

MARKETING PRACTICES AND STRUCTURAL CHALLENGES OF FISHER FOLK: A STUDY WITH SPECIAL REFERENCE TO HIGH-DENSITY FISHING AREAS OF ALAPPUZHA DISTRICT, KERALA

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Abstract

This paper focuses on marketing activities and structural problems of fisher folk in the high-density fishing regions of Alappuzha district of Kerala and their effects on the income stability and livelihood sustainability on the existing market structures. The study, which relies on primary data found in fishermen, intermediaries and cooperative representatives, finds that auction-based selling, where the remains of a private trader is dominating, is the key method of fish marketing. The structures have shown that there are major structural bottlenecks such as poor storage facilities, increasing costs of operation, fluctuating demand as well as restricted access to organised markets, which have led to distress selling and low price realisation. The prevalence of intermediaries also undermines bargaining power of fishermen which strengthens dependency and loss of income. Although other marketing solutions, including digital platforms, cooperative channel, and mobile vending have potential to enhance transparency and efficiency, their usage is still low because of infrastructural and institutional barriers. The research highlights the necessity to strengthen the cooperative structures, enhance the market infrastructure and the digital capacity in the fisher communities. This study can provide relevant policy-focused information that can be used to develop sustainable fisheries and distribute income fairly in Kerala coastal areas by establishing a connection between marketing inefficiencies and livelihood outcomes.

Keywords: *Fisheries marketing, Alappuzha fisher folk, Market intermediaries, Structural challenges, Income stability, Sustainable livelihoods*

Introduction

Kerala has a high dependence of marine fisheries forming a key pillar of the coastal economy, with considerable contribution to food and employment, as well as export income. The industry directly and indirectly sustains lives of over one million individuals in the industry by way of fishing, processing, transportation, and related processes. As it has been estimated, fisheries is a contributor of almost 1.5-2 percent to the Gross State Domestic Product of Kerala as well as a major exporter of India marine products, particularly, shrimp, sardine, mackerel and tuna (Department of Fisheries, Government of Kerala, 2015). The industry remains at the heart of

rural subsistence and food security because fish has remained the major source of animal proteins to a significant percentage of the state population (Kumar and Bhatta, 2020). According to recent researches, there is a structural shift in the fisheries sector of Kerala and this is characterized by technological modernization, crafts mechanization, and increased market integration. According to Regi George (2022), although improvement has been made, the small-scale marine fishers are still economically insecure because of the changing availability of fish in the market, increasing costs of operation, and fluctuating market prices. At the same time, according to the reports of ICAR-CMFRI, the reliance on migrant labour, especially in harvesting and post-harvest activities, is getting more frequent, which does not only indicate the decrease in the involvement of traditional fisher households but also the rise of their socio-economic vulnerability (CMFRI, 2021).

Alappuzha district is one of the most notable marine fishing areas in Kerala containing high dense fishing villages, active landing areas, and high reliance on fisheries as a means of livelihood. The vast marine area and the developed network of the harbours like Thottappally and Kayamkulam have traditionally made the district a key to the state marine fish production (Joseph and Suresh, 2019). The high density of fishers, auction regimes, and informal trading networks characteristic of Alappuzha are the reasons the location is the ideal geographical setting in order to conduct research and study the relationship between marketing and livelihoods.

Fisheries Marketing Concept and Structural Issues

Fisheries marketing can be described as the series of processes and institutions that are involved in the transportation of fish between the capture and ultimate consumption. This comes with a series of players such as fishermen, auctioneers, commission agents, wholesalers, retailers, processors and exporters. India is also a country with largely regionalized fish marketing systems that are characterized by high inconsistencies in the informality of transactions and cash exchange (Salim and Leena, 2021). The marketing form is often composed of several intermediaries, which has a big impact on the price attainment at the fisher level and lowers the overall marketing effectiveness. The mode of operation of traditional fisheries marketing in India operates on the basis of selling fish at the landing centres, through auction systems, the fish are sold as soon as it is landed to commission agents or middlemen. These agents dictate the pricing system in which they tend to set prices in a collusive bidding manner, sidelining the bargaining ability of small-scale fishers (Rao et al., 2020). In addition to this, there is the lack of cold storage equipment and poor transport infrastructure which further undermine the structure of marketing resulting in spoilage and distress sales, particularly along the coast.

Some of the structural problems that are inherent in the fisheries marketing system are lack of systematic markets, poor cooperative activity, absence of price transparency, ineffective post-harvest infrastructure, and ineffective market integration. Nair and Pillai (2021) assert that the pre-eminence of the intermediaries has continued to uphold the unequal power dynamics, which strengthen dependency trends and fluctuating income among fisher folk. Such structural

problems solely smother profitability but also the possibility of a sustainable growth of the sector.

