

# Fish Marketing - A Market Structure Analysis of Kozhikode and Alappuzha districts

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Kerala with a coastline of over 590 km, covering nine coastal districts with 222 fishing villages and a fishworker population of about 10 lakhs has 187 marine fish landing centres (Marine Fisheries Census, 2010). Contributing about 20 per cent in the national marine fish production, the fisheries sector of Kerala poses great prospects for further expansion by the balanced and fullest utilization of the resources. The districts of Kozhikode and Alappuzha are among the leading coastal districts in marine fish production as well as marine fish consumption in Kerala. The marine fisheries profiles of the two districts are given in Table 1.

## **Fish market structure analysis**

The concept of a market structure is understood as those characteristics of a market that influence the behavior and results of the firms working in that market. The market structure analysis was based on

the major dimensions namely, location (indicated by latitude - longitude), type of market, access, timing, conduct, arrival and disposal sources, infrastructural adequacy, market unions and regulation. The market structure of three major markets viz., Beypore, Puthiyappa, and the Kozhikode Central market of Kozhikode district and the Kalavur, Dara and Kakkazham markets of Alappuzha district was analyzed and the details are given in Tables 2 and 3 respectively.

The market accessibility was found to be good for the markets of Kozhikode facilitating easy transportation of fish from one place to another. Puthiyappa Fishing Harbor is the nearest major landing centre for the Puthiyappa market and the Central market, where as the Beypore Fishing Harbor is the nearest one for the Beypore market. The nearest major railway station to all the three markets

Table 1. Marine Fisheries Profile of Kozhikode and Alappuzha District

Sl	Parameter	Kozhikode	Alappuzha
1.	Total coastline (km)	71	82
2.	Number of landing centers	19	16
3.	Number of fishing villages	35	30
4.	Number of fisher families	14,157	20,278
5.	Total fisher folk population (lakhs)	0.95	0.92
6.	Number of fish markets	147	158
(i)	Number of wholesale markets	3	61
(ii)	Number of retails markets	144	97
7.	Number of export units	5	29
8.	Number of crafts	3,156	8,646
(i)	Number of mechanized fishing crafts	1,065 (33.75 %)	41 (0.47%)
(ii)	Number of motorized boats	1,831 (58.02 %)	3,313 ( 38.32 %)
(iii)	Number of non-motorized boats	260 (8.24 %)	5,292 ( 61.21 %)
9.	Marine fish production (2014) in lakh tonnes	1.02	0.81

Sources: Marine Fisheries Census (2010) CMFRI; PANFISH Book, Kozhikode & Alappuzha District, Department of Fisheries, Kerala; NMFC, CMFRI ; Kerala Fisheries Statistics 2014, Directorate of Fisheries, Kerala

Table 2. Market structure analysis of fish markets of Kozhikode

Market Dimension	Central Market	Puthiyappa	Bey pore
<b>A. Location</b>			
Year of establishment	1951	1988	1960
Type of market	Wholesale & Retail	Wholesale & Retail	Wholesale & Retail
Lat/Long Position	11°25'N/75°78'E	11°32'N/75°75'E	11°18'N/75°82'E
<b>B. Market control</b>			
	Calicut Corporation	Harbour Engineering Department Govt. of Kerala	Harbour Engineering Department Govt. of Kerala
<b>C. Market access</b>			
Nearest landing centre and distance (km)	Puthiyappa (9.0)	Puthiyappa (0.1)	Bey pore (0.1)
Nearest railway station and distance (km)	Kozhikode (0.6)	Kozhikode (9.6)	Kozhikode (11.1)
Nearest bus station and distance (km)	Moffusil bus stand (2.3)	Moffusil bus stand (9.8)	Moffusil bus stand (12.5)
Nearest airport and distance (km)	Calicut International Airport (27.1)	Calicut International Airport (36.0)	Calicut International Airport (22.3)
Nearest seaport and distance (km)	Bey pore port (11.8)	Bey pore port (21.0)	Bey pore port (1.5)
<b>D. Market Timing (in hours)</b>			
	04.30-09.00,12.00-18.00	05.00-09.00, 12.00-16.00	04.30-09.00,13.00-18.00
<b>E. Market conduct</b>			
Registered marketers	40	30	30

is Kozhikode Railway Station situated at an average distance of 6.7 km, whereas the nearest bus station is at an average distance of 8.2 km from the markets. Calicut International Airport is the nearest airport to the three markets.

