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Status of the Egra Regulated Dry Fish Market, Purba Medinipur, West Bengal

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Abstract:

The present study was performed to understand the marketing channel, present status, Species available, hygiene condition and associated risk, and the future prospect of the market in importing and exporting dry fish from different parts of West Bengal to different parts of India. The market was surveyed from January 2014 to December 2014 in four seasons each of three months. Survey question schedule was made for the collection of primary data. Several species of coastal, marine and freshwater dried fishes were commonly available in the market. The dry fish trading system depends on several stakeholders like fish processor, Beparis, Aratdars, Wholesalers and Retailers. The survey reveals that the trade is till now seasonal and activity remains maximum in winter as the supply of fish to market is high in quantity and quality. Dry fish trade is a good source of employment generation for both men and women. Poor infrastructure in fish drying, poor road and transport facilities, lack of credit facilities, lesser Govt. interest appears as barrier for the long term sustainability of the system.

Key words: Dry fish, Marketing system, Stakeholders, Barrier.

Introduction

Indian Fishery occupy the second position in global fish production with an annual growth rate of 5.96%, recording 3.68% growth in marine sector and 7.28% growth in inland sector, thereby contributing 1.10% to the total GDP and 5.3% to the agriculture GDP of the nation (Handbook on fisheries statistics 2014). The sector engages 14 million people at the primary level, and is earning over Rs. 30,213.00 crore annually through export (MPEDA, 2015). West Bengal has a coastline of 158 km and covers mainly the districts of South and North 24 Parganas and Purba Medinipur (Handbook of Fisheries and Aquaculture 2012) Fish is an important part of the regular diet and is a cheap source of protein for the peoples of West Bengal. About 78% of total fish catch is consumed in fresh condition, 7% is used as dry fish and rest is used as frozen fish. Indian dry fish export contributes 8% of all form of fish exports and earned 998 crores during 2013-2014 (MPEDA, 2015).

Marine fish drying is very common in the entire coastal zones of India. In West Bengal this practice is restricted to 24 Parganas and Purba Medinipur. These dried fishes have demand both in domestic and international market and plays an important role in employment generation of coastal poor people (Goswami *et al.,* 2002). In this dry fish marketing channel people involved early in the production chain (fishing and drying) add relatively more value and make little profit due to small scale production, poor product quality, lack of market access and high transportation cost/toll/taxation etc. (Nowsad, 2005).

Egra regulated dry fish market, Purba Medinipur, West Bengal is a regulated dry fish market of West Bengal, India. Different kinds of dried fish from all dry fish processing area of coastal West Bengal (Digha estuary (Mohona), Haripur, Sankarpur, Kadua, Bankiput, Bhogpur, Gopalpur, Jalda khoti, Dadanpatrabar, Janakalyan, Chewasuli, Mandarmoni, Saula,

Junput, Sagar Island) and Odisha (Ghorai M., Patra B. C., 2008) usually come to this market. These dried fishes later supplied to different markets such as Siliguri in West Bengal, Assam, Odisha, Bihar and some other parts of India and abroad. The most common dry fish traded in this market are Patia *(Lepturacanthus savala)*, Lahra *(Harpadon nehereus)*, Tapra (*Setipinna phasa),* Gura (*Opisthopterus tardoore*) Bhola (*Panna microdon*), Ruli *(Coilia dussumieri)*, Parse *(Chelon parsia)*, Mourala (*Amblypharyngodon mola*), Chanda (*Chanda nama*), Pomfret (*Pampus argenteus*). etc.

The present study was performed to understand the marketing channel, present status, Species available, hygiene condition and associated risk, and the future prospect of the market.

Materials and methods

Survey:

The dry fish marketing involve a long marketing channel system which was surveyed several times, season wise from January 2014 to December 2014. A standard survey schedule is prepared as followed by M.B.J.Karuki, 2011. The fish processors are interviewed in their fish drying places which are located mainly in the coastal belts of Purba Medinipur (viz. Digha estuary (Mohona), Haripur, Sankarpur, Kadua, Bankiput, Bhogpur, Gopalpur, Jalda khoti, Dadanpatrabar, Janakalyan, Chewasuli, Mandarmoni, Saula, Junput etc.). All the other groups are interviewed in the dry fish market of Egra. Available fish species were collected and brought to the laboratory and identification made according to Fishbase Var. 02/2015 (www.fishbase.org).

