

WOMEN IN SMALL SCALE AQUACULTURE DEVELOPMENT IN SOUTHEASTERN CAMBODIA

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Introduction:

Cambodia once enjoyed the position of having plenty of natural fish which was available at more than 25 kg/person/year. However, owing to various causes, capture fisheries production has declined, resulting in the availability of fish at less than 13 kg / person / year. In view of the food habits and considering the nutritional requirement of the families, it has been suggested that Cambodians require a minimum of 32 kg fish/person/year, while the optimum level would be 40 kg. In order to overcome this huge shortage between the requirement and supply, aquaculture is recommended as an alternative. On an average, most Cambodian families consist of 6 members and own a land of about 1.5 ha. As there are more opportunities to undertake aquaculture on a small scale using the on-farm resources, small aquaculture is recognised as an appropriate system to be promoted to suit the requirement of farmers. Cambodians have no long tradition of farming fish in ponds, though cage culture is recognised as a system originated in this country and is considered a centuries old.

Small scale aquaculture development

PADEK initiated the development and promotion of aquaculture as part of the community development projects programme during 1991-92. Exotic tilapia was used in the project areas located both in Prey Veng and Svey Rieng Provinces situated on the Southeastern part of the country. Though, initial attempts were not successful, in view of the farmers' interest in this new occupation, PADEK pursued the programme by establishing fisheries centres to provide the scientific support for the developmental activities. The Bati Fish Seed Production and Research Centre which is presently supported by PADEK and located in Prey Veng Province has been able to develop and demonstrate small scale aquaculture technologies appropriate for the region during the last three years. Presently, there are over 800 farmers who have undertaken aquaculture in PADEK project areas alone, spread in four provinces, namely Prey Veng, Svey Rieng, Kompong Speu and Siem Reap.

In this paper, an attempt has been made to summarise the involvement of women in this new activity in the two Southeastern Provinces wherein it is practiced since three years. The objective of the study was to define the role of women in this activity and

identify both the constraints and opportunities that exist to enhance the participation of women in small scale aquaculture activities.

Materials and methods:

Apart from using the data already available, an additional survey was conducted to elucidate the role, constraints and opportunities. Although, after every culture cycle, information regarding the production and the processes were gathered, in large majority of such interviews, it was the husband who participated in the data presentation. Hence, in the present survey, only house wife was requested to provide the answer. Also care was taken to chose the farmers who have at least obtained one crop and active in the activity. Altogether, 108 fisherwomen in Svey Rieng and 107 fisherwomen in Prey Veng were interviewed and the data thus gathered was analysed.

About the Provinces:

Though both Provinces are located in the Southeastern part, there are many differences between the two provinces. While Prey Veng has many wet land areas and the Mekong river, Svey Rieng is deprived of large rivers and wet land areas. Fish production from the capture fisheries is about 3000 tones in Prey Veng, but in Svey Rieng contributing is mostly from the family fishing in rice fields. Prey Veng has larger area and a population of 9,00,000 and Svey Rieng is smaller with about 4,00,000 population.

Results and discussion:

(a) Culture systems:

Most farmers use 4-5 species of fish depending on the availability of fish seed .The species cultured by farmers (Fig.1) include , silver barb (*Puntius gonionotus*) and silver striped catfish (*Pangasius hypophthalmus*) , silver carp (*Hypophthalmichthys molitrix*), Big head carp (*Aristichthys nobilis*), common carp (*Cyprinus carpio*) and Nile tilapia (*Oreochromis niloticus*). These species are stocked in various combinations and generally , a stocking density of 3 fish /m² is adopted. Ponds vary in size from 100-400 m² , but most ponds are usually less than 200 m² . Wide variety of resources available (> 25 type of different types) of on-farm resources available are used in small scale aquaculture activities carried out in these two provinces (Fig.2). Fish are cultured for a period of 6-8 months based on water retention in the pond. Only in very few cases, culture period extended beyond 8 months. Maximum water depth of most pond was about 3 meters with its level reducing to less than 0.5 meters in summer. While soils in Prey Veng were more clay, in Svey Rieng, they were sandy.

(b) Socio-economic information :

In Svey Rieng, the average land holding was about 1.3 ha, while in Prey Veng Province, it was 2.30 ha. In both provinces, average family size was 6 person/family. There was also no difference in the average age of husband (40) and wife (38) between the two Provinces. Most of the surveyed families were headed by male members. There were virtually no widows in the surveyed group. In fact, in the project areas, the percentage of widows is very small and do not tally with the reported figures for the entire country as a whole. On an average, each family had 4 children with an age of youngest child being 6 years. In most cases, families had two male and two female children each. Most families with four children did not desire to have more children, while those with less than four opted for additional children. Literacy of both husband and wife was higher in Prey Veng, but in Svey Rieng, it was lower with only 36% of the population being literate.

Paddy was the common crop cultivated in both the province and the average yield obtained was 1.2 tones/ha in Svey Rieng, but in Prey Veng, it was < 1 tonne/ha. This difference in production was due to the heavy drought in Prey Veng which has been prevailing in the last two seasons. Shortage of food is common owing to frequent droughts.

