SEAFOOD PROCESSING INDUSTRY AND INTERNATIONAL QUALITY STANDARDS: EVIDENCE FROM KERALA

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ABSRACT

The International market for seafood has undergone drastic changes. The emerging global thrust to adoption of hygienic production practices for adhering to the World Trade Organization standards; compliance to Hazard Analysis and Critical Control Point (HACCP) by seafood exporters is a prerequisite. The food service sector has undergone major changes in terms of the types of products in demand. The main constraints in adoption of quality assurance systems are lack of awareness, high cost for adoption of quality assurance systems, and lack of time frame for implementation of quality assurance systems.. This study tried to capture demand side constraints include those related to international trade such as non-tariff barriers of quality standards and its impact on export market.

Key Words: International Quality Standards, Non-tariff Barriers, Supply Chain, Hazard Analysis and Critical Control Point.

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1.1 Introduction

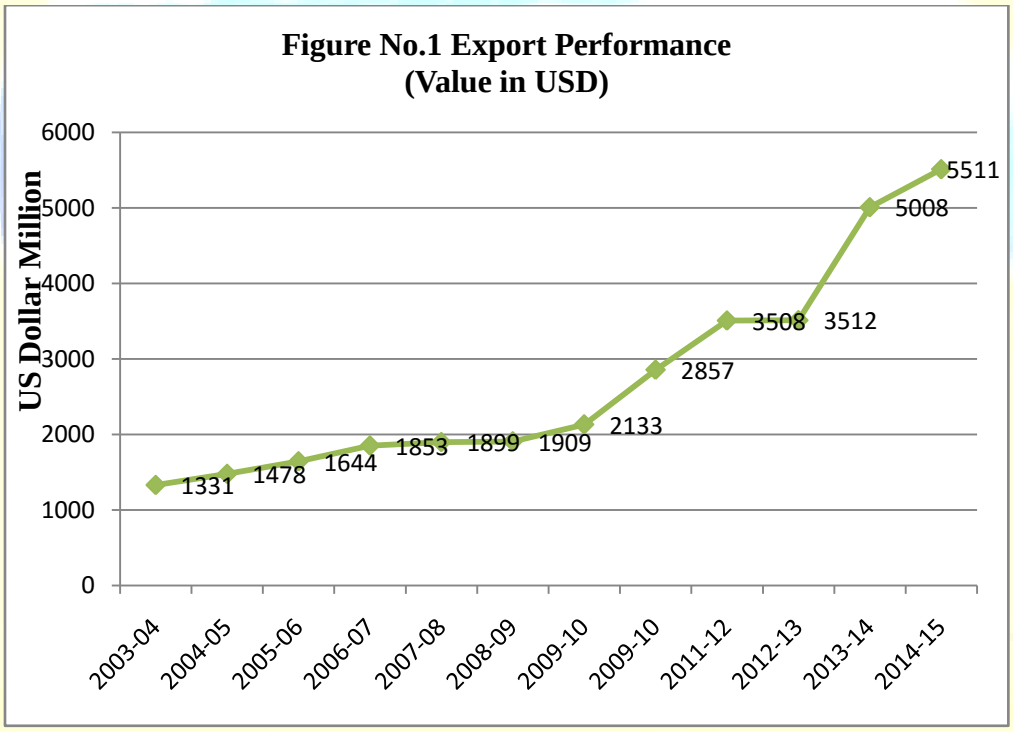
Globalisation, Liberalisation and Privatisation have led to massive adoption of scientific inventions and technology interventions in the seafood industry. It led to a rapid structural change with a spectacular increase in productive development and quality of life of the people all over the world. Stringent international quality standards and regulations demands Kerala seafood industry to become more competitive. This study tried to capture demand side constraints and includes those related to international trade such as non-tariff barriers of quality standards and its impact on export market. New Economic Policy of 1990's proliferate urbanization and structural changes in the economy and society and had a core impact on the fisheries structure in the country. There is a structural revolution in the fisheries sector due to changing consumption pattern, changing quality standards, technological development, and emerging market forces (Ancy and Raju, 2014).

