Original Research Article

Constraint analysis of Fishermen and market intermediaries of Marine Fish markets in Ratnagiri, Maharashtra

ABSTRACT

Maharashtra ranks fifth in total marine fish landing in India, and the significant share contributed by Pelagic resources (38 %), followed by demersal (28.7 %), crustaceans (24.8 %), and mollusks (9 %). The marine fish landings of Maharashtra during 2020 were 398511 tons, having an annual growth rate of -10.61%. (Fisheries Dept. report 2021), mainly because of the loss of fishing days and lack of fishing labour due to the Covid-19 pandemic. The constraint analysis through rank-based quotient (RBQ) is done to analyse the various problems stakeholders face during marketing in the Ratnagiri District of Maharashtra. RBQ analysis revealed that the High transportation cost, uncertain catch, non-availability of high-grade fish catch, marketing cost (Transportation/Labour etc.), poor infrastructure facilities at the market yard, non -Availability of insulated boxes are the significant constraints faced by the actors involved in the marketing. The policymakers should consider the challenges faced by the marketers of this region to encourage fish marketing by building organized markets.

Key words- Constraint analysis, Rank based quotient, Marketing.

INTRODUCTION

India is the second-largest producer of fish in the world, contributing to 6.7% of global fish production; the fisheries sector is a source of livelihood for over 14.49 million people engaged fully, partially or in subsidiary activities in the industry. The Fish and fish product exports emerged as the largest group in agricultural exports and, in value terms, accounted for ₹ 46663 crores in 2019-20. It has been recognized as a robust income and employment generator as it stimulates the growth of several subsidiary industries. (Handbook of Fisheries statistics,2020). The fisheries sector is a source of livelihood for over 14.49 million people engaged fully, partially or in subsidiary activities in the sector (Ayyapan *et al,* 2011). Globally, fisheries and aquaculture remain the important sources of food, nutrition, income and livelihood for hundreds of millions of people worldwide. Global fish production reached 178.5 million metric tons (MMT) with a contribution of 96.4 MMT from marine fisheries and 82.1 MMT from aquaculture in 2018 (SOFIA, FAO, 2020). The total fish production of India had registered an annual growth rate of 4.35%. In comparison, marine and inland fisheries sectors have registered -3.20 and 7.37%, respectively, during the same period (Handbook on Fisheries Statistics, 2020). Marine fish marketing in India has undergone rapid changes over the years. An increase in demand for fish enhanced the fishing intensity, and excessive need for certain varieties led to target fishing in our open-access fisheries. The perishable nature of fish compels its quick disposal at each point of transaction. Several technological innovations and changes have taken place in the marketing pattern of fish, both in fresh or processed forms of disposal, preservation, storage, transportation, wholesale and retail marketing systems (Sathiadas *et al, 2012)*. The fishing harbors and major fish landing centers all along the coast function as big primary markets and

transformed into large commercial centers. Product diversification and value addition further promoted assured price to the producer in the fisheries sector. Fish markets are unique as typical examples of the country's organized and unorganized marketing systems. Almost 70% of the fish landed at different fisheries harbors and fish landing centers in the country is marketed fresh in and around the landing centers; the rest either goes to neighboring states or is exported (Sathiadas *et al*, 2012). However, according to Ravindranath *et* al, 2008, the domestic fish markets in India are highly unorganized, and the marketing system is inefficient. Market access to the producers and consumers by creating a value chain and organizing trade in fish and fishery products with an emphasis on quality, hygiene and public health is crucial.

To address these issues, current study has been carried out to answer the various problems faced by the Fishermen's and other marketing intermediaries in marine supply chain, the constraint analysis was done Ratngiri Fish markets.

