

E-ISSN: 2320-7078 P-ISSN: 2349-6800 JEZS 2019; 7(3): 648-654 © 2019 JEZS Received: 03-03-2019 Accepted: 07-04-2019

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# Journal of Entomology and Zoology Studies

Available online at www.entomoljournal.com



# Strengthening the role of women in fisheries and aquaculture

# **RH Shah and Rubia Bukhari**

#### 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.

Keywords: Women, fish culture, participation, aquaculture, decision making

## Introduction

The fisheries and aquaculture sector is estimated to provide direct employment and revenue to 200 million people. The increasing demand on the sector is met by both large-scale and industrial production systems and small-scale and artisanal production systems. Small-scale fisheries of all kinds are a major source of animal protein in many parts of the world. Facing declining fish stocks in capture fisheries, aquaculture has been the focus of development investment since the 1980s and is now the fastest-growing food sector in the world. It is expected to contribute more than 50 percent of total fish consumption by 2020. Although just over 90 percent of this production originates in Asia and nearly 70 percent in China alone, efforts continue to expand its production into new areas, such as sub-Saharan Africa and Latin America. Aquaculture is promoted as an alternative and sustainable income source to those involved in capture fisheries and agriculture, as long as environmental and disease issues are addressed (Belton and Little 2008; World Bank 2006). It is also viewed as being especially attractive to rural women because it can be carried out with minimal investment and close to homesteads and can be integrated into existing food systems.

Economic activities undertaken by women contribute immensely to the upkeep of many families and households. Women's economic activities become more important considering the low levels of salaries of many people in the country. The activities of women in fisheries especially the normal sight of women with loads of fish on their heads making sales to cater for the family needs. Recently is that women do more than carrying fish on their heads around the neighborhood or sitting behind baskets of fish in market places to sell.

Women are very instrumental in production and trading activities all over the world. This contribution has further been improved arguably through the advent of globalization. Through globalization more opportunities are opening to women as some writers will argue. "Everywhere, women are overcoming traditions, customs, superstitions and prejudices and becoming major contributors in the marketplace. In China, for example, women are responsible for 25% of the businesses established since 1978. In Hungary, women started more than 40% of all businesses since 1990. In Mexico, 32% of women-owned businesses were started less than 5 years ago.

In almost every region of the world, the proportion of women in the labor force has grown substantially.

In transition countries, women are estimated to comprise 20% to 25% of entrepreneurs". (Kwong 2005). Their active participation is evident also in the fishery sectors of fishing nations across the world. Despite differences in their contribution from one country to the other, their importance in the fishery sector is obvious. In Southeast Asia, as Poh Sze Choo recounts at the AKTEA conference (2004), women contribute heavily in the area of fish

sorting, processing and marketing. In family businesses at the artisanal level, women in Southeast Asia perform the tasks of salting and drying fish as well as mending nets in addition to feeding fish in small scale aquaculture farms meant for family consumption. This situation is not different in Malaysian fisheries. Women are engaged in subsistent activities and their labor is classified as unpaid family worker (Yahayan d: 100). Although traditional beliefs and superstitions inhibit women from going to sea in many areas of the country, they take active part in the East Coast states of Kelantan and Terengganu. The women that are engaged in the fishing activities in these areas do so at the shores and shallow waters and the catches are mostly for consumption. Their active participation is however more evident in the processing plants both at home and the large scale industrial plants. In the large processing plants women are restricted to the low paid jobs due to their low level of education (ibid). They also perform post-harvest activities such as sorting, loading, gutting of fish and net mending. Fish trading is another activity performed by women in the Malaysian fisheries. There are two categories of traders namely those that sell the catches of the husbands and those that buy from the markets. Their involvement also extends into aquaculture where they feed the fish and maintain the ponds. In the Philippines women contribute 50-70% of fish handling, processing, marketing and distributing activities. In capture fisheries, women fish using hook and line, scoop nets, fish traps, spears, gillnets, fish baskets and push nets for fry gathering. They also gather clams, ovsters, sea cucumbers, sea urchins and also harvest shrimps and crabs (Conference 2004). On other occasions, they join their husbands to cast the nets and lines. Before the actual fishing activity, women prepare the baits and hooks to be used; they mend the nets, buy and pack ice as well as prepare meals for the fishing trip. Women's role in postharvest activities is evident in the processing and marketing of fish. They are also employed in canning factories as well as participate in aqua and mari culture activities. Women in the Philippines also perform household chores in addition these afore mentioned activities (ibid). Karlsdottir (Conference 2004) refers to the fact that 75% of 55 workers in a fish processing facility in Nunavut, Canada, are women. Although there is equal participation by both men and women, there is a clear division of labor. The men go for the actual fishing and the women take care of the landed fish by processing it. In the processing plants where the women work, the top hierarchy is occupied by men. This has been attributed to the lack of educational opportunities and limited training in natural resource management. The fisheries sector of Greenland also has women indirectly involved in fishing activities, they are the keepers of the home and provide food and pay bills while the men are out at sea. They engage in other activities that help them to raise income for the up keep of the family. Women in Sweden are involved in fisheries activities and they deal mainly with handling fish, processing and vending. Apart from these activities, women also keep the home and ensure the well-functioning of the family. They also help their husbands with financial backups when their husbands are in financial need. There is little participation of women in the actual fishing activity but 31% of employees with core competence at the National Board of Fisheries are women. Also, 36% of employees with management competence on the same board are women (ibid). In Northern Norway, less than 5% of total fishers are women and 5.2% of subsidiary workers are women. Women also constitute 15% of the staff on fish

