

Scoping Report 1: Marketing**Social Economy of Dried Fish in Kerala, India****Table of Contents**

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1. Introduction

1.1. A brief profile of Kerala fisheries

The fisheries sector of India contributes about 1.1 percent to the country's GDP, about 5.15 percent to its agricultural GDP, and about 7 percent to the world's fish production. Indian fishery encompasses both inland and marine capture fisheries and aquaculture. Fishing industry supports the nation's food security while giving jobs to millions of people. The country has a coastline of over 8,000 km, and India ranks second in aquaculture and third in fisheries production. Aquaculture accounts for over 65% of the inland water fishing in India. (Government of India, 2020).

The Kerala state lies in the southwest coast of India, wedged between the Arabian Sea on the west and Western Ghats on the east. Kerala, with a 590 km long coastline or about 7.26% of India's coastline, ranks fifth among the states of India in terms of the length of the coastline. The state's Exclusive Economic Zone (EEZ) covers 147,740 square km. Kerala is one of the top states in India in terms of marine fisheries production. About 7.35 percent (0.39 million square km) of the nation's continental shelf is in Kerala. Thiruvananthapuram, Kollam, Alappuzha, Ernakulam, Thrissur, Malappuram, Kozhikode, Kannur, and Kasaragod are the districts in Kerala in which the coastline extends (Department of Fisheries, DOF, 2017).

The state's economy heavily relies on the fishing industry, supporting many households by creating employment opportunities. There are 222 fishing villages scattered along the state's coastline, and about 8 lakh people rely on marine fisheries for their livelihoods through fishing and allied activities. The total extent of inland water areas in Kerala is estimated to be 3,60,535 ha. Of this, the brackish water area is over 2,42,600 ha and freshwater areas amount to 1,17,935 ha. There are 113 inland fishery villages in Kerala, possessing high potential for expanding aquaculture (Government of Kerala, 2010).

During 2019-2020, Kerala produced 680,000 metric tons of fish, of which marine fisheries contributed 475,000 metric tonnes, and the remaining 205,000 metric tonnes was from inland fishery. 69% of the total fish landed were pelagic finfish consisting primarily of oil sardines, lesser sardines, mackerel, anchovies, Ribbonfish, tunas, etc. Pelagic species constituted about 71% of the average landings, followed by demersal (15%), crustaceans (9%) and molluscs (9%) species. Kerala leads India in terms of marine fish output, contributing almost 25% (an average of 5.75 lakh tonnes) of the nation's annual production. Kerala produces about 6 lakh tonnes of marine fish annually on average. Due to fisheries-friendly government regulations, well-developed harvest and post-harvest infrastructure, and rising demand for seafood on both the domestic and international markets, the state's marine fisheries sector has seen a steady growth (GOI, 2020).

Kerala also is one of India's top exporters of seafood. The primary port used for exporting fish to markets is Kochi. Kerala also has some of the best facilities for processing seafood. Kerala exported 114,700 metric tons of seafood in the year of 2020-21. The European Union (EU) is Kerala's largest export destination market for frozen finfish, lobster, shrimp, octopus, cuttlefish, squid, and other species. The seafood export sector's primary support has been the EU market (MPEDA, 2021).

The 2016 round of the Marine Fisheries Census (MFC2016) conducted by the Central Marine Fisheries Research Institute (CMFRI) shows that there are 121,637 marine fisher families in Kerala with a total population of 563,903. Women form about 49 percent of total marine fisher population, with 953

females per 1000 males. There are 137,248 active marine fishers in the state who actually engage in fishing. Of these 120,706 are full time fishers, and 15,264 venture out in sea for less than six months in a year. Women fishers contribute significantly to fishing and allied activities, with 79 percent overall participation. Post-harvest activities, particularly- peeling (99 percent), curing/processing (96 percent), and fish marketing (84 percent)- are where women play a dominant role in Kerala.

1.2. Fish Utilization in Kerala

The primary method of fish utilization in Kerala is through consumption as fresh fish. Kerala has the highest fish consumption in the nation. Over 85% of the population consumes fish, with a per capita average consumption of 27–30 kg, which is four times the national average. The highest monthly per capita fish intake among the major states is seen in Kerala (1.91 kg), followed by West Bengal (0.77 kg), and Assam (0.63 kg). The most preferred fish is the **Indian Oil Sardine, followed by the Indian mackerel, and anchovies (Any reference?)**. Some of the major factors hindering fish consumption are scarcity of fresh fish especially in inland areas; high prices; erratic supplies; and, unhygienic retail markets (Any reference?).

1.2.1. Dried fish

The simplest and oldest known method of fish preservation adopted throughout the Indian subcontinent is sun drying. Drying is one of the least expensive techniques to preserve fish. **About 7.86% of global fish exports come from India in the form of dried fish.** About 20% of India's total fish production is in the form of dried fish. According to MFC2016, a total of 8,506 fishers are engaged in curing/processing of whom 8,174 are women. Districts with the highest number of fishers engaged in curing/processing are: Kozhikode (2,157 women, 37 men); Thiruvananthapuram (1,899 women, 128 men); and, Kollam (1,966 women, 10 men). The MFC2016 also shows that there are 44 fish curing yards in Kerala, topped by Malappuram (19), followed by Kollam (8), Ernakulam (6), Thrissur (5), Kannur (4), and Thiruvananthapuram (2). There were 67 curing yards in Kerala as noted in Anon (1969), and salt used to be provided to these yards at subsidized price. Chellappan (2004) notes that main types of fish used in Kerala's curing yards were: mackerel, ribbonfish, sharks, silverbellies, anchovies, lizardfish, kilimen (pink perch), the Malabar sole, and sardines. The more profitable species were mackerel, sharks, and anchovies (Chellappan 2004).

Demand for dried fish increases during fishing bans or lean seasons when fresh fish availability decreases. Dried fish and the products made from dried fish have strong demand in Kerala. Some of the most popular dried fish products sold in Kerala are dried prawns, anchovies, pony fish, ribbonfish, mackerel, and shark. They are extensively available in domestic markets, and fish species with high commercial value are also dried and exported to other nations. The dried fish industry in Kerala primarily relies on domestic consumer markets. In Kerala, there are seven major **geographical** markets. Fish of high grade are dried for human consumption, while fish of lower quality are primarily dried for use as poultry feed. Fish from outside the state is also transported here for drying purposes due to the limited availability. The domestic markets itself are where the dried fish is primarily sold. The two primary destinations for dried fish for feed are Tamil Nadu and Mangalore.

The dried fish segment of Kerala's seafood value chain, despite its contribution in food security as well as in creating livelihoods, has not been analyzed and understood well (Sajeev et.al., 2020). Chellappan (2004) conducted a study of the dried fish markets of Kerala, noting that the fish drying industry was

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MPEDA data show that dried fish items form about 7 percent of total seafood quantities and about 3 percent of value of seafood exported from India.

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declining. Since then, there appears to be a lack of thorough studies on this important segment of Kerala’s seafood value chain. Technological and quality aspects of dried fish production have received some research attention, but the socioeconomics of production, marketing, trade, and consumption of dried fish in Kerala have not been analyzed adequately. Moreover, whatever little literature exists on socioeconomics of dried fish markets of Kerala suffers from limited geographical coverage of the state.

2. Methodology

The scoping study relied primarily on field data collected through interviews with small-scale traders, large-scale traders, commission agents and other market functionaries. Direct observations of market activities were also carried out. Interviews were recorded, and photographs were taken, after consent of respondents. Interview schedule developed by Dried Fish Matters (DFM) was modified as required and used for the interviews. Species and price information was collected separately.

2.1. Sampling

A total of 24 markets spread across eight districts of Kerala were covered in the primary data collection phase (Figure 1). These markets were selected purposively so as to cover major production centers, wholesale and retail markets, and consumption centers in the state. Most of the markets covered are located in major coastal districts of Kerala, but a few inland districts were also included.



