

# Women's Involvement in Fisheries and Aquaculture in Sarlahi District

Ranju Rani Karna and Jiwan Shrestha

Central Department of Zoology, Tribhuvan University  
Kirtipur, Kathmandu  
E-mail: rkarna@siue.edu

## Abstract

Study on women's involvement in fisheries and aquaculture was carried out from May 10 to December 10, 2007 in Sarlahi district. The district has very high potential for the development of fisheries and aquaculture because of the availability of greater water surface area of 1,161 ha. Women were highly involved in exploring both fish and non-fish commodities like Ghonghi (*Bellamyia bengalensis*), Sippy (*Lamellidens marginalis*), Doka (*Pila globosa*), prawns (*Macrobrachium* spp.), crabs (*Cancer* spp.) and plant species like Makhana (*Euryale ferox*). They were also involved in different pond fish culture management programs like pond preparation, seed transportation, feeding and fertilization, fish marketing, fisheries tools and equipment and decision making programs. The study revealed that 48.35% of women were involved in fisheries and aquaculture, which was 5.06% of total population. They also generated a considerable income to assist the livelihood of their children and family but that has not been counted yet. They get the least productive share from income generated by their own effort. This was the reason that substantiated to conduct the study to present the real scenario of women in fisheries and aquaculture in the above district.

**Key words:** aquaculture, income generation, productive share, women's fishery

## Introduction

Nepal being rich in water resources, women in fisheries and aquaculture have been playing a major role in society since ancient time of human civilization. Most of the women involved in this sector belong to lower ethnic groups, like Mushar, Dhangar, Dom, Paswan, Malah, Danuwar, Majhi and Tharu. Because of this limitation, women's involvement in aquaculture is minimal though a wide range of aquaculture practices are done. The ethnic groups lying below poverty line neither have their own water resources nor can afford to take such resources on lease. They are deprived from participation due to caste discrimination as well. But the scenario in capture fisheries is different and where women are seen harvesting various fish and non-fish commodities including mollusks and arthropods. They are also involved in aquaculture production system such as production and maintainance of fishing gears, crafts, nets, etc. Collection of fish from landing or harvesting sites, selling and preparing fish feed from local feed ingredients. Such activities have been a great asset in raising their socio-economic status resulting in independency for their needs and wants.

One more reason for being overloaded on behalf of women is that basically they have to play three distinct roles such as productive (farming, marketing and wage employment for income generation), reproductive (child bearing, caring, rearing and household chores) and community obligation (attending ceremonies and religious activities). Although women are known to be invisible labor force for economic assessment to the family, there is lack of access to productive resources for them regarding resource ownership or money involvement on which men have control (Shrestha & Yadav 2003). In fact, no differences exist despite of child bearing. But still the differences in gender roles are defined by patriarchal cultures, histories and societies making the women most consistently exploited and discriminated.

Shrestha and Yadav (2003) have reported women's status with regard to their involvement in aquaculture, contribution to family, society and national domestic production (GDP). According to them, women are though critical forces in fisheries and aquaculture production system, their role has not been counted yet. Even they are deprived of getting the productive share from their own income. Pradhan (2003) has discussed about the

importance of women's health and healthy women's contribution for a nation to be healthy. She has focused that economic empowerment of women is a strong mean to alleviate poverty in the country. Shrestha (2003) discussed about the struggle to be done to uproot the aspects, viz. gender exploitation and stigmatization in sociopolitical environment of the country and the world to assert women's right. Subedi (2003) reported that notable changes in basic needs and improvements on livelihood with economic empowerment of women were experienced by community people.

