

Involvement of Rural Women in Aquaculture: An Innovative Approach

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Abstract

Although women have proved to be competent in adopting new aquaculture technologies, their role is very much restricted and often ignored. One of the major reasons is the location of aquaculture sites and several sociocultural taboos against women who strive to earn for their family's subsistence in rural areas. There is a gender bias in many aquaculture activities. To ensure that women utilize their full potential in profitable activities like aquaculture, it is necessary to provide capacity building support to rural women, which will eventually lead to their empowerment. In countries like India, the technology provided to women must take into account cultural aspects. One such project - backyard ornamental fish breeding and management - has been found to offer immense scope for improving the livelihood of rural women. This paper gives some practical tips for dissemination of technology in the rural sector, particularly to rural women.



Fig 1. Backward community - colonies where the backyards of the houses are used for ornamental fish breeding and marketing.

Introduction

In southern India, women's involvement in aquaculture is predominantly (82%) limited to collection of wild seed of shrimp in the backwaters during high tides. A

large number of poor women are engaged in traditional aquaculture activities and make an important contribution to the rural economy.

In fresh and brackish water aquaculture, women are engaged in carp breeding and nursery raising, carp

polyculture, breeding of catfish and freshwater prawns in backyard hatcheries, ornamental fish breeding and culture, culture of *Spirulina* and *Azolla*, net making and mending, and feed preparation for carps and prawns. Women earn a significant supplementary income from these activities and increase the family income considerably. For example, raising carp seed in a pond of 0.1 ha. over a period of 15-20 days will provide a net income of Rs5,000¹ from raising 150,000 fry. Nevertheless, in coastal areas, women's participation is mainly confined to marketing of fish, processing, transport and, to some extent, net making and mending. They also culture oysters, mussels, seaweeds and pearls. Despite being multifaceted, their contribution has been insignificant in terms of their share of employment in fisheries and aquaculture.

¹US\$ = Rs 42 (Sept.99)



Fig 2. Fish breeding tanks in the backyard.



Fig 3. Participants being shown handling and breeding of fish.

The Need to Focus on Women

Aquaculture grow-out ponds and hatcheries are located away from villages, mostly along the sea coast. The employers assume that male employees can fend for themselves, under difficult living conditions, while women need special attention. Women hesitate to work in these areas as they do not feel secure without the company of other women. Men live at the site but do not allow their wives to stay at the workplace during the night. Hence, women have to commute from nearby

villages/towns to the culture sites, which adds a burden in terms of time and energy.

Aquaculture (fresh, brackish or coastal) often replaces paddy fields or other agricultural activities. While this has proved to be an economically sound practice, it often has a cost in terms of the environment and social equity. There is an inbuilt gender bias towards employing men in aquaculture that is supported by social factors. The most marginalized group are the women as they are deprived of their earnings as agricultural labour when fields are converted to aquaculture

activities. A project was undertaken with the objective of extending the economic benefits of aquaculture to women within the existing social context, illustrated by means of an ongoing participatory research program for a socially disadvantaged group of women.

The Project

A participatory research program was initiated to help the poor, particularly women, through backyard fish farming. The program focused on the breeding of ornamental fish and later the breeding of Indian major carps, namely, catla (*Catla catla*), rohu (*Labeo rohita*), mrigal (*Cirrhinus mrigala*), and catfish. In the first phase, rural women were trained in the breeding and culture of ornamental fish. Culture of ornamental fish in the backyards of households requires very little space, skill and time, and has the potential to improve the economic condition of the household. 'Participatory' is defined as "a two dimensional process, which is dynamic, demand based and change oriented."

The project was undertaken at the Keelamanakudi Village in Tamil Nadu State of India with 30 under-privileged women. The research team sought to help these women by training them to solve their problems collectively on their own. This was achieved by involving the women in every step of the research process rather than by having them follow predetermined research methods imposed by the researcher.

The project allotted three circular concrete tanks of 0.5 t water holding capacity each with a 2.5 cm diameter drain at the bottom, for each of the participating families. They were also provided with a hand net, pelleted feed, suction hand pump for water exchange, and prophylactic medicines. A data

entry book was prepared in the local language for each individual, to record the feed used, method of feeding, frequency of feeding, volume of water, growth, fecundity of fish, feed intake, mortality, hatching rate, and the time the women spent on the job.

