



Fish Processing Sector in Kerala: Concerns and Policies

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Introduction

Fisheries export occupies a prominent place in India's food export basket with the overall export of fish and seafood accounting for 49% of animal product exports from the country in value terms for 2015-16, and for close to 2% of the overall exports for the said year (Statistical Yearbook of India, 2017). Rising international demand led to an all-time high export of 11,34,948 MT of seafood, US\$ 5.78 billion (Indian Rs 37,8700.90 million) for 2016-17, a substantial increase compared to the previous year with around 9,45,892 MT exported, valued at 4.69 billion US dollars. Riding on a strong demand for certain products such as frozen shrimp and frozen fish, this industry has been able to maintain a steady export growth over the years. Destination-wise, the USA and South East Asia continue to be the major importers and parallelly, the demand from the European Union (EU) has also shown a steady increase during the period (Press Information Bureau, Government of India (GoI), 7th June 2017). In the export of fisheries produce, Kochi port in Kerala plays a major role as the second-largest exporter at 1,55,989 MT, after Vizag port, Andhra Pradesh, with 1,59,973 MT of marine cargo exported for 2016-17.

Amongst the importing countries, the USA takes a prominent place with a share of 29.98 per cent (in terms of dollars) for 2016-17, displaying an impressive 22% growth, followed by South East Asia, with a share of 29.91 per cent, the EU (17.98 per cent), Japan (6.83 per cent), the Middle East (4.78 per cent), China (3.50 per cent) and other countries (7.03 per cent). Interestingly, Vietnam happens to be a major regional consumer of Indian marine produce with a share of 76.57 per cent in India's fish exports to South East Asia (in US dollar), followed by Thailand (12.93 per cent) for 2016-17 (Press Information Bureau, GoI, 7th June 2017).

Frozen shrimp is the item most exported from India. In addition to frozen shrimp, other major seafood items exported from India include frozen fish and frozen squid, with a growth of 22 per cent, 59 per cent and 57 per cent in terms of quantity, rupee value and dollar earnings, respectively (Press Information Bureau, GoI, 7th June 2017). This brief account makes it clear that the sector plays an important role in the export earnings of India.

While appreciating India's export performance it is important to note that fisheries exports are carried out primarily by fish processing units in the country and

hence, their functioning and concerns, if any, need a proper assessment. There is a long supply chain involved in the export process. Inefficiency in any part of the supply chain is also a cause for concern for us. This research, therefore, identifies first the supply chain in fisheries export process before examining the concerns and suggesting certain possible remedial measures.

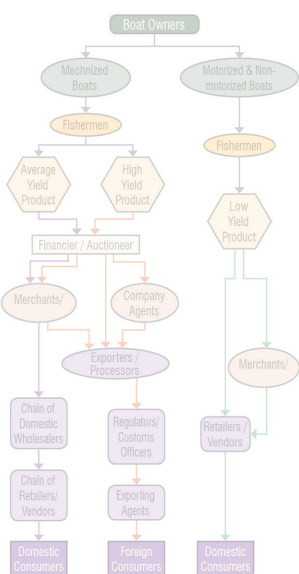
Methodology

We selected Cochin in Kerala as our study area, as most of the fish processing units in India are located here. Cochin port, as mentioned earlier is one of the largest ports in India. Kerala also is home to the largest number of fish landing centres (17) in the country.

Methodologically, this research was conducted involving primarily a qualitative survey, focus group discussions, as well as participant observation. We visited Cochin for field survey and interacted with 60 fishermen, boat owners, auctioneers and other traders and also the fish processing units, academicians working in this area and Marine Product Export Development Authority (MPEDA) officials.

