



EU Food Safety Regulations: Implications for the Indian Marine Exporter

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ABSTRACT *The case is based on a real business situation of Indian shrimp exporters who have to face border rejections due to EU food safety regulations. The regulations are said to be the best in the world for food safety of the consumers. What are the implications for the exporter who is generally from the small and medium sector? The case analyses the implications and suggests a way forward.*

1 Introduction

India has rich marine and inland water resources and fisheries form an important sector with regards to employment, livelihood, foreign exchange earnings for the country and above all food security.

The Indian fishery sector gives employment to 14.66 million people including ancillary activities (net making, processing,

cleaning, fish vending, etc.)¹ The gains in this sector go to the people living in the coastal belt, consisting of marginal farmers and women, who are the vulnerable sections of the society.

In 2011-12, the marine product export earnings crossed the US \$3.5 billion mark. This has been a laudable achievement for the Indian seafood industry.

Table 1.1: Marine products export earnings – a time scale perspective

Export details	1980	1990	1995	2000	2008-09	2009-10	2010-11	2011-12
Qty (ton)	74542	133653	208143	421075	602835	678436	813091	862021
Value \$ million	278.47	482.27	817.15	1421	1908.63	2132.84	2857	3508.45

Source: Statistics of Marine Product Exports 2005, MPEDA 2007 and Annual General Reports of Sea Food Export Association of India (SEAI).

Export of marine products consists of items such as frozen shrimp, frozen cuttlefish, frozen fish, frozen squid and fresh fish. Dried items have shown a decrease over the years. European Union emerged as the largest importer of marine products. Shrimp retains its position of being number one item (value wise) in the export basket of fisheries. Out of the total shrimp exported the share of the cultured shrimp stands at 80 per cent. It constitutes 49.63 per cent of the total marine product earnings². (Refer figure 1.1)



Figure 1.1 Item-wise details of exports for 2011-12
Source: MPEDA press report 2012, available at www.mpeda.com

1.2 Direction of Exports

For India the traditional markets have been USA, European Union and Japan. This trend was seen since the last decade. The present scenario of direction of exports is that, the largest share being taken by the European Union at 25 per cent of the total Indian fishery exports. The development in the last couple of years has been the development of the South East Asian nations market which stands at 22 per cent and to China at 21 per cent (2009-10, MPEDA figures).

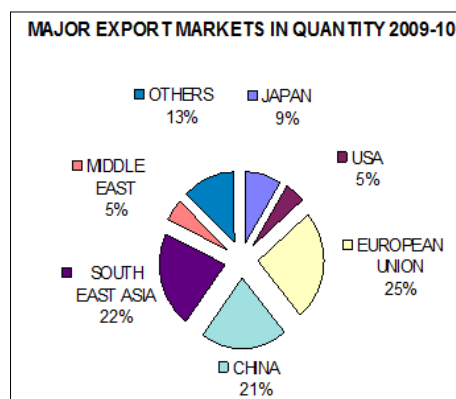


Figure 1.2 Details of major export markets for 2009-10 in terms of quantity

Source: 40th Annual General Report of SEAI, 2012.

The objective is to increase the value of exports of marine sector to US \$6 billion by 2015³. The sector can provide good nutritious animal protein for the world population and also fulfill the objectives of food security. The production of captured fisheries has remained stable, while the aquaculture production has increased. Developing countries continue to be the main partners for fishery export as the main importers are still the developed countries.

1.3 Challenges Faced by the Indian Exporters due to EUs Stringent Food Safety Regulations

M/s Priority Marine Exports, a company based in Andhra Pradesh has been conducting business of exporting approximately 600 containers per annum of shrimps since the last six years. Their present annual turnover is US \$5 million per annum. The product exported is a mix of cultured and the sea caught varieties of *P. monodon*.⁴ The said species is

a specialty from the Indian market and fetches the company a price of approx. US \$8-12 per kilograms depending upon its size. Value addition to the product can also fetch a high price. Value added products are the ready to eat shrimps on skewers, breaded varieties, shrimp dimsums, the shrimp samosas and shrimps sprinkled with natural herbs particularly for the health conscious consumers. Value added shrimp products stand at 4.2 per cent of the total shrimp exports of India (Geethalakshmi et al., 2008). Indian market is largely selling the basic processed variety. The variety which was being exported by M/s Priority Marine Exports was either Block Frozen (BF)⁵ or Individually Quick Frozen (IQF)⁶. The company had invested in machinery to make the product IQF. This way the frozen product would be packed piece by piece in cartons and is a much favored product compared to the BF.

