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Lessons from Innovative Institutions in the Marketing of Fish and Fishery Products in India[§]

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Abstract

This study has been conducted with the objective of understanding the process of innovative marketing models in the fisheries sector and to draw lessons from the success stories to upscale and replicate in a similar socio-politico-economic scenario in other parts of the country. It has been conducted to provide a better understanding of fish marketing by self-help groups (SHGs), producer associations, fisheries development corporations, fisherman cooperatives and private institutions in the southern states of India, namely Tamil Nadu, Kerala, Karnataka and Andhra Pradesh with the hypothesis that the institutional arrangements in the marketing of fish and fishery products reduce the transaction cost and improve the market access and its efficiency. The study has reported the primary activities of those institutions in the efficient fish marketing, such as inbound logistics, operations, outbound logistics, marketing and sales promotion and support activities like infrastructural facilities, technological backstopping, price information and procurement. Through these advantages, the fishermen have been found to achieve economies of scale, technological innovations, capacity development, linkage among activities, degree of vertical integration, timing of market entry, product differentiation, market access, credit access, etc. The study has suggested replication of such successful innovative institutions in marketing the fish and fishery products through appropriate policies and programmes. It has also suggested to promote institutions like SHGs, producer / fishermen associations, cooperatives, etc. and allow the entry of private agencies with appropriate regulatory mechanism to improve the efficiency of fish marketing in the country.

Introduction

Fish is one of the highly perishable commodities and it occupies a very important place in the socio-economic development of the country. The fishery sector contributes to the livelihood of a large section of economically underprivileged population in India (Ayyappan and Krishnan, 2004). While the demand of fish and fishery products is steadily growing and is fairly uniform across the country, the supply of fish is highly seasonal and it comes from diverse production environment, leading to price fluctuations across regions and seasons, and even within the day, which is exploited by the middlemen, resulting in reduced welfare of fishermen. Gupta (1984) and Srivastava and Kant (1985) had analyzed the price variations among the fish species across states and had identified infrastructural bottlenecks in efficient marketing system of India. The system of fish marketing in India has traditionally been highly unorganized and unregulated, which is the prime cause of inefficiency in the whole process. Attempts have been made to overcome this

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perennial problem by fishermen group as well as government agencies in some pockets of our country. In general, the fishermen could be saved from exploitation by encouraging group marketing, cooperative marketing, contract marketing, etc., which would increase the marketing efficiency and improve their profit (Chahal *et al.,* 2004; Ali *et al.,*2008). But, these kinds of efforts have largely been confined to a few small locations covering few species and were highly scattered. Unlike poultry or dairy industry, innovations in fish marketing have not been on a macro-level. Katiha *et al.* (2004) have studied the governance, institutions and policies for fisheries of floodplain wetlands, wherein they revealed that the stakeholders include fishers, government agencies, lessee, fishery co-operatives, village authority, community leaders, market agents, political leaders and NGOs and their interactions and transparency are essential to increase the efficiency of the markets. Acharya (1997) had suggested encouraging the local farmers, traders and processors to market the produce under their brands and promoting such local brands based on graded produce to improve the marketing efficiency. Similarly, Punhani (2001) has emphasized that an efficient marketing system in horticultural products could be achieved through price stability, rapid economic growth and equitable distribution of goods and services.

Under this background, this paper has attempted to document and understand the process of different kinds of innovative marketing models in the fisheries sector and to draw lessons from the success stories to upscale and replicate in a similar socio-politico-economic scenario in other parts of the country. This study was conducted to have a better understanding of fish marketing by self-help groups (SHGs), producer associations, fisheries development corporations, fisherman cooperatives and private institutions. Recommendations to improve fish marketing by the organized sectors in India have been provided and policy implications have been discussed.

