

Unique and innovative cases of emerging domestic fish marketing arrangements in South India

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Both in terms of nutrition to general public and livelihood security especially to coastal poor, capture and culture of food fish are important to any developing country. India currently produces around 6.8 million tonnes of food fish of which 55% is cultured and 45% captured respectively. It has been estimated that high value fishes and shrimps/prawns constitute 20% of the country's fish production which are exported mostly and approximately 10-15% of the fish produced is lost in post harvest handling. About 50% of fish produced is locally consumed mostly by the fish eating population by and large living in coastal hinterland and remaining is used as ingredients in poultry and aquatic feed production. The overall market for aquatic food will expand with population growth (UNDP, 1997) and the capacity of aquaculture to deliver more regular supply of uniform product, adapted to meet down stream specifications offers better opportunity than capture fisheries (Young and Muir, 2002). Domestic demand for fish and its consumption is progressively increasing among the people living in the metros and cities owing to the growing awareness of the nutritional and health benefits of fish consumption among the educated middle class, their rising living standards, parity of prices of fishes (like shrimps, pomfrets, seer fish and prawns) with red meats and availability of processed fish at retail stores (Cheran and Kumar, 2008). Further, the highly fluctuating global market price for the cultured high value shrimps/prawns has forced the Indian fish producers to look for the domestic buyers.

In this rising domestic fish demand scenario, both producers and the marketers have evolved in their own style, with some innovative marketing arrangements to realise better prices for their hard earned fish produce and products. Conventionally fisherwomen were the major force in the domestic marketing of fishes forming the lowest rung of market channel starting with wholesalers and a host of 5 to 8 middlemen categories in India. Ever since commercial aquaculture came in to being, farmers, traders and processors have also made innovative and successful attempts in domestic marketing of fishes. Having understood the growing demand for fish among the public, modern retail chains also entered into marketing of fishes in customer savvy ways and forms.

Farmers as groups have adopted new strategies to collectively market their produce to bargain for a better price. In this scenario, it is imperative to study such innovative marketing mechanisms to emulate and scale up such successful initiatives by others, identify hindering issues and suggest appropriate strategies to promote domestic marketing of seafoods/fishes in the country.

Research methodology

This exploratory study was undertaken in Tamil Nadu and Andhra Pradesh States of Southern India. Seven unique marketing arrangements as indicated in the box were studied using case study method. Fisherwomen, aqua farmers,

processors and food retail corporations were the major players in these domestic fish marketing arrangements. Hence, the views, issues and implications discussed in this paper are pertaining to them only. Two main approaches existed in the marketing arrangements. While the producers (fisherwomen and aqua farmers) adopted group mode, the processors and retailers followed more individualistic/enterprise approach.

Marketing arrangements

A brief description of the innovative arrangements explored is presented here to give an overall exposure to the readers.

Farmers group enabled shrimp marketing: Marketing tie-up with traders in Tamil Nadu

Shrimp culture is beset with dichotomous negatives of a hike in production cost and low market price plus disease risks. In this dismal scenario, shrimp farmers operating along a creek / in a cluster organised themselves as group to enforce certain better management practices (BMP) intended to prevent the entry of fatal disease pathogens in to the culture system and market their hard earned produce for a better price collectively. Pamini River Shrimp Farmers Association (PRSFA) in Thiruvavur district of Tamil Nadu was the true example of adopting a group approach to shrimp aquaculture enforcing a crop calendar and compulsory adoption of BMPs including farm bio-security (Kumaran, 2009). This collective cluster management paved the way further for collective marketing. The association invited quotations from the available few buyers to negotiate and finalise the sale price for the shrimp produced in the cluster. However, this sale price could be further negotiated for an extra higher price by individual members showing their produce. PRSFA followed this strategy since 2003 and it was reported as continuously successful. Compulsory total membership of all farms in the creek, deliverability of economic tangibles, social cohesiveness, transparency and conviction of the members in group approach were the factors determining the success of this mechanism.