Analysis of Survey data

All the collected data were reduced to tabular form using standard statistical methods. All calculations were calculated by using Microsoft Excel 2007.

Result and Discussion

Marketing Channel of Egra Regulated dry fish market

All dried fish traded in this market pass through private channels. Different categories of businessman are involved such as fish processors, Beparis, Aratdars, Wholesalers and retailers. A bepari is relatively large and professional trader who deals fish business. They bought dried marine f ish from producers/ processors and sell it to the wholesalers, retailers in wholesale market. A person who deals fish business, invest money for fishing, fish purchase and selling both in domestic and foreign markets. The aratdar is primarily commission agent who takes commission during transaction of dried fish (Faruque *et. al. 2012)*. In general Beparis collect the dried fish from the fish processors and sell it to the Aratdars. Wholesalers purchase from Aratdars and sell it to the retailers and consumers in the market.

Common available dried fish:

Lepturacanthus savala *(Cuvier, 1829):*

Classification:
Actinopterygii (ray-finned fishes) > Perciformes (Perch-likes) > Trichiuridae (Cutlassfishes) > Trichiurinae **(**Romero, P., 2002).
Common name: Patia
Common length: 70.0 cm
Biology: *Lepturacanthus savala* inhabits coastal waters and often comes near the surface at night. It feeds on a variety of

small fishes and crustaceans (chiefly on prawns and species of *Setippina*, *Anchoviella*, *Harpodon*, *Trichiurus* etc. in Hooghly estuaries in India). They caught mainly with shore seines, bagnets and coastal bottom trawls in Asian countries and Marketed fresh and iced as well as dried salted. (Nakamura, I. and N.V. Parin, 1993)

Chelon Parsia (Hamilton, 1822):

Classification:
Actinopterygii (ray-finned fishes) > Mugiliformes (Mullets) > Mugilidae (Mullets) **(**Romero, P., 2002).
Common name: Parse
Common length: 17.0 cm
Biology: *Chelon Parsia* found in shallow coastal waters, estuaries, lagoons, and sometimes entering tidal rivers. They feed on small algae, diatoms, and other organic matter. *Chelon Parsia* spawns at sea. Their oviparous, eggs are pelagic and non-adhesive. *Chelon Parsia* sold fresh in markets and roe is highly valued. (Thomson, J.M., 1984)

Opisthopterus tardoore (Cuvier, 1829):

Classification: Actinopterygii (ray-finned fishes) > Clupeiformes (Herrings) > Pristigasteridae (Pristigasterids) **(**Romero, P., 2002).
Common name: Tapra
Common length: 20.0 cm
Biology: *Opisthopterus tardoore* found close to shore and also entering estuaries (e.g. Aluhaluh on Barito River in Kalimantan, Indonesia). It ascends rivers into the tidal zone. It feeds on mysids, *Pseudodiaptomus* and copepod eggs, also prawns and other small crustaceans, bivalve eggs and larvae, amphipods and small fishes. It spawns in late February or early March to July or August (around Karwar, India). *Opisthopterus*

tardoore usually used as fish meal or fertilizer. **(**Whitehead, P.J.P., 1985)

Panna microdon (Bleeker, 1849):

Classification: Actinopterygii (ray-finned fishes) > Perciformes (Perch-likes) > Sciaenidae (Drums or croakers) (Sasaki, K., 1995)
Common name-*Bhola*
Common length: 30.0 cm
Biology: *Panna microdon* inhabits shallow coastal waters and estuaries.. *Panna microdon* caught with bottom trawls, and handlines. It sold fresh and dried salted in markets. (Sasaki, K., 2001)

Harpadon nehereus (Hamilton, 1822):