Hypothesis, Methodology and Data

The study was formulated to test the hypothesis that the institutional arrangements in the marketing of fish and fishery products would reduce the transaction cost and improve the market access and its efficiency. Product differentiation would induce the consumption of fish through which the producer could earn more profit. There would be a positive impact on fishermen's profitability by the improved credit access and consumer preference. We expect that the income and livelihood status of fishermen would be improved by selling fish and fishery products through SHGs, fisherman associations, co-operatives and private institutions. This would improve the marketing efficiency, its distribution channel and the storage method by which the fishermen could reduce the wastage/ spoilage of fish and fishery products. Besides, sustainable technology in the production, processing and differentiating the quality of fish and fishery products would provide more profit to fishermen.

The study is based on the information collected through personal interview and formal techniques such as participatory rural appraisal and focused group discussions carried out in the southern states of India, namely Tamil Nadu, Kerala, Karnataka and Andhra Pradesh. The information on the genesis, structure, conduct, performance and benefits of such innovative institutions was collected from the well organized, selected marketing institutions, namely Thenkumari Self Help Group, Chennai, Tamil Nadu; Sagar Nidhi Enterprise Activity Group, Mangalore, Karnataka; Paminiaru Shrimp Farmers' Association, Thambikkotai, Tamil Nadu; Marine Fish Marketing by Fishermen Associations, Kombuthurai, Tamil Nadu; the state government marketing agencies like Tamil Nadu Fisheries Development Corporation Ltd. (TNFDC), Kerala State Cooperative Federation for Fisheries Development Ltd. (Matsyafed); and also a private institution, named Aquachoupal in Andhra Pradesh.

Results and Discussion

(i) Marketing by Self-help Groups

Women play several critical roles in fisheries, particularly during the pre- and post-harvest sectors. In the marine fisheries, active marine fishing is generally undertaken by men, although a small percentage of women also takes part in near-shore fishing, seaweed harvesting, and in the collection of clams, mussels and bivalves. According to the Marine Fisheries Census, 2005, the total marine fisherfolk population of nine coastal states and two union territories in mainland India was 3,519,116. Notably, of the 756,391 fisherfolk involved in fishing-related activities, 365,463 are women (approximately 48%), with 152,692 of them engaged

in the marketing of fish, compared to 54,670 men. Women are the primary players in processing, marketing and selling the catch. Thus, women vendors and processors have organized themselves in formal and informal groups to facilitate their trade. Among these, the self-help groups (SHGs) are the formal organizations by which they sell their fish and fishery products (Kumar, 2010). The present study is focused on two SHGs namely *Thenkumari* Self Help Group, Chennai, Tamil Nadu; and Sagar Nidhi Enterprise Activity Group, Mangalore, Karnataka. These groups are engaged in the marketing of fresh fish products.

Thenkumari SHG was organized in 2003 with 15 members that remained engaged in fish marketing for about 4 to 14 hours a day and 5 to 7 days in a week. In addition, the women also used to procure fish from auction through group purchase at Chindadiripet Fish Market at Chennai. This SHG undertook a pilot project to supply fresh seafood to a key customer (Taj Coromandal — a premier 5 star hotel) at Chennai on a contract basis. The Taj Coromandal emphasized on the supply of high quality products and timely delivery and accordingly, the fisherwomen in *Thenkumari* SHG were trained on these issues. The produce supplied by this SHG passes through stringent quality parameters to meet the expectations of Taj customers. The SHG was supplying 2 kg initially thrice a week, which increased to 500 kg per month in 2008. In recognition of its quality service, the Taj management gave the 'Best Vendor Award' for the year 2008 to the *Thenkumari* SHG. This project has been a win-win situation for both the producer and the consumer. The hotels get quality products directly from the SHG and the SHG has been able to sustain its business. As a result, this group has been getting credit support from Indian Bank, Chennai. The bank has also confirmed that the repayment record of the SHG has been almost 100 per cent for which the SHG was awarded the 'SHG Bank Linkage Programme State Level Award for 2006-07' for timely repayments. Concurrent loans from the same branch were increased from Rs 70,000 to Rs 3,00,000 (Table 1).