Figure 1. The sampled dried fish markets in Kerala, by district.

A total of 30 wholesalers, 35 retailers, and 5 commission agents were interviewed. Of these, 12 were women (**Error! Not a valid bookmark self-reference.**). The interviews were carried out between January and August 2022.

Table 1. District-wise details of survey respondents.

No.	District	Wholesalers		Retailers		Commission agents	
		Men	Women	Men	Women	Men	Women
1	Kasaragod			2			
2	Kozhikode	2		2			
3	Thrissur	5		5	1	1	

4	Ernakulam	7		8	4	1	
5	Idukki	6		4			
6	Kottayam	5	1		2	3	
7	Alappuzha	3		3			
8	Thiruvananthapuram	1			4		
	TOTAL	29	1	24	11	5	

The interviews focused on issues such as marketing methods, peak and off seasons, raw material purchase, selling mechanism, and the involvement of women. This report provides a descriptive analysis of the interview data. The production, distribution, and consumption of dried fish are influenced by the season, weather conditions, and economic shocks induced by incidents such as the pandemic.

3. Observations

The findings of the study are presented district-wise from the northernmost district (Kasaragod) to the southernmost district (Trivandrum).

3.1. *Kasaragod*

Kasaragod is one of the coastal districts of northern Kerala. The district possesses a coastline of 78 km, or about 13.22 % of total coastal area of Kerala. Data on dried fish marketing was collected from the Hosangadi market in Kasaragod district. Figure 2 shows the location of Hosangadi in Kasaragod.

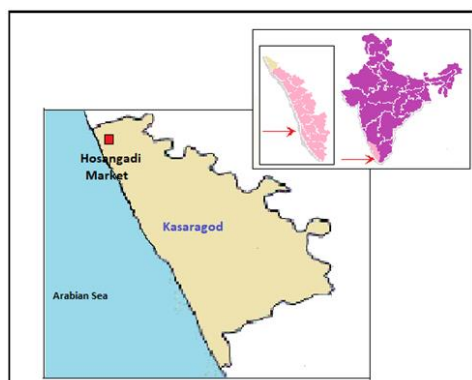


Figure 2. Location of the sampled dried fish markets in Kasaragod district.

3.1.1. Hosangadi Retail Market

Market profile

Hosangadi is situated at the border of Kasaragod district of Kerala and the Dakshina Kannada district of Karnataka. Mangaluru (Karnataka) is about 20-25 km away from Hosangadi from where most of the goods come to this market. Dried fish vendors belong to the Muslim community and they reside nearby places viz. Bangra Manjeshwar and Hosangadi.

Supply chain of dried fish

Mangaluru in Karnataka is now the major source of dried fish for the traders in Hosangadi. About 20 years ago, drying was carried out locally near the vicinity of Manjeshwar harbour but had stopped about

15 years ago. Fish such as shark, ray, anchovy, mackerel and sardine were dried then. Drying was carried out by groups of fishers, each group had about 40 members of whom around twenty were women. This has now stopped completely.

There are three dried fish retail shops operating in this market. Out of these one is relatively older (30 years), and the other two are recently started shops. Decline in fresh fish availability and increase in price of raw materials have adversely affected dried fish trade here. They further sell to traders/retailers in Uppala, Manjeshwara, Bejja, Kuloor, Kumbla, Olak, Bekoor, Mangalpady and Meenja. Dried fish is usually packed in plastic or thermocol (polystyrene) boxes. The traders buy stock from wholesalers on a credit basis which is repaid within 4-5 days. Their forward sales transactions are done with ready cash transaction.

Demand for dried fish

Consumers of dried fish in Hosangadi are the people living in nearby places. Prices of some of the common species of dried fish at the Hosangadi market, as observed during the fieldwork, are provided in Table 2.

Table 2. Price of Common fish species sold in Hosangadi market, Kasaragod.

Species	Price (₹/kg)
False pony	100
Sole	160
False trevally	180
Anchovy	200
Ray	300
Prawn	1000

3.2. [Kozhikode District](#)

Kozhikode district is in northern Kerala and has an EEZ of 26290 sq. km with a coastline of 71 km. Central market, one of the most popular dried fish markets in the district, was selected for the study.

3.2.1. [Kozhikode Central Market](#)

Market profile

Kozhikode is one of the oldest spice trading centres of Kerala. The Central Market in Kozhikode is over 100 years old, and dried fish sale has been taking place here from the beginning. It is famous for both fresh fish as well as dried fish trade. There are 10 wholesale traders and 8 retail vendors operating here. Business is inherited in the family. All the retailers in the market belong to Muslim community.

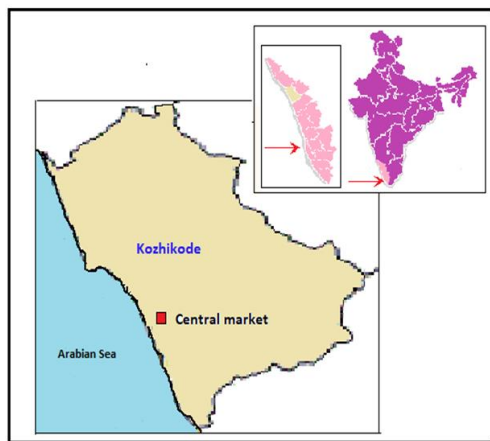


Figure 3. Location of the sampled dried fish markets in Kozhikode district.

Supply chain of dried fish

Dried fish are purchased from Vellayil, Puthiyappa, of Kozhikode district, and from Ernakulam. There are local processing centres at Vellayil and Puthiyappa. Dried fish are also procured from distributors in Tamil Nadu, Andhra Pradesh, Odisha, and Gujarat from where stock arrives on three days a week basis. Dried fish are mostly sold out within 10 days of arrival from outside states.

Wholesalers in this market also act as commission agents. They purchase stock directly from processors on credit which needs to be repaid within 7 days. They also act as intermediaries for the processors charging a commission of 8-10 percentage of the sales value. Transportation, loading and unloading expenses are incurred by the processors. Loading, unloading labourers charge Rs. 20 per bundle of dried fish. There are 3 labours hired on a daily wage basis for assistance at the shop, like removing additional salt, weighing, and packing.

There were 25 wholesale vendors 15 years ago, although their number has declined to 10 now due to various reasons like loss in sales. The eight retail vendors operate in another section of the central market. They buy their dried fish stock from wholesale traders. There were 30 retail vendors 15 years ago, which is reduced to 8 vendors now. Price of fish will be decided by wholesalers based on demand in the market and quality of the product. The deal is based on an informal agreement and is based on mutual trust.

Table 3. Prices of common fish species sold in the Central Market, Kozhikode.

Species	Price (₹/kg)
False pony	120
Mackerel	150
False trevally	150
Sole dover	200
Anchovy	200
Sardine	200
Ray fish	230
Shark	320

Bombay prawn	340
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Demand for dried fish

Dried fish from Kozhikode are transported to Wayanad, Thrissur, Kannur, Ernakulam and Palakkad districts of Kerala and also to other states like Tamil Nadu.

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3.3. Thrissur District

District profile

The long stretch of coastline of about 54 km has facilitated the fishery and related industry of Thrissur. The district is also endowed with rich inland water resources that are home to various species of fish. A large number of people of the city earn their livelihood by fishing and marketing of fishery products. The district is bestowed with 3 inland fishing villages and 18 coastal fishing villages. In the present study Sakthan market and Kottapuram markets were covered.

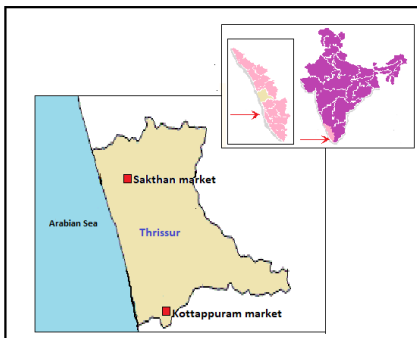


Figure 4. Location of the sampled dried fish markets in Thrissur district.