Problem Statement

Although there is considerable supply of marine resources and fisheries have been of strategic economic value in Kerala, the fisher folk in high density areas like Alappuzha have been reported to be living in persistent socio-economic vulnerabilities. They continue to have very unstable levels of income because of the changing prices of fish as well as unpredictable catches and seasonal characteristics of fishing activities. The current marketing systems can be described as having fragmented supply chains, inadequate infrastructures and overreliance on middlemen who have disproportionate influence on the price and distribution channels. Small-scale fishermen usually have no access to formal markets, online trading applications, and institutional credit and must sell their harvest at low prices, informally. Lack of cold storage and good transport systems also force to sell immediately in unfavourable terms and the lack of cold storage and good transport is also a reason to lose income and losses after harvest. These inefficiencies indicate the weaknesses in the existing system of fisheries marketing and promote the thorough analysis of the current practice and issues peculiar to the high-density fishing zones in Alappuzha district.

Objectives of the Study

1. To analyse current marketing activities of fisher folk particularly of high-density fishing zones of Alappuzha district, Kerala.
2. To determine the key problems and limitations that occur in marketing of fish in the chosen coastal areas.
3. To examine the intermediaries, cooperative societies, and institutional mechanisms affect the access to the market and the realisation of prices.

Significance of the Study

The research has a great importance in resolving the livelihood sustainability of the fisher folk and economic resilience of fisher folk in Alappuzha district. Through the study of current marketing behavior and establishing the overall structural limitations, the research is expected to produce the information that will be used to implement tailored policy intervention and institutional change in terms of enhancing cooperation marketing, enhancing infrastructure, and facilitating the development of the digital. The study has academic value because it has enhanced the literature on fisheries marketing and coastal livelihood research especially in the South Indian coastal economies. As a policy point, the study provides an evidence-based policy recommendation to enhance price realization, minimize the control of the middlemen, and enable small-scale fishermen to have greater access to the market. Finally the study helps in the overarching goals of sustainable fisheries management, alleviation of poverty and inclusive economic growth of the communities residing along the coastal areas of Kerala.

Review of Literature

Indian Fisheries Marketing Systems Literature

Fisheries marketing literature in India underscores a multi-layered system where the fish is transported out of the landing centres to consumers via a system comprising of many intermediaries, with high regional variation of structure and efficiency. Among the first macro-level analyses Sathiadhas (2000) demonstrated that in post-liberalisation era the structure of marine fish marketing had changed very rapidly due to the advancement of the harvesting technology, transport and new product forms and new markets. Later studies by the same author have found the efficiency of domestic marine fish marketing by species and region, where fishermen gained greater share in the consumer rupee in lobsters, sharks and seerfish than in oil sardines and anchovies (Sathiadhas, 2011).

The market channel mapping studies emphasize the prevalence of traditional auctions-based systems and informal networks hold on. In their study of marketing channels and price setting of marine species of commercial interest, Roul et al. (2013) reported several channels used by the fishermen to consumers through auctioneers, commission agents, wholesalers and retailers that combine to lower the net price received by the primary producers. The results align with the reports of Central Marine Fisheries Research Institute (CMFRI) that outline marketing of domestic fish as being mostly unorganised, with little grading, insufficient infrastructure of auctions, and the little use of standard weighing systems on landing centres (CMFRI, 2012; 2020).

Regarding price formation, the literature suggests that the open outcry auctions in landing centres remain the most common in most maritime states. According to the study conducted by Sathiadhas (1994), the relative bargaining power of traders can be seen to have a bigger role in price determination compared to transparent demand-supply signals especially in cases where fishermen are in debt to the agent. Subsequent research confirms that the causes of low prices at the major level of marketing include information asymmetry, lack of real-time prices, and collusion among purchasers (Sathiadhas, 2011; CMFRI, 2020). Despite limited diffusion of the modern-day wholesale markets and export-oriented processing unit, the major portion of domestic fish still passes through the traditional flawed chains of supply especially to the small-scale marine fishers along the Kerala coast.

The Mediators and Market Exploitation

An important body of literature is devoted to the role of the intermediaries and the corresponding patterns of exploitation in fisheries marketing. In classic marine fish market analysis in India, the relation has been stressed by highlighting that commission agents and auctioneers and wholesalers have played an influential role in all aspects including giving credit, inputs and market access coupled with a controlling role on sales and prices (Sathiadhas, 1994; 2000). This credit and product market interdependency generally entraps fishermen in extended patron-client interaction wherein the necessity of selling via some specific agent diminishes their independence to find superior costs elsewhere.

Empirical findings of various coastal states indicate that middlemen earn a significant portion of the consumer rupee that is especially on low value species sold in local markets. According to the work of Sathiadhas (2011), retail prices of a range of species may include a share below

50 percent to the fishermen after taking into consideration transportation, wholesaling, and retailing margins. Practices like under-weighing, delayed payment and non-transparent deduction of handling charges which undermine the income of small scale fishers are also reported in field-based studies (CMFRI, 2012; ICSF, 2023) and case reports of Kerala marine fishing communities and other maritime states as well.