Classification: Actinopterygii (ray-finned fishes) > Aulopiformes (Grinners) > Synodontidae (Lizardfishes) > Harpadontinae **(**Romero, P., 2002).
Common name: Lahara
Common length: Between 30 and 40 cm
Biology: *Harpadon nehereus* inhabit deep water offshore on sandy mud bottom for most of the year, but also gathers in large shoals in deltas of rivers to feed during monsoons. They spawn 6 batches of broods per year. *Harpadon nehereus* is an aggressive predator. It primarily caught along Maharashtra with the bag-net, better known as 'dol' net. This is an excellent food fish. It is marketed as fresh and dried or salted. (Frimodt, C., 1995)

Coilia dussumieri (Valenciennes, 1848):

Classification: Actinopterygii (ray-finned fishes) > Clupeiformes (Herrings) > Engraulidae (Anchovies) > Coiliinae **(**Romero, P., 2002).
Common name- Ruli
Common length: 17.0 cm
Biology: *Coilia dussumieri* A coastal and estuarine species, occurring in fully saline water, but also able to tolerate lowered salinities, perhaps almost fresh water. It feeds on copepods, prawn and fish larvae, various unidentified crustaceans and cypris, also stomatopod larvae, mysids, polychaete larvae, isopods and *Sagitta. Coilia dussumieri is* utilized as a food fish. (Coppola, 1994)

Amblypharyngodon mola (Hamilton, 1822):

Classification: Actinopterygii (ray-finned fishes) > Clupeiformes (Herrings) > Engraulidae (Anchovies) > Coiliinae **(**Romero, P., 2002).
Common name- Mourala
Common length: 20.0 cm
Biology: Adults of *Amblypharyngodon mola* are found in ponds, canals, beels, slow-moving streams, nullahs (Drains) and paddy fields. (Gupta, S. and S. Banerjee, 2013)

Chanda nama (Hamilton, 1822):

Classification: Actinopterygii (ray-finned fishes) > Perciformes (Perch-likes) > Ambassidae (Asiatic glass fishes) **(**Romero, P., 2002).
Common name: Chanda
Common length: 11.0 cm
Biology: *Chanda nama* found in standing and running waters, clear streams, canals, beels, ponds, and inundated paddy fields.

*Chanda nama is a*bundant during rainy season. This species could effectively be used in the control of guinea worms and also for malarial control. These small, bony, fleshy fishes are sold in heaps along with other small fishes in the market. (Arunachalam *et. al*. 2000)

Pampus argenteus (Euphrasen, 1788):

Classification: Actinopterygii (ray-finned fishes) > Perciformes (Perch-likes) > Stromateidae (Butterfishes) (Haedrich, R.L., 1984)
Common name- Pomfret
Common length: 60.0 cm
Biology: *Pampus argenteus* is an inshore species, usually in schools over muddy bottoms, associated with fish species like *Nemipterus* and *Leiognathus*. Adults of *Pampus argenteus* usually feed on ctenophores, salps, medusae, and other zooplankton groups. They sold fresh in local markets or shipped frozen to urban centers. (Haedrich, R.L., 1984)

Setipinna phasa (Hamilton, 1822):

Classification: Actinopterygii (ray-finned fishes) > Clupeiformes (Herrings) > Engraulidae (Anchovies) > Coiliinae **(**Romero, P., 2002).
Common name: Phasa
Common length: 40.0 cm
Biology: *Setipinna phasa* is a riverine species, but also found in estuaries and presumably tolerating some salinity. Adults of Phasa feed mainly on mysids and small prawns (reduced feeding during breeding) and juveniles mainly on copepods. They possibly breeds throughout the year, with peaks in October and November (Hooghly at Barrackpore) or March-May (Ganges at Allahabad). Its large size makes it an attractive food fish. (Whitehead, Nelson and Wongratana, 1988)

Acetes indicus

Classification: Malacostraca> Decapoda> Sergestoidea (Dana, J.D. 1852).
Common name: Gogua
Common length: 3.0 cm
Biology: Total length of males and females ranged between 8-25 and 8-36 mm respectively, exhibiting growth rates of 6.02 and 5.83 mm per month. The lifespan of the species was 4-6 months. The species subsists mainly on detritus and planktonic organisms by filter feeding mechanism. The size at first maturity was 14-15 mm for males and 17 mm for females. It breeds throughout the year with peak during September-January period. The sex ratio exhibited dominance of males until 20-21 mm size and females thereafter (Dana, J.D. 1852).