Identifying the Supply Chain

In this section, we identify the supply chain for marine fisheries exports. The supply chain of marine fisheries starts with fishermen who invest their labour and spend days in the deep sea, braving all odds. Due to non-availability of a sufficient fish stock near the shore, fishing vessels which are now primarily large trawlers undertake deep sea expeditions. As capital investment on such vessels is substantial (about Rs.10 million or more), often small groups of people with capital, own vessels jointly in Kerala. In addition, they take financial help from outside financiers. In most cases, these agents (financiers) also provide funds for working capital needs during fishing trips, which include the cost of diesel, food and other incidentals. These financiers are the most prominent entities in the entire supply chain. When the produce is brought to the shore, they have the first right, and auctioneers (often his employees) determine the price of fish through a process of auction. It has been opined by several fishermen and boat owners during our survey that at this point, they can even collude with some buyers and hence, play a crucial role in the price determination. After keeping his share (around 10%), the rest of the amount received from sale is divided between boat owners and fishermen, most often in a fixed ratio of 60:40. This is the convention followed here as confirmed

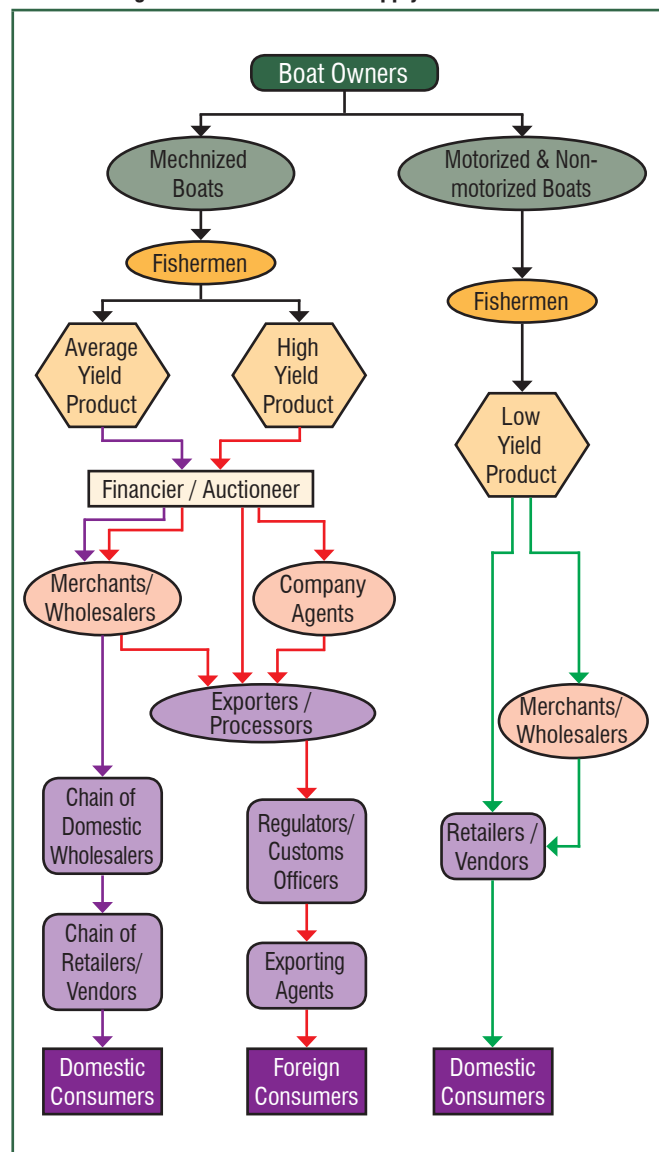


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by our respondents. In certain other states of India, fishermen get a fixed wage, but in Kerala, it is based on the catch. This 40% share is divided amongst the fishermen, and as a result, earning per head is rather low vis-a-vis boat owners or financier and critically depends on the catch. While the supply chain for domestic sale is much longer, for exports, it is relatively shorter. Export houses usually have designated agents for their companies present in the auction process who procure fish, while smaller processing units may procure fish from wholesalers. Many large processing units have their own transport and ice factories, for maintaining standards while transporting fish to the processing units. Processed fishes are then exported to different countries with the help of an exporting agent. At the point of export, regulatory authorities such as the customs officer also appear in the supply chain.

Figure: Marine Fisheries Supply Chain in India



Source: Authors' Construction based on field visits

Fish Processing Sector

Our analysis based on data from Annual Survey of Industries (ASI) shows the presence of approximately 525 fish processing units in the country as of 2016-17. Table 1 shows some of the important features of the industry for 2016-17, while Table 2 provides a few of these selected figures over time.

