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Short Communication

Location Specific Intervention for the Empowerment of Coastal Women: A Case Study of Oyster Culture in Kerala

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Abstract

The underlying causes of gender inequality are often related to social, cultural and economic factors. Consequently, the access of women to education, technical training and productive resources is inadequate, particularly for those women in the rural areas and employed in the informal sector. Economic empowerment is a tool to bring about greater inclusion in society. With these concepts in mind, the Department of Science and Technology (DST), Government of India, funded a project in Kerala state that introduces edible oyster culture (*Crassostrea madrasensis* Preston) and its value-addition as a livelihood option for fisherwomen. Value addition of the oyster meat was also introduced to the women SHGs in this project. Value addition generate profits of INR 37.43, INR 97.49 and INR 106.37 from per kilogram of fish cutlets made, oyster meat and prawn pickle respectively. The aim of this paper is to highlight how needs based, location specific technology interventions can contribute to women's empowerment in coastal areas in terms of personal, social, economic and community aspects.

Introduction

In fishing communities in India, women have played important roles in supplementing family income, though increasingly marginalisation is being observed as they are being displaced from their traditional fisheries related activities (Sathiadhas et al. 2005). Though employment opportunities for women in fisheries are generally more common in the post-harvest sector, there exists scope in small-scale aquaculture and allied activities, such as in the culture of edible oysters, mussels, ornamental fish, shrimp, seaweed and in the aqua feed industries. Further, production of value added products also can be a small scale venture with minimum inputs and requiring minimum technical support.

This paper discusses an initiative taken by the Central Institute of Fisheries Technology (Indian Council of Agricultural Research), Kochi, Kerala, India to mobilise women's Self Help

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Groups (SHG's) in the coastal area of the state of Kerala to take up oyster culture as an alternative livelihood and income generating activity. Culture of the edible Indian oyster *Crassostrea madrasensis* (Preston) has the potential to provide significant economic benefits to rural and semi-urban coastal communities, and can also benefit specific demographic groups such as women who suffer from low incomes and have limited economic opportunities (Szuster and Flaherty 2004). Indian oyster is particularly suitable for culture because it has a fast growth rate and tolerates a wide range of salinity. If supported by technical aid in product development, oyster farming has the potential to become an economically beneficial venture. A reasonable amount of flexibility in the activities also facilitates the involvement of women who can balance their reproductive roles along with these activities. The particular initiative in this study was supported by the Department of Science and Technology, Government of India and was implemented in Moothakunnam, Ernakulam District, Kerala, India during 2010-11.

Study area

Moothakunnam village was selected for implementing the project because of the presence of shallow water bodies in its vicinity that was suitable for oyster culture. The village is part of Vadakkekara Panchayath that covers an area of 11.25 km^2 (Fig.1). The total population of the Panchayat was around 31,000, 48% male and 52% female. Fisherwomen organised into Self Help Groups were purposively identified for implementing the interventions.