farms. This low level of involvement of women has been attributed to the increased employment opportunities in the public sector that afford the women alternative employment avenues. This has reduced the number of women available as "ground crew". In the fisheries dependent communities along the coast, women prepare gears, bait and perform accountancy activities and also work to supplement the family income. With regards to management and leadership positions, it estimated that less than 10% of leaders in the fish farming industry are women. 6.8% are leaders and 3.6% are board leaders (ibid). In Bangladesh women play a variety of roles. They are involved in small scale traditional method of fishing known as brush shelter fishing (Ahmed, Rahman et al. n.d:158). This method involves the use of bamboo or wooden frames and the branches of trees to form an enclosure. Wheat bran, rice and mustard oil cake is used to attract the fish to be trapped. It is estimated that 10% of the brush shelter owners are women (ibid). Another area of the Bangladeshi fisheries where women's contribution is found is in the area of trade. Three levels of trading have been identified within the fishery based on the type and price of fish handled. There are the large scale high priced carps and catfishes, the medium-scale traders deal with small but high priced carps and catfishes. There are also the small scale traders who deal in low priced clupeids and small prawns. Out of the three categories women dominate only in the third. Their domination in this area has been attributed to the low capital required to purchase the low priced species. Women are also employed in the post-harvest activities of fish loading and unloading, icing, sorting and grading. In Gambia women are involved both in the industrial and the artisanal sector. In the industrial sector they dominate in the processing lines of fishing companies working as part time or full time employees as well as casual workers during peak seasons (Touray n.d). In the artisanal sector they engage in activities such as unloading and processing using methods such as drying and smoking. They also finance the fishermen's trips to sea by providing funds for ice and food among other things. Apart from their involvement in the fishing activities, they engage in other income generating activities that provide extra income for the family. The maintenance of the family in the absence of the men also lies on the women. These roles played by the women in the Gambian fishery are not restricted to Gambia alone but also the West African sub region as a whole.

## India

Women in India constitute around 50% of the total population and comprise one-third of the labor force. It is, therefore, important that, when considering the economic development of this segment of the population, due attention is given to their socioeconomic empowerment. India's first Prime Minister, Pandit Jawahar Lal Nehru, realizing the situation of women stated, "In order to awaken the people, it is the woman who has to be awakened. Once she is on the move, the household moves, the village moves, the country moves, and thus, we build the India of tomorrow." While addressing developmental issues, recognition that both men and women are equal partners of any development is necessary, with both having equal opportunities to share the benefits (Anon, 1997). In India, out of a population of 5.4 million active fishers, 3.8 million are fishermen and 1.6 million are fisherwomen. These fisherwomen are engaged in several fisheries vocations. The major activities, in which women's contribution can be noticed throughout the country, are fish processing and

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marketing. However, their participation and contribution are increasing in the areas of aquaculture, research, development and education. The involvement of women in these activities generates supplemental income to support their families. Even though women are as efficient as men, earnings are not always the same. Different payments to males and females are prevalent.

