

*Short Communication*

## **Workspace of Women in the Small-scale Ornamental Fish Value Chain in Kerala**

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### **Abstract**

Aquarium fish keeping is one of the most popular hobbies in the world. The growing demand of aquarium fish has evolved into a USD 8 billion industry globally. It has the potential to become an important source of employment and income, especially for empowering women financially, as it can be taken as a leisure time activity and allows balance between productive and reproductive roles. The present study was conducted in Panangad and Kotatt regions which belong to Ernakulam and Thrissur districts respectively in Kerala, India. The study attempted to identify the gender activity profile in ornamental fish culture and compare the attitude of the women in undertaking the activity in two selected survey sites, one a rural area (Kotatt) and one a semi-urban area (Panangad). The attitudes of the women in both areas were marked against a 5 point Semantic scale. It was found that the attitude of women in Panangad towards ornamental fish farming was negative with scores more towards the negative adjectives describing the culture. They felt that the culture was a loss making activity, having no impact on their economic status. The families in Kotatt region had a more positive attitude towards the culture. They felt the farming was stimulating and fetched them profits and better economic opportunities.

### **Introduction**

The ornamental fish industry evolved as a means to cater to a popular hobby. Although the global ornamental fish trade is relatively small when compared to the food fish industry, it nevertheless makes significant contributions to the trade of freshwater and marine aquatic products. The

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estimated retail worth of the global ornamental fish trade is more than 8 billion USD (Silas et al. 2011) while the annual trade value was estimated to be 15 - 25 billion USD (Ploeg 2009). Aquarium fishes are both wild caught, and captive bred at aquaculture facilities, with over one billion fishes traded through more than 100 countries during 2000 (Whittington and Chong 2007). The rich piscine diversity of Indian waters supports over 300 varieties of indigenous ornamental fish species. Despite this, India stands 29<sup>th</sup> in the list of global ornamental fish trading countries (Fossa 2012) with exports worth 1.17 million USD in the financial year April 2009 - March 2010 (Nair 2012). In addition to export, the trade is growing internally due to the domestic demand with exotic species bred in captivity dominating transactions. The domestic trade in India was worth 100 million USD and was growing at an annual rate of 20% (<http://www.celkai.in/Fisheries/CultureFisheries/Ornamental%20Fishes/gelinfo rmation.aspx> \_ accessed 24 January 2015). The state of Kerala on the south west coast of India is a prospective one in the trade of ornamentals with the state standing second in the overall trade of the same (Ramachandran 2002a and b; Shyma 2008; Sekharan 2006; Kurup and Antony 2010; Nair 2012).

Ornamental fish business has been recognised as an avenue of employment for women in various countries (Lee 2005; Jayashankar 1998; Bertram 1996). In India many women have taken up ornamental fish breeding or farming as a backyard activity especially in rural areas (Sahoo et al. 2011). Ornamental fish farming is considered a good avenue for women as the culture practice involves relatively simple techniques and small capital investment. A backyard pond or a little space to setup some fish tanks can help women carry out the operations while being able to balance both family chores and productive roles in the culture. The present study was done in an attempt to: (a) identify the value chain of ornamental fish in Kerala state; (b) identify the gender activity profile in ornamental fish culture; and (c) compare the attitude of the women in undertaking the activity in two selected survey sites, one a rural area and one a peri-urban area.

## Materials and Methods

The study was carried out in 2014 in two places purposively selected for the study, Panangad and Kotatt. Panangad falls under the Kumbalam *Grama Panchayath* (a *Panchayath* being the village local self-governance unit) of

Ernakulam district in Kerala, India. Kotatt falls under the Chalakudy Municipal area of Thrissur District of the state (a municipality is the urban local self-governance unit). Panangad is a coastal village where the main occupation of people is fishing and an ornamental fish culture programme was initiated by Kerala University of Fisheries and Ocean Studies (KUFOS), Panangad (then called the College of Fisheries, Kerala Agricultural University), in association with the Panangad Integrated Development Society (PIDS) and Rotary Community Corps (RCC), Panangad for empowering women in the area. The programme was carried out as part of a project which was operational between 2007 and 2010 with an aim to develop entrepreneurship in this potential field of employment generation. Panangad had the advantage of having plentiful availability of freshwater throughout the year (<http://www.aquaculturewithoutfrontiers.org/wp-content/uploads/2014/11/7.-Anna-Mercy.pdf>\_accessed 12 November, 2015). Kottat also was identified by the Department of Fisheries, Kerala state, as an important centre for ornamental fish culture especially by women.

Focus Group Discussions (FGDs) and interviews using a semi-structured questionnaire were used. Personal communication was carried out with the officials of Department of Fisheries, Kerala state. The activity profile and gender needs analysis was elaborated using the Moser Gender Framework (March et al. 1999). The attitudes of the women in Panangad and Kotatt regions involved in culture practices were measured using the Semantic differential rating scale (Osgood et al. 1957). For this, six respondents were selected from each area. The respondents were asked to rate ten bi-polar adjectives describing ornamental fish farming against a 5-point scale. The blanks were numbered from 1 to 5 and then the responses were averaged for each dimension. The average was plotted on a form to show the attitude of the respondents.

