



Study on North-East India's Largest Dry Fish Market, its Production and Marketing Channels

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ABSTRACT

In Assam, more than 300 varieties of dried fish products are available. There is a scarcity of data on the country's dried fish product diversity and marketing structure. The marketing system for indigenously caught fish, cultured fish, and imported fish differs. The price of dried fish fluctuated dramatically depending on the season, which was linked to increased demand. Six marketing routes were identified, with the dry fish producer–assembler–commission agent (CA)–wholesaler–retailer–local distributor consumer channel, being the most dominant, accounting for roughly 56 per cent of the total dry fish sold at the market. Despite having higher marketing efficiency in this channel, its market share in terms of dry fish sales was the smallest, as consumers in North-Eastern states were not always able to purchase dry fish goods directly from wholesalers.

Key Words: Analytical, Dry Fish, Marketing, Efficiency, Marketing Channels, Quality.

INTRODUCTION

Dried fish is just as important as fresh fish in terms of protein consumption because the crude protein levels are roughly twice as high. This is particularly true for the impoverished, for which dried fish is the most cost-effective source of animal protein. Dried fish has a long shelf life and is a good source of protein, essential fatty acids, and minerals. Other species of dried fish are imported from different states to suit the ever-increasing demand, according to research done by (Sugathapala *et al*, 2012). These dried fish are assembled at Jagiroad market and following their arrival, further dried and sorted by quality before being shipped to various parts of the North-eastern region, as well as neighbouring countries like Nepal (Pradhan *et al*, 2017). There is a paucity of comprehensive information on the variety of dried fish items accessible in the Jagiroad market as well as their marketing technique.

Species availability varies from season to season. The winter season has the most variety compared to the other seasons. Wholesale demand and supply, according to the respondents were at their peak during the winter season. The price of dried marine fish varies depending on its size, availability, and quality. Transportation, labour, and power all play a role in determining the selling price. The marketing system is linked to a successful job generation that includes both men and women. Several species of dried coastal and marine fish, including *patia*, *lahara*, *mola*, *chanda*, and *ruli* were widely accessible. Because of the product's importance in terms of market volume and its significant impact on the socio-economic conditions of millions of people in the country, it requires special attention from authorized authorities to assure the quality and safety of the product manufactured and marketed.

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Table1. Diversity of Fish Species available in Jagiroad Market and their price.

Sr. No.	Fish Species	Price/Kg	
		Smoked	Sun-Dried
1.	<i>Channa punctatus</i>	Rs.550/kg	Rs.750/kg
2.	<i>Aorichthys seenghala</i>	Rs.600/kg	Rs.630/kg
3.	<i>Puntius siphore</i>	Rs.700/kg	Rs.780/kg
4.	<i>Amblypharyngodon mola</i>	Rs.100/kg	-
5.	<i>Notopterus chitala</i>	Rs.550/kg	-
6.	<i>Wallago attu</i>	Rs.450/kg	-
7.	<i>Labeo rohita</i>	Rs.450/kg	-

MATERIALS AND METHODS

Subject Area

Using a semi-structured questionnaire, a study was done in Jagiroad market intermediaries over several days on the source of raw material, handling, shipping, drying procedures, supply chain, marketing cost, marketing margin, and other topics. Some respondents were chosen at random for the survey, with dry fish producers, wholesalers, retailers, and consumers making up the four major respondent groups. Out of the whole market sample, market intermediaries and other officials were selected. Wholesale marketplaces were surveyed across the board. The assessor imagines conducting interviews with the fisherman.

The various marketing channels studied were Channel I- Dry fish producer-Assembler-Commission agent (CA)-Wholesaler-Retailer-Consumer; Channel II- Dry fish producer-Commission agent-Wholesaler-Retailer-Consumer; Channel III- Dry fish producer-Wholesaler cum Commission agent-Retailer-Consumer; Channel IV- Dry fish producer-Wholesaler-Retailer-Consumer; Channel V- Dry fish producer-Wholesaler-Local Distributor-Consumer and Channel VI- Dry fish producer (local producer)-Local Distributor-Consumer

Analytical Study

For fresh fish in the study area, descriptive statistics such as frequency distribution and

percentage were employed to analyse some socio-economic aspects of the respondents through graphical representation. The profitability of fresh fish marketing in the study area was determined using gross margin analysis. The identical analytical technique has been done by Deka *et al* (2019). Gross Margin = Gross Sales/Income - Total Variables Cost

Marketing efficiency Index

Marketing efficiency was calculated using both Shepherd Index and Acharya's modified marketing efficiency as follows.

