

# WOMEN IN TRIPURA AQUACULTURE: INVISIBLE ROLE OR CULTURAL HINDRANCE?

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## ABSTRACT

*A survey coupled with several focus group discussions were conducted in the Mohanpur block of West Tripura district to understand the role of women in family and fish culture activities. The study revealed that women play a significant role in home gardening and animal husbandry activities within the homestead area, which provide them a source of income. Though fish is an integral part of the Bengali culture, women participation in aquaculture was limited. It was observed that women involvement in aquaculture had positive impact on production though the intensity of involvement was not satisfactory. Queries to understand the reasons for poor participation of women in aquaculture have revealed a number of factors like cultural hindrances, social stigma, less exposure to technical knowledge, etc. There was no conscious effort to provide training to women on aquaculture. Most of the training programmes were attended by men and the knowledge gained by them was not generally shared with women in the family. Gender bias approach in training, distance of venue, family bindings and burden were identified as the key reasons responsible for low participation of women in the training programmes. As a result of all these, women have considered aquaculture as an activity that is related largely to men only. Unlike the vegetables and animals, which women could see every day and care, fish were unseen until the harvest. Though women did not lead the decision-making process in family and lack any direct source of income, yet they felt that their rate of contribution to family economy was high. To increase women participation in aquaculture some practical steps have been suggested based on the input provided by women farmers like training opportunities based on their convenience, development of women friendly aquaculture technologies, device to view the fishes in ponds, helping hand from male counterparts to share the household activities, presence of more women extension officers' who have willingness to work in field etc.*

## INTRODUCTION:

Tripura, originally known as 'tuipra' in ancient times is one of the eight sisters in the north east India located between latitude 22°56' and 24°32' north and longitude 91°10' and 92°21' east. It is bounded on the north, west, south and south east by Bangladesh and connected with the rest of India by only one road which runs through the hills to the border of Cachar district in Assam. It supports a total population 36.74 lacs in 10,49,169 ha area (Census, 2011). 31% of this population accounts for tribal community consisting of nineteen tribes. The overall literacy rate is 87.22%, but it is lower among female population i.e. 82.73% whereas the male literacy rate is 91.53% (Census, 2011). The economy of this state is

primarily agrarian with about 42% of the population depending on agriculture and allied activities (Economic Review of Tripura, 2019-20). Number of fish farmers in the state are 1,90,069 (Govt. of Tripura, 2019-20).

At present, the fish production from aquaculture in Tripura is reported to be 74,434.85 M.T. with an average productivity of 2,717 kg/ha/year (Govt. of Tripura, 2019-20). There is a constant demand for fish and local production is unable to meet that demand. As a result, there is regular import of fish from mainland of the country and neighbouring Bangladesh.

It is estimated that at present 'the area under aquaculture' is 28,803.39 ha and 'area available for aquaculture' is negligible (Govt. of Tripura, 2019-20). With little scope for lateral expansion, there is a need to intensify production from the existing water bodies. If production has to be increased from the water bodies, there is a need to adopt multi-pronged strategy that will ensure increase in productivity. Participation of women in aquaculture in Tripura is considered to be negligible. In order to understand the role of women in aquaculture, this study was undertaken with the following objectives.

## **OBJECTIVE:**

1. To identify the role of women in aquaculture in Mohanpur block
2. To determine the role of women in family decision making process

## **METHODOLOGY:**

Administratively Tripura is divided into 8 Districts, 23 Subdivisions, and 58 Rural Developmental Blocks and 1176 Gram Panchayats / village councils. Mohanpur is one of the blocks in West Tripura district with 18 numbers of gram Panchayats. It consists of both peri-urban areas and villages with Bengali, Manipuri and Tribal communities.

Primary data was collected in the year 2017 by using a structured questionnaire from 90 selected fish farmers of Mohanpur block to gather information related to the participation of women in aquaculture. Based on the productivity levels reported by the Fisheries Department, these selected farmers were classified into Best Producing Farmers (BPF) and Least Producing Farmers (LPF). In addition, focus group discussions were conducted with female members of households from the same block. During such discussion, care was taken to maintain a friendly environment so that participants could present their feelings without any hesitation.

**IMPACT OF WOMEN'S INVOLVEMENT ON PRODUCTIVITY:**

The study has revealed that women's participation in aquaculture increased the productivity levels (Table 1). The average productivity of total farmers was 1624.42 Kg per ha where women were not involved but raised to 1909.78 Kg per ha where women were involved. Especially in the case of BPF it was observed that the average production per hectare was much higher (2274.88 Kg) where women were involved in aquaculture activity than in those where women were not involved (1606.15 Kg). But in the case of LPF, women's participation did not have a positive impact on productivity.