Trade and Traders

Egra regulated dry fish market is the largest dry fish market in West Bengal. Several Aratdars and wholesalers operate here. . Different kinds of dried fish from all dry fish processing area of coastal West Bengal (Digha Mohona (estuary), Haripur, Sankarpur, Kadua, Bankiput, Bhogpur, Gopalpur, Jalda khoti, Dadanpatrabar, Janakalyan, Chewasuli, Mandarmoni, Saula, Junput, Sagar Island) and Odisha usually come to this market. These dried fishes later supplied to different markets such as Siliguri in West Bengal, Assam, Odisha, Bihar and some other parts of India and abroad (Figure-4 & Figure-5). It is estimated that 14000 to 18000 tons (Ghorai *et. Al. 2014)* of dried fish move through Egra regulated market per annum. The market remains most active during the winter season (October to January) as the supply and climate remains most consistent. Rest of the season the supply of the fish fall (Figure-1). The dry fish trading system in West Bengal depends on several

stakeholders like fish processor, Beparis, Aratdars, Wholesalers and Retailers.

Mode of Transport

In general the fish drying farms are located in the coastal areas. After drying they are purchased by Beparis and Aratdars. Here the means of transport is either mechanized vans or small trucks. Aratdars sale the collected dried fishes to wholesalers in the market. Here big trucks are used for the transportation system.

The Egra Regulated market operates weekly at every Saturday. Retailes and different types of consumers purchase fish as per their requirement. Fish are sorted/graded and repacked either inside or nearby the market. Manual labors work here for loading and unloading. Now a significant amount of dried fish like Patia, Lahara, Gogua, Tapra is exported to Bangladesh.

Comparative rate of dried fish at Egra regulated dry fish market

The price of different dried marine fish depends on the size, availability, quality of the species, transport, labor and season. During winter season the rate of all the available fish increases as the quality of fish drying enhances. The comparative rates of available fish are given (Figure-2).

Species Availability

Due to the recent application of deep sea trawling system by the fishermen of coastal West Bengal, a good quantity of marine fish is available in the market. The most common ones are Patia *(Lepturacanthus savala)*, Lahra *(Harpadon nehereus)*, Tapra (*Setipinna phasa),* Gura (*Opisthopterus tardoore*) Bhola (*Panna microdon*), Ruli *(Coilia dussumieri)*, Parse *(Chelon*

parsia), Mourala (*Amblypharyngodon mola*), Chanda (*Chanda nama*), Pomfret (*Pampus argenteus*), Gogua (*Acetes indicus)*. Availability of species varies from season to season. Most variety is found in winter season than summer season and others (Figure-3).

Marketing Costs

Marketing costs dried fish include expenses such as transport, levy and market fees, purchasing of polypropylene bags, ice, electricity, hired labor, storage etc. The costs of fish marketing depend on the volume of fish, distance from the market and mode of transportation etc.

Hygienic Condition

Maintaining the hygienic condition of the fish market is very essential because the chances of fecal contamination are high. Such conditions promote and maintain a background population of blowflies (*Calliphora* spp.) mainly during rainy season. Fish processors uses insecticides to control the fleas and to maintain the hygienic condition disinfectant is used both in fish drying areas and in the markets.

Conclusion

West Bengal is rewarded with every kind of water body i.e. brackish water, sweet water, sewage water and marine water as well. As a result a consistent amount of marine fishes are sold fresh as well as after drying. Marine dried fish marketing plays an important role in the economy of West Bengal as well as in India.

However, concerns arise about the long- term sustainability of marine dried fish marketing due to poor supply of fish in the non-winter season. It is due to poor infrastructure in fish drying. Fish processors depend on the climatic condition for drying of fish as advanced fish drying

chambers are unavailable. Furthermore poor road and transport facilities, lack of credit facilities, lesser Govt. interest appears as barrier for the long term sustainability of the system. However the Egra regulated market is located adjacent to the Contai- Egra State High Way which is well connected with all the coastal areas of coastal Purba Medinipur. This provides a good opportunity to both the fish importers and exporters to establish a sustainable marketing system.