All the three markets of Alappuzha have road connectivity and of these, Kalavur and Kakkazham

are nearer to NH-47. The nearest bus station is at an average distance of 3.6 km and the Alappuzha railway station is at an average distance of 7.6 km from each market. Due to the good connectivity by roads and rail, market arrivals and disposals are done in a very short span of time. Cochin International Airport is the nearest airport to these three markets

Table 3. Market structure analysis of fish markets in Alappuzha District

Market Dimension	Kalavur	Dara market	Kakkazham
<b>A. Location</b>			
Year of establishment	1950	1942	1970
Type of Market	Wholesale & Retail	Wholesale & Retail	Retail
Lat/Long Position	9° 34'14"N 76° 19'40"E	9° 29'46"N 76° 20'6"E	9° 23'26"N 76° 21'10"E
Market control	Mannanchery Panchayath	Alappuzha Municipality	Ambalappuzha South
<b>B. Market access</b>			
Nearest landing centre (km)	Sasthrimukku (5)	Alappuzha Beach (3)	Valanjavazhi(2)
Nearest railway station (km)	Alappuzha (10)	Alappuzha (1)	Alappuzha (12)
Nearest bus station	Alappuzha (9 )	Alappuzha (1)	Ambalappuzha (1)
Nearest airport (Km)	Cochin International Airport (73)	Cochin International Airport (82)	Cochin International Airport (95)
Nearest seaport	Cochin Port (44)	Cochin Port (53)	Cochin Port (66)
<b>C. Market Timing (in hours)</b>	05.00-20.00 hrs	04.00-14.00 hrs	07.00-19 hrs
<b>D. Market conduct</b>			
Registered marketers	12	25	9
Entry fee for operation in market	₹ 5/box	₹ 5/box	₹ 5/box

located at an average distance of 83.3 km. In the trade context, Dara, Kalavur and Kakkazham markets are found out to be well structured.

#### Market arrivals and disposals

The study of market arrivals and disposals of the markets of Kozhikode indicate that in the Central market, the fish arrivals are mainly from Puthiyappa, Vellayil, Beypore, Koyilandy, Vadagara, Chombala, Ernakulam(Kerala)as well as from Karnataka state. The Central market often disposes fishes to various markets including Kalpetta, Sulthan Bathery, Mananthavady, Kondotty and other fish markets in Malappuram, Kannur and Ernakulam districts, as well as to the neighboring states like Karnataka, Tamil Nadu, Andhra Pradesh, Goa, and abroad also. In the case of Puthiyappa market, the major fish arrivals are from Puthiyappa, Beypore, Vellayil, Koylandi, Vadagara, Chombala landing centres or markets from Ernakulam and the states of Karnataka, Goa etc. The fish disposals from Puthiyappa market are mainly to various parts of the district as well as to other districts including Wayanad, Malappuram, Kannur, Thrissur, Ernakulam etc. Fishes are often disposed to neighboring states like Tamil Nadu, Karnataka, Andhra Pradesh, Goa, and international markets also. The fish arrivals at Beypore market are mainly

from Beypore, Puthiyappa, Vellayil, Koyilandi, Vadagara, Chombala, Ernakulam, Karnataka, Goa, etc. Beypore market also disposes fishes to Puthiyappa, Wayanad, Malappuram, Kannur, Ernakulam, as well as to the neighboring states like Karnataka, Tamil Nadu, Andhra Pradesh, Goa etc.