Conventional method:

Index of marketing efficiency (E) = O / I

Where 'O' is the value added by the marketing system and 'I' is the cost of market intermediaries.

1. Shepherd's Index-

Marketing Efficiency (ME) = V / I

Where V is the value of goods sold or price paid by the consumer and I is the total cost.

2. Acharya's modified marketing efficiency (MME)-

MME = FP / (MC + MM)

Where FP is the price received by dry fish producers, MC is the marketing cost and MM is the marketing margin cornered by market intermediaries.

Study on North-East India's Largest Dry Fish Market

Table 2. Dried Fish Quality Preference.

Attributes of dry fish	Quality preference
Alternative to fresh fish	+
Energy provider	++
High self-life and easy transportation	+++
Medical value	+++
Recipe diversity	+++

+ Fair ++ High +++Very high (Source: Deka *et al*, 2019).

RESULTS AND DISCUSSION

Varieties of Dry Fishes Available in Jagiroad

In the Jagiroad market, there are around 300 different fish species available. However, there are nearly 7 species of fish which are sun-dried, smoked and commonly sold in the Jagiroad market. These are divided into two to three groups based on quality and size. This is particularly true for the impoverished, for which dried fish is the most cost-effective source of animal protein. According to seasons and different parameters, the price of fish varies. The majority were native species collected from rivers, streams, and lakes, with a few introduced from Siliguri (West Bengal), Porbandar (Gujarat), Lucknow, Gorakhpur (Uttar Pradesh), and Teliamura (Tripura). The smoked fish in pieces was combined with salt and spices before being smoked in a mud oven.

Quality Preference

The data (Table 2) show quality preferences for dried fish in Assam and its neighbouring states based on the qualities of dried fish.

Marketing Efficiency of Dry Fish

Different approaches were used to calculate the marketing efficiency of dry fish sold by dry fish producers. In Channel I, II, III, IV, V, and VI, Shepherd's Method Index (ME) of marketing efficiency was 1.70, 1.74, 1.75, 2.70, 1.93, and 2.23, respectively. In Channel I, II, III, IV, V, and VI, Acharya's modified measure of marketing efficiency was 0.81, 0.85, 0.88, 1.40, 1.04, and 1.26, respectively. So, according to both indices,

marketing efficiency was highest in channel V, where dry fish farmers received a higher price and marketing costs and margins were lower than in the other four marketing channels. Channel I was determined to be the least efficient of all the channels, with the largest marketing expenses and margins (Rs.42.10 and Rs.70.00). Despite its superior marketing efficiency, channel V had the least market share in terms of total dry fish sold since Assamese customers cannot buy dry fish goods directly from distributors daily. The findings were consistent with those of Kashyap *et al* (2013) who found the same correlation between five primary marketing channels of marketing efficiency during their 2009 investigation at Jagiroad dry fish market. When the price spreads of several channels were compared, channel VI had the lowest price spread, indicating that its efficiency was higher than the other channels. Similar kind of observation was made by Haque *et al* (2015) using value chain analysis of dry fish marketing at Massimpur in Sylhet of Bangladesh. Before reaching the end buyer, the fish passes via several intermediaries, as reported by Sathiadas and Kumar (1994). Identical study conducted by Rahul *et al* (2017) on rose cut flower growers' usage of pattern and IV marketing channels in the Bangalore Urban District.

For the marketing of dried fish, six significant marketing channels were detected in the study area. Channel I (Dry fish Producer-Assembler-Commission Agent Wholesaler-Retailer-Consumer) was shown to be the most dominant channel, with 54.48% of the total dry fish moved through it. For

Table 3. Attributes of different market intermediaries involved in the marketing route.