## **Results**

The value chain for ornamental fish in the state of Kerala is rather short and is almost similar for both exotic ornamental fish and wild caught ornamental fish. Fish collected from the wild or seed of exotic fishes that are procured from outside are reared in hatcheries. These are then marketed either in the domestic market or exported. In the domestic market both wholesale and retail sales occur. For the most commonly reared ornamental fish like goldfish

(*Carassius auratus*), the cost of fry at the first level is around 50 paise per piece (1 INR = 100 paise; 50 paise is approximately 1 US cent) and at the hatchery stage the price rises to about INR 3 per piece (approximately 5 US cents). The whole sale prices are INR 18-20 (approximately USD 0.27 to 0.30) and the retail prices INR 25 to 30 (approximately USD 0.37-0.45). Basic inputs at the wild collection stage are the craft and gear required for fishing. Feed and medicine are used in hatchery management. The rest of the expenditure is on transportation of the fishes for marketing. The results of the survey carried out are presented as cases below.

### ***Case I- Panangad region***

Panangad is in Kumbalam Panchayath of Ernakulam district, Kerala. The region has several Self-Help Groups (SHGs) of women engaged in ornamental fish farming. Self-Help Groups are independent groups formed by the women of a particular area engaging in micro-enterprises like making and marketing pickles, homely snacks etc. SHGs have been a great source of empowering women through self-employment (Gupta 2007). Their main source of capital investment is the special subsidies granted by government in addition to small compulsory savings of the group members.

In ornamental fish culture, each group or unit is called a cluster and there are six such clusters in the area selected for this study. Each cluster includes three to four women who engage in the culture activities. All the units are homestead units and were set up by availing of the ornamental fish assistance schemes from various agencies including export promotion agencies like Marine Products Export Development Authority (MPEDA), Kochi, and Kerala, India. Each cluster had secured initial financial assistance of INR 75,000 (approximately USD 1100). This initial fund helped them in setting up the tanks and buying equipment such as aerators, filters, medicines, feed, equipment for packing etc. More than 60% of the women had attended short term training provided by MPEDA and the KUFOS.

All the culture related activities of the units like raising brood stocks, feeding, changing water and other activities were managed by women themselves. These were manageable by women mainly because the scale of the units was small. Though these women received financial and technical support,

they reported in interviews that the business was not bringing them enough profit and they had to source additional financial inputs themselves. They also opined that the culture practice consumed their time and effort. Another major issue cited was lack of family support for the culture activities. It was also understood from the interviews that women also diverted financial assistance received to meet household purposes. After initial enthusiasm in starting the units, the groups showed little interest in maintenance and upkeep of the tanks, checking water quality parameters or proper quarantining of the fish. There was also a lack of interest in venturing into or exploring new market opportunities.

### ***Case II- Kotatt region***

Kotatt comes under the Chalakudy Municipal area of Thrissur District, Kerala, India. This district is situated adjacent to Ernakulam district where Panangad is located. It is predominantly dominated by agriculturalists and a majority of the population depends on agriculture which is the main source of income. Twenty-five families in the area were involved in ornamental fish culture. These families were once mulberry farmers, but as a result of losses faced in mulberry cultivation, they shifted to ornamental fish farming. They began ornamental fish culture without enquiring about the financial assistance schemes that were provided by various government organisations. Thus, all the investment that went into the preparation of ponds or culture tanks were met by the families. They had also not secured any professional training but took help from a local person who had some technical knowledge regarding different aspects of ornamental fish culture. The local resource person gave advice regarding water quality parameters, breeding, maintenance etc. It was observed that though these families did not have any technical knowledge, they still were very enthusiastic about ornamental fish farming. The activity became integrated into their daily routine along with other agricultural activities. The culture was a household activity for them. Both the husband and wife were involved in all the activities. Men were actively involved in constructing tanks, preparing ponds, setting nets over the ponds so that leaves did not fall into the ponds, quarantining, administering medicines, caring for brood fish, packing fish and transporting them. Besides these culture activities, men were also engaged in various agricultural activities. Women were primarily responsible for the family chores. Along with it, they also were engaged in culture activities such as feeding the fish, exchanging water, removing waste, cleaning premises and

packing fish. The families sold fish both as wholesale (the local resource person who gave them technical advice sourced the fish), as well as carried out direct retail sales. The family members reported that ornamental fish culture fetched them a monthly income of about INR 15,000 to 20,000 (approximately USD 223-297). It was only their personal interest in ornamental fish culture that kept them in the business. They reported that if they had obtained financial assistance they would have developed their business even better. They were also interested to know and try out culture of new or exotic varieties of fish which could fetch them more money. The gender activity profile of both the study areas is shown in Table 1.