The company's experience in the past years showed that the importing country regulations were getting stringent day by day by having specific border controls. The consignments could be subjected to sampling at the border. The selection of the containers to be checked was based on specific risk assessment procedures. The assessment technique was based on carefully chosen criteria such as the risky exporter, a risky country or region, or based on some information collected by the intelligence team or even just on a random basis. The EU food safety regulations since 2005 had a basic theme – 'farm to fork approach' – where the links between the farmers to consumers had to be strengthened so that the food safety and health of the consumers comes on top priority. Food safety authority could pick samples not only from the border but also from any of the other links like the warehouse or retailer. The food product was subjected to various checks for:

- Any spoilage like putrefaction;
- Physical contamination⁷ like body having mud;
- Chemical contamination like having antibiotics as a metabolite;
- Biological contamination like having micro-organisms, such as bacteria.

The company was well aware of the risks involved in exporting the EU countries. The company had two processing units which were EU compliant. The company had not done backward integration of owning farms or hatcheries. It had to depend on the raw material for processing from the local farms in and around Vishakhapatnam.

The European Union had banned shrimp exports from India in the year 1997. The reason given for this was lack of proper hygienic processing facilities. Later lifting the ban after nine months they signed a Memorandum of Understanding (MOU) with the Export Inspection Council, (an Inspection Agency of the Government of, EIC) recognizing it as the competent authority for issuing health safety certificates to the EU shrimp exporter before each shipment and taking the responsibility for safety of the shrimp products reaching the EU. As per the regulation, Reg 178/2002⁸ an exporter before starting exports to the Union had to get its processing unit approved of export worthiness from the competent authority. The company had to be registered as a potential EU shrimp exporter and only then could it plan to start its operations to the EU. It was mandatory for the company to have a well-defined processing unit, with an in-house laboratory, a delineated area for cleaning and processing. The regulations even spelt out the window size in the processing area so that the working area is well aerated. Trained workers were employed in these companies. They used potable water for cleaning the harvest of shrimp. Each EU compliant unit was compulsorily asked to have reverse osmosis plants and ice flaking machines. The company also had a regular variable expenditure of throw away gloves, head gears, working area footwear, sanitizer and soap solution to be used while the processing is under progress. The certification of EU complaint unit was obtained from EIC. A team consisting of EIC, Marine Product Export Development Agency (MPEDA) and Central Institute Of Fishery Technology (CIFT) visited the unit and inspection of its

processing facilities was done with respect to the EU regulations. The team gave suggestions to improve the area of sorting which was the first step when the produce was brought to the processing unit. The placement of the same should be in such a manner that it lies next to the processing area. The unit complied with the same and obtained the EU compliant certificate after which it could start exports to EU.

1.3.1 Quality Policy

The quality policy of M/s Priority Marine Exports was based on three principles:

1. The quality should conform to the customer's requirement.
2. The quality policy believes in prevention of errors rather than corrections in the final product. Hazard Analysis Critical Control Points (HACCP) as prescribed by the EU Regulations.
3. Aiming for no errors and all employees, understood how to perform their job and doing it right from the first time itself.

Below is the process flow⁹ being used by the company for IQF products. In each of the steps, care is taken that no external contamination takes place. It is a labor oriented industry and care has to be taken that there is no contamination from the workers side too. Proper working uniforms and aprons are provided along with gloves, head gear and footwear. If any worker has had any infection or a cut wound, he would not be allowed to work.

1.3.2 Process flow description – IQF

Raw material receiving – Raw material comes in a truck to the intake area and unloading is done through the chute door. It is ensured that prevention of dust, insects and any other foreign material is prevented from contamination. Unloading starts after quality evaluation is done by the quality personnel. It is checked if icing is done properly by layering and mixing method.

Weighing – After de-icing and draining, the weight is recorded in the log book.

Beheading section – This is the area where heads are removed without affecting the quality and yield of the product. Legs are also removed in this section. As material comes to the beheading table, spot checks are made to ensure the uniformity in beheading and general quality parameters. Good Manufacturing Practice¹⁰ (GMP) are part and parcel of the quality program.