**Table 1: Impact of women involvement on productivity**

<i>Involvement</i>	<i>Average production per ha (in kg)</i>		
	<i>BPF</i>	<i>LPF</i>	<i>Total Farmers</i>
<i>Involved</i>	2274.88	1244.00	1909.78
<i>Not involved</i>	1606.15	1663.76	1624.42
<i>Total</i>	1957.51	1425.90	1778.32

*Source: Field survey*

The reason for this lowering production in the case of LPF might be due to the replacement of male farmers with their unskilled women counterparts in aquaculture activities and less intensive involvement of these women in fish farming. From Table 4, it is noted that less percentage of involvement (01-25) of LPF women as compared to a higher percentage of involvement (51-75) of BPF women in the fishponds.

In the case of small-scale aquaculture practiced in some areas of Cambodia, women have been found to be largely responsible for carrying out most of the activities. Research studies conducted by various organizations in their project areas have clearly identified the contribution of women as the key to success in this new activity. Many of the activities related to small-scale aquaculture could be carried out by women independently with little or no assistance from men. In pond culture activity in Cambodia, a large number of activities like pond construction, seed collection, feeding fish, and daily monitoring of fish were carried out by women once they were given training and support (Nam et al., 1997). Hatha et al. (1994) in their study on small-scale aquaculture in Cambodia, found that Ponds managed by female-headed households were more productive than those managed by male-headed households. This is possibly because these women were able to observe the pond for longer periods of time and could make their own management decisions without waiting to discuss things with their male counterparts.

## INVOLVEMENT OF WOMEN IN AQUACULTURE:

In the majority of households, women were found to be involved in aquaculture (Table 2). Among the type of activities, most of the women were involved in fertilization (29.41%), feeding management (51.47%), and even in the phased harvest of fish for family consumption (35.29%). But very few members were participating in seed procurement (19.12%), final harvest (7.35%), and marketing of fish (4.41%) (Table 3). However, it was found that the intensity of women's involvement was not satisfactory. In most cases, the involvement of women in carrying out various aquaculture activities was found to be limited. Only a very small percentage of women was involved in carrying out the majority of the activities at more than 75% (Table 4). As pikers bring seed, women do not go out for procuring seed. In Bengali culture, women are rarely seen marketing fish, unlike in southeast Asia and among particular communities in northeaster part of India like Manipuri and Khasi community in Meghalaya (Gurumayum et al., 2005). In most of the pre-stocking activities, men contributed the maximum work in terms of pond digging and application of lime and fertilizers to make the water green and procurement of seeds for stocking. However, after stocking of fish seeds, it was women who took care of most of the activities in terms of fertilization and feeding. Though men had a higher percentage of labour input in terms of the daily and final harvest of fish, women's participation in these activities was also significant. In several Southeast Asian countries, women have been found to actively participate in aquaculture activity and contribute significantly to improving productivity.

**Table 2: Involvement of women in aquaculture**

Involvement	Percentage of women		
	BPF	LPF	Total Farmers
Involved	68.09	77.27	71.01
Not involved	31.91	22.73	28.99

Source: Field survey

**Table 3: Involvement of women in different aquaculture activities**

Activities	Percentage of women		
	BPF	LPF	Total Farmers
Seed procurement	15.22	27.27	19.12
Fertilization	21.74	45.45	29.41
Feeding Management	54.35	45.45	51.47
Phased harvesting for family consumption	39.13	27.27	35.29
Final harvest	6.52	9.09	7.35
Marketing of fish	6.52	0.00	4.41
Not involved	32.61	22.73	29.41

Source: Field survey

**Table 4: Intensity of involvement of women in aquaculture**

Percentage involvement	Percentage of women		
	BPF	LPF	Total Farmers
0	31.91	22.73	28.99
01-25	29.79	45.45	34.78
26-50	19.15	18.18	18.84
51-75	6.38	0.00	4.35
76-100	12.77	13.64	13.04

Source: Field survey

## OTHER AGRICULTURAL ACTIVITIES:

Other than household activities, women were also involved in various agricultural activities like vegetable cultivation, animal rearing, etc. (Table 5). During focus group discussion, they explained that these activities provide a source of income for them at home. Female households can sell milk, egg, etc., and have an income from 'animal resources'. From 'plant resources' they can sell coconut, beetle nut, and other fruits. Small back yard kitchen garden also gives some sort of income to them. This income is used to cover various household expenses. Debashish et al. (1998) stated that special emphasis on increasing the participation of women in agriculture can empower women through increased knowledge and income, which in turn can lead to increased status inside and outside the home.