### Study area

Sarlahi district lies in Janakpur zone of central Terai. It lies towards the southern lowland, between 26°27' to 27°10' northern latitude and 85°24' to 85°84' eastern longitude. The climate of this region is hot and sub-tropical with temperature ranging from 19.5°C to 39.3°C. Average annual rain fall is 1300 mm. The population of Sarlahi is 601,481 with male population of 311,194 and female of 290,286. Total water surface area is 1,161 ha including five main rivers: Bagmati, Lakhandei, Jhim, Manushmara and Banke and 755 ponds. Among ponds, 25% are of perennial type while the rest are seasonal in which water remains for 8-9 months in a year. Some fisheries pocket areas of this district viz. Bhaktipur, Chandranagar, Farhadawa and Ishworpur are endowed with 215 ha of water surface area but only 75-80 ha of them have been utilized for aquaculture (Anonymous 2001a). In addition to this, the district is also ornated with precious wet-lands, among which Doyam VDC is considered as the best for fisheries and aquaculture. (Anonymous 2004b).

## Materials and Methods

### Research design

#### Selection of sampling sites

Sarlahi district is ornated with 99 Village Development Committees (VDCs) and one Municipality. Twelve of them are considered as the intensive areas on the basis of availability of rich water sources. Four out of 12 are considered as the pocket areas on the basis of conduction of governmental aquaculture practices. For the selection of sampling sites, purposive random sampling was applied, i.e. the method of sampling in which selection is often based on certain pre-determined areas that must be included to get the objectives. The following six VDCs selected accordingly, represented 50% of the total intensive areas: Bhaktipur, Brahmapuri, Farhadawa, Bhelhi, Chadranagar and Kodena. Altogether 94 respondents from each VDC were interviewed for data collection. The study was conducted from May 20 to December 10, 2003.

### Women's involvement

For the study of women's involvement in fisheries and aquaculture, data were collected for total number of households involved in fisheries and aquaculture, and total population. Similarly, female population data was also taken. The calculation was made to know the percentage of total number of females involved in fisheries and aquaculture in total population.

### Income generation

#### Income generation through capture fisheries

For the analysis of income generation done by women through selling fish and non-fish commodities from capture fisheries, the data for species collected, average amount collected per household per day, average selling price, average total income generation by each woman per household per day and abundance periods were collected.

#### Income generation through participation in pond fish culture management

Women's participation in pond fish culture management were indirect. Therefore women generated income by participation as wage workers in different programs like pond preparation, seed transportation, feeding and fertilization and fish harvesting. For analyzing the income generation through such programs, data were collected for total number of ponds, total number of women involved, wage per day, income generated by total women per household annually, and total income generated by each woman per household annually. To calculate the income generation done specifically through pond preparation program, data for average number of ponds prepared annually, average size of ponds and time taken for pond preparation was collected as well.

## Results

### Women's involvement in capture fisheries

Women were highly active in collecting non-fish commodities like Ghonghi (*Bellamyia bengalensis*), Sippy (*Lamellidens marginalis*) and Doka (*Pila globosa*), prawns (*Macrobrachium* spp.), crabs (*Cancer* spp.) and Makhana (*Euryale ferox*). Women showed 100% participation in harvesting, marketing and equipment preparation whereas they had only 80% participation in decision making.

Collection of fish species from capture fisheries gave different picture of women's participation. The involvement of women in this activity ranged from 25-76%.

### Women's involvement in pond fish culture management

Women were involved indirectly in pond-fish culture management as wage workers for different programs. They were involved for lifting soil in pond preparation program, carrying fish seeds from one place to another, manuring ponds helping in feeding and fertilization program and collecting only small sized fish that were left during drying of ponds in fish harvesting program. However, they were not involved in marketing, handling

nets and baskets in fisheries and decision making program in pond fish management. Their involvements in comparison to men were 55% in pond preparation, 49% in seed transportation, 4% in feeding and fertilization and 29% in fish harvesting.

### Women's involvement in fisheries and aquaculture

Total women involved in fisheries and aquaculture as a whole gave the representative picture of their participation.