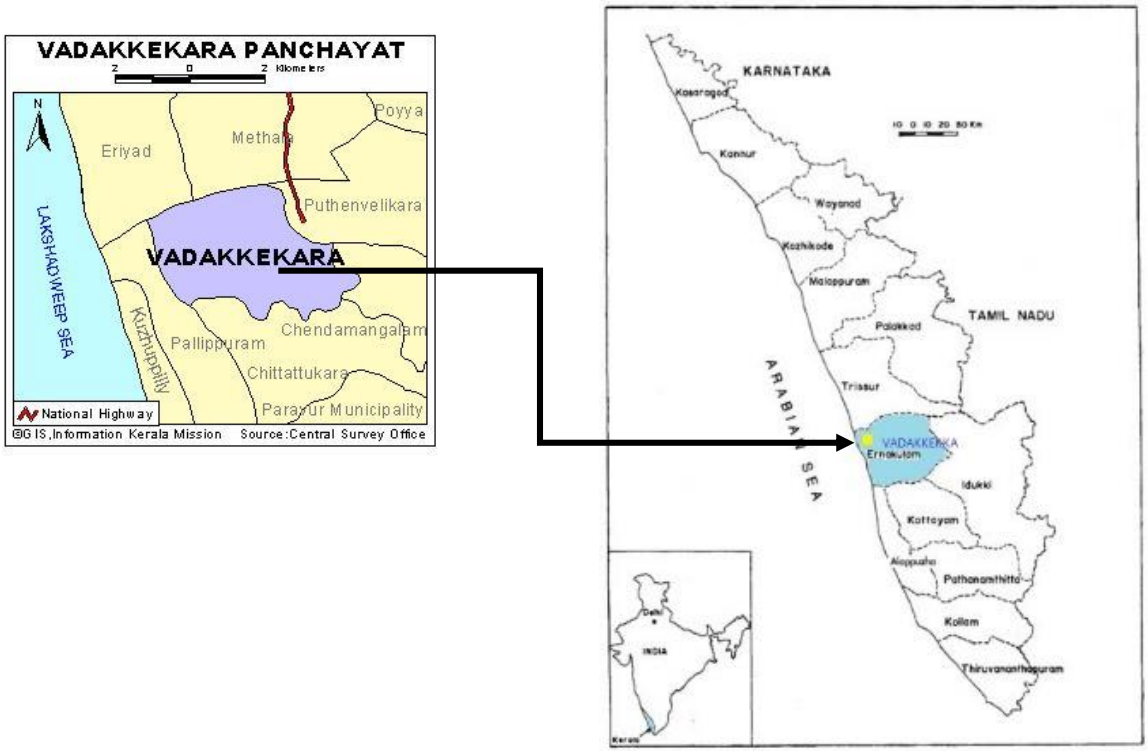

Fig.1. Vadakkekara Panchayat

A baseline survey conducted in the region revealed that even though the women were literate (literacy rate 93.25%), their participation in the work force was poor and a major proportion of the women had no gainful employment. With suitable training, women could be encouraged to take

up economically useful activities. Traditional oyster culture was also practiced in this region and so there was a familiarity, though limited involvement, with the culture of the species by the targeted group of women. The women also had some previous experience in mussel culture. Oyster culture is less labour intensive and could be carried out with minimal inputs, making its day to day management feasible for women.

The intervention and the results

The fishers in the study area often gleaned wild oysters in the creeks. Wild oyster collectors gather oyster meat from the shells using an indigenous technique of poking the shells with a sharp device. The meat so shucked was sold in the nearby markets or marketed door to door. Traditional oyster culture methods involved the placement of rocks on hard or sandy substrates to promote natural spat settlement. Although traditional culture existed in some areas such as Kasaragod in the north of Kerala state, the production of oysters in Kerala received a boost during the 1990s as a result of the introduction of hanging culture techniques from the Central Marine Fisheries Research Institute (CMFRI), Kochi, Kerala. This was an improved traditional system where oysters were suspended on strings placed below bamboo rafts and it is now one of the most popular culture method. This method is also called the rack and ren method.

Table 1. Economics of edible oyster culture, based on three 5 m x 5 m sites monitored.

Sl.No	**Material/work**	**Area in square metres**		
		50 m^2	**30 m^2**	**25 m^2**
A	Capital Investment	INR	INR	INR
1	Bamboo/casurinas poles 6m length	2500	1500	1125
2	Bamboo/casurinas poles 4m length	3500	2000	1200
3	Nylon rope 4 mm for rack construction	600	450	300
4	Cleaned oyster shells for making ren	500	300	250
	Total	**7100**	**4250**	**2875**
B	Depreciation @ 50%	3550	2125	1438
C	Labour and other charges			
5	Labour charges for Rack construction	2500	1500	1500
6	Nylon rope for ren making	900	750	600
7	Labour charges for Ren making	500	300	250
8	Canoe hire, farming, harvest	1200	1200	1200
9	Labour charges for Harvesting	1200	900	600
10	Depuration expense (shell on)	1500	1000	750
11	Charges for heat shucking			
	Total	**7800**	**5650**	**4900**
D	Production cost	11350	7775	6337.50
E	Production Kg	5900	3510	2875
F	Heat shucked meat @ 4%	236	140.4	115
G	Selling price @ INR 80 kg^{-1}	18880	11232	9200
H	Net profit	**7530**	**3457**	**2863**

