Developing Country Studies
ISSN 2224-607X (Paper) ISSN 2225-0565 (Online)
Vol 2, No.5, 2012

Fishery Commodity Chain Trap vis-à-vis Global Quality Standards: An Analysis of the Kerala Marine Fishery

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Abstract

The article examines the commodity chain trap of marine fishery in Kerala, at both material and value terms, and its ramifications in the globalised fishery chains. The marketing chains both material and value, are very complex in nature since they involve many types of markets and large number of intermediaries and participants. The article also scrutinizes the sensitivity of consumers' and country's responses in terms of dietary and hygienic standards relating to seafood trade. In addition, it discusses the devastating effect about the recent stipulations like the US Bio-Terrorism Act and Shrimp anti-dumping duty on the Kerala fishery products.

Keywords: commodity chain trap, marketing chain, marine fishery, quality assurance standards, sea food trade, material chain, price spread, value chain, bio-terrorism, shrimp anti-dumping.

1. Introduction

Kerala, the southernmost State of India with 2.8 percent of the population, having 10 percent of the Indian coastline, produces about 19 percent of the fisheries output and 17 percent value of the marine products exports from India. Moreover, Kerala is the hub of Indian seafood processing and export industry. Kerala's fishing industry like elsewhere, is widely recognized to manifest a number of acute economic and biological pressures. The prevailing fishing efforts in the state are beyond the sustainable level of fish stock signifying the ailments of both biological and economic overfishing. It is of considerable importance to analyse the fishery marketing chain, both domestic and export markets and its ramifications that lead to a fishery commodity chain trap. The competition and threat from various angles in the international marketing network enables to scrutinize the sensitivity of consumers' and country's responses in terms of dietary and hygienic standards relating to seafood trade.

2. Materials and Methods

The roots of Commodity Chain indeed lie in the 'dependency theory' of the 1970s, addressing the issue of who controls the global trade and industry and how agents are locked into lower value segments of trade and industry (Love, 1980). Channel management, between the fishermen and the end-user, influences both the effectiveness and flow of the product through the chain. The major supposition is that improvements in the market system will amplify the opportunities by retaining and adding value in the fisheries sector within the rural regions. Simultaneously, this will help to improve product quality and continuity of supply, benefiting the consumers (Kesavan et. al., 1992).

The article is based on secondary data published by various government agencies like the Central Marine Fishery Research Institute (CMFRI), the State Department of Fisheries, Marine Products Export Development Authority (MPEDA) and various issues of Kerala Economic Review. Data are analysed based on the theoretical framework of supply chain management in order to work out the marine fishery chain .This is first explained with respect to the material and then to the value chain. These are connected further to the chain related problems in the export sector, particularly the commodity chain trap in the form of technical barriers to fish trade, bio-terrorism and anti-dumping duties. It is very difficult to quantify the exact availability of each species in the chain and its valuation in a multi-species, multi-sector fishery like Kerala.

3. The Commodity Chain Trap

When the catch from the marine fishery is in a declining level, it is vital to go for value addition to the output entering the process of exchange. This has increasingly become an important objective of all sectors of the industry over the past few decades. Fundamentally, heavy investment in the harvest and post-harvest sectors for those species meant for the international market, particularly the US, Japan and EU, has recently been embedded in a marine commodity chain trap. This is because majority of the importing countries stipulate many Non-Tariff Trade Barriers (NTB) in the form of Sanitary and Phyto-sanitary (SPS) and other legal measures. Hence, the benefits of liberalized market system that came into being as per the World Trade Organization (WTO) in the marine fishing sector could be undermined. To get relieved from the perils of the commodity chain trap, it is inevitable to ensure quality standards in harvesting and post-harvesting technology of the fishing sector.

4. Material and Value Chains

4.1 Material Chain

Fish marketing in Kerala, from its 222 fishing villages, is very complex as it involves many types of markets and large number of intermediaries and participants. Marketing chain in the fisheries structure refers to the path through which the fisheries output passes through several hands, right from the producer to the final consumer. But all marine fish produced are not consumed fresh and also not sold in the local market. This movement depends on the local specific demand patterns pertaining to different marine species, either in the form of fresh, processed, dried or value added products. Hence, the ordinary marine fish channel is very complex. Figure 1 clearly evinces 42 different marine fish flows in Kerala. Out of these, 24 are prominent chains, and 11 are export chains of which five are very prominent. The export chain is mostly related to shrimp (70 percent value of the marine products exports) and hence it is easy for the importing countries to get ensnared in the chain with intricacy in escaping.

