Marketing System of Tilapia Fish in Some Selected Areas of Bangladesh

Ariful Haque Chowdhury¹, Farhana Jabin Chowdhury² & Luthfur Rahman³

¹Agricultural Economics and Business Studies, Sylhet Agricultural University, ²Agricultural Economics and Business Studies, Sylhet Agricultural University, ³Fisheries, Sylhet Agricultural University

Abstract: The study was carried out on marketing system of Tilapia fish in Sylhet and Sunamganj, an attempt to study about the current marketing system of tilapia. This paper identifies the marketing channel, marketing cost, marketing margin and constraints influencing the marketing system of Tilapia. The study was conducted in August 16 and primary data was collected through field survey by questionnaire interview and focus group discussion. The final sample size was 80. In sylhet and Sunamganj tilapia traders follow traditional marketing system. The marketing channel from fish farmer to consumer consists of number of intermediaries: wholesaler, retailer and chain store. Tilapia traders reported that tilapia trading broadly started in 2000-01. About 60% of total tilapia comes from Comilla district. Average farm gate price ranges from Tk 70-80 per Kg and consumer price varied from Tk 100-115 per Kg. it was estimated that 70% of retail price is received by fish farmers. Highest marketing margin of 17% is estimated for wholesaler. Traders reported a number of constraints in current marketing system of tilapia including poor market infrastructure, high marketing cost, and poor transport facilities. Despite these constraints current marketing system of tilapia is efficient.

1. Introduction

Fish is one of the main food items for 160 million people of Bangladesh. Fish is a major source of protein, minerals, vitamins and micronutrients. And it is able to play a crucial role in food intake of people of Bangladesh. Fish accounts for about 60% of the animal protein intake with annual fish consumption of 17.23 kg per person [1]. Subtropical climate and wide range of low depth water bodies made Bangladesh as a heaven of freshwater aquaculture. This suitable condition is the main reason of high level of fish production [2]. The total annual fish production was estimated to be 2.82 million tons in 2011 [1]. Freshwater aquaculture in Bangladesh vastly depends on different types of carps. But all species are unable to provide high level of production as well as profit. Different fish producers try to maximize their profit and production with their available resources and species. Among all the carp species, tilapia is the most suitable choice for the farmers [3]. Tilapia was first introduced in 1954. Demand for food is still very high and as source of food, fish cultivation can reduce this high demand. Which opens the opportunities for tilapia cultivation and there is an immense capability of tilapia cultivating in Bangladesh. However population growth is high and it influences the demand and supply. A huge gap between demand and supply is present in the market of tilapia. Only increased production will not help to reduce the gap. Enhancements in all parts of marketing system are very much required [5].

Tilapia cultivation is much easier because of its some unique characteristics like high resistance to low quality water and tolerance to different types of diseases. Tilapia can be marketed with 4 month and able to rotate its production cycle twice a year [4].

In Bangladesh fish market is available in both rural and urban areas. Niaz identifies that 97% of total fish production is marketed domestically. Only 3% is exported. He also explored that a good number of people are involved in marketing system of fish. Fish farmers, supplier, traders, labours and several other intermediaries are involved in the marketing channel [10].Tilapia as a food intake is very popular among the consumers. This is because of its nutritional qualities. Alen studied that cod and haddock are at the edge of extinction. Tilapia can easily replace them and it has great potential for commercialization [6]. According to FAO (2013) “China remains the world’s largest producer of tilapia and the largest supplier to the European market. Tilapia production continues to interest some countries in Africa, Asia and Latin American for supplying emerging domestic demand” [8]. Désirée (2013) identified that Tilapia and Pangasius have great opportunities in the export market as well as in the domestic market [11].
In domestic market fish moves through several intermediaries (like Fish farmers, aratdar, wholesaler, faria and retailer). Imran (2014) estimated that total value added cost per mound is BDT 953.13 from farmers level to consumer level. According to Imran “products get value added during their movement across items. Share of transportation cost is the highest (40.54%) followed by aratdar’s commission (26.92%), icing (8.23%), wages and salaries (4.81%) and tips & donations (4.32%) for tilapia fish marketing [7].” Price of tilapia depends on various factor. Size, quality, demand & supply effects the price. Price is also influenced by the seasonality [5]. Farmers sell their fish to different intermediaries such as Paikar, Aratdar, and Retailer etc. Among them generally Paikar purchase highest percentage of fish from farmers. Retailers purchase very low amount of fish directly from farmers. Generally they purchase from Paiker and Aratdar. Imran estimated that average marketing cost occurred in Dhaka city is BDT 1284.9 per quintal [2]. According to the study of Imran (2014), “Aratdar’s net margin or profit was estimated at Tk. 136.4 per quintal of fishes. The retailers who purchased fish from Aratdar’s and sold to consumers earned a gross margin of Tk. 1091.6 per quintal and after deducting marketing cost of Tk. 309.8 per quintal, the net margin earned by them was Tk. 781.8 per quintal [9].” Study of Nesar shows that there are several constraints like inadequate information and knowledge, poor market infrastructure, influence of intermediaries, price fluctuation etc are effecting the marketing system of tilapia. According to his survey, “42% of respondents identified exploitation by intermediaries as their single most important constraint on tilapia marketing” [4]. Given this background the primary goal of this paper is to determine the marketing channel of tilapia fish and estimate the marketing cost and marketing margin of tilapia fish in selected areas of Bangladesh.

