Development of Consumer Oriented Strategies for Marketing of Fish in Assam

Abstract

Fish has long been an important food item and associated with the social life of the people of the Northeast India, especially in Assam and Tripura. Assam is the most resourceful State in surface water coverage in the Northeast India with coverage of 0.39 million hectare in the form of rivers, beels (floodplain wetlands), ponds and tanks, derelict water bodies, reservoirs, forest fisheries, and community tank. These resources yielded 0.23 million tonnes of fish during 2010-11 (Economic Survey, Assam, 2011-12, 99) against an annual demand of 0.31 million tonnes (calculated on the basis of minimum nutritional requirement of 11 kg per capita per annum as recommended by WHO and considering 90% of the state’s population is fish consumers). Despite the efforts of the government through various departmental schemes of fisheries it has been assessed that the production level of fish has not made any strident progress over the past plan periods, but attained a steady annual growth of about 2.65% (Bhuyan and Dutta164). In spite of having potential aquatic resources for fisheries development, fish production in the state has not attained self-sufficiency. Though rice and fish are the two basic diets of the Assamese people where 95% of the state population consumes fish as an important protein rich food (Das and Goswami 33), the per capita consumption of fish in the State during 2010-11 is 8.3 kg which is below the national average 9.8 kg (Manual on Fishery Statistics 1). A proper marketing plan is a major factor for the success of fisheries development programmes. The marketing plan should help in timely harvesting and delivery of fish in order to fetch remunerative price. Fish production as well as marketing strategy is essential for reinforcing each other for the development of fisheries. The concept of marketing calls for understanding the needs of the consumers so that they achieve satisfaction. The key to successful fish marketing lies in understanding the needs of the consumers. Modern fish marketing tries to achieve consumer satisfaction and provide remunerative price to producers. The marketing process of fish is complicated as fish and fisheries products are perishable and demand is seasonal.
In order to improve the fish production scenario and better acceptance of fish among consumers, this study has been undertaken with the following objectives-

1. To examine the segmental variation in consumption and preference patterns for fish among different classes of population.
2. To investigate the constraints and exploring possibilities of marketing fish as per consumption and preference patterns of the consumer.
3. To formulate effective strategies for marketing of fish in Assam.

The study has been carried out in two different phases. The **first phase** consisted of finding out the taste and preferences of the consumers of fish, their buying behavior and their willingness to pay for different value added fish and fish products. The **second phase** consisted of a study of the constraints related to production and marketing of fish in the study area. Quota sampling technique was used for selection of consumer samples. One district from each of the agro-climatic zone (there are six agro-climatic zones in Assam) has been selected based on urbanization and fish production potential following judgment sampling. The total sample size for consumer survey was 660. The data pertaining to fish consumption and other household expenditure were collected for the year 2010-11 using a structured pre-tested questionnaire.

During the **second phase** of the study 240 fish farmers, 245 marketing intermediaries and 300 eating joints were interviewed. Farmers were selected through simple random sampling from each of the selected districts. Thirty two constraints had been considered following a Focus Group Discussion. After collecting the perceived seriousness of the constraints from the fish farmers, the data was put through factor analysis. Marketing intermediaries and eating joints were selected based on judgment sampling.

Data collection was carried out during February, 2011 to March, 2012.

Different descriptive, parametric test (t-test and ANOVA) and non-parametric test (Chi-square test) tests were applied on the basis of necessity.

**Major findings of the study are as follows**

**a) Fish consumption patterns:**

1. Majority of the non-vegetarian consumers (60.3%) in the study area have the highest preference for fish followed by chicken, and mutton.
2. The per capita fish consumption in the study area is estimated at 14.27 kg/year. The annual per capita consumption of fish in rural area is 14.54 kg and in the urban area 13.99 kg.

3. The annual per capita consumption of fish is highest among the Assamese community (19.11 kg), followed by the Bengali (15.41 kg), the Nepali (8.83 kg) and North Indians (8.31 kg).

4. The per capita consumption of fish increases as income increases.

5. Majority of consumers (53.7%) consume fish twice a week, 25.2% daily and 13% once a week.

6. The average quantity of fish purchased at a time by majority of consumers (48.3%) is 500 gm.

7. The average monthly expenditure on fish per family in the study area was Rs.662.42 which constituted 14.56% of monthly household expenditure on food.

8. Majority of respondents (93.9%) prefer local fish over imported (chalani) fish.

9. Among Indian Major Carps, rohu (Labeo rohita) is the highest preferred species followed by catla (Catla catla), and mrigal (Cirrhinus mrigala).