The reliance on the middlemen is further supported by the low access to institutional finance and official marketing channels. In cases where traders offer advance credit on fuel, ice, and repairs, fishermen are either legally or unlawfully obligated to deliver all their fish to these traders at the prices they have agreed in their auctions, which might not be representative of the real market (Roul et al., 2013). These structural characteristics of the marketing system are contributors to the chronic lack of incomes, which prevents the accumulation of capital, or the bargaining of better conditions by fisher families. Although there have been some states that have tried to expand on the concept of cooperative marketing as a method to combat the dominance of intermediaries, the literature indicates that these measures have been partially successful as a result of governance limitations, small scale, and the existence of well-established networks in the trader market (Matsyafed, 2019; CMFRI, 2020).

The challenges also include post harvest difficulties and gap in infrastructures

The other focal point in fisheries marketing research is post-harvest handling and lack of infrastructure. Various researches have reported that India is making huge economic losses through poor cold chain and storage facilities of fish and other perishables. National-level evaluation of agencies, like the National Fisheries Development Board (NFDB), projects that the fish industry has only a minor portion of the national cold storage capacity with approximately three-fourth of the fish harvested being sold in fresh states without proper temperature control (NFDB, 2017). Consequently, degradation of quality, microbial spoilage and physical damage of food during transit are common which causes significant losses in terms of their quantities and quality after harvest. In recent studies conducted within the general food system, post-harvest losses in India constitute a large portion of national agricultural production, and such perishables as fish are especially prone because of the poor infrastructure at collection, transportation, and retail points (Invest India, 2023; NABCONS, 2022). Poor landing facilities, absence of hygienic auction halls, ice plants and non-refrigerated transport vehicles are often mentioned among the bottlenecks in the fisheries sector (Sathiadhas, 2000; CMFRI, 2020). Major maritime states were found to have poor post-harvest fish handling infrastructure which means that major maritime states incur losses in the tune of several thousand crore rupees every year, as a study synthesised by the International Collective in Support of Fishworkers (ICSF, 2023) estimates.

Literature also addresses ways through which post-harvest losses can be minimised and these include improvements of integrated cold chain, modernisation of landing centres, fostering of value added products and training in hygienic handling practices. The schemes like the Pradhan Mantri Matsya Sampada Yojana (PMMSY) have tried to finance cold storages, insulated vehicles, and modern wholesale and retail fish markets in order to fill these gaps (Government

of India, 2025). Research however, indicates that such infrastructure is not well distributed in space in that it tends to avoid small landing centres and high-density artisanal fishing areas. This has resulted in fisher folk, and especially small-scale fisher folk, especially in the states such as Kerala, still being reliant on instant spot sales as a means of preventing spoilage thus offering them little opportunity to time the market or to seek out the high-price markets (distant).

Online Channels and Alliance Marketing P patterns

More recent sources discuss how digital platforms and cooperative institutions can be used to change how fisheries are marketed and enhance price realisation to the primary producers. Digital interventions in the fisheries industry are in the form of SMS-delivered price information services and e-commerce and online trading platforms. The National fisheries digital platform (NFDP) and the efforts of the Department of Fisheries and Open Network against Digital Commerce (ONDC) are efforts to formalise fish marketing using structured e-marketplaces allowing fishermen as well as fish farmer producer organisations (FFPOs), self help groups, and cooperatives to interface directly with buyers (Department of Fisheries, 2024). These platforms will improve transparency, growth in market, and reliance on local intermediaries. The use of digital marketing channels in fisheries is still poor and very patchy despite the promise. According to studies and policy evaluations, the limited digital literacy, poor internet connection in rural coastal areas, insufficient logistics to cover the last mile delivery, and mistrust between producers and online consumers are some of the limiting factors to broad adoption (CMFRI, 2020; Department of Fisheries, 2024). In addition, most of these small-scale fishers do not have the working capital or the organisation base to bring their produce together and market them directly using digital platforms. The co-operative models of marketing are more old in Kerala where institutions like the Kerala State Co-operative Federation of Fisheries Development (Matsyafed) take a leading part in procurement, processing, and sale of fish.

Matsyafed was set up to be a top level federation to facilitate production, procuring, processing, and selling fish and fishery products to the socio-economic growth of the fishing society (Matsyafed, 2019). Empirical evaluations indicate that joint programs, which involve operation of retail stores, ice plants, and input supply programs, have enhanced the bargaining power among certain groups of fishers as well as giving alternative avenues to the private traders. Nevertheless, the problems associated with low financial resources, management potential, scope of actions, and competition by private traders limit the overall restructuring of markets by cooperatives (CMFRI, 2012; Matsyafed, 2019). On the whole, the literature suggests that, despite the potential opportunities provided by digital platforms and cooperative marketing as means to reform fisheries marketing systems, their application should be based on the ability to include structural constraints, develop local capacities, and make small-scale fishers in high-density areas such as Alappuzha to engage in these newly established institutional frameworks in a meaningful way.