Table1: Snapshot of the Fish Processing Sector in India for 2016-17

Characteristic	Value	Per unit
No. of Factories/Units	525	-
Fixed Capital (Rs Crore)	4508.67	8.59
Working Capital (Rs Crore)	2376.77	4.53
No. of Workers	59314	113
Total Persons Engaged (No.)	70048	133
Value of Output (Rs Crore)	3836.91	7.31
Gross Fixed Capital Formation (Rs Crore)	953.67	1.82
Profits (Rs Crore)	1011.40	1.93

Note: Rs 1 Crore= Indian rupees 10 million

Source: Computed from Annual Survey of Industries 2016-17, Central Statistical Organisation (CSO), Gol.

Table 2: Fish Processing Sector in India: Salient Statistics (2011-12 to 2016-17)

	No. of Units	Fixed Capital (Rs. Crore)	Total Persons Engaged	GFCF (Rs. Crore)	Profits (Rs. Crore)
2011-12	390	2150.42	42081	590.86	262.51
2012-13	462	2180.97	36773	422.47	451.67
2013-14	466	2460.08	44178	525.29	573.81
2014-15	427	2907.38	53202	519.72	869.47
2015-16	534	4188.08	65825	906.53	1209.92
2016-17	525	4508.67	70048	953.67	1011.40

Note: GFCF: Gross Fixed Capital Formation; Rs 1 Crore= Indian rupees 10 million

Source: Compiled using Annual Survey of Industries Reports 2011-12 to 2016-17, CSO, Gol.

Fish processing activity provided employment to around 70,000 people during 2016-17, representing an increase of 66% over 2011-12. The sector is financially quite viable with profits accounting for nearly 15% of capital (fixed + working), and showing a considerable growth of 285% over the last five years (Table 2), while investment (GFCF) has stood at almost a quarter of current fixed capital, showing an increase from Rs.5908 million in 2011-12 to almost double at Rs.9536 million in 2016-17, which indicates a healthy growth of this sector (see Tables 1 and 2). On the other side, per unit basis fixed capital shows increase from Rs 55 million to Rs 85 million and profits from Rs 6.7 million to Rs 19 million over the period 2011-12 to 2016-17. Given that this is a highly significant sector for India in terms of export earnings, its concerns need to be addressed for a further development of the sector.

Concerns

Based on our field-based discussions, the important concerns of the sector can be grouped under 4 major heads. We discuss below some of the concerns, as reported by our respondents.

Depleting resources leading to scarcity of raw materials

- The major concern facing the processing units in Kerala is the scarcity of raw materials. Sea fish catch over time shows a declining

trend. In addition, there is an element of uncertainty associated with catches. The decline and uncertain supply of raw materials, in turn, have made the processing business uncertain and less profitable- which in turn, could be attributed to excessive fishing activity carried out using modern large trawlers. Many of these processing units have made substantial investments on plants and machinery with most of them satisfying high standards required for EU certification. But due to the scarcity of raw materials (fishes), they are working at as low as 25% of their installed capacity.

- There are a large number of fishing vessels operating in Indian waters, which has led to an indiscriminate fishing much beyond the rate of replenishment. Licenses are given to boat owners without taking note of the resources available and the existing number of vessels. Many such boats operate even without a proper license, but the absence of adequate efforts towards preventing this practice has led to over-fishing.
- There are also destructive methods of fishing adopted by large boats and trawlers, such as pair trawling and light-fishing that destroy many juvenile fish or even fish eggs, thereby damaging their replenishing capacity. Similarly, net types also matter. Many fishermen use diamond meshed nets in place of square meshed ones. Diamond meshes, when stressed, lack a hole for escape, so small fish get caught and damaged. Such activities adversely impact the breeding of fish, leading to depletion and extinction of fish stock over the course of time. While rich boat owners have access to alternative sources of income, a vast section of fishermen faces the risk of livelihood loss. There are also concerns voiced over the preservation of biodiversity when, for example, sea turtles get caught in the process of destructive fishing (which is not acceptable to countries such as the USA).
- Foreign vessels coming into the sea waters where Indian fishermen fish are also becoming a concern. These foreign vessels are much larger with big nets and take away large quantities of fish, while destroying the smaller ones. This leads to an unsustainable harvest of marine fisheries products. There had been a large scale agitation by fishermen in India against such indiscriminate fishing carried out by foreign vessels in sea areas where Indian fishermen fish. The Dr. Meena Kumari Committee Report also talks about illegal, unreported and unregulated fishing arising from foreign fishing fleets (<https://lexquest.in/meenakumari-committee-report-an-analysis/>).
- With rising income levels within the country, the domestic demand for fish is also rising. Thus, domestic and international suppliers compete with each other, making the scarcity of raw material even more pronounced.