STUDY AREA

The Ratnagiri district is one of the 36 districts of Maharashtra state in Western India. Ratnagiri city is the district headquarters of the District. The district is bounded by the Arabian sea to the west, Sindhdurg to the south, Raigad to the north and Satara, Sangli, and Kolhapur district to the east. The Ratnagiri district is famous for the fish processing plants and contribute immensely towards the fish production in Maharashtra (Konkan division report, 2021). The total fish production of Ratnagiri is 65370 tons in 2020-21, (Maharashtra state Fisheries department)

Map showing various landing centres in Ratnagiri districts

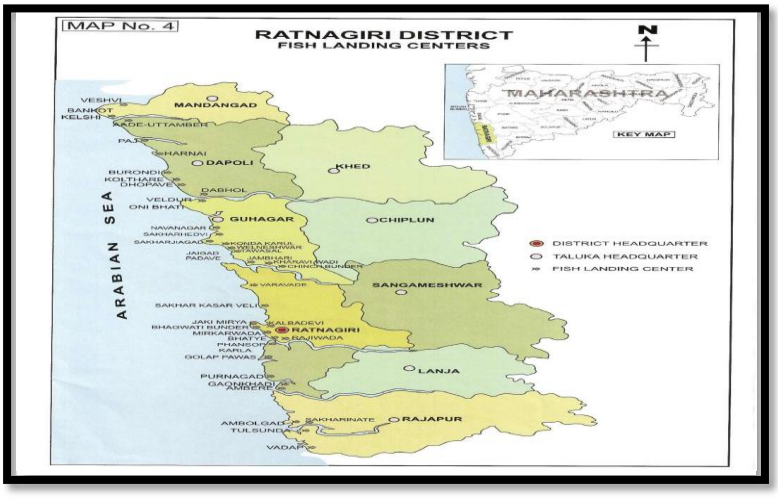

Fig.1- Major landing centers of Ratnagiri district (Source- Fisheries dept. Maharashtra)

The three landing centers/markets were selected i.e. Mirkarwada, Dabhol and Burondi and out of these 45 Fishermen, 15 wholesalers, 20 auctioneers, 30 retailers, 15 vendors and 4 processing agents were selected. The total of 129 sample size (N) was selected to estimate the constraints for each of the stakeholders. Primary data was collected by using a structured interview schedule developed for each of the coastal district. A structured pre-tested questionnaire was used to collect the information on various aspects related to marketing and constraints faced by the Fishermen and other market intermediaries.

RESEARCH METHODOLOGY

Market intermediaries faced many problems during the marketing of the fish. These can be identified after interviewing the different market intermediaries. The respondent were asked to rank the constraints which were identified by the investigator depending on their needs and requirements (rank depends upon the severity of the problem in descending order).These rank were converted to score and then average arrive at rank based quotient. This is calculated by estimating RBQ as per Reddy and Sontakki(2003).The formula for calculating RBQ:

$$\sum_{i=1}^{n} \frac{Fi\,(n+1-i) \times 100}{N \times n}$$

Where,

I =Concern rank

N =Total number of Fishermen

N =Number of ranks

Fi=Number of intermediaries reporting the particular problem under the rank.

Results and Discussions

Table 1- Constraints Experience by the Fishermen

Constraints	RBQ score	Rank
Scarcity of boat crew	44.33	10
Inadequate space for boat landing	79.11	6
Uncertain catch	97.66	1
High operational costs	87	2
Intermediary pressure	80.66	5
Storage facility	84.66	3
Lack of adequate institutional credit support	81.66	4
Lack of basic facilities like drinking water	60	8
Lack of market information on price	68	7
Delay in settlement of sale proceeds	49.33	9

Table 2- Constraints Experience by Wholesalers

Constraints	RBQ score	Rank
Lack of cold storage facilities	92.72	2
High transportation cost	98.18	1
High cost of labour	90.45	3
Lack of basic facilities like drinking water	80	8
competition among traders	87.72	4
Uncertainty in Fish arrival	85.90	5
Availability of high-grade fishes	76.81	9
Lack of market information on fish prices	71.36	10
Delay in settlement of sale proceeds	84.54	6
Unhygienic landing centers & market place	81.37	7

Table 3- Constraints Experience by Auctioneers

Constraints	RBQ Score	Rank
Unavailability of proper auction space	87.32	2
Price information over market	73.11	3
Availability of high-grade fish catch	95.55	1

Labour cost	72.33	5
High competition among auctioneers	68.33	4
Ice availability	60.07	6

Table 4- Constraints Experience by Processing agents.