2. Methodology

2.1. Study Area: The study area of this research is consists of 2 main districts of Sylhet division. These are- Sylhet and Shnamganj district. Data was collected from fish farmers and market traders.

2.1.1. Sylhet: Sylhet is one of the major cities of Bangladesh. It is situated on the bank of Surma river having a population over 0.5 million. Its area is about 26.50 km².Tea estates, rain forests and river valleys are the main features of Sylhet district. It is also famous for its fresh water bodies. Lots of haors are located in this area. Which made this region very much suitable for tilapia culture and a good range of farmers are engaged in tilapia farming and trading.

2.1.2. Sunamganj: Sunamganj is one of the major districts of Sylhet division. It is situated in the north east region of Bangladesh. Surma and Kushiyara River run through Sunamganj district. Sunamganj is one of the major sources of fresh water fish. Haor and bills are the main features of Sunamganj district. No other district has as many haor in Sunamganj district. And a good number of people are involved with fish farming and trading.

2.2. Data collection: In this study of marketing system of tilapia fish in some selected areas of Bangladesh, primary data was collected
through field survey. This field survey involved the investigation of the study area based on the production, distribution and marketing system of Tilapia. A combined qualitative and quantitative questionnaire was applied to collect primary data. This field survey was conducted and data were collected in the month of August 2016.

2.3. Sampling: Purposive sampling technique was used to determine the sample size from the target group. Sample numbers from target group was selected from both Sylhet and Sunamganj district. Questionnaire interview was conducted on every target group. And after completion of questionnaire interview a Focus Group Discussion of Aratdar/Wholesaler was arranged to cross check the collected information. As an Aratdar / Wholesaler have connections with both fish producers and retailers.

Table - 1: Sample size of target groups

<table>
<thead>
<tr>
<th>Target Group</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilapia Producers</td>
<td>15</td>
</tr>
<tr>
<td>Aratdar</td>
<td>15</td>
</tr>
<tr>
<td>Retailer</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
</tr>
</tbody>
</table>

2.4. Data analysis: Data was analyzed on the basis of the objectives of the study. Microsoft Excel software was used to record and interpret the collected data. Following formula is used to determine the marketing cost, marketing margin.

For estimation of marketing cost,

\[ C = C_F + C_1 + C_2 + \ldots + C_n \]

Here,

- \( C = \) Total cost of marketing
- \( C_F = \) Cost paid by the fish farm

Here,

- \( C_1, C_2, C_3, \ldots, C_n = \) Cost incurred by \( n^{th} \) middleman

3. Result discussion

3.1. Marketing channel

In market survey two arat/ wholesale market were selected. One in Sylhet district and another in Sunamganj district. From both the market 15 aratders was interviewed who are associated with fish trading including Tilapia. Generally Tilapia is trading is a round year business, but the peak season of Tilapia marketing is mid-September to early January of the following year.

The marketing system of tilapia plays a crucial role in connecting farmers with the consumers. And thus significantly contributing to the value adding process. In tilapia marketing system tilapia farmers are the primary producers.
As soon as tilapia fish land on the wholesale market, a number of laborers work on commission with wholesaler took care of landed fish. And perform post handling task, including cleaning, sorting, grading and icing of tilapia fish. Generally tilapia fish was grouped for selling based on their size. Retailers/mobile retailers purchase their fish through auction from wholesalers. Sometimes large retailers purchase their fish directly from fisheries. But such retailers are very few in number. Retailers sell their fish in different local market and bazar. However, mobile retailers sell their fish by moving from door to door of the customers. Chain stores like Shopno, Agora purchase their fish directly from fisheries. They purchase their required amount of fish 2 or 3 days in a week. As they use refrigerator to store their fish.