Figure 1 (about here)

The limited number of wholesalers, their joint action in bidding and close understanding through their associations, negate the principle of competitive market structure. Inadequate competition at the wholesalers' level means that the commission agents take higher commission and the crippling effect of this is borne ultimately by the fishermen, who get lower prices. However, open auctioning of fish surplus by the wholesalers to retailers makes the market structure competitive at the retailer level in the final consuming markets. This implies that the market structure is not uniform at all levels. Exploitation, of producers as well as final consumers, prevails at varying levels, from the shore to the terminal market.

Figure 1 the flow of materials with distribution and volume of trade at different levels of market is based on 570013 MT of fish catch in 2009-10 (Economic Review, 2011). The market structure of marine fish is classified into three major market levels: primary markets, intermediate markets and terminal markets. Marine fishermen distribute their harvest to every level, but the highest share (40.1 percent) is sold to the primary markets. After purchasing fish from the auctioneers (including Matsyafed and other co-operatives), the marketing agents pool them to the various assembly markets. Out of the assembly markets/fish landing centers (236 numbers), some are managed by the Matsyafed agencies, a few by local specific co-operatives and other development agencies and the rest (majority of them) by private agencies. Besides, a considerable quantity is also entering into the secondary market without moving into the primary market.

The main share of the output sold by the Matsyafed, other co-operative marketing agencies and private fish agents in the assembly market is grabbed by wholesalers (59.8 percent of total fish volume) followed by retailers (17.8 percent) and fish processors/cold storage (19.2 percent). The wholesalers distribute most of the fish directly to the retailers (about 62.3 percent of what they get), out of which 5.1 percent is sold to processors. Fish transported to the neighbouring states are mostly low valued pelagic species. Processors have yet another route of processed fish distribution. Out of the total processed fish, 32.4 percent is distributed to the wholesalers, 14.2 percent directly to the retailers and the remaining 10.2 percent is exported (high quality, high valued species), mostly to USA, Japan and EU.

Retailers are the last link in the channel before the fish reach the final consumers. From the marketing channel and percentage of marine fish distribution, it can be deduced that 80.6 percent of total marine catch is consumed domestically. Out of the total consumption, 53.2 percent is bought fresh and 27.4 percent is bought in processed forms. Exports account for 14.5 percent of total fish production, and the rest is either locally consumed or treated as waste and fishmeal. The marketing channels in rural areas consist mostly of small-scale wholesalers and retailers, and the fish traded are low-priced, small-size species that are affordable to the consumers.

4.2 Price Spread

Price spread analysis helps to determine the share of fishermen in the consumer's Rupee. Sales are classified into three types: local sale at production centers, sale to consumer centers located away from the production centers and sale to pre-processing and processing centers or agents of processing centers for export market. Inferior varieties of fish are mostly traded in the nearby markets or in the landing centers, and hence they are free from cost of packaging, icing, transporting and other trade margins. Therefore, only average and quality products with region specific demand move to consuming centers located further away from the landing center. But there is no uniformity in the price even for the high quality fish, temporarily and spatially, as the fish move to several intermediaries before reaching the final consumers. In this exchange process, the fishermen's share is the amount given to them by the first auctioneer in the marketing chain. The retailer in this chain gets the final price from the consumer as the consumer price. Several costs and commercial interests are involved in the first to the last part of the chain. The presence of too many intermediaries has placed the fishermen and consumers at disadvantageous positions. The present system of marketing, involving too many intermediaries, shows that collusion is rampant throughout the system, right from the shore to the final market. Some of the fishermen are overcoming the problem of price-spread as they themselves do the business of retailing and vending and in this case, fishermen's share in consumer Rupee is quite high. The fishermen's share decreases disproportionately with the increase in the number of intermediaries. Various studies conducted by the Central Marine Fisheries Research Institute (CMFRI), Kochi, in various places in Kerala show that fishermen's share in consumer Rupee varies from place to place in the range of 15 percent to 55 percent, depending upon the species. Fishermen's share in the export varieties is generally higher in comparison to the local and other regional demand varieties.

In the marketing chain, fishermen have control only in the first sale. Hence, it is of paramount importance for them to have the right to first sale of fish. This will help them to get more gain in the value chain. This is limited by market intervention in the traditional fishing villages of Kerala, the inter-linkage of credit and marketing relations. The first part envisages loans against commitment of future labour, while the other foretells loans against the commitment of future delivery of catch. So, the middlemen are free to exploit the fishermen at their will as they can fix the price for the latter's product as they desire. This monopoly power of the middlemen is the major reason for the fishermen's reduced share in the Consumer Rupee.