**Table 5: Involvement of women in different economic activities**

Activities	Percentage of women		
	BPF	LPF	Total Farmers
Vegetable cultivation	57.45	59.06	57.97
Animal Rearing	61.70	54.55	59.42
Others	8.51	31.82	15.94
Not involved	10.64	4.55	8.70

\*Others include handloom, small-scale business, weaving etc.

Source: Field survey

## REASON FOR NOT INTENSIVELY INVOLVING IN AQUACULTURE:

Although women were participating actively in agriculture and animal rearing and earning benefits from these activities, they were not actively involved in fish culture. In the present survey, effort was given to know the actual reasons for this and found that a number of factors were responsible for

such poor participation (Table 6). They have cited the reasons like ‘lack of time’ (50.00%), ‘husband is enough to carry out the activity’ (45.00%), ‘never thought of it’ (20.00%), ‘lack of knowledge’ (5.00%) and ‘no such tradition’ (5.00%).

**Table 6: Reasons for non-involvement of women in aquaculture**

Reasons	Percentage of women		
	BPF	LPF	Total Farmers
Lack of knowledge	0.00	20.00	5.00
Lack of time	53.33	40.00	50.00
No such tradition	6.67	0.00	5.00
Husband is enough	46.67	40.00	45.00
Never thought of it	20.00	20.00	20.00
Others	20.00	20.00	20.00

Source: Field survey

#### Perception of women:

Women think that aquaculture is largely a job for men. They feel that men are physically stronger than women and best suited for outside activities whereas women are better suited for household activities.

#### Cultural inheritance:

There are also some cultural obligations, which are hindering women to give a thought about aquaculture. They have never seen their mother or grandmother working in the pond. So traditionally they are not accustomed to fish farming. During the focus group discussion women group also complained that it becomes difficult for them to work wearing ‘sharee’ in water so they hesitate to participate in aquaculture unlike agriculture and animal rearing.

Unlike other developing countries of the world, in Cambodia, fish marketing is largely carried out by women (Nandeesh, 1994). In Tripura, women are rarely involved in fish marketing due to the age-old tradition which allows only men to enter the marketing system.

#### Social stigma:

If a wife will work in the pond, it may reflect on the husband’s incapability and this will become a topic of discussion in the village. Generally, men are involved in netting. If women dare to do netting, then people will compare and call them having a ‘manly attitude’. Unlike other northeastern states where women use Chinese dip nets and devices like trap, bamboo basket, and various other crafts, which needs less physical labour (Gurumayum et al., 2005) in Tripura, women are rarely involved in fish harvesting

operation. Due to the problem of criticism, women are not getting involved in aquaculture to avoid social stigma. Moreover, women do not have any role model near their periphery where women are managing fish farming and deriving benefit from it. So, it becomes difficult for them to give a thought to active involvement in aquaculture.

#### Less exposure:

Women have identified ‘less technical knowledge’ as a responsible factor for their non-participation in fish culture. Unlike men, women do not have knowledge about the doses and application of feed, fertilization etc. They do not have a clear understanding of the species and quality of the seed. As a result, they feel that they can be cheated while procuring fish seeds. Women feel that they are inferior in terms of knowledge to men because men have better exposure. Men move to market, meet with many people, and even have more access to attain training regarding fish culture. Kusakabe et al. (2003) have reported that in northeast Thailand men tend to have more information sources and advisors. Farmers in general tend to have a wider information network when the activity is more commercialized or needs more investment. One of the important recommendations that have emerged from the gender and fisheries symposium proceedings is that women should be specifically targeted for training (Williams, 2002).

### **TRANSFER OF TECHNOLOGY:**

‘Lack of knowledge’ is identified as one of the responsible factors for the low participation of women in aquaculture. In the present study, it is found that only 16.18 % of women have undergone any type of training (Table 7). This clearly reflects their limited access to the source of information. Only 17.02% BPF and 14.29% LPF have received training.

*Table 7: Whether women attended any training program*

Attendance	Percentage of women		
	BPF	LPF	Total Farmers
Yes	17.02	14.29	16.18
No	82.98	85.71	83.82

*Source: Field survey*

Although around the world women are involved in aquaculture production, it is largely considered as men’s work. In general women have no direct access to training or extension agents, which enable them to acquire the knowledge necessary to contribute to aquaculture effectively. Only some 10-15 percent of the participants and trainers in training courses worldwide are women. The percentage of women extension agents working are smaller in number in most part of the world, resulting in less focus on women (Engle, 1987).