3.3.1. Sakthan Market

Market profile

Fish market here was established in the year of 1987. Initially, only fresh fish used to sold here, but later dried fish shops also started operating. This market is governed by the Thrissur Corporation. There is an office run by the Corporation to monitor the quality of products bought and sold here. It is mandatory to obtain a hygiene/quality license from the authority on yearly basis. This is the largest dried fish wholesale market in Thrissur district. Working hours are between 4:30 AM to 6:30 PM. There are 118 licensed shops in this market where about 90 vendors who trade in fresh fish, meat as well as dried fish. Vendors belonging to all major communities operate here. Since past 5 years there are no women vendors selling dried fish here. There were no women vendors since the start of the dried fish trade at this market.

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Supply chain

There are 18 dried fish shops here, dealing both wholesale as well as retail sale. The market receives dried fish produced locally as well as supplies from outside the district. For local production, vendors buy unsold fresh fish at the same Sakthan marketplace and process into dried fish. For curing, they use concrete tanks placed either inside the shops or adjacent to the shop where 5-8 workers assist in processing these fish. Dried fish stocks are usually sold within a week, and unsold stocks are sold as

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manure. Credit purchase and sale system followed across Kerala is also followed here. Mackerel is the common species processed. Other species are False pony, Shark, Sole, and Sardine.

Dried fish are also brought from nearby coastal areas like Vypin, Munambam, Azheekode, as well as from other states like Tamil Nadu, Orissa, Gujarat, and West Bengal. These stocks arrive every Wednesdays and Saturdays.

There are about 350 workers in addition to 50 loading/unloading workers. Loading, unloading, and transportation of fresh fish to dried fish area cost ₹70 for a 25kg basket.

Table 4. Price of Common fish species sold in Sakthan market, Thrissur.

Species	Price (₹/kg)
Mackerel	80
False pony	80
Sole dover	110
Ribbonfish	120
Anchovy	200
Lizard fish	200
Ray	300
Shark	320
Flower tail prawn	500

Demand for dried fish

Peak sale season is from March to July every year, as availability of fresh fish increases from August till December which directly affects the dried fish sale. Dried fish here are sold on a wholesale basis to Kunnamkulam, Chalakkudy, Iringalakuda, Kottapuram, and Aluva. Also, there are retails customers within a radius of 10 km of this market.

Social participation of fish vendors

Dried fish vendors here used to be members of the All Kerala Dried Fish Association, but from past few years this association is not active. This Association has a strength of approximately 1000 members, which includes processors, sellers, and the State President of this association is from this market. The main goal of the Association was to overcome the challenges faced by the dried fish processors/sellers. One of the biggest challenges of dried fish trade here is the competition from many unregistered sellers who sell dried fish adjacent to this marketplace at a lower price causing decline in the sales here.

3.3.2. [Kottapuram Market](#)

Market profile

In Kottapuram market, wholesalers source material from local sources and from outside sources. Local processors cum traders procure raw fish from the Kottappuram harbor and Munambam Harbour, and process it and sell it in the market. Wholesalers and commission agents source dried fish from outside the district such as Palakkad, Thrissur, Kunnamkulam, Aluva, Munambam and Azheekode. There is also dried fish stock arriving from other states like Gujarat, Kolkata and West Bengal. Except for one wholesale shop, all other shops operate only on market days. All traders in this market are from areas like Paravoor and Munambam.

This market comes under the Kottapuram Municipality. There are seven dried fish shops, including one commission agent and six wholesalers. There is a wholesale shop about 500 meters away from this market. This market is located close to the National Highway No. 17 in Thrissur. Dried fish shops open at 5 a.m. and are open until 3 p.m. Market days are usually Mondays and Thursdays when trade takes place in temporary sheds. Market days of Paravur market, which is on Tuesdays and Fridays, affect the trade in this market as the retailers here also sell at Paravur. There were 20 local processors trading here 15 years ago, but currently there are only 4 processors. Among the traders three are from the Muslim community, three from Hindu community, and one from the Christian community. The trade in Kottapuram market is done on 60 percent debt.

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Demand for dried fish

Dried fish is sold from Kottapuram market to Angamaly, Kaladi, Kodungallur, Kothamangalam and Paravur. The season of dried fish in Kottapuram market is January, February, March. The trade is very less in the months of November, December and April.

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Table 5. Price of common fish species sold in Kottapuram market, Thrissur.

Species	Price (₹/kg)
False pony	90
Snakehead	100
Sardine	100
Lizardfish	100
Sole dover	120
Ribbonfish	120
Shark (small)	140
Mackerel	140
Anchovy	250
Prawns	650

Commented [PS9]: Isn't this a freshwater fish?

3.4. Ernakulam

Ernakulam district has a coastline of 76 km. It is one of the leading coastal districts in marine fish production. Fisheries of this district have a significant role in the economy of the state. It has leading markets that sell many types of fish and fishery products. Ernakulam city, a major commercial city in Kerala, is also located in the district. The following markets were covered in Ernakulam district.

1. North Paravur market
2. Ernakulam wholesale market
3. Bund road, Vyttila
4. Trippunithura market
5. Aluva market
6. Muvattupuzha market

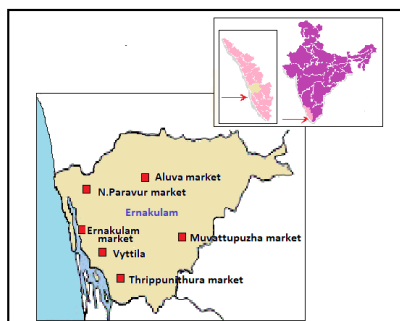


Figure 5. The sampled dried fish markets in Ernakulam district.

3.4.1. North Paravur Market

Market profile

North Paravur Market is an ancient and historic market spread over 2.5 acres on the banks of the Paravur River. It is situated in the North Paravur taluk of the Ernakulam district. In the old days, most of the traders were from the fishing community and later other communities entered into business. One of the existing traders is a woman and the rest are men. These traders are from localities such as Munambam, Paravur, Kunjithai and Pallipuram. They belong to the Muslim, Christian, Ezhava and fishing communities. They have been in the dried fish business for generations.

Supply chain

The North Paravur market, which used to have 20 traders 10 years ago, now has only 8 traders. The dried fish vendors at Paravoor Market do business in two methods.

- Wholesalers who process their own dried fish for wholesale and retail operations: Such processors procure fresh fish from Munambam Harbour through auction for drying. Local processors have curing sheds where fresh fish is processed using family labor and hired labor. They then sell dried fish under temporary sheds in various markets such as Paravoor, Kottappuram, Mulamthuruthy and Kottappuram. These wholesalers go to the market only on Tuesdays and Fridays which are market days. They also go to Kottapuram market in Thrissur district for sale on Thursdays.
- Wholesalers who buy dried fish wholesale from elsewhere and sell, they are not involved in dried fish production.

Table 6. Price of Common fish species sold in north Paravoor market, Ernakulam.

Species	Price (₹/kg)
Sole dover	100
Anchovy	100
Croaker fish	100
Snake head	120
Shark (small)	160
Mackerel	190
Shark (big)	300
Prawns	650

3.4.2. [Ernakulam Wholesale Market](#)

Market Profile

Located on the banks of the Vembanad Lake in the Ernakulam city, the Wholesale Market is very old. Most of the current traders in the market have been trading for more than five decades. The number of shops here has not changed for the past 50 years. All those who sell dried fish belong to the Muslim community. The shop owners are two from Ernakulam and one from Kozhikode. Women have never entered into dried fish wholesaling in this market ever since its inception. There are 8 workers of different religions working in the dried fish shops. One is a migrant worker from Darjeeling.