4.3 Value Chain

Rapid macro-economic developments and changes, in the expectations of consumers, have led to the diversification of product forms even in the domestic markets and value addition has become one of the focal features of the fish processing industry. Changing consumer preferences, in favour of easy-to-prepare processed fishery products brought about by the changing life styles associated with the MNCs' super market chains as well as increase in consumer purchasing power, have increased the demand for such value added fishery products. There is certainly an immense scope to take advantage of such potential for financially viable business opportunities, which would also help the impoverished fishing communities and the processors to realize better income and improved employment prospects. Value addition increases the economic value of the products and does not necessarily increase the nutritional value. It is aimed at the high-income groups rather than at the nutrition deficient weaker sections of the society. Value addition to under-utilized or low-value species will also help in improving their utility for direct human consumption, which otherwise may become animal feed. Value addition to often-discarded by-catch will contribute towards a more sustainable use of scarce fisheries resources, and will consequently result in higher income benefits for fishermen.

It is vital to consider various ways in which value might be added to the output entering into the process of exchange when there is decreasing quantities within a supply chain. Value addition does not imply further processing of raw materials. On the other hand, it encompasses methods by which the market value of the catch can be enhanced via improved fish capture methods, improved handling, packing and transportation of fishery products. The trend in value addition differs in domestic and international markets. Regarding domestic markets, a trend towards developing 'ready-to-cook and ready-to-eat' products has been observed. In the Asian international market, increased seafood sales directly to the retail sector play an important role in the development of value-added products, particularly in Japan. The recent development in the US market is that US importers are willing to provide technical assistance to processors for producing value-added fish products for the US market. Unlike Japan and the US, European markets are still looking for raw materials rather than value-added products because of the presence of large re-processing industries. However, a shift of interest to value added fish products is noted in Southern European markets.

Considerable investment and restructuring have resulted in radical changes in the fish-processing sector over the last few years. The presence of high quality channels, between the harvested resource base and the market, has also important implications for the fisheries harvest policies and market signals. Overwhelmed by supply constraints, there is a growing, socially derived need to maintain by adding value within traditional supply chains. Channel management, between the fishermen and the end-user, influences both the effectiveness and flow of the product through the chain. The flows of raw material and information within the fish marketing chain make identification of the user groups and individuals easier. This will also help in the profiling of players present within each market including producers, fish selling agents, traders, buyers and the construction of descriptive models of information. Moreover, this will help to assess their positions in relation to the definitions provided by efficient market hypothesis (Ball, 1989).

A value chain analysis of Kerala's marine capture fisheries will allow the market or exchange system to carry out a quantitative estimation of the variables involved, from an economic point of view. It is possible to analyse the price volatility and variation, the source of a deal of income uncertainty in the fishing industry and the profit sharing ratio (p/c, where p is price and c is cost) for evaluating the important socio-economic inferences. Because of the difficulty in obtaining the specific data relating to the value added products (quantity and values) in the marketing chain, a schematic presentation is given in Figure 2 with the shore value and the terminal market value, including the export earnings. The shore value is worked out with the aid of the annual average price for various species (Rs. 43/Kg.) for the 2009-10 catch data of 570013 MT. The terminal value analysis, for the fresh and value added products in the domestic market, is a cumbersome process. However, it is arrived at an average annual retail price (Rs. 58/Kg.) for the difference in quantity after export, by considering wastage of 5000 tonnes while processing 458722 MT.

The profit sharing ratio, which varies from segment to segment, is to be calculated for each segment in the supply chain. If it is high in a segment, it indicates the dominance of the system. There is a possibility of supply chain reformation avoiding such dominant segments. Risk is usually higher in dominant areas, where profit is also high. The optimum configuration will be a blend of moderate profit with moderate risk rather than high profit with high risk, especially when the commodity is perishable.

Figure 2 (about here)

There is the concept of capacity of each segment in the supply chain. The capacity is price and quality sensitive along with other considerations, as it is a food item. In this area, a number of non-tariff and other specification barriers determine the segment capacity, especially in international fisheries trade. The price sensitivity has the effect of decreasing profitability in the segment as more and more material is pumped into it. In practice, the segments cross over to different countries where the currency values are different. This results in a situation in which the higher income countries exert a greater pull on the supply chain, drawing more materials and thereby establishing the supply to that extent.