Seafood industry plays a vital role in achieving the strategic objectives of eliminating hunger, food insecurity and malnutrition. The fisheries and aquaculture sector is a source of employment and income and supports the livelihoods of 10-12 percent of the world population. The share of fisheries production used for direct human consumption increased from about 70 percent in the 1980s to more than 85 percent (136 million tonnes) in 2012. The way seafood products are prepared, marketed and delivered for consumers have changed significantly. There is a wider geographical participation in seafood trade and about 200 countries reported exports of fish and fishery products in 2012(FAO, 2014). The world demand for seafood is expected to grow due to the increasing demand for protein rich food and change in preference from red meat to white meat for health reasons. The demand for fish and fishery products are steeply rising and at the same time taste and preferences of the next-generation patterns are also changing.

India is the 2nd largest producer of inland fish production in the world next to China with a share of 5.68 percent of the global total fish production as stated in the FAO Statistics. Fisheries and aquaculture contribute 0.78 percent to the national GDP and 4.47 percent to agriculture and allied activities (Economic Review, 2013). WTO ranked India as the 19th largest merchandise exporter in the world, with a share of 1.6 percent of the global trade and the 10th largest importer with a share of 2.6 percent of global imports in 2012 (WTO's International Trade Statistics,

2013). India's export of seafood was up 6.86 percent to 1.05 million tonnes worth $5.5 billion in 2014-2015. Prices have also fallen in international market owing to low demand and reduced purchasing capacities in user countries due to falling currencies (MPEDA, 2015). The US is the largest market for Indian seafood products with a share of 26.46 percent in dollar terms in 2014-15 followed by South East Asia (25.71 percent) and European Union (20.08 percent). Figure 1 shows the seafood export performance from 2003 to 2015. This growth may be perceived under the prevailing international market situations. The depreciation of Euro, weaker economic conditions in China, devaluation of yen, depreciation of Indian rupee, improvement in supply condition in South East Asian Countries in comparison to previous year have resulted in continuous drop in prices of shrimp, a principle commodity of Indian seafood export basket.

Figure No.1 Export Performance (Value in USD)



Source: Marine Products Exports Development Authority, Kochi, 2015

Fisheries Sector of Kerala contributes about 9 percent of the GSDP from the agriculture sector which gives the significance of the sector to the state economy (Economic Review, 2013). Fish and fishery products in Kerala are facing problems due to stagnation in production, low capacity utilization and high cost of production due to overcapitalization and low productivity. There are various challenges faced by Kerala fish export processing industry on account of product diversification, dynamic market access, changing quality standards, climatic change, and global

pressures and changing world scenario. Although the fish catches from the Kerala coast include more than 300 different species, the commercially important number is about forty only (Economic Review, 2013). Table 1 gives the present fishery resources of Kerala and India and the percentage share from Kerala.

Table 1 Seafood Resources of Kerala and India

Marine	**Kerala**	**India**	**Kerala's Percentage Share**
Length of Coast Line (Km)	590	8118	7.27
Continental Shelf('000 sq km)	40	530	7.54
Number of Fish Landing Centres	187	1537	12.16
No of Fishing Villages	222	3432	6.47
No of Fishermen Families	118937	874749	13.59
Fisher-Folk Population	610165	4056213	15.04
Inland			
Total Inland water bodies(Lakh Ha)	5.43	73.59	7.38
River & Canals(Km)	3092	195210	1.58
Reservoirs(Lakh Ha)	0.3	29.07	1.03
Tanks & Ponds(Lakh Ha)	0.3	24.14	1.24
Flood Plain lakes/Derelict waters(Lakh Ha)	2.43	7.98	30.45
Brackish Water(Lakh Ha)	2.4	12.4	19.35

Source: Handbook on Fisheries Statistics, Ministry of Agriculture, Government of India, 2014.

The coast of Kerala constitutes 7.27 percent of India's total coastline. Geographically, inland fisheries have great scope in the State. Kerala has 44 rivers, of which 41 originate from the Western Ghats and flow towards west into the marine flora and fauna of rich Arabian Sea.