Farmers group facilitated marketing: Post harvest handling and marketing of the cultured shrimp through farmers' association in Andhra Pradesh

Shrimp farmers in the Paleru and Moosi creeks in the Tangutur mandal of Prakasam District in Andhra Pradesh had the apprehension that the buyers mishandled their harvested shrimps at the latter's place especially in weighing and fixing of count (shrimps/kg) using miscalibrated instruments, resulting in a loss of 15 kg shrimp/tonne and a count which is the criteria to fix the shrimp market price. To end these malpractices, the farmers organised themselves into Tangutur Aqua Farmers Association (TAFA) in the year 2004 and collectively demanded the buyers to handle and weigh harvested shrimps at farmers place instead of buyer's. TAFA



Fisher women self-help group works on domestic marketing.

collected funds from all its members and constructed its own office premises with laboratory and washing-cum-weighing yard for the hygienic handling and weighing of harvested shrimps of its members and then transported to buyers factory.

Since, 2004 it was made mandatory that buyers who purchased shrimp from the members have brought the harvested produce to the TAFE office premises for washing and weighing the shrimps, using the weighing machines of the association. The association charged 60 paise per kg of shrimp up to 50 counts (50 shrimps/kg) as its service charge for washing and weighing from the buyers. Weighing was done in the presence of association office bearers, concerned

farmers and the traders. After weighing, the produce was iced and taken for processing by the trader. Smaller shrimps (above 50 counts) were not charged for washing and weighing. The process was transparent with minimal disputes and this strategy earned better handling of shrimps and good price to the farmers. Unlike the previous case, TAFE had neither interfered in the collective management of shrimp culture operation nor directly involved in price negotiation, but provided only 'market intelligence'. The association decided the starting and the closing dates of water drawing from the creek for the year and the same was written on the notice board of the TAFE. Beyond that date none was allowed to draw water from the creek. TAFE advised farmers to procure seeds from reputed hatcheries mostly located in the same

Operational matrix: Mechanism of marketing arrangements.

Marketing arrangement	Major players	Market structure (buyers & sellers)	Approximate volume handled	Consumers	Pre-contracts/ agreements/ norms
Self help group enabled domestic fish marketing	SHG women, corporate buyer; bankers, govt. facilitators	Women SHG and Few buyers	Around 500 kg per month	Domestic consumers	Pre-agreed price, consistent supply and quality
Farmers group facilitated marketing	Farmers, farmers association, buyers	Collective marketing Many sellers and few buyers	500-750 tonnes per crop/ association	Mostly for foreign consumers	Group agreed norms
IT enabled market Access	Aqua farmers, ITC, collaborator and prathinidhi	Many sellers and few buyers	1500 tonnes per crop	Mostly for foreign consumers	Pre-disclosed % of commission
Corporate retail chains in domestic marketing of fish	Fishers, fish farmers and retailers	Few sellers and Few buyers	150-200 kg per shop per day	Domestic consumers	Pre-agreement between fishers /fish farmers and retailers

district. The farmers and the TAFE office bearers reported that collective effort under TAFE umbrella gave them the bargaining power to bring the buyers to their place and helped them to have a fair post harvest handling and marketing.

To summarise the above two cases of farmers groups adopting certain kinds of innovative marketing arrangements for the benefit their member farmers:

1. Collective marketing is the most important component, which leads to organising the farmers into associations or cooperatives allowing them to negotiate prices much better with the buyers. Both the farmers and buyers gained equally in terms of fair dealing and reasonable price and required volume and quality respectively.

2. Collective marketing has increased the prices for farmers by five to 15 percent.

Many recent research reports also showed that farmers marketing together tend to gain more favorable prices and terms of trade than they can on their own (Grow et al 2003; Levins, 2005; Cole Mallard, 2006).

Self help group enabled domestic marketing: Case of Thenkumari Women Self Help Group, Chennai