Supply chain

Dried fish are sourced from production centers in various coastal districts of Kerala and also from neighboring Karnataka and Tamil Nadu. Dried fish from here are sent to small and inland markets at various places in Ernakulam district like Piravam, Cherthala, Tripunithura, Kaloor, Vyttila, Varappuzha, Edapally, Fort Kochi, Mattancherry, Thoppumpady, and Mulamthuruthy. Traders procuring dried fish procured from outside Kerala use video calls to ascertain the quality and the money is transferred to the bank account. Purchases from the hands of each party vary depending on the price and availability of dried fish. There is no formal contract between the wholesaler, the distributor, and the processor. Dried fish produced in the coastal areas of Vypin and Munambam near the Ernakulam market also come to the Ernakulam market.

Commented [PS10]: Electronically?

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Dried fish are sold in only three shops in the Ernakulam market. They are fully engaged in wholesale and retail trade. All wholesale transactions are based on credit. Trade is based on trust between sellers and buyers. The credit repayment period ranges from one week to ten days. This system is followed almost everywhere in the local markets. Processors lend dried fish to wholesalers. The repayment period is one week. Wholesalers also sell on credit, wholesalers' customers are mostly suppliers, and they supply dried fish to retailers. Wholesalers pay in advance when processors need money. The price of dried fish is determined by the wholesaler. Prices are determined based on quality and demand for dried fish. The processor decides which fish to produce and how much to produce, depending on the needs and sales of the dried fish wholesaler.

Social participation

There is no Dried Fish Traders 'Association except the Merchants' Association, which includes all traders in the market.

Table 7. Price of Common fish species sold in Ernakulam Wholesale Market,

Species	Price (₹/kg)
False pony	120
Snake head	160
Shark (small)	200
Lizard fish	200
Sole dover	200
Mackerel	240
Anchovy	400

3.4.3. [Bund road, Vyttila](#)

Market Profile

Vyttila Bund Road is a retail market located on the banks of National Waterway-3. There are five retail shops, all run by women between ages of 50 and 70. They process their own dried fish by cleaning, salting and drying of fish for selling it. Four of the women belong to the Hindu fishing community (Dheevera) and one woman from the Christian community. In the earlier days, dried fish were processed from unsold fresh fish. The women here are not members of any of the dried fish associations. Currently, women are getting older and the new generation of women do not like this job. Fish waste is given to duck farmers at free of cost.

Supply chain

Only retail trade takes place here and no wholesaling. Each woman buys an average of 300 kg to 500 kg of fish per week and dries it. Family members help women buy fresh fish from the market early morning and bring it home. Fish cleaning, washing and salting are all done by women at home in the morning. Fish are spread on plastic sheets and coir mats on the tiled walkway in front of the house. They follow the traditional sun drying method. The dried fish is sold in a temporary shed near the house. It is the women who take care of the customers who come to the shop and sell the fish while also dry-processing the fish. As it dries well, it is more expensive here than in other markets.

Table 8. Price of Common fish species sold in Bund road, Vyttila , Ernakulam.

Species	Price (₹/kg)
Shark (small)	400
Croaker	400
Sole dover	600
Lizardfish	600
Anchovy	600
Mackerel	800
Orange chromide	800
Flower tail prawn	1000

Commented [PS12]: Retail price here is much higher compared to any other sampled market. Could quality difference alone be the reason? How about consumer profile (richer households), or lack of competition?

3.4.4. Trippunithura Market

Market Profile

Thrippunithura in Ernakulam is also known as the Raja Nagari or the royal city. There are three shops located alongside the road. One is a member of the Christian community and the other two women are from the Hindu fishing community (Dheevera). All three shops have been in operation for over 20 years.

There are also two makeshift shops run by women who process, dry, and sell their own fish. These women operate only on Mondays and Thursdays, which are market days. Their main customers are retailers and those who come to the market to buy goods.

Commented [PS13]: Is this rewriting correct?

Supply chain

The women owners of makeshift shops buy fresh fish from the South Paravur fish market, process it at home, dry it and sell at the market. The other shops sell both locally processed dried fish as well as those sourced from outside. Local production is from around Ernakulam, whereas for outside sources they depend on other districts such as Kollam and Kozhikode, or from outside Kerala such as Gujarat, Odisha and Tamil Nadu. For inter-state trade, there are agents in Aluva and Athirampuzha. Dried fish from here are distributed to markets in Thrippunithura, Chottanikkara, Mulamthuruthy, Eroor, Piravom, Thoppumpady, and Ernakulam to shops within a radius of 10 km. They also sell dried fish to delivery

groups for home delivery of online grocery orders. COVID19 has affected the business adversely, leading to the closure of small shops and even to the death of shopkeepers increasing the liability and debt. With grocery stores in the area also starting to sell dried fish there is increased sale. Retail trades are fully based on cash transactions, but regular wholesale buyers are given 50 percent credit.

Table 9. Price of different species of dried fish sold in Trippunithura Market.

Species	Price (₹/kg)
Anchovy	160
False pony	160
Snakehead	160
Tilapia	200
Ribbonfish	200
Mackerel	240
Sole dover	280
Lizard fish	280
Ray	350
Shark (big)	600
Prawns	800

3.4.5. Aluva Market

Market Profile

The market is located in the Aluva Municipality of Ernakulam district. It is one of the oldest markets in Ernakulam district with about 100 years of history, and it is one of the largest dried fish markets in Kerala. The market, which is spread over an area of 3.5 acres, is run by the Aluva Municipality. The market is active every day. Market Day is on Tuesday and Thursday. There has been a gradual decline in the number of traders in the market over the years. However, during the COVID19 period, those who lost jobs elsewhere entered into dried fish trade. There are no women in this market. This is because women are not able to adapt to the market culture. In some places women from the fishing community are engaged in trade but are few in number.

Supply chain

Dried fish are sourced from within Ernakulam (Vypin, Azheekode and Munambam harbours), from other districts of Kerala such as Kollam, Palakkad, Kozhikode, and also from other states like Andhra Pradesh (Vishakapattanam), West Bengal (Kolkata), Gujarat, Tamilnadu and Karnataka. Processors in Gujarat and Kolkata are originally from Kerala who have been producing dried fish there for 40 years. Processors from around Aluva bring dried fish to the market in three-wheelers. Dried fish are transported in trucks from Gujarat, whereas they are sent via trains from Kolkata.

Dried fish are delivered to the market by processors. Loading and unloading of dried fish is done by trade union workers at a cost of Rs. 20 per box or basket weighing 50 kg. Commission agents, who work as the link between processors and buyers, ensure quality and set the price. Prices are set by these agents, and they charge a commission of 12 percent. There were 5 Commission Agents ten years ago in the Aluva market, but now there are only 2 Agents.

There are regular as well as temporary traders of dried fish in this market. Dried fish are sold wholesale through agents and through small retailers to nearby shops, markets and customers. From Aluva dried fish are sent to the markets like Kothamangalam, Perumbavoor, Muvattupuzha. Kalady, Angamaly Piravam, Kattappana, Cherthala, Changanasserry, Pravur Varapuzha and Rajakkad. Most buyers and

Commented [PS14]: Needs clarity.
 •Just to clarify: Are there no women, few women, or a few women?
 •Who feels that women cannot adapt to the market culture? And, what is *market culture*?

sellers in the market have been transacting with each other for many years, and their transactions are informal and credit-based. Credits are to be cleared within two-three days of transaction.

Commission Agents and retailers in the Aluva market are members of an association. In terms of market demand, greater demand for the Lizardfish can be found in this market.

Table 10. Price of different species of dried fish sold in Aluva market.

Species	Price (₹/kg)
False pony	120
Sole dover	160
Croaker	160
Anchovy	200
Mackerel	200
Lizard fish	200
Shark (small)	200
Ribbonfish	200
Snake head	220
Shark (big)	400

3.4.6. [Muvattupuzha Market](#)

Market Profile

Muvattupuzha is a town in the midlands to the east of Kochi in Ernakulum district. It is located about 36 km (22 mi) from downtown Kochi, and is a growing urban centre in central Kerala. The Muvattupuzha Dried Fish Market has twelve wholesalers and one retailer. These wholesalers all operate in permanent sheds in a row made of wood and metal sheets. The retailer operates from a nearby building. Everyone in the market are men, and belong to the Muslim community. The market is open every day except Fridays.