Waste disposal – The head/leg waste is then collected in bags and stored temporarily and later disposed.

Washing – The material is washed with potable water containing chlorine concentration of < 2 ppm.

Grading – Manual grading is done and the segregation is done on the basis of the size of the shrimp. This leads to conformity with the grade as per the buyers' requirement. If some of the sizes are different than what is required, it is stored separately. The material has to be kept with proper icing.

Rejections – Any material is removed if there is discoloration, shell/tail is broken, black spots, or physically damaged pieces. These are again stored separately.

Sorting/peeling – The graded material is washed with chilled potable water with, < 2 ppm chlorine. Now peeling of the material is done as per the requirement of the buyer.

Chemical treatment – Raw material is sent to the soaking section where the product is treated with STPP (other phosphate) and salt solution for a prescribed time limit.

Freezing – Material is fed into the de-water elevator which takes the material to the freezer. Freezing is done using a

double conveyor flow freeze, where the cooled air freezes the product by ammonia refrigeration. After this the product is shifted to the glazer, where glaze water is sprayed through nozzles. After glazing the product is passed through a checking conveyer where defective pieces are sorted out manually and the product is conveyed to the glaze hardener, where it gets hardened.

Shipment – At shipment time the product is to be shipped as per the buyers order. Defects, if any, should be rectified before shipping. Any packing defects such as improper markings, labeling, or torn cartons should be corrected.

1.3.3 Problem in Quality

In 2008, the company got a huge order from its regular client for 70 tons of material to be shipped every month for a period of six months. The first set of consignments was to be shipped in April, 2008.

The harvest was bought from the nearby farms and after taking due diligence on the safety norms, packing was to be done in cartons (as per the specifications of the buyer). Samples were tested by the local EIC office and health certificate were issued by them. Material was shipped as per the order requirement at the port of destination as Felixstowe. At this juncture the border inspection team of EU came and took samples from all the containers. In further checking, four of its containers were found to contain traces of nitro furan, a banned antibiotic. The official limit of the same was nil, i.e. zero tolerance towards nitro furan. Nitro furan is used as an antibiotic, but due to its harmful nature, this antibiotic has been banned in many countries. The EU banned the use of nitro furans in food producing animals Annexure IV (list of pharmacologically active substances for which no maximum residue limit can be fixed as per council regulation 2377/90 (nitro furans may lead to cause cancer or genetic damage in rats)¹¹.

Immediately, the EU health authorities put them on red alert throughout the 27 EU countries. This was done through the Rapid Alert System for Food and Feed (RASFF)¹². The company in the next fifteen days was also exporting consignments of processed shrimp to Spain and Italy. The red alert meant that:

- M/s Priority Marine Exports was informed that the products of the four containers would have to be sent back to India. They are not worthy of consumption as they have tested positive for nitro furans.
- Any further consignment reaching any of the other EU members would be subjected to inspection and sample check.
- Only if the said company has ten of its consecutive consignments cleared at the UK port without any quality problems (samples would be taken to analyze for the physical, chemical, or micro-biological contamination) and after clearing the said condition, can the company's name be removed from the red alert.

The consignments reaching Spain and Italy were detained and inspected. Five containers each reached the respective countries. Hundred per cent checks were conducted and samples were drawn. The sample report was right and only then did the containers were allowed to off load at the port of destination. Though no quality problems were detected at the subsequent ports but the consignment got delayed because of the condition of cent per cent checks which made the exporter loose on time and money. Loss of the value of the four containers in UK was a big loss for the company. Temporarily, exports to the UK got affected. Even though the consignments to Spain and Italy got cleared, the company still continued to be on red alert for months together. This meant not only a monetary loss but a reputational loss too.

The EIC of India black listed the company. They wanted an explanation from the company on its use of banned antibiotic. On checking the records the inspection certificate was

given by an EIC laboratory in Bhimavaram itself. On further investigation the company realized that in the four containers rejected they had sent produce from four farmers. One of the shrimp farmer was not a regular supplier. The produce from this farm had been randomly checked and found to contain no traces of antibiotics. The produce from this was not packed in one container, but spread out in all the four containers. The company immediately contacted the concerned farmer and warned him of dire consequences. He was not using Good Aqua culture practices. Afraid of the out breaks of any viral/bacterial diseases he might have used the said antibiotic, but did not know if there were any alternatives available to prevent the diseases.