The market study of Alappuzha indicates that in Kalavur market fish arrivals are from Sasthrimukku, Thaickal, Punnapra, Alappuzha, Cochin Fisheries Harbour, Mangalore and Tamil Nadu. The Kalavur market often sends fishes to different local markets such as Mannancherry, Kattoor, Kanjikkuzhi and Marrarikkulam. All these three markets charges ₹ 5 as an entry fee for operating in the markets. In Dara market, major fish arrivals are from Neendakara, Punnapra, Munambam, Thottappally, Mangalore, Karnataka and Tamil Nadu and the market trades marine fishes to the entire Kuttanad regions i.e., Muhamma, Pallathuruthi, Cherthala, Aryadu, Aravukadu, Punnamada, Nedumudi, Thumboli, Zakkariyabazar and Thanneermukkom. Mostly the fish arrivals of retail market at Kakkazham are from Thottappally, Punnapra, Neendakara and Tamil Nadu. The major fish disposals are done to nearest localities like Valanjavazhi, Ambalappuzha, Purakkad, Vandanam and Neerkunnam.

### Species Traded

Nearly 25 to 30 marine fish species are marketed in all the three markets of Kozhikode where as around 20 to 25 marine and inland species are marketed in the markets of Alappuzha. The details regarding the market price and the quantity of the major species traded in the markets of Kozhikode and Alappuzha markets are explained in Tables 4 and 5.

The trade union activities in the markets of both Kozhikode and Alappuzha are restricted to loading, unloading, transporting and allied activities. While analyzing the quantum of fish trade in the markets of Kozhikode, the average quantity of fish traded in the Central market is almost 18 tonnes (t) whereas around 20 t is traded in Puthiyappa and 15 tonnes in Bepore. The average value of transaction across the

Table 4. Major species traded - Quantum and average price in the selected markets of Kozhikode (March-April, 2015)

Species	Central Market		Puthiyappa		Bepore	
	Qty (Kg)	Price(₹/Kg)	Qty (Kg)	Price(₹/Kg)	Qty (Kg)	Price(₹/Kg)
Anchovies	1000	80	1000	80	1000	80
Barracuda	800	200	850	200	-	-
Black Spot Snapper	800	200	900	200	500	250
Cat fish	800	150	750	130	-	-
Catla	500	120	-	-	500	120
False Trevally	800	120	800	100	800	100
Mackerel	1000	120	1000	90	800	100
Malabar Sole	900	120	1000	100	750	100
Milk fish	1000	150	1200	100	900	130
Mussels	500	150	200	100	500	150
Pomfret	500	300	700	250	500	250
Prawns	1500	175	2000	150	1500	200
Rays	900	300	1000	250	1000	300
Red Snapper	800	250	1000	250	800	200
Sardine	1500	120	1500	120	800	100
Seer fish	1000	400	1200	350	1000	300
Sharks	800	250	1200	200	1200	200
Silver Moony	400	80	350	60	-	-
Sword fish	800	200	1000	150	1000	150
Threadfin Bream	900	160	1000	150	1000	150
Tuna	1000	270	1500	250	1000	250
Total	18200		20150		15350	

Table 5. Major species traded - Quantum and average price in the selected markets of Alappuzha (January - February 2015)

Species	Dara Market		Kalavur		Kakkazham	
	Qty (kg)	Average Price (in ₹)	Qty (kg)	Average Price (in ₹)	Qty (kg)	Average Price (in ₹)
Anchovies	1,000	100	-	-	200	120
Barracuda	750	230	500	250	150	260
Big jawed jumper	250	150	-	-	-	-
<i>Chanos chanos</i>	150	350	-	-	-	-
Clam	500	80	-	-	-	-
<i>Coryphaena</i>	1,500	225	300	250	-	-

Crab	500	120	-	-	150	140
Croakers	500	75	-	-	-	-
Cuttlefish	750	225	-	-	-	-
Grouper	500	120	-	-	-	-
Half and full beaks	750	180	150	200	-	-
Horse mackerel	500	150	-	-	-	-
Mackerel	3,500	180	1000	210	750	220
Mullets	500	250	-	-	-	-
Catfish	250	250	-	-	-	-
Pearl spot	1,250	350	-	-	-	-
Pomfrets	500	300	-	-	150	325
Prawn	1000	160	250	175	100	200
Priacanthus	500	160	200	180	-	-
Ribbon fish	250	150	-	-	-	-
Sardine	7500	100	2500	120	1500	130
Scad	1000	210	450	230	150	240
Sea bass	500	200	-	-	150	220
Seer fish	1750	350	500	400	150	400
Shark	1500	260	250	300	150	320
Silver bellies	250	100	-	-	100	120
Snake head	250	280	50	300	-	-
Snapper	500	180	-	-	200	200
Sole	750	75	500	80	250	100
Squid	500	170	150	200	150	210
Tilapia	500	115	250	125	-	-
Threadfin breams	750	125	-	-	200	140
Thrysa	250	40	-	-	-	-
Tuna	2500	250	600	280	250	300
White sardine	250	100	-	-	-	-
Wolf herring	250	175	-	-	-	-
Miscellaneous	600	65	350	75	250	80
Total	35000		8000		5000	