Supply chain

Dried fish are received from from Kottayam, Athirampuzha, and Aluva to Muvattupuzha. Retailers procure dried fish from wholesalers in Muvattupuzha market. Depending on the availability of dried fish, dried fish agents will contact, quote the price and quality and deliver to the Muvattupuzha market as per the order. Dried fish reach the market in mini-Lorries. The stock comes in the market on Wednesdays and Saturdays. As with all markets in general, transactions are based on credit, and there is a one-week period for repayment.

Buyers in Muvattupuzha dried fish market are two-wheeler sellers, three-wheeler distributors who sell and deliver to high-end shops. Dried fish from the Muvattupuzha market is sent to other markets like Adimali, Ayavana, Kothamangalam, Kattappana, Kottappuram, Piravam, Thodupuzha, Vazhakkulam, Valakom, Varappetty.

The traders are members of the Merchant Association. There is no association of dried fish market operators.

Table 11. Price of different species of dried fish in Muvattupuzha Market.

Species	Price (₹/kg)
---------	--------------

False pony	200
Sole dover	200
Lizard fish	200
Shark (small)	200
Ray fish	200
Mackerel	200
Shark (big)	400

3.5. *Idukki district*

Idukki is one of the districts in the High Range, or hilly tract, of Kerala. The district is endowed with diverse types of water bodies including natural ponds, man-made/quarry ponds, vast check dams etc. An area of 400 hectares of water bodies has been brought under aquaculture with an average productivity of 2 tons/hectare. As the availability of fresh fish is low in the district, there is a strong demand for dried fish. Major dried fish markets in Idukki districts are Adimali, Nedunkandam, Kattappana, and Thodupuzha. The following markets were covered in Idukki district.

1. Adimaly
2. Thodupuzha
3. Kattappana
4. Nedumkandam.

Figure 7 shows the location of the markets covered in Idukki.

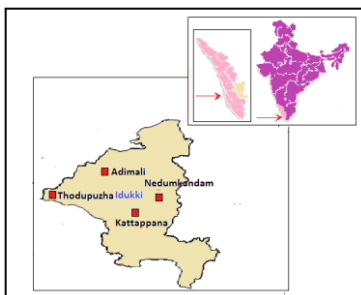


Figure 6. The sampled dried fish markets in Idukki district.

3.5.1. *Adimaly market*

Market Profile

This market is over 50 years old, and it is managed by the Adimali Panchayat. A rent of ₹2000/month is fixed on the shops, with a hike of 10 percent per year. Adimaly market mostly works between 7am to 7:30 pm. There is no specific market days as such. Vendors from all communities are involved in dried fish business. Shelf-life reported is less for dried fish as perceived by vendors. Unsold fish are utilized as manure at a rate of 80/kg.

There have been no women workers in this business either as vendors or as workers. Workers get a wage of ₹400 per day for supporting such shops. Two of the shops hire one worker while other shops don't have a worker.

Supply chain

Dried fish is sold more in this market than cured fish. Most of the dried fish are sourced from Muvattupuzha, Aluva, Kothamangalam and Kottayam markets. There are 4 shops selling dried fish. About 10 years ago there were more wholesale vendors, merchants as well as workers in this sector than now. But due to decreased demand, and the resultant increase in quantities of unsold fish, and other challenges most of them discontinued. Due to panchayat's decision there are no shops operating outside the market. All the vendors live within a radius of 2-3 km from the market. Earlier there were vendors who used to come from Muvattupuzha and Perumbavoor to deal in a wholesale basis here. Availability and prices of dried fish vary on a weekly basis. The four vendors sometimes cooperate when transporting dried fish, but may also do so separately as and when required. The dried fish from this market is selling to Rajakkad, Vellathooval, Anachaal, Mankulam, Venmani, Kanjikkuzhi, Murikkasserry, Munnar, Mamalakandam, Pallivasal, Rajakumari. As is the norm in the dried fish business across the other markets, all transactions are based on credit, with a 7-day repayment period. All the vendors are part of a merchant association. There is no specific association for dried fish vendors.

Commented [PS15]: Is this correct?

Commented [PS16]: Any specific challenge?

Table 12. Price of different species of dried fish sold in Adimaly market.

Species	Price (₹/kg)
Lizard fish	160
Ribbonfish	200
False trevally	200
False pony	200
Barracuda	210
Sole dover	210
Mackerel	240
Anchovy	250
Ray fish	300
Shark	400
Prawn	900

3.5.2. Thodupuzha market

Market Profile

This market was established in 1982. First it was under the control of Panchayat, but now it is under the municipality. There are ten dried fish shops, and both vendor-owned shops and shops rented by the municipality are there in this market. These shops perform both wholesale and retail business. The workers in this market are from northern India. They work for Rs 1000 per day.

Supply chain

Thoothukudi in Tamil Nadu is one of the major sources of good quality dried fish here. Fish like the cartilaginous. The Ray fish are purchased from Aluva in Kerala, and Thoothukudi, Rameshwaram and Nagapattinam in Tamil Nadu. The dried fish are delivered once a week. The laborers charge a fee of ₹20 per box. The sale of dried fish is linked to the availability of fresh fish in the market. As in Adimaly, consumer demand has declined for dried fish in recent years. Vendors are worried about the viability of their business in the future. These traditional dried fish shops are also affected by the arrival of the modern grocery shops and supermarkets.

There are some smaller shops selling dried fish outside the market. Only women used to sell dried fish in the initial years. However, women are not seen operating in this market either as vendors or as laborers. All money transactions are done in ready cash (12% commission will get in the purchase of dried fish on ready cash). The repayment period of the credit is 7 days. The credit is purely based on

the trust between traders. Dried mackerel and Rays are transported to Idukki from here. Customers for the dried fish shops are mainly from Muvattupuzha, Muttam, Vannappuram, Koothattukulam, Piravam, Moolamattam, and Kothamangalam. All the traders are members of a merchant association. But they do not participate actively in its activities.

Table 13. Price of different species of dried fish sold in Thodupuzha market.

Species	Price (₹/kg)
Crocker fish	140
Ribbonfish	140
Snake head	140
False pony	140
False trevally	160
Mackerel	200
Lizard fish	200
Ray fish	300
Shark	400

3.5.3. Kattappana market

Market Profile

Kattappana market is operating in Idukki district for more than 50 years. In the past, fish was processed and sold here. The working hours is between morning 8 am to evening 9 pm. There is no specific market day here. Before covid there was vegetable trade on Saturday, so the sale of dried fish was more on the same day. But after covid there is no special market day. This market is functioning under Kattappana Municipality. The vendors do business here as wholesale and retail. There are many shops operating outside the market as well. Compared to other markets, the price of dried fish here is low. Before covid, women were not here in this field. But now many women do dried fish business here. Shrimp is generally in low demand in this area. Fish like Rayfish and Sole dover are in the highest demand. The traders here take fish from Athirampuzha, Azheekode, and Aluva. Credit period between the traders is 7 days. All damaged fish are sold for fertilizer at 60 rupees. The workers are paid Rs 1000 per day. Dried fish is sold in all areas in Idukki except Thodupuzha, Adimali.

Constraints

In the last 10 years the demand for dried fish has been decreasing. high purchasing power of people and greater availability of raw fish have led to a decline in demand for dried fish. No new traders have started business here for the last 10 years.

Social participation

All the traders are not members of any other organization except the merchant association.

Table 14. Price of different species of dried fish sold in Kattappana market.