Another group, named 'Sagar Nidhi' is a self-help enterprise activity group and was formed by mobilizing fresh-fish retailers of Bengare ward of Mangalore Port in August 2006. The group members were first enrolled as members of the Karavali Fisher's Processing and Marketing Cooperative Society Ltd. and were provided with financial and technical assistance. Some of the developmental options discussed with women groups were direct supply of high- value fishes to hotels and restaurants, investment requirements for trading high-value fishes and opening of a retail shop dealing with fishes harvested by following eco-friendly fishing practices and other sustainable practices like avoiding juvenile fishes, gillnet fishes, etc. Finally, the group agreed for setting up of a retail workshop by employing unemployed girls to market the harvested fish and fishery products. The women retailers have been benefited in two ways such that they were able to participate directly in the auction market and thus saved 20-30 per cent in the purchase price, and they were able to increase their sales from one basket (15 kg) to two baskets (30-35 kg) per day and net earnings from Rs 100 to Rs 150-175 per day.

(ii) Marketing by Producer Associations

The study has focused on two such institutions, namely Paminiaru Shrimp Farmers' Association, Thambikkotai and Marine Fish Marketing by Fishermen Associations, Kombuthurai, both in Tamil Nadu.

Table 1. Impact of *Thenkumari* SHG on the fisherwomen

Parameters	Year	
	2003	2008
Quantity supplied per month	24 kg	500 kg
Place of marketing	Traditional retail fish markets of Chennai	Hotel Taj Coromandel, Chennai – A 5-star hotel
Type of product	Fresh fish	Processed high quality fish
Level of skill in processing	Low	High
Credit support	Local money lender with high interest rate	Nationalized bank with low interest rate
Loan sanctioned from bank	Rs 70,000	Rs 3,00,000

An innovative model of collective marketing of a shrimp farmers' association in the Thambikottai village of Tiruvarur district was formed by the aquafarmers themselves in the year 2003, mainly to prevent and manage collectively the disease outbreaks in the cluster by enforcing better management practices. Initially, it started with just 5 farms (35 ponds) and has now grown into 50 farms (320 ponds) today. To market their cultured shrimp, the association calls for quotations from buyers and negotiates with them for fixing a price for the total shrimp produced in the cluster. However, that price is not a binding and any individual member can negotiate with the buyer for a higher price. A stamped agreement is signed between the farmer and the buyer. It is then given to the association by the farmers mentioning the agreed amount (per kg of shrimp sold) to be deducted at buyer's office towards the association fund to compensate the affected farmers and manage the common resources. It is the responsibility of the buyer to ensure the payment of this amount to the association, which is deposited in the bank.

Fish marketing in the Kombuthurai village of Thoothukudi district was similar to the other landing centres of the region initially. But, the demand for premium varieties of fish like seer fish, barracudas, carangids, etc. landed in fresh condition and in good quality by line fishing at Kombuthurai attracted many wholesalers to purchase fish at a better price compared to other landing centres of the region, where fishes from gill netting and trawling are landed. The marketing method followed by the fishermen of Kombuthurai was resorting to daily auction, the major difference of which from the other landing centres was that in Kombuthurai the fishes were segregated species-wise and auctioned on per-kg-basis and later sold on weight-basis. In the landing centre, two types of intermediaries, namely auctioneers and wholesalers were present. The auctioneers had the responsibility of collecting the money from the wholesalers and distributed it to the fishermen through fishermen associations. The auction charge was 10 per cent of the sales which was collected from the fishermen by the association. In Kombuthurai, there were five fishermen associations as given in Table 2 and each association had authorized one auctioneer to auction the fishes landed by its members. Each auctioneer was paid Rs 5000 per month by the association.