Image-1-3: Dry Fish processing unit and Image-4-6: Egra Regulated Dry Fish market

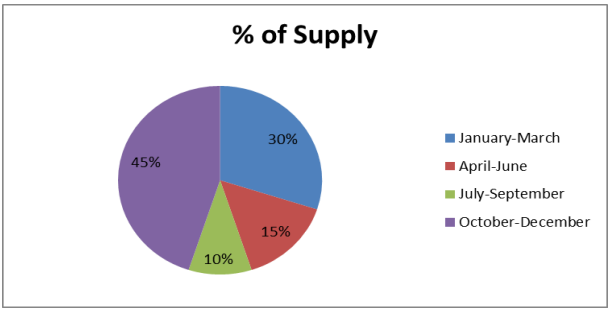

Figure-1: Percentage of Dry Fish supply in different season to the market.

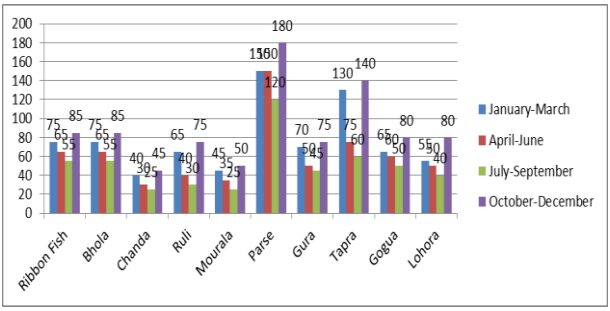

Figure-2: Variation in price (in Rs.) of available fish species in different season

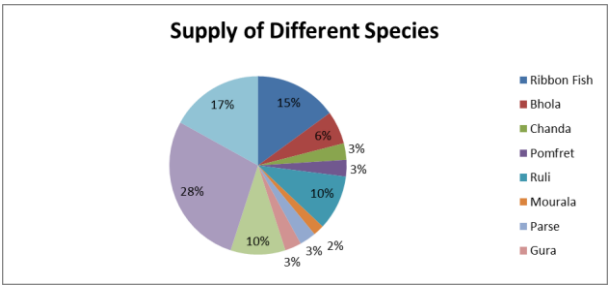

Figure-3: Supply percentage of different species to market.

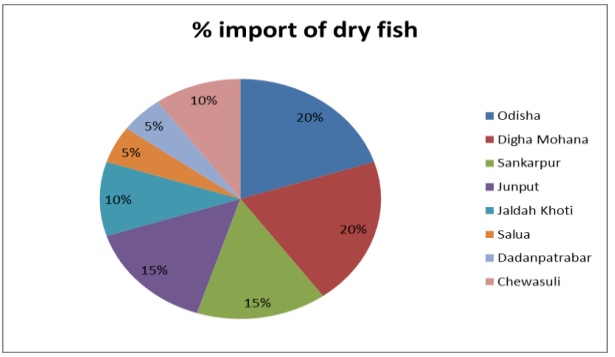

Figure-4: Import percentage of dry fish from different area.

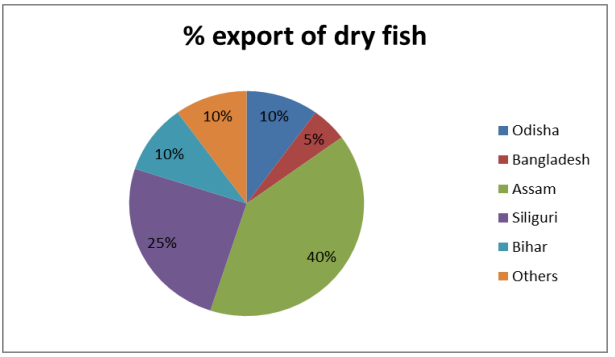

Figure-5: Export percentage of dry fish to different state.

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