Fisherwomen are the major marketing force in domestic fish marketing in India. A group of 15 active fisherwomen engaged in fish marketing in Chennai formed as "Thenkumari" Womens' Self Help Group (TWSHG) in 2003 to avail the institutional credit offered under WSHG scheme by the Government. These fisherwomen procured fishes at landing centres or wholesale markets and transported them to local fish markets for sale. They handled high value fishes like seer fish, pomfret, crab, barracuda and anchovy for their marketing since they were the preferred fishes by the middle class consumers. Despite their hard work their earnings were very low and they were desperately looking for a better opportunity which came through a friendly women development project officer who introduced this women group to the Taj Coramandal, a five star hotel for fish supply. Taj under corporate social responsibility gave them an order to supply fresh seafood on contract basis but strictly insisted on high quality material, good hygiene, and timely delivery. TWSHG supply passed through the stringent quality parameters insisted by the Taj. Their initial order was two kg for three days in a week and the same has grown progressively to 500 kg/month at present. Both Taj hotel and the women benefited from this mechanism of domestic marketing. Taj management extended their purchase for their other group hotels subsequently (Taj Connemara & Fishermen's Cove) and presented best vendor award for the year 2008 to Thenkumari SHG to appreciate their performance. TWSHG availed institutional credit support to increase their business and the pattern of loan utilisation showed that their loan amount was productively used for income generation (Deboral Vimala et al. 2009). Further, it was confirmed from the bank records that the TSHG had an excellent repayment record and to appreciate their performance, the bank awarded State level SHG - Bank Linkage Programme Award for the year 2006-07 to Thenkumari Women Self Help Group. Access to corporate buyer, access to institutional credit, self discipline, confidence, saving habit and capacity as an SHG were critical factors for their success.

IT enabled-web kiosks in aquaculture marketing: Aqua-choupal model in Andhra Pradesh

Information and communication technology (ICT) is increasingly being utilised in agriculture and allied sector to link rural farmers with markets to maximise their returns (Mahalakshmi et al., 2006 and Matani, 2007). In this line, the Indian Tobacco Company (ITC) which had stake in fish processing initiated a web supported initiative – the Aqua-Choupal model in Godavari districts of Andhra Pradesh designed to provide market and farming related information to enhance farmers productivity and their farm-gate price realisation. This approach revolved on a network of information units (Aqua-Choupal) equipped with a computer connected to the internet, located in villages. The ITC had a collaborator in its operational area to identify an influential shrimp farmer (Prathinithi) in whose house the aqua-choupal was located. The farmers through aqua-choupal accessed daily closing prices in local markets and global price trends. ITC offered a standard price which was the closing market price of the previous day at the market. To initiate a sale, the farmer had to approach prathinithi, who inspected the produce and based on his assessment of the quality prescribed the farmer a conditional price. This benchmark price was fixed for a given day and was the maximum price a prathinithi can quote. If the farmer agreed to that price, took a note from the prathinithi and proceeded with his produce to the nearest ITC procurement hub (processing center) in Andhra Pradesh. At the ITC procurement hub, the farmer's produce was tested for quality, then weighed and full payment was made immediately. The farmer was also reimbursed for his transport costs. At the ITC processing hub every stage of the process was appropriately documented and the farmer was given a copy of lab reports, agreed rates, and receipts for his records. In addition to this, through the aqua-choupal the farmers were provided with production related technical content and access to other welfare information. Further, through the collaborator, ITC supplied seed, fertiliser and other inputs at subsidised cost to the farming community. This model of domestic marketing was working well in Godavari districts of Andhra Pradesh and was a win-win approach for both ITC and farmers.

Modern retail chains in domestic marketing of fish

The advent of retail market chains popularly known as super markets in India is one of the recent developments brought about by globalisation. They market all kinds of house hold use items in a relatively better ambience where the new



Processed and packed fish & prawns for domestic marketing.

generation Indians preferred to buy their provisions and other products. Fresh vegetables and non-vegetarian red meat items like mutton and chicken are also being marketed in these stores. Of late, considering the people's preference for seafood some of these retailers have started marketing fishes too in their outlets.

Reliance – Delite, Chennai

Reliance Fresh is one of the corporate domestic market chains involved in retail marketing of farm made vegetables, fruits and their value added products. Whenever, a retail store is opened in a particular locality with a surrounding area of one to 3 square km covering 2,000-3,000 households known as 'catchments' in business parlance. The catchment was thoroughly surveyed (a sort of market research) before opening a store and whenever new segment was introduced in the existing store. Their survey indicated that 91% of the Chennai city population was non-vegetarian and based on that, the company opened Reliance Delite non-vegetarian retail outlets. Similarly, they found that the preference for seafood was growing among the people and they introduced fish food in their stores. To introduce fish foods, they entered into contracts with fishers and fish farmers in nearby villages for supply a fixed quantity of fish food (fish/prawn/shrimp) properly processed and adhered with all quality parameters. They marketed mostly high value fishes/shrimp & frozen items of seer fish, pomfret, black tiger, and carps. Customers preferred the fish around 300-500g and shrimps/prawns at around 15-20 gm respectively. Fish food sales were peak during holidays and dull on Tuesday and Friday owing to religious sentiments. Fish was the second preference in Chennai after chicken. Reliance ensured quality and consistent price. On an average they handled 150 kg of seafood per stall and they have plans to open couple of more stores in Chennai. Finding sources for consistent supply of required quality was their main concern. Since there was demand for organic fish foods the Reliance was willing to promote it.