Species	Price (₹/kg)
False pony	120
Mackerel	150
Crocker	160
Ribbonfish	180
Snake head	200
Sole dover	200

Ray fish	280
Shark	500

3.5.4. [Nedunkandam market](#)

Market Profile

The Netumkandam market has been in existence for 25 years, under the local Panchayat. The working hours of the market are from 8am to 9pm. Market days were Thursdays in earlier times but, now there is no special day like that. They sell on a *route sale* basis, i.e., selling and delivering products by a wholesale distributor directly to its customers. It involves distributors using their own vehicles, and strategically loading them with the inventory expected to sell on each unique route. The routes cover a distance of radius 100 km on Fridays, Saturdays and Sundays. The rent is about ₹10,000 per month. During the fasting months, there is generally lesser business here. The traders belong to the Christian community. There are no women in this market's dried fish business.

Commented [PS17]: Added a description of the route sale.

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Supply chain

There are three wholesale dried fish shops and a few retail shops here. They get their stock from Athirampuzha, Aluva markets and sell to nearby places like Koottar, Udumbanchola, Mayilaadumpara, Manjapetty, Thoprangudy, and Shanthampara. Within 10 years the number of dried fish shops has decreased drastically. Rainfall, lack of demand, availability of fresh fish are some of the major challenges facing in this market. In earlier times, even grocery stores used to sell dried fish. There are traders here who work for the panchayat and have their own building. Traders do not give fish to anyone on debt.

Table 15. Price of different species of dried fish sold in Nedunkandam market.

Species	Price (₹/kg)
False pony	100
Barracuda	130
Ribbonfish	170
Ray fish	270

3.6. [Kottayam district](#)

Kottayam district is situated near Vembanad Lake at the mouth of the Minachil River, southeast of Kochi. Kottayam developed into an important commercial centre in the early 20th century. The following markets were covered in Kottayam district.

1. Athirampuzha market
2. Kottayam Market
3. Changanassery market

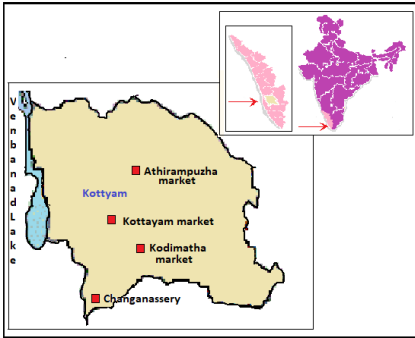


Figure 7. The sampled dried fish markets in Kottayam district.

3.6.1. Athirampuzha market

Market Profile

Athirampuzha market is one of the oldest markets where both water and road transport was possible. Established in 1867, the market is currently located in Athirampuzha Panchayat in Kottayam district, about 12km away from the Kottayam market. The main dried fish species in Athirampuzha market is Ray, shark, snakehead, lizardfish, mackerel, anchovy, soles, and Barracuda. There were 25 women retailers and 13 women wholesalers in this market 15 years ago. But currently only one is operating here. Two women (age 75 and age 55) are doing retail business in Athirampuzha market besides the wholesale commission agent. In both the shops, it is the women who take wholesale dried fish from the market and trade in the market itself. They buy dried fish from the commission agent in Athirampuzha market, Vyppin, Munambam, Azheekod and from outside states like Gujarat, Tamil Nadu (Thoothukudi, Rameswaram, Nagapattinam, Chennai) and Karnataka. The credit transaction period is 8 days. There is no extra charge to recover the debt amount.

Commented [PS19]: Why past tense?

Commented [PS20]: Wholesaler?

Commented [PS21]: A woman?

Supply chain

A wholesale agent or commission agent operates two shops in this market. Acting as a commission agent in the market, he also buys and sells dried fish in bulk from other markets and a processor. Along with this, when the availability of dried fish is less, raw fish is brought from other states and processed in Athirampuzha market and shipped to other markets. Fiberglass tanks required for processing are installed in the market itself. The salt needed for processing comes from Thoothukudi. There are 20 workers involved in sales and processing. Processing is done by migrant labours. Stock is often sold out within a week. Market demand for dried fish and its quality determines the price. Commission agent acts as a middleman between processors and wholesalers. so, the processors are able to sell products quickly and receive payments. The commission charged by the agent is 10 to 12 percent. Dried fish goes from Athirampuzha to Palakkad, Perinthalmanna, Ernakulam, Muvattupuzha, Idukki, Kothamangalam, Adimali, Pala, Erattupetta, Ettumanoor, Kottayam, Changanassery, Mulamthuruthy, Kuruppumthara, Kduthuruthi and Mangalapuram

Social participation

All the traders in Athirampuzha market are members of All Kerala Merchant Association. They are also members of the All-Kerala Dried Fish Association. The association was formed when difficulties arose due to inclusion of dried fish in the list of Goods and Service Tax. After solving that problem, the association is not active.

Table 16. Price of different species of dried fish sold in Athirampuzha market.

Species	Price (₹/kg)
False pony	140
Mackerel	160
Lizard fish	200
False trevally	200
Barracuda	200
Ribbonfish	200
Ray	250
Sole dover	300

3.6.2. Kottayam market

Market Profile

Kottayam market is an old market operating close to Kottayam town. Two types of dried fish trade happen here, first one being 3 commission agent shops and second type are 9 wholesale and retail shops which are about a kilometre away from the main town. Commission agents operate in their own shops inside the main market.

Supply chain

There are 2 traders who are into wholesale dried fish business for past 50 years. Most of the stock they trade arrives from outside of Kerala from states like Gujarat and Tamil Nadu. Rameswaram, Thoothukudi, Nagapattinam coasts are the main contributors from Tamilnadu. False pony and ray are sourced from Tamil Nadu; and common spiny leach and sole dover are delivered from Gujarat. Azheekode, Neendakara and Munambam are the sources of mackerel, snakehead, and Ribbonfish. Agents work for a commission of 10 percent of the sale value. Commission agents decide the price of dried fish and this is sold to wholesalers. After each sale, loading unloading charges, transportation cost and 10 percentage commission is deducted from the bill prior to paying processors for their product. Transportation cost for a kilogram of dried fish is approximately ₹12 rupees. Loading unloading charges are applicable on a rate of ₹10 per load. Processors deliver dried fish for various markets in a single consignment of truck. These stocks are also delivered in various markets in Kerala prior to reaching Kottayam market. The commission agents who order most quantity get to decide the price of fish. This stock arrives twice a week.

As like every other market in Kerala, trade between commission agents and processors are done on a credit basis where credit period is within 10-22 days. A discount of 6 percentage is given for those buying on a ready cash basis. Dried fish from Tamil Nadu is delivered in a coconut leaf basket or wooden box, whereas other places deliver their stock in plastic boxes. The main customers in this market are Muvattupuzha, Kanjirapilly, Changanasserry, Pathanamthitta, Pala, Erattupetta and Ettumanoor. Transaction between commission agents and wholesale retails vendors are mostly on a credit basis where the repayment date will be within 7 days of the transaction. There is no written agreement other than trust in these transactions. Muvattupuzha, kanjirappilly, regional wholesale retail shops buy their stock from Kottayam market.

Table 17. Price of Common species sold in Kottayam market.

Species	Price (₹/kg)
Snake head	160
Sole dover	160
False pony	160
Mackerel	160
Ray	200

False trevally	200
Ribbonfish	200
Anchovy	220
Lizard fish	240
Shark	450
Prawn	600

3.6.3. Changanassery Market

Market Profile

Changanassery market is the oldest market in Kottayam district operating since past to centuries. Changanassery was one of the major trade centers of Travancore, even before the Kerala state was constituted. Three decades ago, hundreds of vendors from nearby districts used small and large boats to come and trade here. Changanassery used to be the major trade center connecting hilly areas in Idukki and Kottayam to coastal areas of Alappuzha. It operates under the supervision of Changanassery municipality. Fresh fish and dried fish shops function in two separate sections. There were 42 large and small shops for selling dried fish prior to 30 years ago, which consisted of shops of 25 women. But decline in consumption of dried fish and expansion of markets in Kottayam, Athirampuzha have affected the sale of dried fish here adversely. New generation is not much interested in this business much as if old generation who quit the business.