In the Kombuthurai village, there were 12 regular wholesalers. The wholesalers from other places such as Thoothukudi, Kanyakumari, Manappad of Tamil Nadu and from major markets in Kerala purchase fish through auction either directly or through their agents. The Kombuthurai fishermen associations fix the price of product based on its size and species. The average price of different varieties of fishes marketed at Kombuthurai and other landing centres in Thoothukudi district is given in Table 3 for a comparison and to depict the price advantage the fishermen of the former get than the latter on account of grading practices.

Table 2. Fishermen associations functioning in Kombuthurai, Tamil Nadu

Name of the fishermen association	No. of years in existence	No. of *Vallam* under control
St. Francis Xavier	25	58
St. Mudiapper	20	28
St. Rayapper	8	4
St. Christuraja	7	25
Tuticorin Multipurpose Social Service Society	7	25

Note: *Vallam* is a traditional non-mechanized fishing craft used along the southeast coast of India

A perusal of Table 3 clearly reveals that the innovative marketing model followed by the fishermen of Kombuthurai fishing village is a worthy model to be followed in other marine fish landing centres of the country. Segregating the fish catch species-wise and auctioning on weight basis through fishermen associations, combined with proper market information

Table 3. A comparison of landing price of different fish species in Kombuthurai and other landing centres in Thoothukudi, Tamil Nadu

Price (Rs/kg)

Fish species	Kombuthurai	Other landing centres
Seer fish	235	150
Cuttle fish	150	120
Squid	150	100
Katsuwonus sp	70	50
Alectis sp	65	40
Spyraena sp	65	40
Carangids	60	40
Lethrinus sp	55	30
Tuna	50	30

would result in maximizing income to the fishermen and minimizing exploitation by the middlemen.

(iii) Marketing by State-run Fisheries Development Corporations

The Tamil Nadu Fisheries Development Corporation Ltd. (TNFDC) has been involved in fresh fish marketing through its chain of retail shops for many years. Starting with two modern fish retail outlets, called 'Neidhal' in Chennai city in 2008, it has 10 outlets across the state in 2010. These outlets were found equipped with a display vesicular unit of deep freezer, fish cleaning and cutting space, electronic balance and storage space, besides hygienic conditions. The fish prices were kept a little lower than those in the traditional fish retail markets. Freshwater fish like murrels were sold in live condition. Fish dressing was done in the presence of consumers to get their confidence. The consumer could select the fish as these were kept in a glass-top freezer. The objective of starting the modern retail outlets through state intervention was to source fish directly from fishermen and to sell to consumers at affordable rates under hygienic conditions. This has enabled the fishermen to market without the intervention of middlemen and as a result, they get a better price for their catch. A comparison across different market prices has been furnished in Table 4.

(iv) Marketing by State-run Fisherman and Fisherwomen Cooperatives

Matsyafed, the Kerala State Cooperative Federation for Fisheries Development Ltd., has taken a major initiative in organizing the primary auction at the landing centre (beach) itself, as the major exploitation of the fishermen occurs there itself. Matsyafed undertakes the auction in the fishing villages and the cooperatives have become the major force in setting up the beach level auction. Over a period of time, Matsyafed could make this as its major activity in the coastal area and many fishermen societies have achieved a high level of turnover in this process.

Matsyafed has taken initiatives to sell fish in the secondary market as well as through its own the retail system directly to the customers. A model retail outlet has been established at the premises of the Matsyafed Net Factory in Cochin. A new system of procurement and sales with staff participation has been designed to ensure efficiency and effectiveness with a focus on customer's satisfaction and a better environment for fish sales compared to the old and traditional system. Another innovative outlet was started by Matsyafed as the 'Fresh Fish Point', in Cochin in 2006. At this outlet, procurement of fish was found aligned with the wholesale market and selling price was fixed according to the market forces. The unit could make a sale of

Table 4. A comparison of fish marketing at 'Neidhal' and other modern retail outlets and traditional fish markets