The Director of M/s Priority Marine Exports had put up a processing plant for Rs. 8 crore with a processing capacity of 50 tons per day. The capital expenditure had been high in terms of the IQF set up, laboratory expenses, kits used for testing chemical and micro-biological testing. A reverse osmosis plant and ice flaking machine. The company followed strictly the EU regulations and was making regular expenses towards head gears, special foot wear, white coats, and good manufacturing practices in order to prepare a world class product. The company had prepared a HACCP manual and was practicing the same to the best of their abilities.

1.4 Importance of the Production Chain and Control of the Links

In the meetings organized by EIC and SEAI they were aware that quality issues were coming up in the EU market, but the company director was confident of their product being made strictly as per the EU regulations. The big question that was to be addressed is that, how did the company encounter this situation? What measures could have been adopted to avoid being in such a situation in the future? It is important to appreciate that the processor-exporters are at a great risk if these rejections happen on a repeat.

Shrimps decompose faster when compared to fish. They have higher free amino acid content with respect to fish and are easily worked upon by the micro-organism in decomposition activity¹³. The major disease causing agents are vibrio spp and viral agents. Viral diseases cannot come under control by antibiotics but they can curb the bacterial infections. Pathogenic bacteria such as vibrio pathogens are naturally occurring in the seawater. The farmer uses the antibiotics as a precautionary measure against bacterial and viral potential infections.

In the production chain of the product, the starting point is the hatchery level where the animal reaches the post larva stage 18 (PL18) which is the marketable stage. This is then bought by the farmers and introduced in their farms. Here, the shrimp reaches its mature stage to be marketed further to the processor. The processor-exporter is the direct link between the importing countries and therefore is well aware of the regulations that the importing country is practicing.

The controls at the farm level in India started with the formation of Coastal Authority of India in 2005. It had a mandate to register all the farms in India and issue a license for the same. Long delays and the cumbersome procedure of registration deterred many farmers to apply for registration. Only a tenth of farmers in Andhra Pradesh are registered, and they still carry out the activities of farming and are supplying to some of the well-known exporters (Salagrama, 2004). At the hatchery level, there is in-house testing of the level of pathogens. At the processor end, most of the importing country regulations become applicable. The control of food safety on behalf of the Indian government too is at the same level. HACCP is practiced at this level and since critical control points are established at processor's end it is closely monitored too by him. He has to get a pre-shipment inspection certificate and health certificate from EIC or an EIC approved laboratory. The lacunae in this type of arrangement could only be:

- In the sampling methods practiced. Generally the sample from a container is taken and checked. A 10 per cent

sample is picked up for checking. If while packing in a container there are more than three farms produce it is likely that one of the farms produce is missed out in the sample.

- Lack of sophisticated testing machines at EIC or their approved labs. Our machines may not be able to provide us the results to the accuracy as expected by the buyer.
- Lack of training for the employed technicians. They should be capable of handling the new lab equipments.
- Lack of knowledge of the buyer country requirements. The food safety regulations are in a state of evolution. On one hand the government wants to provide the people with safe and healthy food and on the other the consumer is getting more and more discerning. The flow of information is not correct. In most cases the exporter learns of the regulations from the importer. Sometimes even as late as when the goods are ready to be shipped.

1.5 Conclusion

Food production chains have got complex over time. World food trade has had a fast progress and with excellent freezing techniques available and refer trucks and containers availability, fresh and processed food can reach to any part of the world. In case of fish and fishery products, develop-

ing countries supply more than 50 per cent of the world fish trade. The main consumers are the developed world. There is a growing concern amongst the developing world exporters that the food safety regulations are getting strict with time and complying with these is eroding their profits and market access.

The case study shows that having strict quality controls only at the processor level may not suffice. To produce a quality product we need to strengthen our own home country regulations. There seems to be an urgent need to reach to the bottom of the value chain like the hatchery owners and the farmers. Educate the exporter on the importer country regulations. Enhance training programs. Above all practice the Quality methods like HACCP throughout the production chain. Keep a strong check on the link points of the production chain so that the quality of the product does not suffer. Clearly quality comes at a Price. Will the consumer be ready to pay this price in the competitive export Market?

(Note- the case was prepared on the basis of survey of shrimp exporters of Andhra Pradesh. It is based on real business situations Names have been changed to maintain anonymity.)

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