Sr. No.	Particular (Unit-Per kg)	Channel I	Channel II	Channel III	Channel IV	Channel V	Channel VI
1.	Retailer's sale price (RP)	191.40	185.30	175.75	171.00	164.20	153.00
2.	Total Marketing Cost (MC)	42.10	38.35	37.95	24.20	30.10	32.64
3.	Total margins of intermediaries (MM)	70	67.80	62.60	39	55	36
4.	Net Price received by producer (NPP)	91.60	90.55	89.10	89.00	89.00	87.00
5.	Value added by marketing system, VA= (RP- NPP)	99.80	94.75	86.65	82	75.20	66
A	Marketing efficiency index						
1.	Shepherd's Method Index, ME= {RP / (MC+MM)}	1.70	1.74	1.75	2.70	1.93	2.23
2.	Acharya's Method Index, MME = {NPP / (MC+MM)}	0.81	0.85	0.88	1.40	1.04	1.26

selling dry fish in the market, 23.73% of fish dryers utilised Channel II (Dry fish Producer-Commission Agent- Wholesaler-Retailer-Consumer) and 10.70% used Channel IV (Dry fish Producer-Wholesaler-Retailer-Consumer). In channels V and VI, it was observed that the local distributor acted as incharge of 5.51% and 3.66%, respectively. Aziz *et al* (2019) revealed the same result amongst six primary marketing channels of marketing efficiency.

Retail Cost

Transport, tax, and market fees, as well as the purchase of polypropylene bags, ice, energy, hired labour, and storage, were all included in the marketing costs of dried fish. The cost of marketing fish was determined by the volume of fish, distance from the market, and mode of transportation, among other factors. The costs of fish production and transportation played a significant effect in the fluctuation of fish prices. The results were consistent with those of Sathiadas and Kumar (1994).

Sanitation Condition

Because of the significant risk of faecal contamination, maintaining the hygienic state of the fish market is critical. During the rainy season, such conditions foster and maintain a background

population of blowflies. Insecticides are used by fish processors to reduce fleas, and bleaching powder is used in both fish drying rooms and markets to maintain hygienic conditions.

Export of Dry Fish

Figure 1 shows the export of dried fish from Assam to its neighbouring states based on the qualities of dried fish.

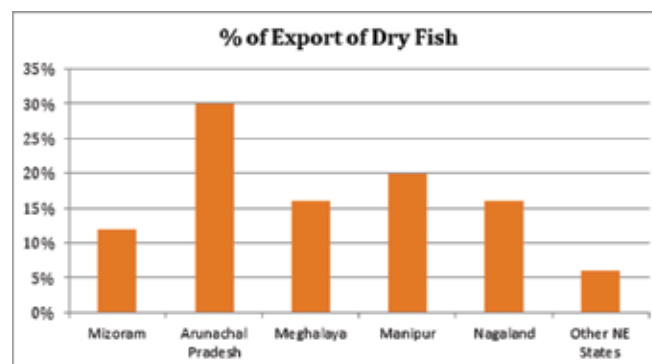


Figure 1:- Percentage of Export of Dry Fish.

Import of Dry Fish

Figure 2 shows the import of dried fish in Assam from its neighbouring states based on the qualities of dried fish.

Study on North-East India's Largest Dry Fish Market

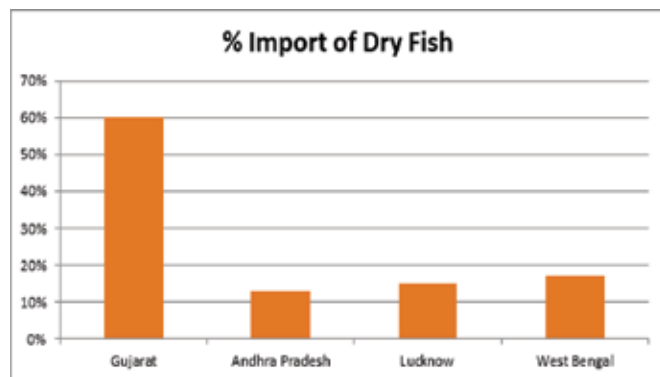


Figure 2:- Percentage of Import of Dry Fish.

CONCLUSION

The dry fish marketing chain begins with a farmer (dry fish producer) and concludes with the final consumer, with several intermediaries in between. These marketing middlemen provide services for producing, assembling, loading, packaging, and transporting dry fish, resulting in cost increases at every stage of the marketing process. It was discovered that producers did not sell fish to consumers directly. It was concluded that the marketing efficiency was highest in channel V as the price obtained by dry fish producers was highest, and both marketing costs and margin were lower than the other four marketing channels based on Shepherd's Method Index and Acharya's Method Index. Further, no investor has a competitive edge in anticipating a stock price return because no one has access to information that isn't already available to everyone else. Because channel V has higher market efficiency, which implies that the channel has more accurate information about a specific stock and/or market.

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