Parameters	Neidhal (TNFDC)	Reliance (private outlet)	Spencer (private outlet)	Fish-o-Fish (private outlet)	Traditional wholesale markets	Traditional retail markets
Varieties marketed	8-12	50-150	10-15	10-15	25-40	4-5
Price	Close to traditional wholesale market	Fixed by the company	Fixed by the company	Close to TNFDC rates	Based on variety and arrival	20-35% plus of wholesale market
Other services	Cleaning & cutting	Cleaning & cutting	Cleaning & cutting	Cleaning & cutting	Nil	Nil or on payment
Outlets	2 in Chennai city	49	15	4	5 markets	150 localities
Outlet timings	9.00 am to 7.00 pm	9.00 am to 9.00 pm	9.00 am to 9.00 pm	9.00 am to 9.00 pm	4.00 am to 11.00 am	11.00 am to 7.00 pm
Parking facility	Yes	Yes	Yes	Yes	No	No
Availability of substitute fish species	No	Yes	Yes	Yes	No	No
Hygiene status	Good	Good	Good	Fair	Poor	Very poor

Table 5. Performance of 'Fresh Fish Point' — A modern retail outlet of Matsyafed (KSCFFD) in Cochin: 2006-07

Particulars	Amount
Quantity of fish purchased	32.21 tonnes
Quantity of fish sold	32.15 tonnes
Cost of fish purchases	Rs 30.57 lakh
Total expenses	Rs 32.01 lakh
Total sale value	Rs 40.92 lakh
Gross profit	Rs 8.91 lakh
Fixed expenses	Rs4.64 lakh
Incentives	Rs 3.20 lakh
Net profit	Rs 1.07 lakh

about Rs 41 lakh in the very first year with a gross profit of about Rs 9 lakh and a net profit of more than Rs 1 lakh (Table 5). Based on its success, Matsyafed plans to scale up the model to a larger volume by adding about 500-1000 outlets in next 3 years. It also plans to enlarge the list of fish and fishery products for sale at 'Fresh Fish Point'.

In Karnataka, there are strong community-based cooperatives for the marketing of fish harvested by the traditional fishers and gill net operators. *Hadinaaru Patna Meenugaarara Market Vyavasthaapana Samithi* was found one such organization providing credit and marketing services to small-scale fishermen. Another community-based co-operative organization was the *Mangalore 16 Patna Meenu Marata Vyavastha Samithi*. It was established in 1962 with the following specific objectives: (i) to organize the marketing of fish; (ii) to offer credit facilities to fisherwomen for retailing of fish and fishery products; (iii) to provide advance loans for purchasing and processing of fish and repairs and maintenance of traditional fishing crafts and gear, and (iv) to provide welfare services such as support for education and unforeseen contingencies to members and non-member families under distress. The membership profile and loans advanced to fishermen owning different fishing gears are given in Table 6.

(v) Aquachoupal – An ICT-based Supply Chain Model

The e-Choupal is a web supported initiative, offering farmers information, customized knowledge products and services to enhance farm productivity and farm-gate prize realization on various crops, viz. soybean, coffee, wheat, rice, pulses and shrimp (Mahalakshmi *et al.*, 2006). The Aquachoupal network, launched in 2001 in the state of Andhra Pradesh, includes 55 kiosks reaching 10,000 shrimp farmers in over 300 villages. The Aquachoupal information centers are equipped with a computer connected to the Internet and are located in the rural villages (Figure 1). Aquachoupals serve both as a social gathering place for exchange of information and an e-commerce hub.

The supply chain for the Aquachoupal marketing system is depicted in Figure 2. The closing price of previous day's marketing is used to determine the benchmark price at the Aquachoupal for a given day. To initiate a sale, the *Sanchalak* or *Prathinithi* of ITC inspects the produce and based on his assessment of quality, gives a conditional quote to the farmer. The benchmark price represents the upper limit on the price a *Prathinithi* can quote. If the farmer chooses to sell his crop to ITC, the *Prathinithi* gives him a note containing details about his name, village, quality of the produce, approximate quantity and conditional price. The farmer takes the note along with his crop to the nearest ITC procurement hub (processing centre).