Constraints	RBQ Score	Rank
Delay in settlement of sale proceeds	36.84	6
High competition among traders	76.22	4
Timely availability of specific fish variety	83.75	2
Marketing cost (Transportation/Labour etc.)	92.22	1
Price information over market	44.86	5
Price fluctuation	82.50	3

Table 5- Constraints Experience by Retailers

Constraints	RBQ Score	Rank
Dominance of intermediaries	84.55	5
Ice availability	49.5	9
Non- Availability of High-grade fish	94	2
Unhygienic landing centers & market place	88	4
Lack of cold storage facilities	92.5	3
Price fluctuation	83	6
Poor infrastructure facilities at market yard	97	1
High market fee	24.5	10
Lack of market information on fish prices	64.03	8
Fish Quality loss	78	7

Table 6- Constraints Experience by Vendors

Constraints	RBQ Score	Rank
Lack of market information on fish prices	32.61	9
Quality loss in transportation	92.62	2
Non-Availability of High-grade fish	88.50	3
Non -Availability of insulated boxes	95.79	1
Lack of Price information	71.70	5

Ice availability	49.50	8
Dominance of intermediaries	86.53	4
Consumer preference	52.31	7
Lack of cold storage facilities	68	6

The Fishermen were asked to explain the major constraints face by them during marketing and the score have been given accordingly to each constraint. The major problem faced by them is the uncertainty in the Fish catch which has a quotient value of 97.66 percent. The next major constraint faced by the Fishermen and which rank second is the high operational cost of Fishing and same has the quotient value of 87 percent. The third major constraint faced by Fishermen's is the lack of storage of Fish catch (84.66 percent) which helps them against the distress sell of their catch, which is followed by the lack of institutional credit support (81.66 percent). The other constraints faced by the Fishermen are intermediary pressure (80.66 percent), Inadequate space for boat landing (79.11 percent), Lack of market information on price (68 percent), Lack of basic facilities at landing centers (60 percent), Delay in settlement of sale proceeds (49.33 percent) and Scarcity of boat crew (44.33). According to the findings of Hatte *et al,* 2015 studied the constraint experienced by Fish market intermediaries and in case of Fishermen the major constraint was found to be lack of storage facility (97.66 percent).

The wholesaler plays a major important role in dispose off high quantity of marine Fish catch to domestic as well as to the distant market, and is a major actor in the supply chain. The selected wholesalers were asked to explain the various constraints faced by them while marketing of marine Fishes. The results shows that the major constraints face by the wholesalers at the selected marine Fish markets were high transportation cost (98.18 percent) and lack of cold storage facilities (92.72 percent). In the second objective we can conclude that the wholesalers have the high marketing cost as compare to other stakeholders, the main reason for that is they deal with large quantity of Fish which require good transportation and cold storage facilities. Due this reason the marketing cost increases in case of wholesalers. The schemes like **Pradhan Mantri Matsya Sampada Yojna (PMMSY)** can be effective in dealing with this problem of wholesalers through providing subsidy on cold storage infrastructure and insulated or refrigerated vehicle. The other constraints faced by the wholesalers while marketing the Fishes are high cost of labour (90.45 percent), competition among traders (87.72 percent). Similarly, R. Vidya *et al* in 2016 studied the constraint analysis in the markets like Devgad, Chambarbhati and Jasmande in Maharashtra and found that the lack of infrastructure and amenities (94.44 percent) was the major constraints experience by the traders.