1.2 Challenges faced by the Seafood Industry

Fish is a highly perishable product. Fish is sold and priced on freshness criteria. The fishes are brought on shore at designated landing sites where it is graded by fish inspector into different

price groups based on the freshness using sensory analysis (Chebet, 2010). Many exporters in Kerala have experienced border detentions in the EU. Indeed, the risk of rejection has become a normal part of doing business in these markets. Thus, there is a standard clause in the Letter of Credit (LC) used by EU buyers stating that payment is subject to health inspection at the EU port of entry. Overall, therefore, the EU is regarded as the highest risk market (Rajasenan, 2005). The high level of rejection of fish and fishery products in international trade due to 'filth' indicates that there is room for improvement in production and distribution systems (Valdimarsson, 2011). Broadly the most well known methods to manage quality and/or safety in fisheries are Good Hygienic Practices (GHP)/Good Manufacturing Practice (GMP) or Sanitation Standard Operating Procedures (SSOP) or prerequisite programmes, Hazard Analysis Critical Control Point (HACCP), Quality Control (QC), Quality Assurance (QA) / Quality Management (QM) - ISO standards, Quality Systems and Total Quality Management (TQM).

Since the formation of the GATT and the WTO, one of the main goals has been to decrease trade barriers and increase openness in trade. The major barriers in the external market in the post-liberalization era have been in the form of Sanitary and Phyto- sanitary measures imposed by the developed countries like the US, the EU and Japan. Regulatory measures such as technical barriers to trade (TBT) and sanitary and phytosanitary(SPS) measures in goods and domestic regulation in services raise new and pressing challenges for international cooperation in the 21st century. TBT/SPS measures imposed by developed economies raise relatively more specific trade concerns than measures imposed by developing economies. The ITC business surveys show a greater resort to TBT/SPS measures by developed economies (World Trade Report, 2012).

The global slowdown had its impact on the economy of almost all the countries, including India. Global economic activity strengthened with the advanced economies regaining the growth momentum and emerging economies maintaining a modest growth in 2013. Improved global activity and pick up in world trade volume revived India's export performance in 2013-14. Indian seafood, which is often been subjected to allegations of poor quality standards and rejection of consignments requires a well conceived export marketing plan. In order to curb these externalities, the acceptance of the Hazard Analysis and Critical Control Points (HACCP) guidelines may facilitate Indian seafood conforming to international quality standards.

1.3 Seafood Export Processing Industry in Kerala: A Survey Analysis

This part attempts to analyse the outline of the 55 seafood export processing units on the basis the surveyed data. Analysis is conducted on the basic nature of ownership, location of units, product type, major items of exports, modern facilities, installed capacity of infrastructure and categorise workers and employers in the surveyed units. Table No.2 gives the ownership pattern in the surveyed units. Location of the unit can be classified into Panchayat, Corporation and Municipality. The survey identified that 53 percent of the seafood export processing units are located at Panchayat, 40 percent located at Corporation and only 7 percent are located in Municipality. The survey results show that a very large number of units are dealing with frozen products. The Survey revealed that value-added products or ready-to-eat seafood products should be produced to meet the changing demands and consumption patterns of the consumers for both domestic as well as international markets. The major items of export items are shrimp, cephalopods and fishes. The survey revealed that seafood export processing companies are likely to export all these items according to the availability of raw materials. Basic infrastructure facilities in the export processing units should be improved to keep in pace with international quality standards.

Table No.2 Nature of Ownership of Exporting Unit

Nature of Ownership	Number of Units	Percent
Proprietary	10	18.2
Partnership	21	38.2
Private Limited	21	38.2
Others	3	5.5
Total	55	100

Source: Survey Data

Capacity utilization was worked out to be only 46.47 percent. The main reasons for low capacity utilization reported were due to non-availability of raw materials, high cost of production, shortage of power, scarcity of ice and potable water.

1.4.1 Analysis of International Quality Standards and Compliances

Out of the 55 surveyed seafood firms, 27 firms have only 1 approved technologist in their Quality Control Laboratories, 18 firms have 2 approved technologist, 4 firms have 3 approved technologist, 4 firms have 4 approved technologist, 1 firm has 6 approved technologist, and 1 firm has 10 approved technologist in their Quality Control Laboratories. Seafood industry's export performance depends on the quality of fish and fishery products exported in the international market and the ways and methods chosen to meet the international standards. For meeting the quality requirement of seafood industry efforts and contribution of approved technologist in QC Laboratories services are more relevant.