Table 6. Membership profile and loan advanced by *Mangalore 16 Patna Meenu Marata Vyavastha Samithi* in 2007-08

Type of gear	Loan advanced per unit gear (Rs)	No. of members	Loan recovery (% of sale proceeds of daily fish catch)
Gill nets	30,000 - 40,000	40	10
Traditional fishermen (*Pattebale*, *Kanthale*)	25,000 - 30,000	50	10
Small mechanized boats	20,000	8	5
Fisherwomen			
Sellers of high-value fishes	25,000 - 40,000	15	10
Sellers of small fishes	5,000-10,000	20	10

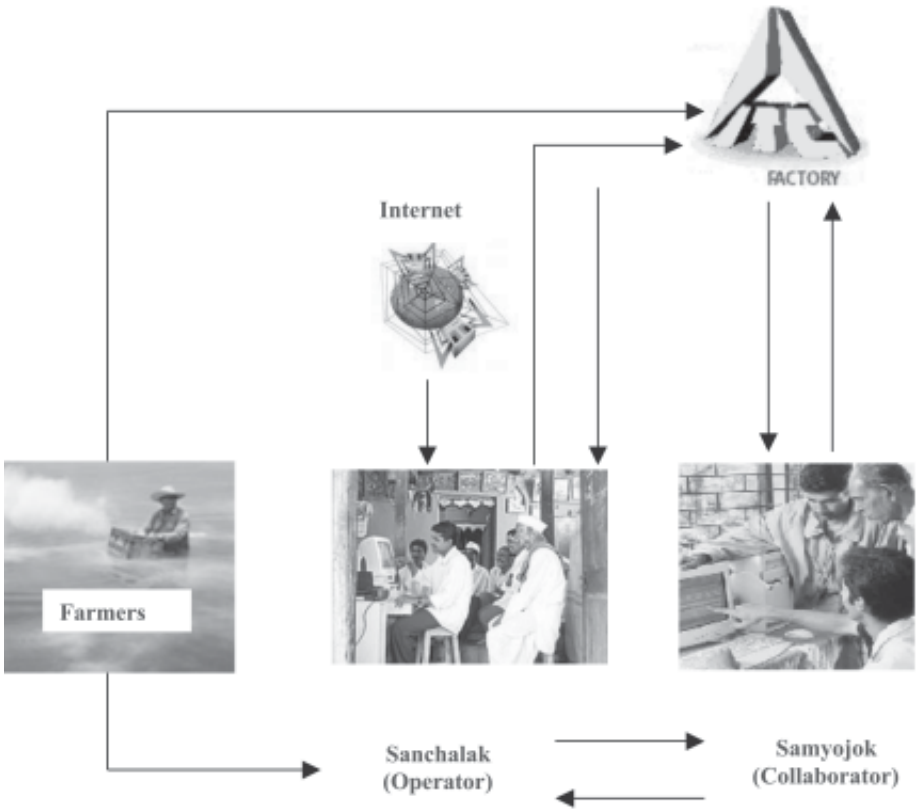

Figure 1. The Aquachopal model in Andhra Pradesh

Figure 2. Supply chain in Aquachoupals in Andhra Pradesh

At the ITC procurement hub, produce is tested for quality and weighed. The farmer then gets the payment in full; he is also reimbursed for transporting his crop to the procurement hub. Every stage of the process is accompanied by appropriate documentation. The farmer is provided a copy of lab report, agreed rates, and receipts for his records.

The farmers sell their produce through Aquachoupal by using their services. The usage pattern and services generally provided at all the centers include information on government schemes / procedures, weather forecast, market prices, general FAQs (Frequently Asked Questions), transactional services like communication through e-mail and chat, buying / selling goods, etc. (Table 7).