The fish breeders were provided live-bearers, namely, red sword tail (*Xiphosphorus helleri*) and guppies (*Poecilia reticulata*). Sexually mature sword tail fishes were bred in three cement tanks in a male to female ratio of 1:3. Hatchlings (25-50) were separated by fine meshed scoop net to another tank and the parent fish were maintained for the next breeding. Training with the aid of charts, posters, live-specimens, and demonstrations was conducted to demonstrate techniques, e.g., breeding, feeding, feed preparation, water exchange, health measures, etc.

Result

Poor, rural women who have traditional knowledge of aquaculture, training, support and appropriate infrastructure development can strengthen their role in the aquaculture and fisheries sector. Rural women, though often illiterate, are by no means inferior to women in the urban areas. They are able to learn sophisticated techniques when transmitted visually and when given the opportunity and support to adopt them. This indicates that the spot training programs should be designed innovatively to focus on developing skills among rural women.

Of the women that participated in the project, 47% were educated to primary level, 20% to high school, and 10% to secondary school, while 23% were illiterate. The illiterate women were trained to write their names and addresses. In spite of the



Fig 4. Used fish culture water being recycled in kitchen garden.



Fig 5. A lady separating the freshly hatched fry from the parent stock.

low literacy levels, the women showed keen interest in running the project on their own. They sought the help of the literate ones, whenever needed. The low level of literacy was not a hindrance to the transfer of technology.

The rural women were employed seasonally as agricultural labor. The time schedule of the women during the on-season and off-season was studied to find the time available for ornamental fish culture. The time schedule was classified into the first eight hours (6:00-14:00 hrs) and the second eight hours (14:00-22:00 hrs). During the on-season, women

who were engaged as agricultural labor had free time of approximately two hours in the second eight-hour period. Women who were involved in child care and agriculture work had one hour of free time in the second eight-hours, and those who were engaged in livestock rearing had two hours of free time in the second eight-hours. Women involved only in domestic work had eight hours of free time, of which four hours were in the first period and four in the second.

During the off-season, very few women were employed on the adjacent farms. Women who were

engaged in agriculture had a free time of eight hours, of which four hours were in the first eight-hours and four hours in the second. Women who were involved in child care and agriculture as well as those engaged in livestock rearing had four hours of free time, two hours in each eight-hour period. Women who were involved only in domestic work had eight hours of free time, of which four hours were in the first eight-hours and four in the second.

The women sold the ornamental fish every month to local aquaria and retailers and earned a regular income of Rs500 - 800 per household/month. Production cost was only 4% of income as no extra labour was employed. After two years of continuous monitoring, the results indicated that their skills had been enhanced and each woman was able to earn a minimum of Rs500 per month from the activity. As agricultural labourers, they earned Rs1,200 per month for only three months in a year. This new enterprise was led by women and, hence, considered to be of social and economic significance by local communities.

As Panoyotou (1985) pointed out, such enterprises are intrinsically dependent on local resources. The used water from the culture tanks was siphoned out and used for the kitchen gardens. The time factor analysis showed that the project did not add to the burden of women. Since women performed multiple roles at home and outside, a new income generating activity to replace some other work does not add to their burden.

The 30 women were registered collectively under a group called The Fish Growers Group. They selected two leaders for their group. After each harvest of ornamental fish, 10% of the revenue was



Fig 6. Parent stock of gold fish.



Fig 7. Parent stock of red sword tail.

collected and deposited in the Group's account. This money will be a source of credit for the infrastructure needed for this program in the future. In the program, the researcher provided the common services and the women took care of the production in their tanks.

Conclusion

Many of the neighbors showed interest in participating in the program, which highlighted the success of the project. The success of the project is largely due to its location adjacent to the homes.

Earning a regular income, unlike seasonal work in agriculture, provides further motivation. The level of self confidence among the women also increased after the implementation of the project. By linking the women with credit, technology, infrastructure, training and trade, such enterprises can become a powerful tool in improving the livelihoods and economic security of the rural poor.

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and policy. International Development Resource Centre, Ottawa, 283 p.

References

Panoyotou. 1985. Small scale fisheries in Asia: socio-economic analysis

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