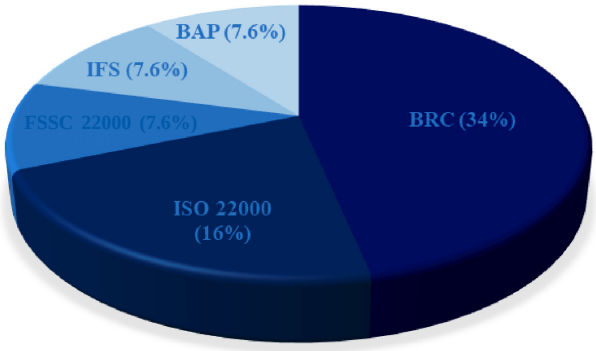

Fig. 4a. Share of each private food safety standard in the Kerala seafood export industry

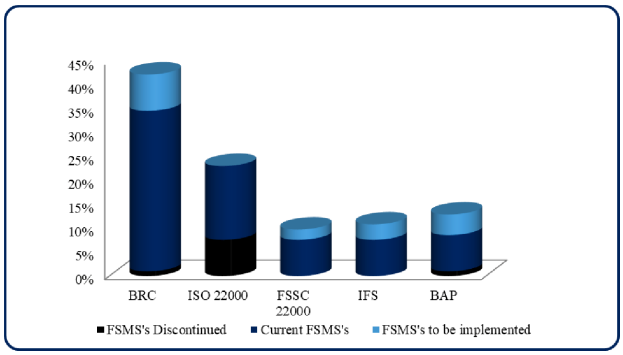

Fig. 4b. Food safety standards discontinued, implemented, and to be implemented by the seafood exporting companies in Kerala

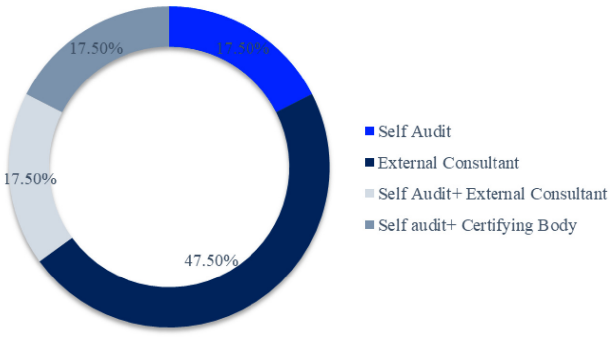

Fig. 4c. Responsibility for implementation of food safety standard

The Government of India has always been proactive in securing the country's position in seafood exports by setting its own national standards as well as complying with the regulations of importing countries. However, the significant increase in rejections of Indian seafood from the EU and the US markets due to the presence of veterinary drug residues needed major attention. This necessitated the Government of India to consider the development of its own aquaculture certification standard, 'National Good Aquaculture Practice' (GAqP) for fresh and brackish water aquaculture (NAAS, 2015). The development of 'Shaphari' by MPEDA, based on FAO technical guidelines on aquaculture certification, to certify hatcheries and shrimp farms to produce antibiotic-free shrimp seeds and products is also a great initiative by the Government of India.

Nevertheless, the attention given to monitoring and interpreting the requirements and implications of the official and private standards on Indian agriculture is highly insufficient (Umali-Deininger & Sur, 2007). With the implementation of a plethora of food standards over the past decade, the adoption of food standards has become a growing concern for the seafood export sector in India (Rafeeque & Sekharan, 2017). The processor has the key responsibility of safety and quality assurance in the seafood export value chain in Kerala. Hence there is pressure on processors and farmers to implement international food safety, quality and sustainability standards, and certification schemes due to buyers' demand (Nguyen & Jolly, 2018). The buyer-driven seafood value-chains of Kerala have been yielding to the pressure of importers from the developed markets to implement some of the major private/voluntary standards related to food safety and quality like ISO 22000, FSSC 22000, BRC, IFS, BAP along with other sustainability standards like MSC, ASC among

others. The product categories of these certified firms mostly consist of processed and value-added seafood products, which are intended for the markets of the EU, the US and Japan. The seafood companies in Kerala certified by the private food safety standards were characterized by an increased size (based on the total number of employees) and product categories for export (which included different value-added products along with the conventional block/IQF frozen items) which was verified by the study of Kok (2009), who recognized that larger companies generally had better food safety management systems in place. It was also identified that the implementation of private food safety standards was convenient to the newer firms in comparison to the older ones, due to the costs involved in compliance with the private standards, especially the changes to building layout, equipment and machinery.

Seafood exporters who were involved in the export of high-value products to the international markets of the US and the EU, especially France and Germany, had implemented the private standards. The increase in the export of aquaculture products coupled with the increase in the rejection rate due to the presence of veterinary drug residues has incited an increase in the BAP standards certification in the Kerala seafood export sector, which ensured the quality and safety along with the traceability of culture products (Andre, 2013). Kerala's seafood sector has shown an increase in the BAP certifications in processing plants and farms since 2010 (Raymond & Ramachandran, 2017). The results also show an increase in the adoption of the FSSC 22000 standard over ISO 22000 since 2014 among seafood exporters in Kerala. FSSC 22000 is a GFSI-recognized standard that has PAS 220 along with additional requirements related to food safety, which makes it preferable to food processors/ operators as well as retail chains (Condrea et al., 2015). All private food safety standards prevalent in the Kerala seafood export sector are GFSI benchmarked schemes. Despite the GFSI benchmarking and harmonization of these private food standards, nearly 20 % of seafood exporting companies had implemented multiple food safety management systems in Kerala which substantiates the external pressure on the exporters by the retailers in the EU and the US markets and the inadequacy in the purpose of meeting GFSI benchmarked standards. The same issue has been reported by Rafeeque & Sekharan (2017) in the Indian seafood exporting firms that had implemented multiple FSMS standards.

It is notable that seafood exporters in Kerala, who export high-value fishery products to the markets of the EU and the US are increasingly implementing these standards, and deriving competitive advantage. However, the processors who were unable to comply with the private standards were losing market access opportunities and were hence forced to switch to alternative markets, and for such small-scale processors, these private standards acted as non-tariff barriers for trade. At the same time, the issues raised by the requirements for multiple food safety certifications are also a cause for concern among exporters, which calls for harmonization among the different private standards in the markets. The GFSI created to serve this purpose was found to be ineffective for producers of developing countries. Carefully considering these concerns some of the recommendations based on this study are the constitution of a committee by the Government of India with representations from commerce, trade and industry, food and agri-business, certification, and standardization entities to analyze and mitigate the issues related to the proliferation of private standards. Encouraging value-addition and new product development in seafood processing and export according to the consumer preferences in the markets of the EU, the US, and Japan to enable market access and gain benefits from private standards. Government can consider the development of a national processing standard, harmonized with global standards built on the public-private food safety paradigm, coordinating with standard setting agencies, research organizations, and industry to reduce the compliance cost of the industry.

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