Supply chain

Dried fish market operates as both processors as well as commission agents here. Market consists of one commission agent, two wholesale – retail shop with two processing sheds. Tuesdays are the main market days for wholesale shops. Commission agent only operates in this day. Customers from nearby areas as well as retail shops use to purchase their stock on these days from wholesale vendors as well as commission agent. There are 2 wholesale retail dried fish shops at Changanassery, which both obtain fresh fish and process themselves in the tanks available at their shops. Each shop has 6-10 tanks which has a capacity of containing up to 2000 kilograms. Apart from this there are 2 fish curing sheds operating adjacent to the market.

Mackerel, Ribbonfish, Snake head are the common species processed as such. Workers who reside nearby market are the one who helps in processing such as cleaning, salting etc. They wage 150 rupees to process a basket of 30 kilograms of fish. Women workers were involved in such activities about 10 years ago but presently only male workers are available. They perform such activities only when fresh fish is available, on off seasons they find other jobs for their livelihood. Dried fish stock for sale are bought from vendors at Athirampuzha, Kottayam Neendakara and Aluva. And the dried fish processed as well as bought are sold to retailers from Chingavanam, Thiruvalla as well as Alappuzha Kuttanadu, Kavala, Nedumudy and Edathuva. Those customers who directly comes and purchase for their house hold can buy products in a retail basis.

Table 18. Price of Common species sold in Changanassery Market.

Species	Price (₹/kg)
False pony	200
Mackerel	240
Snake head (small)	240
Sole dover	240
Lizard fish	280
Snake head (big)	320

False trevally	380
Shark	400

3.7. Alappuzha District

The fisheries sector occupies an important position in Alappuzha district. It has a coastline of about 82 km comprising 14 percent of the total coastline of Kerala. More than 20 percent of the total area of the district is water-logged, and there are also 20,000 acres of ‘kari’ lands and 42,736 acres of paddy fields in Kuttanad. The following markets were covered in Alappuzha district.

1. Cherthala market
2. Arthunkal Wholesale- retail trade
3. Vazhichery market

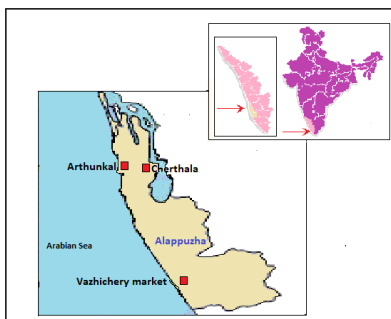


Figure 8. The sampled dried fish markets in Alappuzha district.

3.7.1. Cherthala Market

Market Profile

The Cherthala market is located in Cherthala taluk of Alappuzha. It has been established about 20 years ago. The market starts functioning every day from 5 am, and there is no special market day. There are two small wholesale-cum-retail shops operating here for about 5 years. Both the traders belong to the Hindu Ezhava community. All the work is done by the shop owners themselves, with no laborers.

Supply chain

Traders source their dried fish from Kollam and Ernakulam. Besides delivering fish to other markets, fish is also delivered to Cherthala market from Kollam. The dried fish trade is more prevalent during the periods when fresh fish is less available (June and July). Traders take fish from the Aluva market when the availability of fish is less. The main customers here are those who sell the dried fish in small packets to places like Thanneermukkam, Arthungal, Mararikkulam, Muhammam, Pattanakkad, Kadakkarapally, Pallippuram and Thuravoor. Traders take dried fish from Kollam on credit which they need to return within four days. They settle the previous bill at the time of next purchase. Dried shrimps are mostly sold here.

Table 19. Price of Common species sold in Cherthala Market.

Species	Price (₹/kg)
False pony	160

Snake head	200
Anchovy	280
Shark	300
Shrimp	950
Flower tail prawn	1000

3.7.2. [Arthunkal Whole Sale-Retail trade](#)

Market Profile

Arthunkal Church is a popular pilgrimage center in Kerala. There is a large population of Christian in Arthunkal. All the people involved in the dried fish business here are from the Christian community. The festival of the Arthunkal church, held every year from January 10th to 27th, helps in creating additional demand for dried fish especially on Saturdays and Sundays. There are five dried fish traders, four of whom operate during the festival time and only one operates regularly. The regular shop is located on the beach near the Arthunkal Church. It has been operating for 25 years. Five women, of whom three are regulars, work on fish cleaning and drying. There were about 15 women workers a few years back. The main customers are the people who are visiting the church from places like Alapuzha, Ernakula, Thottapilli, Chethi, Arthungal, Thuravoor etc.

Supply chain

Both wholesale and retail trade are done here. The dried fish for trade are processed by traders themselves. They used to buy fresh fish in auction from fish landing center which is one kilometer away from Arthunkal beach and dried it. The amount which has purchase fresh fish should be paid back within 4 days. With the help of their families, they dried fish on the beach near to their homes. Apart from the sale in the shop, they also doing wholesale selling at home. By December, the fish are processed and stored for sale during the Church festival. In the month of January, as people/devotees come from different parts of the state, more vendors start operating.

Over the last 15 years the price of the fish gets increased. In the past, up to 150 baskets of fish were dried a day. Also dried fish used to be shipped to Tamil Nadu. With the emergence of fish oil business, the price of even the least expensive fish has increased. Hence the price of dried fish is increasing.

Table 20. Price of Common fish species sold in Arthunkal Whole Sale-Retail trade.

Species	Price (₹/kg)
False pony	160
Anchovy	160
Shark (small)	300
Mackerel	300
Ribbonfish	400
Sole dover	400
Lizard fish	420
Prawn	900

3.7.3. [Vazhichery Market](#)

Market Profile

Vazhichery market located in Alappuzha district was established more than a century ago. Shops are operating here in the building which is under the church. There is no specific market day in the market. The shops in the market opens at 6 am. At present there are two dried fish shops operating in Alappuzha

market. Also, another dried fish shop is operating 500 meters away from the market. Both wholesale and retail trade are doing here.

Supply chain

The sale of dried fish is almost the same in every season in this market. It is only during the trawl ban period in June and July that business seems to see slight uptick. Dried fish comes here from Kollam, Neendakara. Traders go to Kollam and buy dried fish after checking the quality of the fish and the price. The traders source the dried fish only from processors who are in the vicinity of Neendakara harbour. Therefore, it is more expensive compared to dried fish sourced from other states.

Source

Dried fish is also brought from Alappuzha Pallana in 50g and 100g packets, often rolled into a sheet of 10 to 15 packets. Main customers in the Alappuzha market are the small dried fish traders and those who buy for household purposes. Traders allow offer discounts to those who take more dried fish to the shops. Fish is purchased and taken to shops on two-wheelers. Traders buy the fish based on availability of the stock.

There were 20 wholesalers in this market 20 years ago, who were doing the dried fish marketing in large scale. Also, many women dried fish at home and sell it in the market. But today there is no involvement of women in this market. Customers here are those who are living within 10 km radius of Alappuzha market like Aryadu, Mullakkal, Kainakary, Mannachery, Paravur, Chambakkulam, Pallaathuruthy, and Chennangiri. Snakehead fish is most sold here. Buying the fish from Kollam and selling it to the customers are all for ready cash.

Table 21. Price of Common fish species sold in Vazhichery Market.

Species	Price (₹/kg)
Shark	160
Snake head	240
False pony	240
Ribbonfish	240
Sole dover	240
Lizard fish	300
Shark	400

3.8. *Thiruvananthapuram District*

Thiruvananthapuram district is at the southern end of Kerala, with a 78 km (13%) long coastline. The following markets were covered in Thiruvananthapuram district.