In India, efforts to integrate the activities of research, development, and financial organizations on a large scale with a specific attention to gender have been made. The National Bank for Agriculture and Rural Development (NABARD), the apex financial institution catering to the financial needs of agriculture and rural development, has been paying special attention to gender issues in credit and support services since 1992. NABARD has made an analysis of developments in the fisheries sector and have identified several fisheries technologies, which could facilitate women to become entrepreneurs and enhance their incomes. The bank has extended financial support to some of the important fisheries activities run by these female entrepreneurs, including:

- Composite fish culture of Indian major crops and exotic crops.
- Prawn culture.
- Integrated fish culture along with horticulture and animal husbandry.
- Backyard hatcheries.
- Traditional fish farming in rural areas.
- Fish-feed manufacturing as a cottage industry.
- Fish harvesting/fishing.
- Organic farming.
- Fish marketing (wholesale/retail).
- Fish curing.
- Fish processing and packaging.
- Value adding to otherwise uneconomic fish species (pickles/sauce preparation, etc.).
- Fish trading/vending.
- Transport operations.
- Net mending/repairs.
- Ornamental fish farming.
- Biotechnological projects like spirulina, artemia, azolla culture, etc.
- Tiny and small scale industrial units for fishing equipment.
- Establishing self-help groups through NGOs.

## Kashmir

Agriculture is the primary occupation of 70 per cent population in Kashmir, of which 15 per cent are involved in fisheries. Fisheries constitute a major source of income in Kashmir and lake fisheries are a multi-dimensional resource and serve many uses. The Dal and the Wular are the two important lakes of Kashmir. The Wular Lake represents the largest freshwater lake of India and the Dal is significant from the view point of tourism. Traditionally, these lakes have had a flourishing fishery but studies have shown a decline in fish catches in both these lakes. The introduction of carps in Dal Lake and heavy siltation in Wular lake, compounded by other externalities, have led to a consistent decline in the production of Schizothorax, the local fish species. The introduction of carps, negative externalities of tourism, excessive fertilization of vegetable crops in floating gardens (on the Dal lake), leading to algal blooms, have caused consistent decline as well as destruction of breeding grounds of the local fish

species Schizothorax. Increase total fish production from the lakes to meet the ever-increasing demand of local consumers, irrespective of the species. Under these circumstances the Department of Fisheries, J&K has launched a major initiative to restore and improve fish production in the lakes. But, the efforts seem to be short of the expectations of the stakeholders (Qureshi, 2013) Keeping the above circumstances in view, we have a situation wherein growth is truncated and sustainability is compromised. The development plan for the lakes of Kashmir lays more emphasis on tourism, especially in the Dal-lake. Again the location, the demand-driven cultivation of vegetables on artificially-created islands on the Dal lake, the liberal licensing of houseboats, the introduction of carps in the lakes of Kashmir as well as lack of visible development vis-avis the government outlays on development of lake fisheries in Kashmir, appeared to have led to a paradoxical situation of more of (any) fish vs more of local choice fish species

# Methodology

One of the challenges facing women in aquaculture nowadays is the lack of recognition for their efforts, and the insufficient or inaccurate data to support how much contribution they are providing to ensure food security at the household, community and even global levels. In fact, the lack of sex disaggregated data hinders the design and planning of gender responsive policies, projects and interventions. To explore some of these questions, case studies on selected aquaculture value chains, focusing on the grow-out production node, were conducted, to map gender roles in the selected aquaculture value chain; to identify the roles and activities of women and men in the grow out stage of aquaculture; to analyze the gender dimensions with respect to division of labour, decision making process, benefit sharing and access to resources (including knowledge and information); and finally, to identify gender issues, needs and opportunities. The case studies included inland small-scale aquaculture in:

Primary data was collected through focus group discussions, key informant interviews, and in-depth surveys of men and women involved in the grow-out production of selected species. Depending on the countries, species cultured and farming systems employed, women's involvement varied. The constraints women faced include the heavy workload in the household which needs to be balanced with the obligation in the farms. These case studies could be used as reference and materials for outreach and training in building capacity of practitioners to include women and consider the gender aspects in their aquaculture work.

Primary data was collected through farmer and household surveys, in-depth interviews with women, focus group discussions, and key informant interviews. Secondary data was also collected from local language documents, published papers, reports and government records. The respondents were farmers (at least 30 farmers or households per system, but the ratios of males to females were unequal in some systems). In addition, in-depth interviews were also conducted with a few women to discuss their activities both at home and in the farm, roles, relationships with other stakeholders, ownership, capabilities, power and decisions making, needs, priorities and aspirations.