The study on utilization of services provided by Aquachoupals revealed that 36 per cent of the respondents rarely made use of the weather report facility (Figure 3), but the pricing facility was used by most respondents (64%) frequently. They also felt that the Aquachoupal provides access to prices on a daily basis. Therefore, farmers are able to take the critical decisions on when and where to sell their crop. About half of the respondents (51%) made use of the customized quality solution facility frequently. The farmers showed keen interest to know the ways to prevent infestation of diseases, their detection and effective disease management. They also opined that they could improve crop quality and yield owing to customized quality solution given by the Aquachoupals. More than 15 per cent of the farmers made use of the best practices and FAQ facilities.

Table 7. Services provided by Aquachoupals in Andhra Pradesh

Services	Meanings
Weather	Localized weather information at the district level.
Market price	Local and international company's rates. ITC's next day rates are published every evening. The prices are displayed prominently on the top of the web page on a scrolling sticker.
Customized quality solution	After the sale of a crop is completed, ITC performs laboratory testing of the sample collected. Based on these results, farmers are given customized feedback on how they can improve crop quality and yield.
Best practices	Scientific practices organized by crop type are available on the web site.
FAQs	This feature enables two-way communication. Additional questions are answered through FAQs and access to experts who respond to e-mails from the village.
Communication	*Prathinithi* uses the Internet to chat extensively among themselves about the status of operations and aquaculture in their villages.
Others	In addition to aquaculture-related information, farmers get information on government schemes / procedures, educational information. They are also benefited through information about health-oriented programmes such as eye camp, blood testing, and blood donation, etc.