**Table 1.** Involvement of women in fisheries and aquaculture in total population

SN	Sampling Site	Total House holds	% of H/H involved in fisheries & Aquaculture	Total no. of H/H in fisheries & aquaculture	Average H/H size (No.)	Female size (No.)	No. of women involved in each H/H	Total no. of Female involved	% of women among total H/H in fisheries & aquaculture	% of women in fisheries & aquaculture in Total population
1	Brahmapuri	1243	10	124.30	5.43	2.62	2.62	325.66	48.20	4.82
2	Bhaktipur	2761	18	134.64	5.35	2.64	2.64	355.44	49.34	2.40
3	Bhelhi	865	8	69.20	5.21	2.44	2.44	168.84	46.83	3.74
4	Chandranagar	1326	20	265.20	5.63	2.71	2.71	718.70	48.10	9.60
5	Kodena	1022	15	51.10	5.54	2.65	2.65	135.41	47.83	2.39
6	Farhadwa	748	15	112.20	5.70	2.84	2.84	318.64	49.82	7.46
	Average				5.30	2.65			48.35	5.06

### Income generation from fish and non-fish commodities collected from capture fisheries

Women generated a considerable amount of money by selling fish and non-fish commodities collected from capture fisheries. But they owned only a part of it to be considered as the productive share.

The average collection (per household) was 5.32kg for Ghongi, 2.6kg for Sippy and 2.0kg for Doka with average price Rs. 10, 30 and 20 respectively. Similarly, 200g for prawn, 500g for crab, 2.5kg for fish and 500g for Makhana with a price rate of Rs. 80, 50, 40, 100 per kg respectively. Low quality pearls were collected (2 per annum/H/H)

accidentally with the animals. The average price of each pearl was Rs. 300. Each woman per household generated a sum of Rs. 15563 per year from non-fish and fish commodities with the productive share of 70%, whereas from pearl selling only 10% productive share was estimated.

### Income generation through participation in pond fish culture management

Women generated income by participating in different programs of pond fish culture management as pond preparation, seed transportation, feeding and fertilization and harvesting only. They were deprived from participating in feeding and fertilization and tools and equipment program.

**Table 2.** Income generated by each woman through pond fish culture management and their productive share

SN	Programs	Workers needed annually (NO.)	% of female workers	Total time required	Wage/day (Rs)	Income generated by total women (Rs)	Income generated/female/annually (Rs)	Productive share (%)
1	Pond preparation	4000	55%	50 days	100	.220,000/-	.5,000/-	
2	Seed transportation	642	49%	1	200	.62,916/-	.200/-	
3	Feeding and fertilization	14	4%	1	200	1,712/-	.200/-	10
4	Harvesting	642	29%	3	200	37,236/-	.600/-	
	Total					.321,864/-	.6,000/-	

The study revealed that two ponds of average size (34 x 40 x 2 m) were prepared annually. According to the soil lifting capacity (0.3 x 2 x 2 m), the number of required workers for preparing each pond was 40. Hence,

the total number of workers required (for 50 days) for preparing two ponds were 4000. Total annual income generated by women involved in this program was Rs. 220,000/ and Rs.5000/ as the total annual income

generated by each woman (Rs. 200/day). Seed transportation program was conducted annually in all the 214 ponds existing in the study area. Generally, number of workers required were 3 for the purpose at wage Rs. 200/- per day for each pond (Anonymous 2001a 2001b). Hence total number of workers involved was 642, among which 49% participants were women. Thus, total income generated by women through fish seed transportation program was Rs. 62,916 annually whereas total income generated by each woman was Rs.200 only. Feeding and fertilization was conducted annually as per the requirement of one worker per pond at the wage of Rs. 200 per day. The total number of workers needed for the total ponds i.e. 214 in the sampling sites was 14, among which 4% were females i.e. one. Hence, annual income generated by each woman was Rs.200 whereas total income generated by each woman through feeding and fertilization program was Rs.1,712. Harvesting was done 2-3 times at the wage of Rs. 200 per day. The total number of workers needed for total 214 ponds was 642, among which 29% were female i.e. 186.18. Hence, income generated by each woman was Rs.600 whereas total income generated by total women through fish harvesting program was Rs. 37,236 annually.