Conceptual Framework

The paper is based on a systematic conceptual framework that merges the available theories of economics with actual institutional facts of fisheries marketing in Kerala. The framework offers a systematic perspective with which to comprehend the interactions between marketing activities, structural set ups and institutional actors to shape income returns and livelihood sustainability by fisher folk in high-density fishing regions of the Alappuzha district. With the integration of the Value Chain Theory and the Structures Conducts Performance Market Structure-Conduct-Performance (SCP) Model., this research comes with the analytical framework that can be used to define both the flow of the fish through the marketing channels, as well as the power relations integrated within these channels.

Theoretical Basis

Value Chain Theory

Theory is concerned with the chain of activities in which a product has gone through production to final consumption and each of the activities has a value addition and cost. In fisheries, the fish harvesting at sea is the first part of the value chain, which later follows the route of landing, sorting, icing, auctioning, transportation, distributing wholesale, processing, retailing, and the ultimate consumption. The theory focuses on the value creation, distribution and appropriation occurring in various nodes of the chain. When applied in the fisheries industry, the Value Chain Theory assists in determining the areas of inefficiencies, leakages, and distortions in the process of fish products flow. It comes in handy especially when it comes to emphasizing on the impact of unequal distribution of value among actors on the income of fishermen. In cases of large shares of value being taken by intermediaries and downstream traders, the primary producers attract a tiny proportion of the final price. In that way, this theoretical framework can be used to study the spatial and functional fragmentation of the fisheries supply chain and socio-economic implications of such inefficiencies on the livelihood of fishermen.

Market Structure-Conduct-Performance (SCP) Model

The SCP model provides a complementary analytical prism wherein the structure of a market can calculate the behaviour of market participants and overall performance outputs. The market structure in a fisheries marketing is the level of concentration of buyers and sellers in powers, the level of competition, entry barriers, and transparency of the market. Conduct is associated with behavioural patterns of intermediaries such as pricing, bidding behaviour, collusion and transactions on credit. Some economic outcomes that are encompassed in performance include price efficiency, profit margins, income stability, welfare distribution.

Through the implementation of the SCP model, this paper places the fisherfolk in a market environment that is usually dominated by oligopsonistic behaviour in which few traders dominate the purchasing power in the landing centres. Intermediaries determine the behavior of such market structures, where they often dictate prices in the auction and unofficial restrictions on the selection of buyers by fishermen. As a result, the results of the market performance are uneven income performance, volatility in the price, and poor bargaining power of the primary producers.

Proposed Conceptual Model

The given conceptual model forms a correlation among the four components, which are related, i.e., marketing practices, intermediaries, infrastructure, and income outcomes. Marketing activities encompass mode of sale, auctioning, pricing strategies and accessibility to either organized or digital markets. The middlemen mediate these practices, which affect the prices, distribution and marketing of fish. Infrastructure such as cold storage, transport, landing facilities and the market hygiene are structural facilitator or inhibitor of the system. Poor infrastructure causes losses after harvesting, distress sales and reliance on an immediate auction sale. Combined, marketing activities and infrastructural aspects define the effectiveness of the value chain and define the degree to which fishermen are dependent on intermediaries. The combination of these factors influences income outcomes, which are in the form of price realization, income stability, and livelihood security. The model presumes that better infrastructure, more transparency in marketing activity and less intermediary power will result in the fisherfolk having more bargaining power and more stable income. On the other hand, poor infrastructures and unclear marketing mechanisms bring about structural exploitation and economic fragility.

This interaction may be as represented below:

Marketing Practices + Intermediary Influence + Infrastructure Quality → Marketing Efficiency → Income Stability

Operational Definition of Variables

Marketing Efficiency

Marketing efficiency can be defined as the extent to which the fisheries marketing system can facilitate the realization of optimal prices of fisher folk compared to the consumer prices. It involves operationally, the percentage of the end market price that is received by the fisherman after the marketing costs of transportation, commission fees, ice and handling costs are removed. More efficient marketing suggests less intermediation, open pricing and direct distribution channels that boost primary producer share.

Structural Bottlenecks

Structural bottlenecks refer to institutional, infrastructural and systemic bottlenecks that inhibit easy operations of fisheries marketing. They are the absence of cold storage, insufficient transport infrastructure, ineffective landing support, lack of systematized auction services, the domination of the trader and the inability to get funds and online markets. These bottlenecks play the role of hindering effective market participation, and limiting fishermen to bargain better prices or to diversify marketing outlets.

Income Stability

Income stability is the predictability and the consistency of an income received by fisher folk over a period of time. In this paper, it has been characterized as a declining income volatility, consistency of income and stability against seasonal changes and market price disruptions. The

rise in stable incomes is also related to the enhanced livelihood security, increased ability to invest in the household, increased food security, and diminished reliance on predatory credit conditions.

Data and Methodology

The proposed study will rely on primary data only, which will be gathered directly on the stakeholders in the fisheries marketing industry in high density fishing districts of Alappuzha district. By concentrating on primary data, the results will capture on the realities on the ground of marketing activities, structural limitations, and income statuses that fisher folk face now and not a secondary interpretation or collected statistics.