Smoking and drinking were the two common habits seen among the families. Most house wives were worried of these habits of their husband in Svey Rieng Province wherein this information was gathered.

(c) Fish culture responsibilities:

Though, overall men were responsible in majority of the cases, in several families, women were taking care most part of the fish culture activities. In Prey Veng, while most respondents indicated that all members in the family had responsibility for fish culture, in Svey Rieng, in large percentage of families men were responsible. However, in terms of individual activities in fish culture, women were responsible for many of the activities in Svey Rieng Province. As could be seen from fig. , in most of the prestocking activities, men contributed the maximum work force in terms of pond digging and application of lime and fertilisers to make the water green. However, after stocking the seed, it was women who took care of most of the activities in terms of fertilisation and feeding. Though men had percentage of labour input in terms of daily and final harvest, women were equal participants. Fish sale was the domain of women.

1. Requirement of men labour force

For a question on whether fish culture could still be done without the support of men, in Svey Rieng, most women were confident of carrying out the activity, while in Prey Veng, in majority of the cases answer was negative. A significant percentage of women have not attended any training courses organised by the staff in the communes in both the provinces. More than the literacy, it was

other household responsibilities which prevented these women from participation in the training. However, probably owing to the participation of women in Svey Rieng in most of the activities, they had higher confidence in carrying out the activity without the support of men. In both provinces, women desired the support of men for feed search and seed procurement.

Information format

For the mode of information presentation as part of the extension programme, most women preferred audio in Svey Rieng, while it was the preference for video in Prey Veng. This had a direct relationship to the percentage families owning video or radio in both the provinces.

Attitude of women towards fish production obtained

Most women were happy with the fish production obtained in Svey Rieng, but in Prey Veng, large portion of them remained unhappy. This again had linkage to production and income of the families. The average fish production obtained was 25 Kg as compared to 39 kg/100m²/ 8months. While still some families continue to obtain poor production in Prey Veng, in Svay Rieng most families were able to obtain impressive production. Further, a perusal at Fig. indicates that most of the produce (75%) in Svey Rieng is consumed within families as compared to Prey Veng wherein 60% of the produce was sold. As stated earlier, Prey Veng lot more natural fish as compared to Svey Rieng and probably variation in the natural availability of fish influences the level participation and usage of the produce. In Prey Veng, most farmers view it as a commercial activity, but in Svey Rieng, it is largely considered as a food for the family. In support of this, further observation on the initiate of fish culture activity, in Svey Rieng it was initiated by women, largely as a food source for the family, but in Prey Veng, it was the men members.

Family income

The average income of the family per year from the sale of goods and or salary, was 414\$ in Prey Veng, while in Svay Rieng, it was 370 \$. It should be noted here that for calculation of the income, on-farm produce and consumed within family has not been included. In Prey Veng, general economic and family condition of farmers is better than in Svay Rieng in most respects both income and food. A perusal at the assets owned, also provide some information on the status of families in both the Provinces .

Among the various activities, it was noticed that women contributed for majority of the activities during post stocking than prestocking including pond digging. The latter requiring heavy physical work, much of the activities were done by women. Liming, and prestocking fertilisation were still considered as technical

and requiring larger labour input. Women contributed most to daily feeding and periodic fertilisation, daily harvest and final harvest of the fish as well. However, they still desired the support of men mainly for feed search, seed procurement, etc.

Participation in training: Women who have been active in Svey Rieng, over 55% of them never attended training. However, in Prey Veng participation was significantly higher. With a view to develop the extension materials, when women were asked on the type of information they like to get, large majority of them in Svey Rieng preferred audio, while in Prey Veng, it was video. A perusal at the assets owned, indicate that most families owned video in Prey Veng, while in Svey Rieng, most families had audio.

Financial management: In most families, financial management was carried out by house wives. However, it was noticed that men take final decision although women contribute to discussion. This appears to be still because fish is only used as a food source in the family with limited sales.

Benefits of small scale aquaculture: Based on the survey results, following points were identified as benefits of the new aquaculture system introduced in the area. Increased fish availability from culture ponds, improved financial situation from the sale of fish, better social status owing to be successful in the new activity, better relationship with friends since fish could be given as gift from fish pond, better use of used resources, improved nutrition of the families. In addition, women did not consider fish culture as an additional labour, but viewed as food source and recreation through daily feeding of fish and better utility of time. More than all the above, even during summer, area around the pond remain greener with the increased duration of water availability.

Conclusion:

The results of the survey indicate that women are an important work force to carry out the fish culture activity in Cambodia. Majority of the activities could be carried out by them, excepting such of those activities which require long distance travel for feed search and the final harvest. Women were unable to attend the trainings, owing to lack of time as well as the literacy. It is necessary to design the extension mechanism to deliver the message to their door step using audio / video / booklets. Credit , particularly the interest rate remains as a major issue and has to be solved in order to help them to carry out fish culture activity effectively.