three markets amounts to around ₹ 34 lakhs each across Central market and Puthiyappa and ₹ 27 lakh in Beypore market.

The analysis of daily market turnover of the different markets of Alappuzha indicated that the Dara market trades around 35 t of fish valued at ₹ 62.41 lakhs followed by Kalavur, trading eight t valued at ₹15.20 lakhs. Kakkazham market trade around five t of fish daily valued over ₹ 9.20 lakhs on an average.

#### Constraint analysis

The constraint analysis of markets was done on

the basis of the opinion of different market functionaries. The major constraints perceived by 10 marketers from each market were analyzed using Garrett ranking and the ranks with score are presented in Tables 6 and 7 respectively for Kozhikode and Alappuzha. The Garrett's ranking technique is usually used to rank the preference indicated by the respondents on different factors. The ranks assigned by the respondents for different factors are converted into scores.

$$\text{Percent position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

Table 6. Problems/ Constraints faced at markets of Kozhikode

Items	Central Market		Puthiyappa		Beypore	
	Rank	Score	Rank	Score	Rank	Score
High marketing cost	II	75.00	I	91.67	I	91.67
Cut throat competition among traders	III	58.33	II	75.00	II	75.00
Lack of infrastructure & amenities	I	91.67	VI	8.33	IV	41.67
Price discrimination	VI	8.33	III	58.33	V	25.00
High transportation cost	IV	41.67	IV	41.67	VI	8.33
Lack of access facilities	V	25.00	V	25.00	III	58.33

Table 7. Problems/ Constraints faced at markets of Alappuzha

Items	Dara Market		Kalavur		Kakkazham	
	Rank	Score	Rank	Score	Rank	Score
High marketing cost	IV	50.00	IV	50.00	III	64.29
Lack of infrastructure and amenities	I	92.86	I	92.86	I	92.86
Price discrimination	V	35.71	III	64.29	IV	50.00
High transportation cost	VI	21.43	VI	21.43	V	35.71
Lack of access facilities	III	64.29	VII	7.14	VII	7.14
Cut-throat competition among traders	II	78.57	V	35.71	VI	21.43
Inadequate supply of fish	VII	7.14	II	78.57	II	78.57

Where,  $R_{ij}$  = Rank given for the  $i^{\text{th}}$  variable by  $j^{\text{th}}$  respondents

$N_j$  = Number of variable ranked by  $j^{\text{th}}$  respondents

The factors with highest mean value are considered to be the most important factor.

Accordingly the major constraint faced by the marketers of Kozhikode was the high marketing cost and price discrimination. Lack of adequate infrastructure facilities like parking area, waste management, drinking water, freezers etc. were also cited as constraints. The infrastructure amenities at the Puthiyappa market and the Beypore market are commendable. The markets possessed good drainage, drinking water facilities and adequate parking facilities. In the case of the Central market, the infrastructure facilities were less. The market was less hygienic with a poor drainage system. The space constraint and absence of drinking water facility added to these problems. The traders expressed that

lack of infrastructure and allied amenities in markets including waste management facilities, parking areas, freezers, drinking water etc. were the major problems besides the inadequate supply of fish across the fish markets.

### Conclusion

The analysis of the three major fish markets of Kozhikode district suggests the need for improved marketing infrastructure. The major problems and constraints which affects the proper working of the markets highlighted indicates the need for governmental interventions in providing infrastructure to improve fish trade in the major fish markets of Kozhikode. The market structure analysis of major fish markets of Alappuzha indicate that there is significant fish trade which caters to the demand for fish in the nearby towns and cities. However lack of appropriate infrastructure and inadequate amenities are limiting factors in fish trade in these markets.