Three selected SHGs were trained in the rack and ren method of oyster culture. A series of vertical bamboo poles are driven into the bottom through the water column in rows and horizontal

bars are connected on top of the poles. Oyster strings (rens with spat) are suspended from the racks. The oysters reach harvestable size (80 mm) in 7 to 8 months. The meat yield is 10% of the total weight (approximately 80-100 tonnes.ha^{-1}) (James et al. 1993). The project team also gave technical back-up by regular monitoring of hydrological parameters to identify problems, if any, and take corrective action.

The capital investment in farms was done by the SHG groups from internally mobilised funds and, later, the project supported the fabrication of rack and ren, harvest, processing and value addition etc. It was found that a profit of INR 7,530 (USD 124.04), INR 3,457 (USD 56.95) and INR 2,863 (USD 47.16) could be generated out of an area of rack and ren culture of oysters of 50 m^2, 30 $m^2$and 25 m^2 respectively, which presents ample incentive for the women's groups to engage in oyster culture. Along with the heat shucked meat, sales of shells for lime also contributed nominal revenue. Enhancing the quality of the cultured oysters and diversification through value added products can generate better earnings. Value addition increases the attractiveness of the product and also its shelf-life. Value addition generate profits of INR 37.43, INR 97.49 and INR 106.37 from per kilogram of fish cutlets made, oyster meat and prawn pickle respectively.

Issues faced by the women SHGs in oyster farming

From our observations and interviews, we noted that the major problems and constraints encountered by fisherwomen engaged in oyster culturing were long working hours for processing, lack of depuration facilities, manual shucking of shells, unpredictable seed availability, mortality of seeds during transportation, low demand and price in internal markets, poor awareness of scientific processing, low income and poor credit facilities, inadequate transportation and lack of mechanisation for harvest and post-harvest activities.

The problem of poaching when the harvest was imminent was a major issue encountered by the women. As the culture takes place in open bays and estuaries, the rafts are vulnerable to poaching. The women tried to overcome this problem by volunteering to guard the rafts at night by taking turns during the harvest period. However, this raised other concerns like their security. Women had to travel long distances to market fresh oyster and heat shucked meat.

Another problem encountered was the seasonal glut due to simultaneous harvesting of oysters in nearby locations. This caused reduced demand for raw meat in the market, eventually resulting in low prices. One method for overcoming sales under distress in an over-supplied market was use the oyster meat to prepare products such as pickles, cutlets, oyster balls and breaded and battered products. The women in the project were provided with information on value-addition.

Gender impacts

The major gender impacts of the intervention were the women's contributions to household income and their increased freedom in economic decision making at the household level, leading to a measure of economic independence. Moreover, women gained more self-confidence and self-esteem, which may have been more important than their economic gains from the project. The

experience of working in groups and shouldering collective responsibilities may enhance women's skills in interpersonal relationships as well as in microenterprise management.

Conclusion

Empowerment is making women more economically independent, self- reliant and confident as individuals. Women in traditional communities often become more visible when they become more organised. Income generating activities like edible oyster culture and value addition using oyster meat has been successfully implemented as part of this project with suitable capacity building through training on modern methods of culture and preparation of value added products. Promotion of Self Help Groups (SHGs) and provision of easy credit facilities by linking the SHGs with institutional agencies will be a driver to increase production and to look for diversified markets for raw oyster and value added products, which will in turn improve livelihoods and the socio-economic status of the fisherwomen.

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