When women were asked to know why they have not attended training program, a number of reasons were discovered like 'never invited' (75.44%), 'shortage of time to spare' (8.77%), 'family did not allow' (3.51%), 'there was no companion' (1.75%) etc. (Table 8). Kusakabe et al. (2003) in their study cited that in northeast Thailand, lack of time and security in mobility were responsible factors, which restricted women's mobility.

Among all these reasons gender bias of not extending the invitation is the major cause for low participation of women in the training. In the majority of trainings, invitation to training is extended to only one member in the family and normally that goes to husband. Men after attending the training rarely share the knowledge gained with women, as they do not think that women would be involved in aquaculture. As a result, women remain in dark and do not gain any knowledge of aquaculture.

**Table 8: Reason for not attending any training program**

Reasons	Percentage of women		
	BPF	LPF	Total Farmers
Never invited	71.79	83.33	75.44
Shortage of time to spare	10.26	5.56	8.77
Family did not allow	5.13	0.00	3.51
There was no companion	2.56	0.00	1.75
Others	10.26	5.56	8.77

Source: Field survey

Distance of venue is also one of the reasons quoted for less attendance of women in training programs. It becomes difficult for them to travel a long distance to attend the training. Some of them also complained about the inconvenience of the training schedule that is not suitable for them like arranging the training schedule for the whole day.

There are also family bindings and burdens, which are responsible for less involvement of women in training programs. After a heavily packed household works most of the women have very less time to spend outside the house. Till sunset, they have to perform their assigned duties at home. Those mothers who are having small kids cannot leave house even for an hour. In some of the families housewives have to take permission from other family members to attend any training. Nam et al. (1997) observed that a significant percentage of women did not attend training course organized by the staff in the communes in southeastern Cambodia because of other household responsibilities, long distance of training venue, literacy, etc.

After knowing the reasons responsible for less access to knowledge, women were asked the question on whether they would be interested to attend such trainings, if opportunities are provided.



Among the women 75.53% were interested to attend training if invited (Table 9). But they need some sort of convenience to achieve real benefit out of such trainings.

- ☉ Most women feel that provision of training is essential to enable them to actively participate in fish farming.
- ☉ Women prefer the training programs to be arranged by taking their convenience for time and venue into consideration, preferably close to their houses.
- ☉ Women prefer having women trainer in the training session, as it will help in free exchange of views without social hindrance.

**Table 9: Willingness to attend training if invited**

Willingness to attend training	Percentage of women		
	BPF	LPF	Total Farmers
Willing	73.91	72.73	73.53
Not willing	26.09	27.27	26.47

Source: Field survey

Though female households want women trainer for the training session, in the present situation of only having 2.12% of female technical staff and 2.65% of female field support staff in the Department, such support cannot be provided (Table 10). So it is necessary to recruit adequate number of female staff who will have commitment to work in field, at least on contractual basis in the department to encourage large-scale technology transfer among women.

**Table 10: Present status of female staff in the Fisheries Department of Tripura**

Sex	In percentage				Total
	Technical staff	Administrative staff	Office support staff	Field support staff	
Male	97.80	84.56	89.13	97.35	92.83
Female	2.12	15.44	10.87	2.65	7.17

Source: Field survey

Improved access to information benefits women farmers not only in terms of improved productivity and better income, but also in terms of social status and self-confidence. Siar (2003) pointed out that difference in resource knowledge possessed by women and men led to differential access to fishery resources. Improved productivity brings more food and income to households. When women have control over increased profit, they use it for family necessities, such as buying more nutritious food,

providing good education to children etc. Thus improving women's skill and knowledge can contribute to the well being of the entire family (Saito and Spurling, 1992; Kelkar, 2001).

## DECISION-MAKING:

To know the decision-making process, women were asked on how the decision was made in the respondents' family in regard to aquaculture (Table 11), financial matters (Table 12) and overall decision-making process in the family (Table 13). In all these three aspects, decision was made either by 'male alone' or 'jointly with wife' but in rare cases women alone have taken the decision. In case of those families where only women alone were taking decision it was found that either they were widows and acting as head of the households or their male counterparts involved in other activities were not able to give sufficient time for the family matters or they were staying else where to earn their livelihood.