The products can measure the competitive strength of the value chain and the marketing services' transaction value to its customers, and their rarity in the market place. In terms of value addition, performance, a margin between sales value and production costs, is dependent on the total market power of the value chain as a whole, compared to competing value chain and distribution among the participants in the chain. The source of market power is the

participants' control of the demand and limited trade barriers, which form the industry's value chain structure (Trondsen, 2003).

5. Technical Barriers to Fishery Trade

5.1 Health Safety and Technical Barriers to Fish Trade

Seafood importing countries have adopted legislations for fishery products, with new requirements for domestic as well as foreign producers exporting to these markets. Codex Alimentarius Commission (CAC, 1996) recommended the adoption of a food safety management system, such as Hazard Analysis Critical Control Points (HACCP) in 1993. The CAC recommendations have been endorsed and made mandatory due to the WTO agreements on Sanitary and Phyto-Sanitary measures (SPS) and Technical Barriers to Trade [TBT] (WTO, 1995). The TBT covers all technical regulations, voluntary standards and procedures with the exception of sanitary and Phyto-sanitary measures. An important element of international standards, guidelines and recommendations is the compliance with HACCP, a management system for food safety. Many countries around the world including USA, Canada, Australia and the EU countries have adopted this system, both in domestic and global fish trade.

Bans were imposed due to non-compliance with the safety regulation (administrative detention) on Indian seafood's many a time. These bans caused severe grievances to the fisheries sector in India including Kerala, inasmuch as Kerala being the hub of India's sea food processing export industry (Henson, Saqib and Rajasenan, 2005). The industry sources realized that the ban has resulted in mammoth loss of foreign exchange, jeopardizing the livelihood of about 200,000 people engaged in fish harvesting, peeling, processing and marketing in Kerala. To win through the perils of ever increasing, tougher quality demands from the importing countries, it is high time that the industry responded more quickly by inducting modern technologies available in processing.

5.1.1 US Bio-Terrorism Act

Despite the fact that food is safer compared to any other point of time in history, with increasingly more stringent controls including Hazard Analysis Critical Control Point (HACCP) requirements, confidence in the global food supply has dwindled over the last 10 years. Terrorist attacks on the US on September 11, 2001 have spurred widespread concern about the vulnerability of food supply to intentional contamination, which initiated discussions on food safety issues of the nation. Under the regulation of the Bio-Terrorism Act 2002, every seafood consignment in the US would require prior notice to the Food and Drugs Administration (FDA). The introduction of traceability systems in the food supply sector is a relatively new concept that continues to gain momentum, particularly in the US. It is increasingly becoming a legal and commercial necessity, driven largely by the growing food safety issues including terrorism and demands by the consumer for detailed information on the nature, origin and quality of the food they are purchasing. This means physically tracing products through the distribution chain, and providing information on product ingredients and the effects of production and distribution on product quality and safety. The agency linked mechanism in US for traceability as per the new regulation and other stipulations will be detrimental to the ailing fish economy of Kerala.

5.1.2 US Shrimp Anti-Dumping Suit

The post WTO trade regime in the marine fisheries sector has not been congenial to the Indian fisheries sector due to multifarious reasons. The anti-dumping rule against the Indian shrimp is the recent worry among processors and exporters, following the WTO Appellate body ruling on the US 'Byrd amendment', the anti-dumping lawsuit against 5 countries including India. Shrimp is the most extensively consumed seafood in the US, but according to Federal Government, the US produces about 12 percent of what it consumes. The Seafood Exporters Association of India (SEAI) is of the view that the US move is the biggest challenge that the Indian seafood industry has ever faced. Like many other fisheries, the shrimp industry is also known for fluctuations. The price of shrimp sold in the US during 2009-10 dropped as much as around 40 percent, while the quality of imported shrimp has improved. Therefore, any protectionist move on the part of the US will bring this dispute before the WTO, as dumping tax on the member countries will make them lose the moral justification of their argument on the ground that such an imposition of an illegitimate tax runs counter to the principle of global free trade.

India has vehemently criticized the imposition on the ground that it was simply a protectionist measure calculated to

shield the US shrimp farmers from cheaper and more competitive imports. India sources states that it is not engaging itself in 'dumping', and that its shrimp is cheaper compared to those of the US. It is also argued that since 90 percent of the shrimp consumed in the US is being imported, its consumers could also be hurt by the higher prices induced by the antidumping duty. Indian and Thai stakeholders also expressed their indignation at the alleged contradiction between the free trade rhetoric of the US and its own protectionist measures.