At least one approved technologist must be there in every seafood export processing industry. The approval of technologists is done only after the technologists are assessed and found fit by the Inter Departmental Panel (IDP). The Head office of EIA shall arrange assessment of the technologist by the IDP. The approval granted to the technologist is valid for only two years from the date of approval and after two years the technologist shall apply afresh to the controlling office of EIA along with the required assessment fee for reassessment of the technologist by the IDP. This requirement is mandatory for the running of a seafood export processing industry. As the validity of the approval is just for 2 years, it demands the technologist to be more vigilant and to update their quality sustainable process.

Safety Standards adopted by seafood export processing plants are USFDA (Codex), EU, BRC, ISO2200, HACCP and FSSAI and is shown in Table No. 3. Among this Safety Standards HACCP is mandatory. 48 surveyed units have European Union approval number and can be export to EU Countries. Food Safety and Standard Authority of India (FSSAI) was formed in August 2011. Out of the 55 surveyed units 44 plants have initiated the licensing procedures and have been mandated by the Food Safety Standard Act, 2006. These various standards can be viewed as non-tariff barriers to trade and has become more restrictive.

Sources of information on changing standards and regulations in importing country can be attained from seafood associations, government agency, foreign affiliates and foreign buyers.

Survey indicated that SEAI and Government agencies have significant role to provide updated changing standards information to the concerned seafood export processing firms.

Table No. 3 Seafood Safety Standards

Standards	No. of Units
USFDA	30
EU	48
BRC	24
ISO 22000	34
HACCP	55
FSSAI	44

Source: Survey Data

An analysis of the survey of the firms revealed that out of the 55 units 45 seafood companies purchased raw material for export only i.e. their extend of export is 100 percent. 3 surveyed units have 95 percent of the raw materials meant for export, 3 surveyed units have 90 percent, 3 surveyed units have 80 percent and one surveyed units have 60 percent of these products. This is due to the change in the consumption pattern in the domestic market.

Of the 55 surveyed units, 31 units revealed that they are confronted with import detention and rejection for the past five years. 18 units pointed out that they adhere to the international quality standards. Survey indicated that 65 percent of the rejection and detention are from the European Union. The main reasons for detention and rejection are due to the presence of biological, chemical and physical content viz. salmonella, antibiotic, cadmium and heavy metals. Other issues like provision of inadequate information, coding mistakes, default in packaging and deficiency in labeling and documentation delay. Loss of demurrage cost varies between 3 lakhs to 3 crores. The loss or demurrage can be overcome, if it can be resolved by repacking or relabeling and then diverting the consignment to a next destination if possible through agents available in the landing locations. But if the rejection is due to antibiotic issues, consignments will not return to the original destination and such consignments are destroyed within the importing destination border which incurs huge losses to the exporter and makes them almost

bankrupt. This is one of the most serious problems faced by the exporters. Another important issue noted is that international standards vary from one market to another quality standard due to varying modern scientific techniques and importing requirements. Seafood export industry had to promote harmonization of quality assurance standards among the trading nations to avoid paradigm shift.

1.4.2 Expenses for complying with Quality Standards

Out of the 55 surveyed units, 46 units availed subsidies provided by MPEDA for complying with quality standard improvements. Upgrading the international quality assurance standards is an indispensable part of seafood export processing industry. The European standards are more stringent than other standards. The Seafood Exporters Association of India claim to have spent US$25 million for upgrading their facilities to meet the regulations. HACCP training is mandatory for all the seafood export processing industry. Survey revealed that EU and USA required expenditure from 10 percent to 60 percent of sales revenue to comply with their standards and regulation which is 10 percent to 30 percent for Japan, China and South East Asia. Change in the expenditure on standard and regulation compliance parameters are taken as preprocessing, processing, upgrade technology, improving quality standards, HACCP Training, Sanitation facilities, Administration and Management. The benefits of compliance with standards parameters are taken as cost saving and efficient parameters and it includes. HACCP certification programme, improved consumer confidence in safety of seafood, increased prices due to compliance with standards, decrease spoilage, improved operational efficiency, green technology, market access and product differentiation.