Research Design

The research design was a primary data-based mixed-method study to both obtain quantifiable trends and experience of fisheries marketing. The quantitative part consisted of first-hand communication with fishermen and intermediaries via pre-tested structured questionnaires, which allowed gathering numerical data on the marketing channels, pricing patterns, changes in income, sales frequency, and the degree of reliance on intermediaries.

The qualitative part involved face to face interviews that were in-depth and were done with selected stakeholders including cooperative representatives, senior fishermen, and commission agents. Such interviews offered contextual information on the institutional processes, informal practices, mechanisms of negotiation and power dynamics of socio-economic relationships that informed fisheries marketing. The employment of primary data only enabled the study to psychologically balance between the field-based observations and respondent narratives and lead to an empirically based and locally pertinent perception of marketing structures and issues.

The study area profile is the Alappuzha District

The case was conducted in some of the high density fishing zones in the Alappuzha district, Kerala where marine fishing is the main occupation. The concentration of fishing settlements, active landing centres and high frequency of the fish auction operations characterise these areas. The coastline of the district sustains great numbers of small-scale and artisanal fishermen who practically depend on daily sales of fish as the source of their income. The key nodes of the primary data collection are landing centres and local markets in Alappuzha since they are the immediate gateway between fishermen and buyers. The research particularly targeted the villages along the coastlines of major fishing centres where the fish landing and auctioning processes are undertaken on a daily basis. The reason why these places were chosen is because of the apparent nature of marketing issues that included delays in payments, price fixing, and lack of proper infrastructure, which could be used to analyze the actual operations of the fisheries marketing system based on real time experiences that could be observed in the field.

Sampling Design and Sample Size

The sampling methodology was formulated in such a way that it addresses the coverage of the major stakeholders who have direct interest in fisheries marketing. The respondents were selected through a purposive sampling technique to identify respondents who were actively

involved in fish marketing activities. The main sample was to be divided into three classes namely marine fishermen, intermediaries (commission agents and traders) and cooperative representatives.

The respondents included in the study were 200 in number. Out of them 150 respondents were active fishermen and directly engaged in catching and selling off fisheries, 30 respondents were middlemen in charge of auctioning and price fixing, and 20 respondents were cooperative officials in charge of marketing and institutional control. This was limited to persons that have at least five years experience in the fisheries sector to make the responses to be reliable and rich. This sampling model offered a wide range of information, but the primary focus of lived experiences of producers at the core was kept.

Data Collection Methods

The semi-structured interviews and structured questionnaires were the main forms of data collection conducted via field visits. The prepared questionnaire was to make a perfect record on marketing activities, how often fish sales, how auctioning was done, how pricing was determined, how it was carried to the destination, availability of storage space and trends of income. Likert-scale items were also used in the questionnaire to get perceptions on the fairness of pricing, adequacy of infrastructure and efficacy of cooperative support. Within the selected fishermen, traders, and cooperative officials, in-depth interviews were applied to consider the bigger problems that might have involved dependence on intermediates, credit connections, bargaining power, as well as experiences of cooperative and digitalized marketing programs. Such interviews enabled the respondents to explain the challenges in their own language, which gives a good level of qualitative information of structural and relational aspect of fisheries marketing. There was no use of any secondary records or institutional databases to collect all the data since they were done by direct interaction.

Data Mining and Statistical Processes

Primary data analysis was done using quantitative and qualitative methods. The quantitative data that were collected through the use of questionnaires were analysed through descriptive statistics techniques of frequency analysis, percentage distribution, mean scores, and cross-tabulation to evaluate change in marketing practices, price realization, and income patterns. Intensity of the market accessibility, pricing fairness, and adequacy of infrastructures were measured using Likert-scale responses.

Interpretations based on theoretical analysis of qualitative data collected through interviews, thematic analysis was conducted through which answers were coded in systematic manner in order to derive common trends and overall themes like intermediary exploitation, infrastructural inadequacy, market obscurity, and cooperative inefficiency. These messages were then incorporated together with statistical results to make holistic interpretations. Using primary data alone, the study will be in a position of basing its findings on real-time experiences and firsthand observations of fisheries marketing environment in the Alappuzha district.

Results and Analysis

This part provides the evidence based on primary field data that has been obtained in the high-density fishing regions of the Alappuzha district consisting of 150 fishermen, 30 intermediaries, 20 cooperative officials. The findings indicate the present day marketing practices, structural issues, mediation power and new alternative strategies that determine the fisheries marketing ecosystem.