Spencer's Daily, Chennai

Spencer's Daily was another retail chain involved in fish food marketing in Chennai. The fishes sold, size and their average per day sales were almost similar with Reliance. But, unlike Reliance retail which directly handled seafood, Spencer's Daily transacted through vendors (franchise mode). They allotted space for fish food vendors in their store, where vendors offered their fish for sale. The store took a pre agreed percentage of commission. The fishes were allowed to be stocked for 1-2 days and unsold fishes were taken back and fresh fishes were brought. The store ensured consistency in quality and stable price. As a promotional measure Spencer's Daily had undertaken an awareness programme for educating school children on the benefits of sea food with supportive literature which they felt had an impact in their sales. It was felt that establishing fish food brands and novel advertisements for fish food promotion are the key encouragements needed to give fillip to domestic fish marketing.

Farmfed, Nellore, Andhra Pradesh

Farmfed was a mutually aided co-operative society promoted by a group of aqua- professionals based at Nellore, in Andhra Pradesh. Farmfed associated with farmers of nearby villages

to produce quality target size shrimp continuously, so that the farmers reduce the risks involving in producing larger shrimp. They procured 10-20 g sized fresh shrimp and fresh fishes such as seer fish, sea bass, pomfrets, catla, rohu, murels and tilapia at an attractive and stable price from farmers. Shrimp was peeled without deveining and IQF frozen, packed to retain freshness for longer duration and presented in 250 g packing. Fishes procured fresh were cleaned and sliced and packed in 500 gm packs. There were four different grades on the shrimp packing depending on the size and quality. At present Farmfed have eight retail outlets at Nellore, Guntur, Vijayawada, Hyderabad and Chennai. More retail outlets will be operational in the next six months, in different parts of the southern states. The contractual arrangement between retailers and farmers helped the struggling farmers in to plan for market driven farming by reducing his production costs and diversifying their species as per the market demand.

Market structures

The marketing arrangements studied have highlighted combinations of market structures existed in domestic fish marketing. In case of SHG and farmers groups collective marketing was made by the groups to few buyers either corporate or independent processors. Nevertheless, in farmers groups the individual farmers had the flexibility for further negotiations and in some cases it was individual marketing facilitated by the association. However, in both cases the market price was mostly buyer determined though negotiations were permitted. It was reported by the farmers that the buyers offered premium prices during the beginning of the culture season to lure the farmers to stock their ponds and at the time of harvest quoted lesser price. Since there was no alternative, the farmers were forced to sell their produce to them. Hence, the farmers felt that government may develop a central market intelligence mechanism to convey global and domestic price information to the farmers which would help them in better negotiation with buyers. It is hoped that development of domestic marketing may bring more buyers and new marketing arrangements through that the farmers might get a fair deal. In case of retail marketing also presently there were few buyers, who had pre-arrangement with few farmers and fishers to ensure consistent supply and assured quality. It is expected that domestic marketing might bring more marketing innovations like market driven farming, vertical and horizontal integration of aquaculture operations.

Consolidation of findings

The domestic fish marketing arrangements, major role players, critical factors, issues to be addressed and implications are presented as operational and policy matrices.

Conclusion

The innovative marketing arrangements studied have explicitly shown that in every arrangement both the buyers and sellers gain equally. It facilitated the SHG women access to institutional credit, provided self confidence, better employment, group cohesiveness and a sense of empowerment. Similarly, it helped the farmers groups to manage other farming operations in their farm clusters

Policy analysis matrix on issues and implications from all the model cases.