The focus group discussion provided clear picture on the poor participation of women in decision-making.

- ☉ Women lack confidence to take decision since they have never been given a chance to make their own decision.
- ☉ If wife attempts to make decision, husband will not agree to the decision.
- ☉ Generally, husband is elder than wife in age, so in most of the families he is treated as guardian and wife is expected to be follower of his decision.
- ☉ Man is the bread earner of the family and hence he has the right to take all decisions as head of the family.

All these reasons directly or indirectly indicate the economic dependence of women on men. Hence, unless there is economic empowerment of women through various activities, change in the status of women would not occur.

**Table 11: Decision making process in regard to aquaculture activities**

Decision taken by	Percentage of women		
	BPF	LPF	Total Farmers
Male alone	61.70	50.00	57.97
Female alone	2.13	9.09	4.35
Jointly	36.17	40.91	37.68

Source: Field survey

**Table 12: Decision making in financial matters**

Decision taken by	Percentage of women		
	BPF	LPF	Total Farmers
Male alone	57.45	36.36	50.72
Female alone	6.38	9.09	7.25
Jointly	36.17	54.55	42.03

Source: Field survey

**Table 13: Overall decision making in family**

Decision taken by	Percentage of women		
	BPF	LPF	Total Farmers
Male alone	40.03	27.27	36.23
Female alone	8.51	9.09	8.70
Jointly	51.06	63.64	55.07

Source: Field survey

## CONTRIBUTION TO FAMILY ECONOMY:

Though in most of the families, women do not have any direct income source and have to depend on men even for very small things, they never think that their contribution to family economy is less. Women perception about their contribution to family economy is presented in the Table 14. It indicates that 73.91% of women felt their high degree of contribution and only 7.25% felt that their contribution to family income is negligible.

**Table 14: How do women rate their contribution to family economy?**

Degree of contribution	Percentage of women		
	BPF	LPF	Total Farmers
High	76.60	68.18	73.91
Medium	14.89	27.27	18.84
Low	8.51	4.55	7.25

Source: Field survey

Women feel that

- ☉ In a family it is husband's responsibility to earn and fulfill the requirements of the family necessities. Women do not take part at any earning process directly because they feel that it is not their responsibility.

- ☉ Women are responsible for ‘house keeping’ and should perform all household activities. But this household work done by women is not valued in monetary terms and therefore not included in budgeting. Women feel that the household works are very much important for a family. These activities if not performed by women, then men have to join which in turn will consume their time to be spent in economic activities. Women feel that they are helping the men by reducing their workload at home so that men can concentrate well in earning process. Moreover, women believe that the household activities like cooking need some kind of skill, which is better known to women by tradition.
- ☉ Most of the women believe that they can optimally utilize the money and have more intention to save compared to men as they do not have any addictive habit like smoking, drinking or gambling.
- ☉ Since women do not have their own capital, they hesitate to spread their hands to their male counterparts to start any venture. They fear of non-cooperation from their husbands if some unpleasant failure will occur in the venture. Women think that men not take it easily if the venture turns into a financial loss. This is a fear among women, which discourage them to approach to men for financial help and keeps them in the vicious circle of capital inadequacy and inaction.
- ☉ Society in rural areas does not appreciate involvement of women in business and if attempted, they become victim of rumors. Unlike other northeastern states, where women are not only equal partners in both indoor and outdoor activities, they are also, in many cases bread earners for the family, in Tripura, the working area of women is limited to the homestead territory. Hardly, they have movement for the outer world as most of the time they are busy with heavy work of household activities. Like China, where there is a traditional expectation that ‘men control the outside world and women the inner world of the house’ (Song and Jiggins, 2002), in Tripura, women get appreciation in society and culture for being perfect in the household works like cooking etc. rather than outside activities solely believed as ‘area for men’.
- ☉ Though in the society, only men are considered as the bread earner for the family, but women also want to earn something so that they do not need to wait all the times for husband to provide even small things to buy for their children.

## **WOMEN’S PERCEPTION OF AQUACULTURE:**

- ☉ Fish is invisible from outside the water. So, until harvested all remains mystery.
- ☉ It becomes difficult to know the hunger of fish unlike other animals like pig and cattle and hence negligence has often resulted in fish culture. Women feel that there is food available in water like insects, mud, etc. which fish can eat.