Studied women's labour in small-scale freshwater aquaculture production. Here, aquaculture is still considered a family activity where all members engage in various aquaculture related work. Farmers also hire temporary external labour (men for construction, women for harvest). Both men and

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women are involved but women have more inputs than men in terms of labour and time. Men in this area often migrate to big cities for alternative occupations outside their hometown, leaving the women to operate the farms. In most areas, rice farming is the main occupation while aquaculture is just secondary, along with livestock farming. One of the issues related to roles included wages. One of the reasons given for the differences in wages was that men are given a heavier workload. But this does not consider the fact that when women are left to operate the farms when men migrate elsewhere, there is pressure on women to balance both household and farm work, and sometimes other livelihoods. Technical decisions are mainly taken by the men as they are more trained. Training opportunities are limited for women as they cannot participate in training programmes even though they are invited. Financial decisions are taken mainly by the women due to their marketing and trading skills. Women farmers face issues such as lack or inadequate technical knowledge and experience in aquaculture, financial assistance and technical support, markets to sell their fish with better prices, and support to mitigate or protect their culture operations from the impact of environmental and climate change, including drought, flood and diseases. Small-scale

aquaculture needs to be linked with food and nutrition security but there is a need to address the issues above to empower women.

## **Findings and discussions**

Women in fishing communities play multidimensional roles and their involvement in fisheries value chains are often considered as invisible in spite of being active in a wide range of activities both in capture and culture fisheries. Globally women play an integral role in the aquaculture and fisheries sectors. Even though women's roles and responsibilities are beginning to change in some countries, there are still constraints that can be limit their participation. Therefore, the socioeconomic profile of women would provide a clear view on the factors of their economic empowerment.

### Age

Table 1 indicates that the middle age group of women was highest (41%) followed by young (21.28%) and old (37.71%). Similar findings were observed by Balaji Guguloth (2013); Shyam *et al.* (2013a) also indicated that the age profile with less than 35 years and more than half were in 35 to 55 years respondents' one third of the total fisher household.

 Table 1: Age distribution of the respondents N= 100

SI. No.	Category	J & K	HP	UK	Sikkim	Manipur	Meghalaya	Arunachal	Percentage (%)
1	Young (up to 35 years)	25	21	27	18	16	19	23	21.28
2	Middle(36-45 years)	40	42	34	42	46	44	39	41
3	Old (above 45 years)	35	37	39	40	38	37	38	37.71

## **Educational status**

Table 2 indicates that 35.85 per cent of women were under middle school level of education followed by Primary level (29.85%), secondary (10.57%), Collegiate levels (6.85%).

Only 11.14 per cent were functionally literate and 6 per cent of them were illiterate. Sivaraman (2009) also reported that majority of the women had middle school level of education.

SI. No.	Category	J & K	HP	UK	Sikkim	Manipur	Meghalaya	Arunachal	Percentage
1	Illiterate	3	5	2	4	9	8	11	6
2	Functionally literate	13	9	8	6	14	16	12	11.14
3	Primary level	28	32	30	25	31	29	34	29.85
4	Middle level	35	38	40	42	32	34	30	35.85
5	Secondary level	12	13	12	13	8	7	9	10.57
6	Collegiate level	9	5	8	10	6	6	4	6.85

Table 2: Educational status of women N 100

#### **Occupational status**

It is obvious from the Table 3 that 60.04 per cent of the women's occupation was fisheries business followed by Fisheries (small scale fisheries) 20.57 %, wage earners

(13.71%), Fisheries Exclusive 10.85 and Fisheries wage earners (1.14%). These findings of Yarrakula Mahesh Babu (2011).Vijaya Khader (2013) also concluded that about 28 per cent of women were engaged in small scale fish trading.