1.4.3 Export Market Competitors

Analysis of the survey revealed that there is export competition between countries and among seafood exporters within the country. Thailand, Indonesia, Vietnam and China are the major export market competitors. Survey also specified that price competition among the seafood exporters resulted in low profit margin. Tight competition among the seafood exporters resulted in an increase in raw materials price and emergence of more intermediaries in the supply chain.

1.4.4 Extent of Non-Tariff Barrier

Saqib and Taneja(2005) found that the incidence of non-tariff measures on India's exports to ASEAN and Sri Lanka has increased. About 60 percent of the survey units accepted that the changing trade barriers in the exporting countries affect the export performance which is a real challenge for profit making and running a meaningful business. The Government agencies in importing countries takes more time to approve establishments, and the continual changes in policies delay the export permit licenses.

Table No 4 Level of Trade Restrictiveness of Non-tariff Measures

Country	Not at All Restrictive	Moderately Restrictive	Extremely Restrictive
European Union	3 (5 %)	7 (13 %)	45 (82 %)
USA	2 (4%)	29 (52%)	24 (44 %)
Japan	6 (11 %)	10 (18 %)	39 (71 %)
China	30 (55 %)	23 (41%)	2 (4%)
South East Asia	37 (67 %)	18 (33 %)	NIL
Others(Specify)	41 (75%)	13 (23%)	1 (2%)

Source: Survey Data

Quality issues in European Union reduced the quantity exported to such countries. Analysis indicated that 40 percent of the surveyed units are not affected by the changing trade barriers as they are strived to cop up with the situation and succeeded. They certainly are alert and have always find solutions to their problems. Analysis of the survey showed that the level of trade restrictiveness of Non-tariff measures is presented in Table No.4. The Survey revealed that 84 percent of the surveyed units stated trade to EU countries is extremely restrictive. About 52 percent of the surveyed units pointed out that trade to US is moderately restrictive. Another 55 percent of the seafood exporters revealed that China's trade is not restrictive. About 67 percent indicated that South East Asian trades are not restrictive. Gulf and Iran are not at all restrictive.

Improving Quality Standards by implementation of National and International Standards, promote brand in the Market, improve sanitary conditions, minimise losses and change the working atmosphere of the unit are the major challenges faced by the seafood export processing

industry. Analysis of the survey observed that the third party inspections on quality, facility and social ethical are costly. Survey analysis showed that social ethical sourcing audits are to be included in the firm. 100 percent of the survey units have an assimilation to keep themselves updated to all quality standards information for a stable running. Out of the 55 surveyed units 50 units i.e., 91 percent revealed that seafood firms incurred additional cost due to inspection. 69 percent agreed that the seafood export processing industry faced sudden changes in rules, laws, regulations and policies. Among the surveyed unit 75 percent are satisfied with the measures taken by the government regulatory authorities to face the challenges in export industry. 84 percent of the surveyed units have well equipped lab and testing facilities to ensure proper quality drills and material traceability. The industry has to face stringent import norms by EU and USA and competition from other ASEAN seafood processing countries. Lack of trained manpower especially non-availability of workers for value added production. Survey revealed that value-added products or ready-to-eat seafood product should expand its production units to meet the changing demands and consumption patterns of the consumers both domestic as well as international.

1.6 Conclusion

Seafood processing and exporting is becoming competitive globally. The challenges faced by the seafood export processing industry are complex and numerous. The findings of the study have significant policy implications, in the sense that it throws light into the present seafood export scenario and pinpoints the barriers to entry for export. The more stringent quality standards imposed by importing countries regulations might lead to higher cost to producers, which in turn, may affect their comparative advantage in international market. In order to have compliance with standards in export markets for fisheries, we require a well-developed infrastructure, including fish landing centers, processing facilities, refrigeration capacities and efficient transportation facility in place. Majority of the importing countries stipulate on many Non-Tariff Trade Barriers (NTB) in the form of Sanitary and Phyto-sanitary (SPS) and other legal measures. The Kerala fisheries sector contributes to foreign exchange earnings, productive employment generation and nutritional security. A renewed approach is needed to promote private and public cooperation for establishing an efficient quality infrastructure and to upgrade the seafood export from India.

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