The best possible way to circumvent the duty will be moving into value-added, finished products like 'ready-to cook and eat' materials. This will equip the domestic producers to capture larger shares of the gains from trade, along the production chain. To do so successfully, the exporters will have to incur substantial marketing expenses by developing the necessary brand name involved in value-added products. Just below five percent of Kerala's current shrimp exports to the US are value-added. Kerala's shrimp producers believe that once the marketing infrastructure is in place, the development of necessary technology will not be an issue. For instance, the industry underwent a similar process in 1997, when the EU demanded higher health standards on many types of Indian Seafood.

6. Conclusion

The fish marketing chains, both material and value, are very complex in nature since they involve scores of markets and large number of intermediaries and participants. Value addition will indubitably open doors to financially viable business opportunities which will, in turn, enable the processors to realize better incomes and improved employment prospects. Value chain helps to work out the price volatility and variation, as well as the source of income uncertainty in the fishing industry along with the profit sharing ratio for evaluating the important socio-economic outcomes. The management of the channel between fishermen and end-users influences both the effectiveness and flow of the product through the chain. Heavy investment, in the harvest and post harvest sectors on those species meant for export market, has recently been embedded in a marine fishery commodity chain trap. As consumers' choice shifts from fresh fish to processed fish products, and as they become sensitive to both choice and quality in terms of dietary and hygienic standards, it is imperative to follow the quality standards in seafood trade. Any protectionist move like the Shrimp anti-dumping duty and Bio-Terrorism Act on the part of the US will have a devastating effect on the Indian fishery export sector in particular and the fishery sector in general. However, the question remains unanswered in the current debate on international fish trade: who will bear the extra cost of compliance? A higher consumer price in the importing countries for quality products will reduce the burden of the exporters in Kerala to implement quality standards for marine products. Consumers in the importing countries may have to pay more for safer seafood from developing countries.

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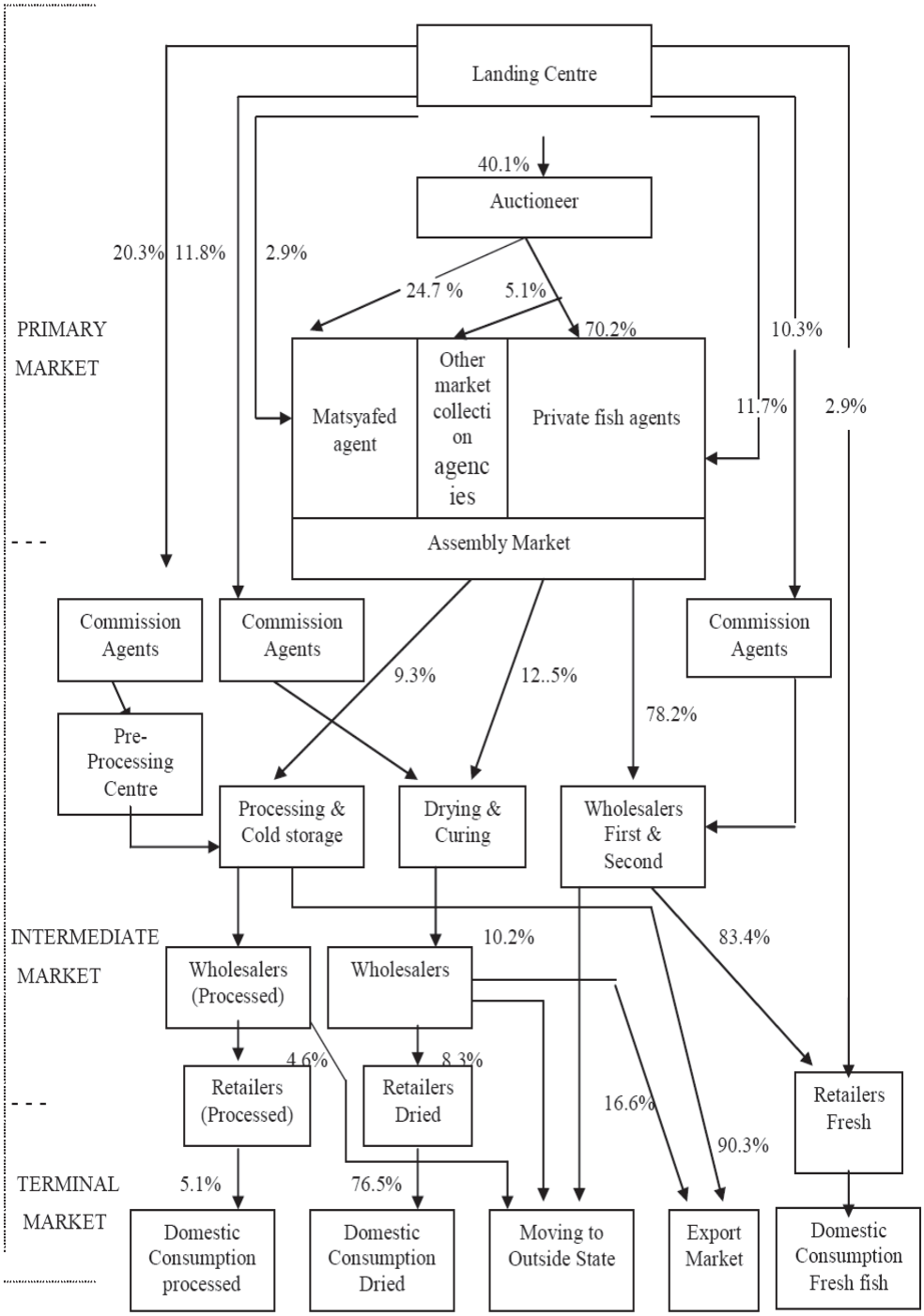