The major constraint faced by the auctioneers while auctioning the Fishes in the landing centers is the availability of high-grade Fish catch (95.55 percent), it is mainly due to high variation of Fish landings of commercially important species like Seer Fish, Pomfret, Mackerel, Oil Sardine etc. The other major constraints faced by the auctioneers are unavailability of proper auction space (87.32 percent), Price information over market (73.11 percent), High competition among

auctioneers (68.33 percent). S. Salim et al in 2015 studied the market structure and constraints in the marine Fish marketing in Kozhikode and Alappuzha markets and found that cut throat competition among traders (78.57 percent) as one of the major constraints in the markets.

In case of processing agents, the major constraints faced were found to be marketing cost (92.22 percent) related to transportation; ice and labor are major constraint followed by timely availability of specific Fish variety (83.75 percent), and price fluctuation (82.50 percent). S. Salim *et al* in 2011 studied the constraints faced by the sea food exporters and intermediaries and found that irregular supply of specific Fish species for processing (55.90 percent) and cut throat competition for raw materials (53.87 percent) were the major constraints faced in the processing sector stakeholders.

The major constraints faced by the retailers while marketing the Fishes were the poor infrastructure facilities at the market yard (97 percent) followed by the non-availability of the high-grade Fish catch (94 percent). According to ICAR-CMFRI report in 2019, Maharashtra, on India's west coast, witnessed the lowest annual catch in 45 years, with a steep decline in all the fish species being caught. The other constraints faced by the retailers were found to be Lack of cold storage facilities (92.5 percent), Unhygienic landing centers & market place (88 percent) which generally has effect on consumer preference of buying Fishes. The constraint analysis of retailers was done by Roy et al, 2020 in Paikgachha Upazila coastal region and study reveals that the major constraint faced by the retailers were the lack of drainage facilities and pressure from the middlemen in terms of price regulation.

The major constraints faced by the vendors while marketing the Fishes were calculated and the results shows that non availability of insulated boxes (95.75 percent) for the storage of Fishes while selling is the major problem. Also, the quality loss while transportation (92.62 percent), it is mainly due to use of locally available thermacol boxes for selling the Fish were used by the vendors. The other constraints faced by the vendors were the non-availability of high-grade fishes (88.50 percent), dominance of intermediaries which results in high price fluctuation in the market (86.53 percent), lack of price information (71.70 percent), lack of cold storage facilities in case of emergency (68 percent). The study on marine Fish marketing structure in Karnataka by Vishwanatha *et al* in 2015 shows similar results like lack of market information on fish prices, high number of middlemen were the major constraints faced by the vendors in the supply chain.

CONCLUSION AND SUGGESTIONS

In the next section, constraint analysis was done to check various problems faced by the intermediaries in the selected district. The major problem faced by the Fishermen is the uncertainty in the Fish catch which has a quotient value of 97.66 percent The major constraints faced by the vendors while marketing the Fishes were calculated and the results shows that non availability of insulated boxes (95.75 percent) for the storage of Fishes while selling is the major problem. Also the quality loss while transportation (92.62 percent), it is mainly due to use of locally available thermacol boxes for selling the Fish were used by the vendors. The major constraint faced by the auctioneers while auctioning the Fishes in the landing centers is the availability of high grade Fish

catch (95.55 percent), it is mainly due to high variation of Fish landings of commercially important species like Seer Fish, Pomfret, Mackrel, Oil Sardine etc. In case of processing agents, the major constraints faced were found to be marketing cost (92.22 percent) related to transportation; ice and labor are major constraint followed by timely availability of specific Fish variety (83.75 percent), and price fluctuation (82.50 percent). The schemes like Pradhan Mantri Matsya Sampada Yojna (PMMSY) can be effective in dealing with this problem of wholesalers through providing subsidy on cold storage infrastructure and insulated or refrigerated vehicle.

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