Current Marketing Folks of Fisher Folk

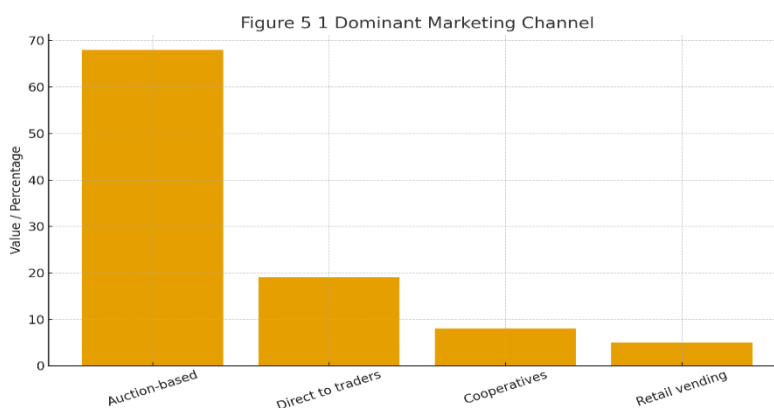
The research shows that auction selling is the prevailing marketing trend amongst fisher folk in Alappuzha. Fish are sold at landing centres by open outcry auctions which are usually conducted right after they have been landed. These auctions are very informal and are managed by commission agents or private traders as the mediators of fishermen and wholesalers. The perishability, speed of sale and storage shortage require fishermen to engage in instant auctions without regard to the market conditions.

Table no: 1 Mode of Fish Sale among Fishermen

Mode of Sale	Number of Fishermen	Percentage (%)
Auction through agent	102	68.0
Direct sale to traders	28	18.7
Sale through cooperatives	12	8.0
Direct retail vending	8	5.3
Total	150	100.0

The statistics indicate that 68 percent of fishermen rely on the auction regimes run by the commission agents, which strengthens the dominance of the intermediaries. Institutional penetration is weak with only 8 percent selling through the cooperative channels. The concept of private traders takes centre stage in the marketing process not only that they buy fish but tend to offer informal credit on fuel, ice and equipment to form dependency relationships.

Figure no: 1 Dominant Marketing Channel (%)



These practices demonstrate that marketing choices are urgency and structural-constrained, instead of being strategic in terms of price optimization.

Fish Marketing Structural Problems.

Evidence in the field suggests that structural bottlenecks have a decisive negative impact on the efficiency of marketing and the stability of income. The greatest challenge that was recorded was poor storage facility, especially cold storage and icing facilities at landing centres. Almost 72 percent of the respondents claimed that they had to sell their catch at once because of spoilages.

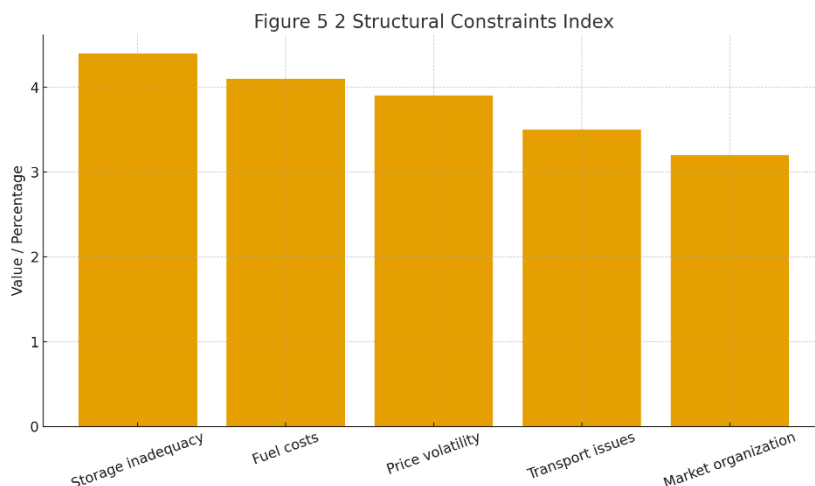
Table no: 2 Significant Structural Issues of Fishermen

Challenge	Respondents	Percentage (%)
Inadequate storage facilities	108	72.0
Rising fuel and input costs	96	64.0
Fluctuating fish prices	89	59.3
Poor transport infrastructure	64	42.7
Lack of organized markets	52	34.7

The increased cost of operation particularly fuel and maintenance is seriously eating up the profit margin. Fishermen have complained that rising diesel costs and rising costs of repairs has decreased net earnings even when catches are constant. The income is further destabilized by demand variations caused by seasonal variations and a saturated market.

Figure no: 2

Structural Constraints Index (Mean Score on 5-pointer Scale)



All these challenges are adding to the distress selling and dependency on the intermediaries to provide immediate cash flow.

Intermediaries and Cooperatives Role

The intermediaries have a great influence over the price adjustment and access to the market. Approximately 74 percent of fishermen stated that the commission agents have a direct or an indirect effect on price decisions. The determination of prices is usually done with the help of collusive bidding at auctions when fishermen have little bargaining power.