Long Supply Chain

The presence of large trawlers and boats is increasingly affecting the business of small fishermen. However, the fishing methods adopted by small fishermen are relatively more environmentally-friendly, and since these fishermen often sell directly to the final consumers or retailers, the value that accrues to them is also much higher. The duration of their being in the sea is also lower, which helps improve the freshness of their catch. Large vessels, on the other hand, remain in the sea for a longer time and often do not even return to the shore due to a high fuel cost involved. After the catch is brought to the shore also, the fish have to go through other intermediaries such as financiers, auctioneers, purchase agents etc. Such a long process reduce their freshness and quality (e.g. the quality of ice used by vessels is often not up to the mark and can cause contamination). All of these collectively raise the costs to be borne by factories.

Bureaucratic Hassles

- Importing raw fish for further processing can be an option for dealing with the problem of raw materials shortage. However, there are several bureaucratic hurdles coming in the way of imports. Sanitary import permits required for import of fish to be given by the department of fisheries takes time (as reported by certain officials).
Clearing a cargo often takes two weeks in India, while the same takes about 2 days in Thailand (as explained by officials). This increases transaction costs besides deteriorating quality.
- With regards to tariff, literature reveals that shortly after liberalisation in 1991, India had considerable import tariffs. Despite economic reforms in 1991, seafood product imports to India attracted some of the highest tariffs in the world (FAO Report, 2002, www.fao.org; accessed on 2nd April, 2019). However, following the Uruguay round, tariffs were reformed for the seafood sector, and using data from the WTO's WITS Database, we find that the average tariffs for such products (HS Code '03') imposed on imports from most favoured nations (such as WTO member states) is around 30% as of 2016.
- Importing of machines by the processing units also faces hurdles, as many questions are asked by the officials.
- Regular inspection of products by the customs office in the company premises is another issue which increases costs of the processing units. Companies view that at least those units with a good track record should be given a certain level of exemption.
- Countries like Canada or Australia demand certain specific tests to be done for the presence of certain pathogens. However, India has no such designated office for carrying out some of these tests. As a result, certain exports may get rejected.

Infrastructure Bottlenecks

- Infrastructure in the landing centres is not up to the mark. Hygiene conditions are short of what is demanded by international agencies. Thus, when international authorities come from the importing countries such as the USA for inspection, establishing India's quality superiority in export markets becomes a problem.
- There are also problems of transportation from the landing centre to the processing units. Transportation is done by large refrigerated vehicles which are rather expensive. A pathetic road infrastructure damages these vehicles, inflating costs for the processing firms.
- Another important concern relates to the absence of airport connectivity to the Kochi port. East Asia is not connected by air at all. For EU or Tokyo, fish cargo going via Dubai reduces freshness besides increasing costs. Especially for ornamental fish (live fish), a better air connectivity and swift delivery could be really helpful.



22-metre trawler at Munnambam fishing harbour, Ernakulam



Purse seiners on a fishing trip from Thoppumpady harbour, Kochi

- Fish being a perishable commodity, it needs a constant refrigeration. Thus, electricity is a major requirement for the processing units. Lack of quality supply of electricity is another major concern for this sector. Due to an inadequate and uncertain supply of electricity, factories are forced to keep their own generators, involving an additional cost.

Policy Suggestions

In order to address these concerns, policy interventions on several fronts are necessary.