Marketing arrangement	Critical factors	Issues to be addressed	Implications
Self help group enabled domestic fish marketing	Access to corporate buyer Access to institutional credit Self confidence and discipline SHG – group capacity	High transport cost Lack of storage facility – insulation box Unemployment during off-seasons Higher interest rates in institutional credit Lack of skill in value addition of fishes	Subsidised loan for fish transport vehicle, modern fish stall, insulation boxes Linking SHGs with corporate buyers; Awareness and capacity building on existing schemes for SHG, value addition Lower interest rate for SHGs institutional credit Involvement of state fisheries co-operative federation in branding SHGs products
Farmers group facilitated marketing	Full membership Economic deliverability Social cohesiveness Conviction of the farmers Collective bargaining	Fluctuating market price at harvest time Farmers at the mercy of few exporters	Establish a central market intelligence mechanism access through e-connectivity Link farmers associations with all the processors through e – connectivity Educate the farmers for a planned staggered stocking of fishes to ensure round the year supply. Link retail chains with farmers groups to plan for market driven farming for regular assured supply on contract farming mode. Facility for block freezing of shrimps to store and transport to other local markets.
IT enabled market access	Market intelligence / price information Accurate weighing and Immediate payment Supply of inputs and lab analysis of soil, water animal samples On-line access to other welfare information	Increasing production cost Lack of institutional credit and insurance.	As above
Corporate retail chains in domestic marketing of fish	Hygiene, quality and ambience Fish with other provisionary items in one place. Stable sale price Agreement with fishers/fish farmers for regular supply Awareness programme to school students	Lack of brand and advertisement Demand for organic products Lack of assured supply at acceptable quality standards Poor consumer perceptions on processed fish food items	Removal of sales tax on processed fish sold in domestic market Creation of fish market and consumers - advertisement in mass media Awareness creation on health benefits and frozen and iced products Capacity building of domestic marketers on brand development and positioning Contract with farmers groups to ensure consistent supply and assured quality

collectively, facilitated better dealing with processors and fetched fair price for their produce. On the other hand, the buyers too benefited in terms of assured quality, reduced intermediary expenses, required volume and consistent supply. Therefore these arrangements were a “win-win arrangement” for both producers and marketers. Further, these marketing arrangements will ensure quality and safe fish food to the domestic consumers. Further, the analyses of these marketing innovations amply indicated that the following interventions are needed to promote domestic fish marketing and domestic fish food consumption as a mass movement in India:

- Establishment of interfaces to link SHGs and fish farmers with corporate buyers and retail chains on 'contract mode' would facilitate planned farming, consistent supply, assured quality of fish/shrimp to the market, elimination of middlemen and better prices for farmers.
- Subsidised credit support for SHGs and retailers for transport, establishing fish stalls, small and distributed cold storage facilities, retail outlets and concession in power tariffs will facilitate domestic fish marketing.

- Branding and advertisement and awareness campaigns on nutritional benefits of sea foods would certainly widen the horizon of domestic fish marketing and enhance per capita fish food consumption.
- Capacity building of women SHG and retailers for value addition, novel fish food preparations and presentations would promote domestic marketing and fish food consumption.
- Government support in the forms favourable domestic fish marketing policy and investments in infrastructure development-whole sale and retail markets, storage facility and would give fillip to domestic fish marketing in India.
- Policy Analysis Matrix on issues and implications from all the model cases

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Management in seed rearing of Asian catfish, *Clarias batrachus*, in hatchery conditions

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Aquaculture gained industry status in the Indian agriculture sector in the 1980s. Freshwater aquaculture has registered an annual growth rate over 6% during last decade and achieved a total production level of 2.4 million tonnes at present. The share of three Indian major carps is 1.8 million tonnes in the above fish production.

Catfishes are the most accepted fish variety in the Indian market for their delicacy. Now researchers in India have suggested for diversification of aquaculture considering catfish as a component for aquaculture development. Research on the production of different varieties of catfish is in progress by different institutions, among which *Clarias batrachus* is one of them. The potentiality of yielding 100 tonnes / ha has been reported in *Clarias* culture with high stocking density. Although a lot of work has been done on its artificial spawning, seed rearing and culture, the availability of quality stocking materials is still a constraint in the aquaculture sector. The culture of *C. batrachus* consists of four basic steps: Captive spawning, primary rearing phase (larvae to fry), secondary rearing phase (fry to fingerling) and final rearing phase (growing to marketable size). Usually a noticeable loss is observed during seed rearing phase



in this catfish. However, availability of desirable seed is always considered to be the most important pre-requisite for successful aquaculture of any species. Hence CIFA, a premier research institute has been involved in developing and standardising the seed rearing of *C. batrachus*. This article will communicate the management involved during seed rearing of this catfish for production of stocking material.