Figure 1. Material Flow of Marine Fish in Kerala

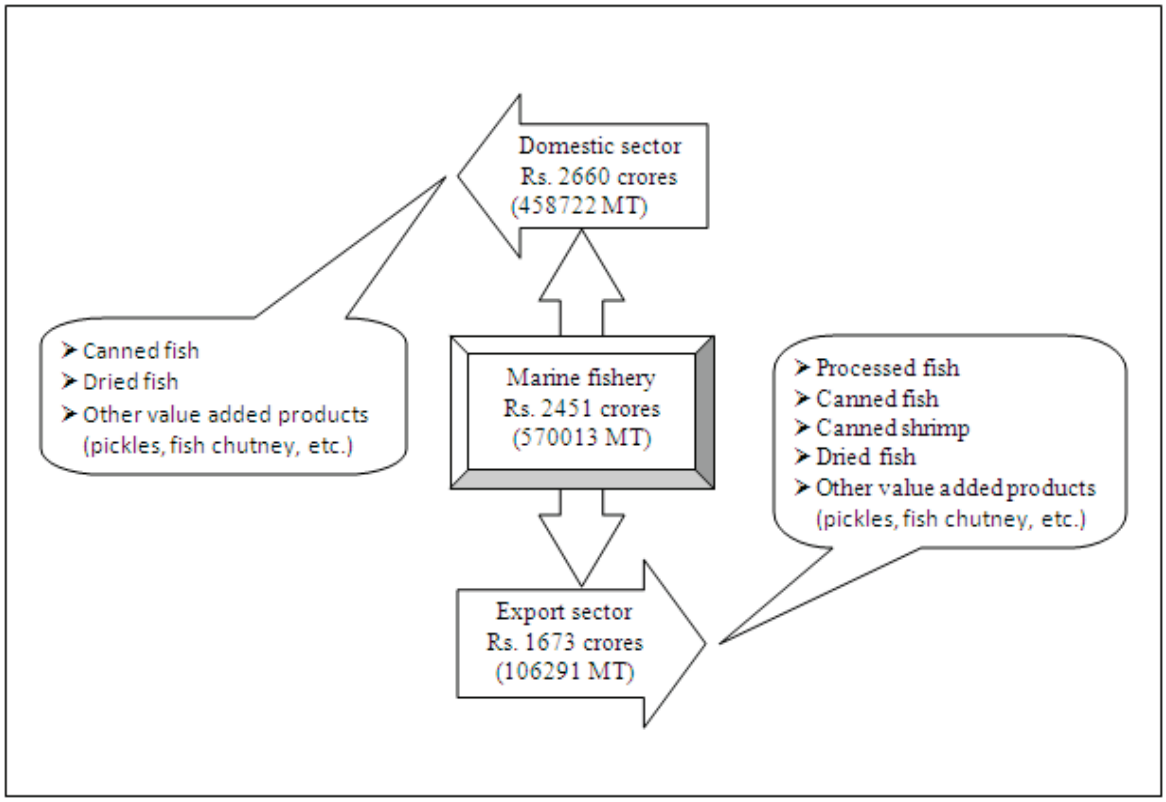

Figure 2. The Fishery Value-chain