Finally, total income generated by each woman as wage workers through pond fish culture management was Rs.6,000 and total income generated by total women was Rs.3,21,864 annually.

## Discussion

Fishery and aquaculture play a vital role in the life of people of Sarlahi district. The fish and non-fish commodities especially explored by the women were mollusks i.e., Ghonghi (*Bellamya bengalensis*), Sippy (*Lamellidens marginalis*) and Doka (*Pila globosa*). So, do the arthropods i.e. prawns (*Macrobrachium* spp.), crabs (*Cancer* spp.) and plant species like Makhana (*Euryale ferox*). Moreover, fish species like Pothi (*Puntius* spp.), Chenga (*Channa orientalis*), Gaincha (*Macroglyphus* spp.)/(*Mastacembelus* spp.), Garai (*Channa punctatus*), Latwa (*Lepidocephalus* spp.) and Tengra (*Mystus* spp.) were abundant.

Sometimes women had to travel over 5km to collect those mollusks for earning their livelihood. On the one hand, they showed 100% involvement in each harvesting, marketing and tools and equipment programs and 80% involvement in decision making in capture fisheries program. On the other hand, women's involvement in collecting fish commodities from capture fisheries gave different picture as they showed only 70% in harvesting, 76% in marketing, 25% in tools and equipment and 30.5% in decision making programs.

The reasons for such differences were found out during an interview with the males which revealed that males harvested only big sized fish to represent their masculinism. On behalf of men's ego, women expressed that they had to work for 4-5 hours extra besides their household activities including caring children to collect those species to feed them and the family. Mostly men spent 90-100% of their income on alcohol. Hence, women had to work harder for the welfare of their children. In this gradation one of the thrilling stories was of a widow named Sita Devi Malahein of Farhadwa VDC. She said that the difficulties in collecting fish and non-fish commodities during rainy days made her survival the pettiest. In the lack of sufficient money to buy food for all, she had to purchase a liter of alcohol to feed herself and her five small children to get sound sleep despite of hunger. Thus the importance of fish and non-fish commodities collected by women and their involvement in different fisheries and aquaculture system hold a meaning.

Women were also involved indirectly in pond fish culture management by being active in different aquaculture system practices. They exhibited 55% involvement in pond preparation and 49% in seed transportation. But they showed only 4% involvement in feeding and fertilization and 29% in fisheries tools and equipment program, where accuracy matters. They were avoided in male dominant society, where females were considered to be inferior having lower conscience though biologically it has not been proven yet. This is why women were neither introduced to new techniques nor given knowledge about the modern technology. Moreover, women were not allowed to do productive work like selling because it was supposed that earning money by themselves may make them rebellion. Besides this, decision making was also mostly handled by men. Women's participation depended on flexibility of the nature of men. The scenario in pond fish culture management is similar as the women held zero in decision making program.

Study of women in fisheries and aquaculture as a whole revealed that 48.35% women of the total households were involved in aquaculture which was only 5.06% of the total population. Such data exposed their contribution to family, society and the nation (Table 1) But this contribution was not counted at all and even they got only 70% productive share from their income generated through selling fish and non-fish commodities collected from capture fisheries and 10% from selling of pearls and pond fish culture management programs. Each woman per household generated an average total income of Rs.15,563 annually by selling fish and non-

fish commodities collected from capture fisheries and Rs.230.76 by selling pearls. Working as wage workers for different programs like pond preparation, seed transportation, feeding and fertilization and fish harvesting in pond fish culture management, each woman earned Rs.6000 whereas total income generated by total women was Rs.32,18,64 annually (Table 2). Such a amount was certainly considerable for economic assistance but still they got no credits. After all one more reason was revealed that women themselves too are responsible for being discriminated in the lack of raising their voices for the right that they want any more discrimination on their girl child; going to be a women. This is the reason of aborting them to an extent (Karna 2004). So...! Is it the solution? Not at all. Gender equity is the mission to be completed finally.

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