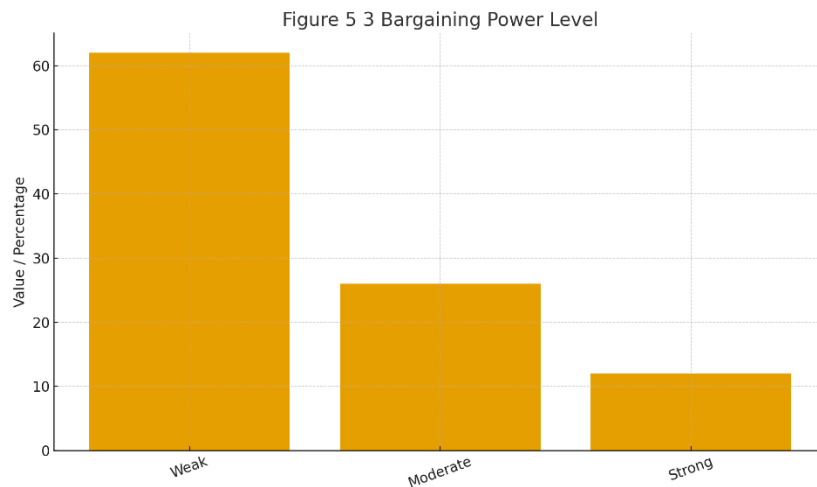
Table no: 3

Perception about the Effect of Intermediaries on Pricing

Level of Influence	Respondents	Percentage (%)
High	82	54.7
Moderate	29	19.3
Low	23	15.3
None	16	10.7

The bargaining power is low because of indebtedness, absence of alternatives in the market and need to sell. Conversely, cooperative societies were seen as accommodating but with low operational rate. Only a quarter of the fishermen stated that they regularly cooperated with cooperatives when marketing their products, and the delay in the procedures and insufficient purchasing power were cited as limiting factors.

Figure no: 3 Bargaining Power Level among Fishermen (%)



The results indicate the imbalance of structure between fishermen and intermediaries, which supports unequal distribution of power in fisheries marketing.

Alternative Marketing Strategy Adoption

The research noted low, but developing use of alternative marketing ways. The new avenues of reducing intermediary dependence are digital marketing platforms, mobile vending and cooperative retail channels. Nevertheless, only a quarter of fishermen have indicated that they had participated in any digital marketing systems, chiefly because they were either not digital literate or because of the infrastructural barriers.

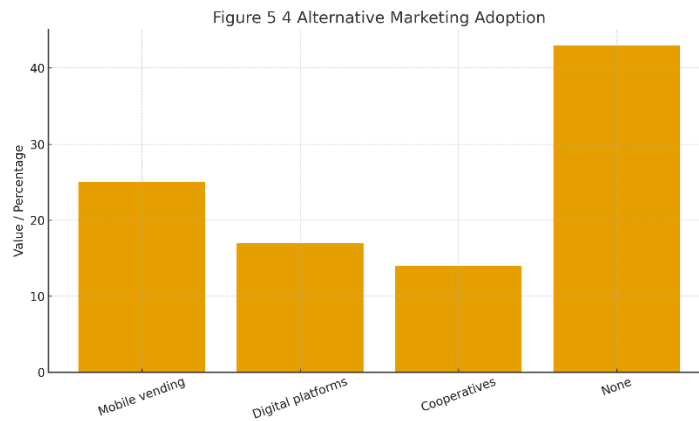
Table no: 4 Alternative Marketing Channels Adoption

Alternative Strategy	Users	Percentage (%)
Digital marketing platforms	26	17.3
Mobile fish vending	38	25.3
Cooperative retail outlets	21	14.0
None	65	43.4

The reason why mobile vending became more common was its low barrier of entry and instant cash payoff, particularly with younger fishermen. Cooperative retail channels were also structure based with low scale and inefficiencies.

Figure no: 4

Adoption of Alternative Marketing (%)



These alternatives have potential but they have limited penetration, which points to structural and technological barriers that limit transformational change.

Overall Interpretation

The findings show that marketing of fisheries in Alappuzha is still firmly entrenched in the traditional marketing of fisheries through auction systems with the presence of individual middlemen. Strategic issues like poor storage, increase in costs and fluctuation in prices considerably decrease the efficiency of marketing and stability of income. Whereas cooperatives and digital platforms have potential to replace them, their impact is still constrained because of infrastructural and institutional barriers. The economic vulnerability of fisher folk is supported by the persistence of intermediary dominance, low bargaining power, and the logistical limitations. The above findings highlight the issue of developing specific solutions to support the infrastructural development, collaboration reinforcement, and digital competency development to drive marketing effectiveness and increase stability of income in the fisheries industry of Alappuzha.

Discussion

Findings Explanation and Comparison with the Literature

Alappuzha results show that, marketing of fisheries remains largely dominated by the traditional auction systems (manipulated by private intermediaries) and penetration of organised and technology-based systems is low. This is consistent with larger empirical findings on Indian fisheries literature that continuously point to the existence of fragmented marketing systems and the dominance of the intermediary in the coastal areas. Other studies have reported similar findings with the auction systems having a tendency of distorting price

formation with asymmetric power relations and collusive bidding practices despite the auction systems ensuring rapid disposal of the perishable fish. The existing results support this story especially in demonstrating that fishermen are still bound by instantaneous sale drives due to absence of cold storage and declining fish quality. The high levels of structural bottlenecks including poor storage capacity, increased cost of business operation and unstable demand conditions reflect trends in other maritime states where poor infrastructure and changeable market conditions lead to endemic economies of income insecurity. The minimal presence of cooperatives that is evidenced in Alappuzha is also an indication of previous reports that although cooperatives present an institutional substitute, their geographical coverage in most instances is not extensive enough to compete with the well established networks of trading. One of the strengths of the current study is that it dwells upon the new types of alternative marketing methods including online platforms and mobile vending. Though literature is putting more focus on the transformative potential of digital fisheries marketing, the findings indicate that, in reality, the adoption is low because of digital illiteracy, infrastructural insufficiency, and institutional change resistance. Therefore, the paper supports the argument that technological interventions cannot be effective in the absence of institutional reinforcement and socio-economic capacity building.