Shortage of Raw Material

- Over-fishing in the deep sea waters in a manner that is unsustainable needs to be strictly curbed. While there are laws put in place to deter such actions, enforcement of the same needs a significant improvement. A strict vigilance by the authorities is absolutely necessary.
- As reported by boat owners, there are about 5000 mechanised fishing boats in Kerala. Giving indiscriminate licenses to boat owners and allowing them to fish where resources are limited need to be urgently stopped. At the same time, illegal boats need to be identified and seized.
- Fishing methods such as lighting, which uses LED lights, are destructive. A scientific environmental impact assessment needs to be conducted before adopting any such new methods.
- Fishing techniques such as the type of nets used (diamond vs square) also need to be strictly monitored and penalties imposed for violation.

Hassles-free (Bureaucratic) Import of Fish

- Given the scarcity of raw fish for processing and a low capacity utilization of the processing units, import of fish for re-processing can be a useful solution. Import of fish to India should be divided in two categories: one for final consumption and the other for reprocessing for export. As items to be exported have to be anyway certified as per norms, clearance of those should be done in a swift manner with a written declaration that they will be used for reprocessing and exporting only.
- A designated office should be created for testing the presence of pathogens as discussed above. Or else, the fisheries department needs to delegate this power to certain already existing specialized institutions.
- If one could reduce the procedural hurdles, India can turn out to be an important reprocessing hub. India now has a small percentage of high value products in its export mix. Given the competition, Indian industry needs to improve the value chain in order to move more towards high value products. This is all the more important in the face of scarcity of raw materials.

Supply Chain

- The long supply chain reduces quality, increases the value of raw material and is responsible for the poor economic condition of fishermen.
- Boat owner associations, in this regard, complain that the real owners of fish (boat owners and fishermen) have no say in the price determination of their products. The middlemen buy fish at a price that would usually fetch them high profit at the time of reselling to small vendors and other prospective buyers. Often the middlemen

pocket more than what fishermen get (as per a memorandum by the Boat Owners Association dated 08-11-2018).

- The concerned authorities have not paid the required attention to such issues and as a result the middlemen often make profit at the cost of fishermen. One possible solution to this problem is the establishment of government supported cooperatives which provide financial aid to fishermen besides helping them market their product. Through direct selling of fish by fishermen themselves by opening co-operative societies or other un-exploitative agencies, the role of middlemen could be reduced besides facilitating fishermen to realize better prices.
- As fishermen cannot afford to buy large boats, consequently they become labourers for the boat owners; added to this is the problem of long chain of traders. As a result, fishermen's share in consumers' rupee tends to become low. The Kerala government has recently announced a new policy stating that fishermen would have the first right over the catch. It is necessary to examine carefully how to operationalise such a policy.
- Lack of affordable credit is another major barrier to owning fishing vessels by fishermen and this problem can be addressed through the interest subvention scheme plus an easy availability of credit. Without a formal credit access, the financier as a middle man comes into the picture, bringing the auctioneer with him. Subsequently, the supply chain lengthens.
- Our discussion with the boat owners' association members clearly indicates that the information regarding certification necessary for exporting fish to other nations as part of phyto-sanitary measures needs to be percolated right from exporting houses to the basic sector. Processing firms are well aware of these rules due to their frequent interactions with importing nations. Fishermen, however, are largely unaware of these rules. Issues of hygiene start from the netting off fish and hence, crews of fishing boats need a proper education. Several changes have to be introduced in fishing vessels to reduce unhygienic practices and all crew members need to be well informed and educated in this regard. The monetary benefits accruing from these changes in their daily routine have to be firmly established in their minds (As per letter dated 27-04-2018 from Boat Owners' Association to the Minister of Agriculture, GoI).

Infrastructure Improvement

- Infrastructure in the landing centres needs to be improved. Proper sanitation and drainage facilities are necessary for ensuring the quality of fish to be processed.
- Better physical infrastructure facilities in terms of good roads and quality supply of electricity are other necessary steps that need to be considered.
- Establishing a proper air connectivity to some of the important exporting locations can help improve India's export competitiveness by reducing time and cost.

If some of these required measures are taken up by the respective authorities, there is a greater possibility of the processing industry improving further. The fisheries sector has been demanding a new ministry at the centre to take forward some of the policies meant to benefit this export earning sector. Following the last budget, at least a separate department for fisheries came to be established. We hope that the department will address some of the concerns discussed above with appropriate remedial measures initiated.

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