10. Among exotic carps, common carp (Cyprinus carpio) is the highest preferred fish followed by grass carp (Ctenopharyngodon idella), and silver carp (Hyophthalmichthys molitrix).

11. Among minor carps bhangon (Labeo bata) is the highest preferred fish followed by kurhi (Labeo gonius), and koliajara (Labeo calbasu).

12. Among different types of live fish the most preferred variety is magur (Clarias batrachus) followed by singi (Heteropeustes fossilis), koi (Anabas testudineus), sol (Channa striatus), and goroi (Channa punctatus).

13. Among three big varieties of fish chital (Notopterous chitala) is highly preferred by consumers followed by arii (Aorichthys seenghala) and borali (Wallago attu).

14. Majority of consumers (69.8%) prefer curry followed by fried (26.7%), steamed (2.7%) and roasted (0.8%) form of cooking.
15. Palatable taste, high nutrition value, habit, and easy digestibility are ranked by the consumers as 1st, 2nd, 3rd, and 4th respectively as the factors responsible for fish consumption.

16. Majority of respondents (52%) in the study area purchase fish from local market.

17. A vast majority of respondents (98.9%) have shown their willingness to purchase fish as dressed and chopped fish, 46.5% as ready to eat fish.

18. Majority of respondents (87.9%) are willing to pay 5% extra for value addition as cleaning, dressing and chopping.

19. Majority of respondents (59.7%) agreed to pay extra if quality and weight of fish is certified. A high percentage of respondents (48.8%) agreed to pay extra if convenient, clean and hygienic markets are developed and maintained.

20. Respondents were largely agreed to the statement ‘dirty and unhygienic market area’, followed by ‘chances of getting cheated’, ‘unavailability of preferred fish’, ‘irregularity of supply’, and ‘quality difficult to ascertain’ as constraints of purchasing fish.

21. Decision on the type of fish to buy and frequency of eating fish were mainly taken by the family head/husband. The decision about preparation and cooking of fish was taken mainly by the housewife.

22. The frequency of going to restaurants for meals was rare as reported by 82.7% of consumers. There is a positive relationship between income and frequency of going to restaurants for meals.

23. 35.9% of respondents took fish/fish items sometimes in eating joints.

24. 39.8% of respondents irrespective of geographic and demographic profile agreed choosing fish items if different delicacies are made available.

b) Constraints and possibilities of production and marketing of fish and value added fish

1. Four major constraints related to higher yield and better production of fish have been identified with respect to production of fish. These are “Support
system constraints”, “Infrastructural constraints”, “Financial and technical constraint”, and “Societal constraints”.

2. The constraints perceived by wholesalers as per degree of seriousness are fluctuation of demand and supply, lack of cold storage, lack of proper drainage and waste disposal system, lack of supply of consumer preferred fish, and inadequate facilities for fish handling and storage.

3. Fluctuations of demand and supply is perceived as main constraint by the retailers followed by problems like unavailability of consumer preferred fish, lack of good provision for water supply, lack of cold storage, and lack of proper drainage and waste disposal system.

4. Fluctuation in demand and supply of fish in auction place is perceived as one of the main constraints by majority of vendors followed by high price of local fish during April to August, irregular supply of fish, and lack of insulated containers/carriers to carry fish to the door step of consumers.

5. The demand for fish is higher in those restaurants where rice is the core item to serve.

6. The widely used species in eating joints is rohu and it is followed by catla, *bhangon*, small variety of fishes (*borolia, singorah, moa, and puthi*), *arri*, *chital*, illish, prawn, *borali, kurhi, pabha*, *mrigal*, and koi.

7. Altogether 18 (eighteen) fish items are sold in different eating joints.

8. Overall, 60% of eating joints opined that there is a possibility of consumers choosing fish items if they are made available.

9. On an average, 54.0 % managers/owners of eating joints opined that there is probability of utilizing low-valued fish for preparation of value added fish items.

10. A total of 15 constraints associated with preparing and selling value added fish items have been identified. The main constraints are less demand for fast food fish item, non-availability of suitable varieties of fish, and lack of awareness about fast food fish items in the eating joints.

Based on the findings of the study and review of literature certain strategies have been formulated. The proposed strategies were distributed among experts to find out their
validity and practicability. Experts were selected based on their contribution/experience in fisheries development in the state. Interview with the experts were conducted in two rounds and the strategies finalized. The strategies so developed discussed below –

**Strategy I: Providing more extension support to fish farmers**

For fulfilling this strategy the suggested ways are conducting specialized training and demonstration on varied aspects of fish production for farmers as well as for fishery extension workers, establishment of Fish Feed Mill with initiation from the government with involvement of entrepreneurs/NGOs/SHGs to make available formulated feed, establishment of Fishery Clinic, and establishment of Fishery Extension Unit at least one in each block with necessary infrastructure and manpower.