Fisher Livelihoods implications

The marketing order witnessed has very serious economic and social consequences on fisher livelihoods in Alappuzha. In economic terms domination of intermediaries will decrease the ratio of fishermen in the ultimate consumer price, leading to low profit margins and income instability. Costs of fuel, ice and vessel service are very high, which is the cause of further financial susceptibility, which most of the time results in indebtedness and credit reliance at the arm of the agent. This creates dependency that limits the upward mobility and accumulation of assets. Unstable income flows impact household wellbeing socially hindering access to healthcare, education and nutritional security. The uncertainty with respect to earnings is also irregular which is also a contributor to the psychological stress and occupation uncertainty of the fishing families. Younger generations also discard fishing as a cost inefficient job and choose job diversification or job migrations that jeopardize the survival of the traditional fishing knowledge and the community cohesion.

Also, because of the inaccessibility to well-structured markets, social empowerment is hindered because fishermen are still peripheral to the larger supply chain. The low bargaining power that was witnessed in the research indicates an institutional lock out of decisions that can be made, which supports the socio-economic inequality among communities living on the coast.

Organizational Inefficiencies and Reform Requirements

The inefficiencies in marketing unveiled in the present research prove the necessity of the systemic changes. The potential to equitably distribute income is still hampered by structural weak points including the disjointed systems of auctioning, poor infrastructure and obscure pricing systems. Such inefficiencies are enhanced by ineffective institutional coordination, inadequate monitoring, and ineffective adoption of modern market technologies. The reforms

should aim at reorganizing the market regulation, ushering in clear price regulation, reinforcing cooperative infrastructure, and implementing fishermen in formal value chain. Modern auction centres should be developed that are hygienic with digital price display boards and cold storage facilities to facilitate market efficiency. In addition, the policies of the institutions should go beyond infrastructure provision to incorporate capacity building, training, and access to credit without the exploitative arrangements.

Recommendations and Implications of the Policy

Enhancing Cooperation Systems

Institutions of cooperation should be renewed in order to serve as positive substitutes to intermediary dominance by privates. Enhanced operational capacity through strengthening, increased transparency in governance and expansion of procurement networks may allow cooperatives to provide competitive pricing and market trust worthiness. The collective bargaining can be encouraged by encouraging fishermen to organize in self-managed marketing cooperatives, which can help increase price realization.

Marketing of Digital Fish marketing sites

Training programmes that will increase the digital literacy of fishermen should support digital marketing initiatives. Information asymmetry and low transparency can be minimized through mobile-based applications that provide real-time price information, predict the demand, and connect buyers. Connection to online shopping sites can extend the reach of the business beyond the local level.

Strategies of Infrastructure Development

In high density fishing areas, the fish industry should focus on investment in cold chains, transport vehicles that are insulated, auction yards that are hygienic, and ice plants. The decentralised model of infrastructure development must be used whereby equitable access should be provided to smaller landing centres as opposed to focusing on major harbours.

Mechanisms of Support in the Institution

The institutional assistance should involve the easy access to formal credit, insurance coverage, training to quality handling practices and development of skills in marketing. Fisher communities can be guaranteed of a holistic welfare outcome after the integration of policy with the livelihood enhancement programmes.

Conclusion

The paper gives an in-depth analysis of fisheries marketing activities and structural issues affecting fisher folk in the high-density Alappuzha district. The results indicate the existence of continuous dependence on the system of auctioning based on private middlemen, lack of transparency in the market, ineffective infrastructure facilities and incompetent support systems. All of these are contributors of the income instability, low bargaining power, and socio-economic vulnerability of fishing communities. The research adds to the existing body of literature on fisheries marketing by demonstrating that traditional market structures remain

relevant, and the process of their replacement by organised and technology-oriented forms is slow. The study provides a comprehensive and combined view of the impact of structural limitations on the economic and social welfare of fisher households by connecting the commercial inefficiency of marketing to livelihood effects. Although digital platforms and cooperative marketing models are viable alternatives, their use is still limited due to infrastructural insufficiency, lack of awareness and operational constraints. The paper emphasizes that co-ordinated reform measures should include market transparency, infrastructural development, institutional strengthening and capacity building programs to enhance efficiency in marketing and provide stability in terms of income. Further studies may be considered in the form of comparative research of other coastal districts, gender analysis in fisheries marketing, and measurement of the long-term effects of the digital integration of markets. The longitudinal studies that monitor changes in incomes and livelihoods would further improve knowledge on sustainable paths in development of fisheries.

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