Table 3: Occupational status of women

SI. No.	Category	J & K	HP	UK	Sikkim	Manipur	Meghalaya	Arunachal	Percentage
1	Wage earners	15	12	16	13	12	10	18	13.71
2	Fisheries + wage earners	3	5	-	-	-	-	-	1.14
3	Fisheries (small scale fisheries)	15	22	18	16	30	23	20	20.57
4	Fisheries Exclusive	12	10	11	15	13	10	5	10.85
5	Fisheries +business	55	51	55	56	46	57	57	60.04
6	Fisheries +services	-	-	-	-	-	-	-	

#### Experience

Majority of the respondents (52.85%) had 5-10 years of experience and 25.85 per cent had above 10 years of

experience. Only 20.85 per cent had experience up to 5 years Table 4. This is in line with the findings of Deepthi Ande (2007).

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SI. No.	Category	J & K	HP	UK	Sikkim	Manipur	Meghalaya	Arunachal	Percentage
1	Up to 5	21	20	23	18	25	20	19	20.85
2	5-10	54	57	51	55	49	53	51	52.85
3	Above 10	25	23	26	27	26	24	30	25.85

## **Decision making**

Decision making of women is presented in the Table 5. Women were dominant in taking active decision (46.85%) followed by passive (30.85 %) and dominant (20.85%). This is in line with the findings of Esakkias (2007).

SI. No.	Category	J & K	HP	UK	Sikkim	Manipur	Meghalaya	Arunachal	Percentage
1	Passive	35	37	28	30	25	29	32	30.85
2	Active	48	44	47	42	52	50	45	46.85
3	Dominant	17	19	25	28	23	21	13	20.85

#### **Contact with extension agencies**

The results reporting the contact with various organizations are presented in the Table 6. It could observe that 61.85 per cent of the women had medium level of contact with extension agencies followed by low (23.85%) and high (14.28%) levels. This is in line with the findings of Ali Hassan (2006).

<b>Table 0.</b> Contact with extension agencies of respondents	Table 6:	Contact	with	extension	agencies	of	respondents
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SI. No.	Category	J &K	HP	UK	Sikkim	Manipur	Meghalaya	Arunachal	Percentage	Standard deviation
1	Low (below 7.55)	27	24	25	20	22	25	24	23.85	2.26
2	Medium (7.5612.35)	61	63	58	62	64	60	65	61.85	2.41
3	High (Above12.35)	12	13	17	18	14	15	11	14.28	2.56

### **Training participated**

The results on the trainings participated by the women are furnished in the Table 7, 8. It revealed that the majority of the respondents (67.28%) had not participated any training and only 32.71per cent of the respondents participated the training programmes. This is in line with the findings of Karumalai Kannan (2005).

	Table	7:	Training	participated	ł
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SI. No.	Category	J&K	HP	UK	Sikkim	Manipur	Meghalaya	Arunachal	Percentage
1	Training participated	33	30	28	31	29	31	26	29.71
2	Not participated	67	70	72	69	71	69	74	70.29

SI. No.	Category	J&K	HP	UK	Sikkim	Manipur	Meghalaya	Arunachal
1	Fish feeding	44	24	14	58	66	62	54
2	Retail marketing	46	22	14	80	76	72	84
3	Small scale processing	70	62	68	80	92	90	98
4	Ownership of the pond	24	18	12	48	51	46	47
5	Net mending	56	34	16	48	42	38	54
6	Boat rowing	86	-	-	16	10	8	12
7	Pond construction	58	45	52	78	82	84	76
9	Feed manufacturing	24	36	10	68	64	62	60
10	Ornamental fish culture	5	3	7	12	8	6	4

**Table 8:** Women participation (%) in different activities of aquaculture

#### Summary and conclusions

In contrast to capture fisheries where they are traditionally limited to the shore, either by force of necessity or because of social customs and beliefs, women have been active participants in Asian aquaculture production - whether secondary to their men as in most of Asia, or as their equals as in China after 1949. The extent of this participation varies from one country to another and is usually a function of the state of importance of aquaculture and the level of technology on the one hand, and the existing socio-cultural value systems on the other. Women in China are involved in practically all aspects of aquaculture (from pond construction to harvesting), and rural women in Bangladesh and India confined to pond construction and prawn seed collection because of their limited education. With increasing emphasis placed on aquaculture as an alternative source of fish protein and employment for the masses of Asia, the present role of women can be greatly expanded - both in terms of increased recruitment into the industry and of greater participation within the sector. With the support of local and national governments, and assistance from multilateral aid agencies and international organizations, the problems of rural communities in general, and of rural women in particular, can be more adequately and directly addressed by means of wellplanned projects which put emphasis on manpower development at the grassroots level.

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