**Table 1.** Gender activity profile in the cultured ornamental fish value chain

Activities	Panangad		Kotatt	
	Women	Men	Women	Men
<b>Productive</b>				
Selection of breeders	✓			✓
Breeding	✓		✓	✓
Nursing	✓		✓	✓
Rearing	✓		✓	✓
Feeding	✓		✓	✓
Water quality check			✓	✓
Cleaning the premises	✓		✓	
Packing	✓		✓	✓
Retail Marketing			✓	
Wholesale Marketing	✓		✓	✓
Export				
Income generation	✓		✓	✓
Employment	✓		✓	✓
<b>Reproductive</b>				
Childcare	✓		✓	
Food preparation	✓		✓	
Caring the elders	✓		✓	
Washing & Cleaning	✓		✓	
Health related			✓	
<b>Community Involvement</b>				
Attending training	✓			
Attendance at meetings	✓	✓	✓	✓
Religious meetings	✓	✓	✓	✓

Since there was marked difference in the attitude of the SHGs in Panangad and the households in Kotatt towards ornamental fish culture, the attitudes were compared and analysed using Semantic differentials (on a 5 point scale)

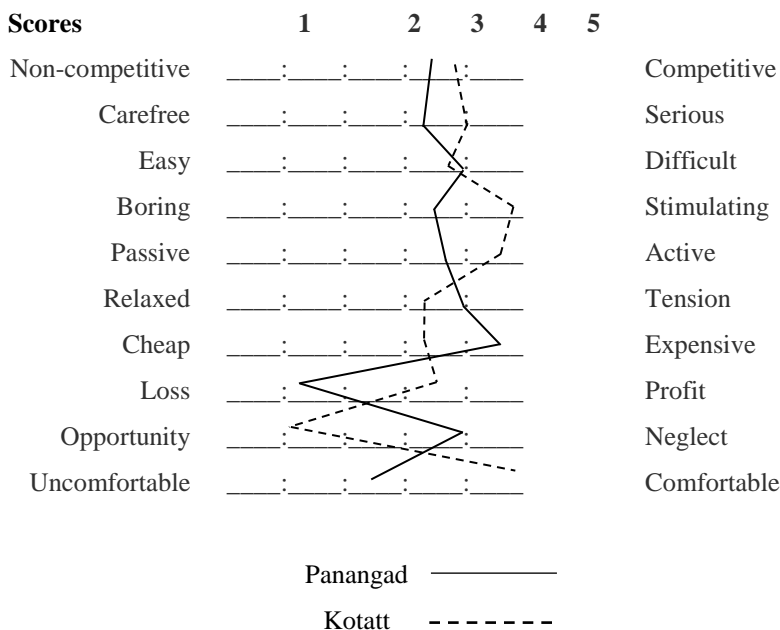


Fig. 1 Semantic differential chart comparing the attitudes towards ornamental fish farming

From Fig. 1, it can be observed that the attitude of women in Panangad towards ornamental fish farming was negative with scores more towards the negative adjectives describing the culture. They felt that the culture was more loss-making with more expense involved in it, giving them no better economic opportunities. Most of them took the activity in a carefree or casual manner thereby not giving due importance to different parameters involved in the culture. The families in Kotatt region had a more positive attitude towards the culture. They felt the farming to be more stimulating, fetching them profit and also giving them better economic opportunities.

### Discussion

From examining the value chain of ornamental fish trade in the present study, it was found that there was an incremental value added at each stage in the chain. From the two different cases of Panangad and Kotatt regions, it can

be seen that providing financial assistance and professional training in the field alone may not improve the economic conditions of the women. An important factor in the case of SHGs in Panangad was that the women in the groups lacked the support of their families and also they were more interested in utilising the financial assistance received for meeting household expenses (Ferrer and Barrido 2011; Lentisco and Lee 2015). Lack of support must have led to lack of enthusiasm and that is a probable reason why they did not look for new market possibilities or attempt breeding ornamentals which could have fetched them better prices.

The ornamental fish trade needs large numbers of species or varieties and large quantities of each (Sane 2007). Non-uniqueness and limited specimens discouraged importers trading with India initially (Kawada 2007). The families in the Kotatt region explored ways to venture into new markets by experimenting with new species and their breeding technologies. Their enthusiasm fetched them better prices and also a better market. They were able to meet the orders placed by the customers. Their business was more profitable even without availing of government benefits. If they had been aware of the available financial schemes and the ornamental fish culture training, they may have been able to boost their businesses (Mukherjee 2014; Rameshan and Shaktivel 2014; Shaleesha and Stanley 2000).

## **Conclusions**

The earning potential of small scale ornamental fish farming is not well understood and is not being exploited in a technology-driven manner. The simple technique involved facilitates the enhanced involvement of women without affecting their reproductive roles. Government and government institutions have come up with numerous schemes and projects to help women come forward in the sector. But this study of two contrasting cases in Kerala, India shows that ornamental fish farming could be more successful and beneficial for its participants, particularly women, if those promoting and undertaking the same had better understanding of the available financial and technology assistance and the capacities and aspirations of the families (women and men) involved.



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