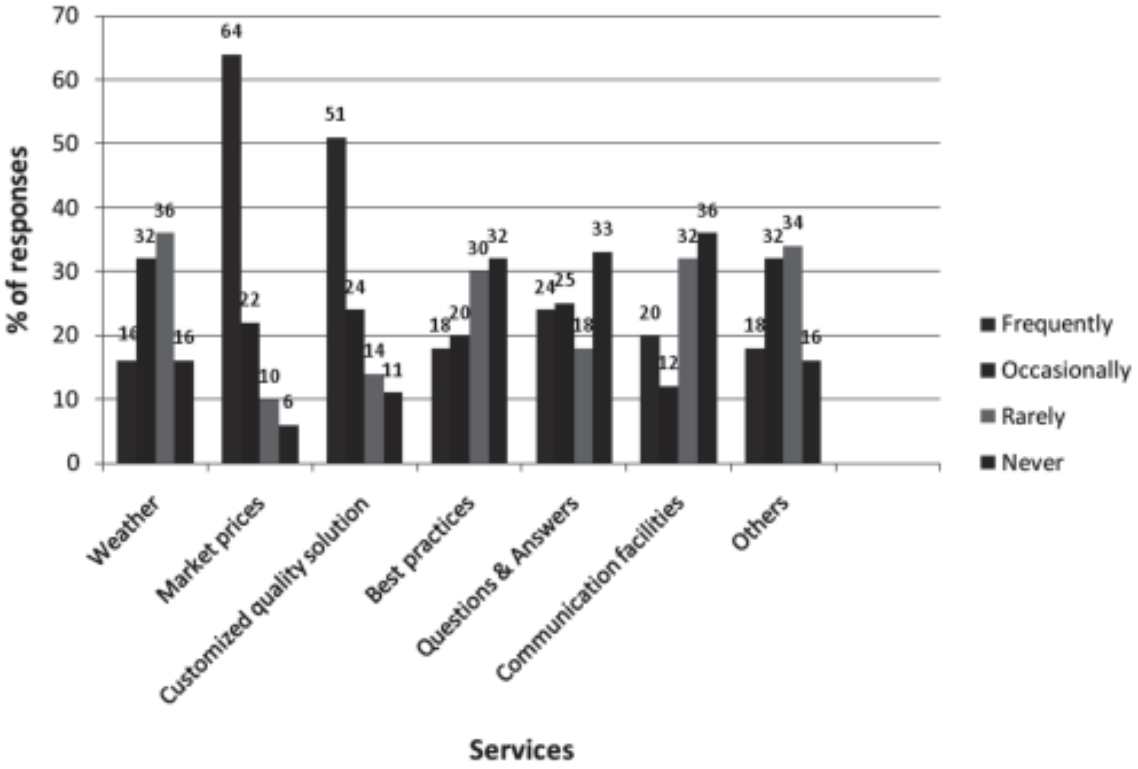

Figure 3. Usage pattern of Aquachoupal services in Andhra Pradesh

The lessons from various innovations in the marketing institutions dealing with fish and fishery products at selected locations of the country have been summarized in Table 8. It depicts the factors for success, constraints to up-scaling and suggestions to overcome them under different innovative institutions in fish marketing.

Conclusions

Stagnating marine fisheries productivity, rising cost of fishing operations and inputs, declining fishermen income and high price-volatility of fish and fishery products are making this enterprise unremunerative and risky, leading to distress and unrest among the

Table 8. Success and constraints faced by the marketing institutions

Innovative marketing institutions	Factors for success	Constraints	Suggestions
Self-help groups (SHGs)	Effective leadership; Collective bargaining; Win-win situation; Enthusiasm and discipline; Self-confidence due to empowerment; Informed decision-making; Better communication.	Competition from market; Lack of transport facilities; Insufficient insulated ice box; Lack of their modern fish retailing stall; Less income during lean season; Loan at very high interest rates from private money lenders.	Regulation by authorities; Provision of subsidy; Provision of soft loan
Producer associations	Inclusive membership; Tangible deliverables; Social cohesiveness; Conviction of the farmers.	Lack of knowledge about product differentiation	Advertisement; Brand promotion
Fishermen and fisherwomen cooperativies	Working in closeness with fishermen; Trust and confidentiality; Hygienic shop; Transparency in weighment using electronic balance; Lower prices than in conventional fish markets; Dressing by trained personnels; Availability of fish fillets and steaks in the outlet.	Inability to handle more species; Inability to market the whole day; Slow expansion of cooperative societies	Active involvement of state federation with national apex federation, FISHCOPFED; Increasing the number of species in sale counter; Extending the sales for whole day
Private institutions	Price information on daily basis; Selling decision by farmers themselves; Lesser transport cost; Improvement in fish productivity; Accessibility of inputs at less cost than in local market.	Ignorance of the farmers; Lack of awareness; Lack of interaction with the institution; Limited number of processing plants and soil and water testing facilities.	Awareness creation; On-pond testing facilities

fishermen communities. At the same time, the sector is in the process of transformation from a subsistence system to a commercial and export-oriented one, throwing open many opportunities for all the stakeholders in this sector. In this process, there are apprehensions that these poor fisher folks would be marginalized and a bulk of benefits would be siphoned by the middlemen or the agri-business houses. This study has documented the success stories and the lessons to be drawn for up-scaling them in a similar socio-politco-economic scenario in the country. The policy implications have been drawn from different types of innovative institutions, which stress on the collective action of public and private sectors, cooperatives, producer associations, etc. The study has mentioned about the primary activities of those institutions in efficient fish marketing such as inbound logistics, operations, outbound logistics, marketing and

sales promotion and support activities such as infrastructural facilities, technological backstopping, price information and procurement. Through these advantages, the fishermen could achieve economies of scale, technological innovations, capacity development, linkage across activities, degree of vertical integration, timing of market entry, product differentiation, market access, credit access, etc. The study has suggested replication of such successful innovative institutions in marketing the fish and fishery products through appropriate policies and programmes. Awareness should be generated among the fishermen community about the need, importance and advantages of such collective action through institutions like SHGs, producer / fishermen associations, cooperatives, etc. so that the exploitation of middlemen in the production-to-consumption chain in this fledging sector could be minimized. Entry of private agencies in this regard should also be promoted with appropriate regulatory mechanism so as to prevent possible exploitation of fishermen community.

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