3.2 Estimation of marketing cost and marketing margin
For the retail survey, target group of retailers both market retailers and mobile retailers were interviewed. According to retailers tilapia trading broadly began in 2000-2001. Over this period, tilapia trading has turned into a successful business for its participants. New employment opportunities have been created through this business. Most of the traders have involved in this business for its high returns.

Marketing cost of tilapia includes rent of the market place, labour, transportation, electricity, supply of ice, packaging etc. marketing cost also rely on the supply of tilapia, wastage, number of workers needed and market infrastructure.

Now,
Average marketing costs (Tk/kg/day) of tilapia,
\[ C = C_F + C_1 + C_2 \]
Here,
\[ C_F = \text{Cost paid by the fish farm} = 3.83 \text{ Tk} \]
\[ C_1 = \text{Cost incurred by Aratdar/wholesaler} = 1.72 \text{ Tk} \]
\[ C_2 = \text{Cost incurred by retailer} = 14.48 \text{ Tk} \]

So,
\[ C = 3.83 + 1.72 + 14.48 = 20.03 \text{ Tk} \]
According to the survey, average costs of marketing of tilapia are 20.03 tk. This average marketing cost includes 19.12% in primary market, 8.59% in secondary market and highest 72.29% in retail market.

In Tilapia marketing system, from fisheries to consumer’s price varies from Tk 75 to Tk 115 per kg. Price of tilapia generally depends on the size. The larger the size of the fish price per kg increases. Marketing margin is comparatively high because of shorter distance from the fisheries area. The calculated total marketing margin is 30%, which includes 17% for wholesaler and 13% for retailers. It is also estimated that 70% of retail price is received by fish farmers on an average.

Table – 2: Marketing margins analysis

<table>
<thead>
<tr>
<th>Participants</th>
<th>Marketing particular</th>
<th>Tk/Kg (Average)</th>
<th>Market share (%)</th>
<th>Marketing margin (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesaler</td>
<td>Purchase Price ($P_p$) = 80</td>
<td>70</td>
<td>87 – 70 = 17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marketing Cost ($MC$) = 1.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sales Price ($S_p$) = 100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marketing Margin ($MM = S_p - P_p$) = 20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retailer</td>
<td>Purchase Price ($P_p$) = 100</td>
<td>87</td>
<td>100 – 87 = 13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marketing Cost ($MC$) = 14.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sales Price ($S_p$) = 115</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marketing Margin ($MM = S_p - P_p$) = 15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumers</td>
<td>Price</td>
<td>115</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Market share = (Purchase price/ Consumer price) x 100 [12]**

3.3 Constraints of Tilapia Marketing

Though there are great opportunities of tilapia trading, trader face several constraints in tilapia trading. These constraints includes low supply of tilapia fish, poor transport facilities, frequent power cut, inadequate ice supply, lack storage facilities etc. Poor market infrastructure is another major constraint in tilapia trading. It includes poor drainage system, unhygienic conditions, limited market space, poor market supervision etc. Political issues like strike, road blocks hinders the supply of fish. As a result it effects the market of tilapia. Quality of fish is hardly maintained. As there are no standard practice of loading & unloading of fish, handling, grading and icing of fish. As a result quality of the tilapia fish decline and traders have to sell their fish at a low price.
Highest 35% traders reported that high marketing cost effects most. And 28% said about poor market infrastructure as they require improved facilities in the market like adequate supply of power, water and ice. 26 % traders think that transport facilities affect the market. Only 5% think that political issues like strike are affecting the tilapia market.

4. Conclusion:
To increase and encourage the productivity of fisheries and development of fish farmers and other tilapia market participants, a sustainable and efficient marketing system is very much required. Though there are some bottlenecks in the current marketing system of Tilapia fish in Sylhet and Sunamganj, market is quite efficient and day by day it’s improving. Despite these problems market of tilapia in these two districts play a vital role in food supply as well as Bangladesh government receives a large amount of taxes from this. So government can come forward to improve the existing marketing system of Sylhet and Sunamganj.

5. References