**Strategy II: Providing infrastructural support to farmers**

The methods/tactics suggested for fulfilling the strategy are making provision for icing, packaging, and transporting fish; establishment of ‘One stop Aqua Shop’ (OAS) by naming as ‘Matsya Sewa Kendra’ as single outlet in strategic locations to make available all inputs required for fish culture such as fish seed, fish feed, fertilizer, chemicals etc. and formation of fish producers’ consortium which will provide a suitable delivery system of fishery inputs to the fish farmers in time as well as participate in the distribution channel.

**Strategy III: Providing financial and technical support to farmers**

The constraints of institutional credit can be reduced through making available credit package for providing financial linkage to fish farmers, and inviting the banking sector to a single window loan provision in the form of loan mela. Formation of SHG can also generate fund by themselves through collection of monthly premium from members and giving it to members at low rate of interest which will ultimately help the farmers to meet the necessary expenses of fish culture to certain extent.

Quality fish seed (fry and fingerlings) at right time of stocking should be made available among fish farmers through judicious carp breeding and hatchery management and proper distribution system with initiation from Department of Fisheries, Government of Assam. Assam Fish Seed Act, 2005 should be strictly followed which provides guidelines for quality seed production and management.
Adoption of Multiple Stocking and Multiple Harvesting of carp culture technology should be encouraged in order to make regular supply of fish throughout the year. In order to achieve this, package of practice of this technology should be developed by the fisheries scientists of the State and diffusing to the farmers.

**Strategy IV: Constant monitoring and community based management**

This strategy can be implemented through employing community based watchmen, installing substrates for periphyton growth that in turn work as hurdle to poach inside ponds, social fencing through community participation, and providing fishery insurance coverage which can ameliorate the problem of poisoning and poaching.

**Strategy V: Standardization of breeding and culture technology for high valued indigenous fish**

In order to fulfill this objective, package of practices based on location specific standardized breeding and culture technology of magur as well as other indigenous varieties of fish like koi, *sol*, *chital*, *arri*, *pabha*, and *moa* should be developed through research in agro-climatic situation of Assam.

Proper conservation measures against habitat destruction and measures to stop indiscriminate fishing during breeding season should be taken. In this case, Assam Fisheries Rule (1953) which was amended in 2005 should be strictly enforced creating awareness among public.

**Strategy VI: Development of an elaborate network for handling, transporting, distributing, displaying, and holding facilities to support marketing of fish and value added fish products**

The important measures suggested to attain this strategy include provision for specially designed or modified tanks and containers; transport vehicles equipped with aeration or oxygenation facilities to keep fish alive during transportation with government initiation and support, establishment of hygienic fish market and post harvest preservation facilities in selected potential locations by the Department of Fisheries, providing technical and financial assistance for transportation facilities, establishment of ice plants, landing platforms, weighing sheds, cleaning tables, storage facilities, modern fish selling stalls, and retail vending kiosks.
Strategy VII: Development of hygienic retail outlet, and branding of fish and fish items

To fulfill this strategy the Department of Fisheries (Government of Assam), Assam Apex Co-operative Fish Marketing and Processing Federation Ltd. (FISHFED), business firms and SHGs should work together and take pro-active role in opening hygienic fish retail outlets at consumer-friendly locations.

Strategy VIII: Creation of awareness among consumers about nutritional value of fish and different value added fish products

In order to achieve this, the suggested measures include promotional campaign using different mass media to create awareness and popularity of different value added fish and fish products with their nutritional value in line with that of egg by National Egg Coordination Committee (NECC).

The STP (Segmentation, Targeting and Positioning) approach of marketing has been used to develop marketing strategies for fish in the study area. After segmenting the market using different demographic and geographic variables, the target market has been identified using the information revealed by the study. The position of fish to be created in the minds of the target segment has also been identified. To create the identified position, the marketing mix has been developed.

A business model for procurement and distribution of fish and value added fish products has been designed. The business model proposes that a body, whether NGO or SHG or cooperative society, take up the responsibility of collecting and distributing fish, including branded fish items with profit motive in a small geographic area centering a township. This body will take up the activity of collecting fish from the different sources like culture and capture fisheries. This body will act as a wholesaler of fish, as well as provider of ready to eat fish items through the ‘Matsya Biponi.’ The ideal infrastructure requirement of this body is suggested in the study.