- ☉ Though women feel that aquaculture is a man's job but they do agree with the fact that as women spend more time at home than men, they can take better care of fish pond and all aquaculture related works. Only final harvesting with drag net and marketing is difficult for women as these involve heavy physical labour. But still they can harvest fish by hook and line for family consumption whenever needed. Women in Manipur, in the northeast part of India, catch small fishes from hill streams, ponds, etc. by using earth worm tied to a small stick by hook and line to generate food for family (Gurumayum et al., 2005).

### **HENCE, WOMEN NEED:**

- ☉ *Empowerment with aquaculture knowledge* – Proper transfer of technology is needed to women. Training session should be targeted not only to men but also equally to women. Active participation of women in aquaculture not only increases the production, but also improves the confidence among women in all respect. They should be given opportunity to acquire knowledge and skills on appropriate technologies that will enable them to contribute effectively for fisheries development. It is, therefore, essential to increase women's participation in training in all fisheries development programs (Williams, 2002). It is necessary to upgrade the knowledge of women in fisheries in order to achieve rapid progress in small-scale aquaculture.
- ☉ *Women friendly aquaculture technology* – Special emphasis needs to be placed to develop easy farming systems where women can equally involve like men. Starting from seed stocking to harvesting, nowhere women should feel that these are the activities that can be carried out easily.
- ☉ Fish remains invisible in water until harvested. The expected production remains as a mystery with lots of risk factors that leads farmer towards negligence unlike other animals like pig or cattle. Some kind of mechanism should be invented to view the total stock of fish in pond as easily as through television set. If the fish can be seen all the time it will draw attention to take proper care of fish in pond.
- ☉ The domestic responsibilities, which are not valued economically, take considerable amount of time. It constrains women from participating in the productive activities. The attitude and outlook of the society need to be changed to place women on equal footing with men. This can happen when men share some of the household responsibilities with women (Gurumayum et al., 2005). In Cambodia, usually women feed the fishes in pond fish culture of catfish, while men assist in cooking (Nandeesh, 1994). Women need the helping hand from men to reduce the household workloads so that they can contribute more in economic activities and share the responsibilities of men to improve the family economy.

## CONCLUSION:

From the above analysis following conclusion may be drawn:

- ☉ Women's participation in aquaculture has the potential to increase the productivity level, if adequate knowledge is provided.
- ☉ Though in majority of the households women were involved in fish farming but the intensity of involvement was not satisfactory. However, the situation has improved over time.
- ☉ Other than household activities women were actively involved in home gardening and animal husbandry activities.
- ☉ Cultural and social hindrances coupled with less exposure to technical knowledge were the key factors responsible for the poor participation of women in aquaculture.
- ☉ A very less percentage of women have attended training programs, but most of them were eager to attend training if their necessities were considered.
- ☉ Gender bias approach, the distance of the venue, family bindings and burden are the key reasons for this low participation.
- ☉ Men alone or jointly with women make the decision in the family. Only in rare cases women alone made the decision.
- ☉ Women rate their contribution to the family economy as high though they did not contribute to income directly.
- ☉ Women need empowerment with women friendly aquaculture technology, easy method to harvest fish, device to view the fishes in the pond, women trainers in training session for better technology transfer, helping hand from male counterparts to share the household activities so that they perform better in economic activities, etc.

Though the older generation of women has much dependence on men, the younger generation does not agree with this. Women feel that with adequate knowledge they can contribute equally well as men not only to aquaculture but also to other activities. In Svey Rieng, a province in the southeastern part of Cambodia, it was found that due to the higher participation of women in various activities, they had higher confidence in carrying out the activity in aquaculture without the support of men (Nam et al., 1997). A number of specific economic, and cultural constraints limit the opportunities for women to participate in aquaculture as producers. The extent of these constraints is location-specific and therefore special provisions are often required to overcome them. Women's economic activities must be integrated

with their domestic activities, and adequate financial resources should be made available. It is also essential to design strategies to increase participation of women in training and explore ways to enhance their knowledge through various ways, keeping in view the literacy level. It would be appropriate to design extension mechanisms to deliver extension messages to their doorstep using audio/video/booklets, etc. (Nandeesh, 1997). To improve the poor participation of women in aquaculture and motivate them for intensive involvement as producers, it is necessary to implement mass awareness programs on aquaculture system. In addition to State Government, other local community-based organizations should come forward to spread out the knowledge of fish farming among women. Recruitment of more women extension officers in the State Fisheries Department is necessary to activate the transfer of technology to women by avoiding social hindrances. Fishery officers should undergo gender sensitization courses to implement a gender-balanced approach in organizing training programs. Further research should be conducted to evolve gender-sensitive aquaculture practices.

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