1. Thazhampalli
2. Poothura
3. Anjuthengu
4. Chala

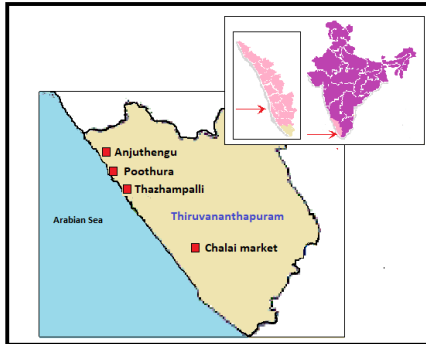


Figure 9. The sampled dried fish markets in Thiruvananthapuram district.

3.8.1. [Thazhampalli, Poothura and Anjuthengu](#)

Market Profile

Thazhampalli, Poothura and Anjuthengu are the local processing and selling places in Thiruvananthapuram district. These places are coastal villages 25 km away from Thiruvananthapuram city. There are about 15 small-scale women dried fish traders on both sides of the Chilakkoor-Vallakadav road from Muthalappozhi harbour to Anjuthengu. They do business by temporarily placing a box and spreading dried fish on top of it. Being a coastal region, fishing is the main source of income for the people here. Men go fishing in boats and women engage in dried fish processing. Women aged between 40 and 75 years are doing trading here. All of them belong to the Christian community. All these are women who have been doing the dried fish trading for about 5 to 20 years.

Supply chain

From Muthalappozhi harbor, 30kg of box containing fresh fish are delivered to them by an agent on credit and they process it at home. The credit period between the agent and the seller is seven days. The cost of salt used for fish processing is ₹350 for 50kg. Cleaning and drying of fish for fish processing are done by women workers. During times of fish shortage, traders do everything by themselves without relying on the help of workers. After the construction of Muthalappozhi bridge, the dried fish business started on both sides of the road. Before that, all the women dried fish and take it to the market. Their main consumers are the passengers on the Chilakkoor-Vallakadav road who are mainly from Aattukal, Perumanthura, Venjaramood, and Chala. Sometimes wholesalers buy from here in bulk.

Table 22. Price of Common fish species sold in Thiruvananthapuram.

Species	Price (₹/kg)
Ribbonfish 5 piece (small)	100
Mackerel 5 piece	100
Sardine 1 portion (700g)	100
False white sardine	150/kg
False pony	180/kg
Anchovy	200/kg
Ribbonfish 5 piece(big)	200

3.8.2. [Chala Market](#)

Profile

Established in the 18th century, the Chala market is located in the city of Thiruvananthapuram, next to the Sri Padapanabhaswamy temple. This market is under the control of Thiruvananthapuram Corporation. Spread over a 2km stretch, this market is one of the busiest shopping streets in Kerala. The market starts at 9 am and runs till 8 pm. There is no particular market day here. There are 12 dried fish shops operating in Chala Market. Only one shop is operating by a woman. People belonging to all communities are involved in dried fish trade in this market.

Supply chain

These shops sell only locally produced dried fish. Dried fish are sourced for the market from Shangmugam, Anchuteng, and Poothura. There are no credit transactions in the sale of dried fish in the Chala market. Fish is bought and sold for ready cash. None of the traders here are members of any association. The main customers are people from Thiruvananthapuram itself, mainly from Poojappura, Thambanoor, Karamana, Palayam, Mulavana, Vanjiyoor, Killipaalam.

Table 23. Price of Common fish species sold in Chala Market.

Species	Price (₹/kg)
Barracuda	60
Sardine	100
Anchovy	200
Mackerel 4 piece	220
Ribbonfish (big) 4 piece	200

4. SUMMARY

Use of dried fish in different dishes has been a heritage of Kerala. Dried fish production in the state is a traditional method of preserving fish practiced since centuries. Despite the substantial importance of the dried fish segment, there have been no recent attempts to document this traditionally important segment and understand its scope. This study is one of the most detailed ones on the dried fish markets of Kerala. This report incorporates the findings from the interviews of 58 men and 12 women participants in the dried fish markets of Kerala spread across 24 markets in eight districts of Kerala. The markets covered are markets in the coastal belt of the state as well as consumption markets in the hill ranges. The markets covered the northern, central, and southern zones of the state as well.

Results indicate that dried fish is still an important component of Kerala's seafood value chain, despite confronting major challenges. In terms of supply of dried fish, the markets in the state rely on both local production as well as interstate trade with Tamil Nadu, Gujarat, West Bengal, Odisha, Karnataka and other states. Trust plays an important role in routine market transactions as much of those are informal and are based on credit. Thus, this indirectly indicates to the fact that the buyers and sellers have been interacting over a long time period which basically creates the trust among them. It also indicates building trust among the value chain actors takes time. Terms of credit often involve repayment in about a week's time.

A common observation across many markets is that there is a substantial decline in the number of dried fish vendors/traders over the years. This appears to be a continuation of the observation of Chellappan (2004) who also noted the decline over time in dried fish production in Kerala. Some of the major challenges facing the dried fish production segment of Kerala are: decreased demand among final consumers; growth of fishmeal and fish oil industries resulting in increased price for fresh/raw fish; and, lack of support from the government. In particular, fishmeal production can have long-term adverse

impact on sustainability of fishing itself given that it increases the derived demand for even trash fish. This may further affect the viability of small-scale fish processing operations such as curing and drying.

In many markets, dried fish processing and trading businesses are passed along in the family for continuity. Interviews with market actors indicate that the younger generation may not be enthusiastic in taking up dried fish processing and trading for livelihood. Moreover, sudden shocks such as the COVID19 pandemic added to the turbulence in this vulnerable market.

Interviews with retailers indicate that the dried fish consumer market is evolving as seen in the case of the Ernakulam Wholesale Market. Use of technology is becoming common in physical transactions (quality checks through video calls; coordination with online grocery orders) and monetary transactions.

There is some social organization of dried fish processors and traders, but it can be strengthened further. There are avenues to strengthen the collective action among the actors in the dried fish sector through creation of producer organizations. Overall, the dried fish sector of the state would benefit from improved fisheries management and institutional support.

Table 24. Structure and pricing of dried fish economy of Kerala.

Particulars	Kasaragod	Thrissur	Ernakulam	Kottayam	Alappuzha	Trivandrum	Idukki	kozhi kode
No. of species trade	6-8	14-15	15 to 20	13-15	10 to 12	8-10	13-15	9-10
No. of wholesalers	1	25	17	12	3	2	7	10
No. of retailers	2	15	14	5	7	25	8	8
No. of commission agents	0	0	2	4	0	0	0	
Number of women in trading	0	0	6	3	0	10	0	0
No of traders about a decade back	10	50-60	46-50	45-50	15-20	27	36-40	15
Type of product	Cured	Dried and cured	Dried and cured	Dried and cured	Dried	Dried	Dried and cured	Cured
Mackerel price (₹/kg)	Nil	80-140	200-800	160-200	280-300	100-220(5 nos)	150 - 240	200
Sole fish price (₹/kg)	140-160	110-150	100-600	240-300	240-400	Nil	180 - 220	180-200
False pony fish price (₹/kg)	100	100-120	120-160	140-200	160-240	180-200	140 - 200	120
Anchovies price (₹/kg)	180-200	180-200	400-600	200-220	160-280	200	200 - 250	200
Ribbonfish price (₹/kg)	Nil	Nil	200	200	240-400	200 92 nos)	140 - 200	Nil
Ray fish price (₹/kg)	280-300	250-300	300-350	200-250	Nil	Nil	280 - 300	200-230
Shark price (₹/kg)	Nil	300-320	200-400	300-400	160-400	Nil	400 - 500	300-350
Flower tail prawn price (₹/kg)	1000	450-600	800-1100	Nil	1000	Nil	Nil	300-350
False trevally (₹/kg)	160-180	Nil	Nil	200-380	Nil	Nil	160 - 200	150
Lizard fish (₹/kg)	Nil	160-200	200-600	200-240	300-420	Nil	160 - 200	Nil

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