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DEVELOPING SHRIMP INDUSTRY AND ITS IMPACT ON CHANGING GENDER ROLE AND EMPOWERMENT OF COASTAL COMMUNITIES IN BANGLADESH

**Sadika Sharmin
Rafiqun Nesa Ali
M. Serajul Islam**

ABSTRACT

With the development of Shrimp industry, different categories of stakeholders of coastal communities are involved in production, processing and marketing of shrimp. The present study made an attempt to determine the gender role and empowerment of stakeholders involved in shrimp industry. Considering the different activities performed and the section of communities people (stakeholder) engaged in shrimp industry was divided into 11 sub-sectors. Data were collected from 220 stakeholders including both men and women involved in different sectors of shrimp industry. The men and women were involved in shrimp farm activities as shrimp seed collectors, shrimp farm labourers and workers in processing plant and depot. Moreover, male participation and involvement in different works of shrimp industry are dominant compared to women. In addition, men earned more compared to women where both men and women labourers were employed. On the other hand, women participation and involvement were greater both in reproductive activities and homebased income generating activities. Considering all the activities of shrimp farm, per day time budget for women was sufficiently higher (15.45 hours) compared to men stakeholders (11.30 hours). Time allocation for income generating activities has also been increased for women stakeholders after development of shrimp industry. Again, women stakeholders participated in activities of decision making process of family affairs and management of household assets indicating women empowerment.

I. INTRODUCTION

Shrimp industry of Bangladesh led a challenging task of increasing employment and export earning, and contributed significantly towards her economic development. Fish and fish products account for about 4.91 per cent of GDP and 5.71 per cent of total export earnings. In 2006-07, Bangladesh earned US \$ 381.02 million by exporting frozen food of which shrimp alone contributes more than 80 per cent (BES, 2007).

Brackish water aquaculture has developed substantially in the coastal areas of Bangladesh. A large number of people from coastal communities are involved in different sectors of shrimp industry. Usually, the shrimp industry consists of four distinct subsectors viz., shrimp farms/gher, shrimp hatcheries, feed mills and shrimp processing plants (Islam, et al. 2004). Shrimp farms are the mainstay of the industry and the activities of the other subsectors depend largely on the growth and sustainable development of shrimp farms in the

The authors are respectively Assistant Professor and Professor, Department of Rural Sociology; and Professor, Department of Agricultural Economics, BAU, Mymensingh.

country. Shrimp farming offers an excellent employment opportunity through a series of backward and forward linkage activities and accordingly, different group of people (stakeholders) are directly and indirectly involved in shrimp industry and they are shrimp farmers, shrimp farm labourers and workers and owners of related industries (feed mill, processing plant, depot and hatchery), shrimp seed collectors, land lessors and shrimp traders.

Development of shrimp industry has created an employment opportunity both for men and women in coastal areas of Bangladesh. The emergence of commercial shrimp farming and the related backward and forward linkage activities has opened up new dimension for women's involvement in many of the activities. Shrimp depots are the largest source of employment for women. Karim and Aftabuzzaman (1995) reported that women represented 40% of depot workers. They also estimated that 45% of workers in the shrimp processing plants were women. Shrimp fry collection is also an important source of employment for rural women. In this context, Islam and Wahab (2000) conducted study to assess the socioeconomic and environmental impact of shrimp industry in Bangladesh. Few studies (Islam et al, 2004 and WFC, 2005) documented the socioeconomic profile of stakeholders involved in aquaculture and shrimp industry of Bangladesh. Jahan and Rahman (2002) and Islam (1995) examined the nature and extent of women's participation in aquaculture and processing factories while Rahman (2003) compared the economic returns of year-round golda shrimp and alternate golda shrimp-rice farming. Moreover, with the increasing involvement of gender in some specific sectors of shrimp industry, gender role and equity, and gender empowerment are being addressed with these studies. Actually, the gender issues mainly the women empowerment gets an occasional highlight in the media in various international days like Women's Day etc. The whole perspective could have been different if more women were involved in productive activities and larger participation in decision making both in household management and in economic activities. It is not adequate to have women for their mere presence in different jobs and activities. In fact, they need to preserve their rights and empowerment for the development of society and work environment (Rieta, 2006). However, the present study has determined the impact of shrimp industry in changing gender role and empowerment of coastal communities involved in shrimp industry of Bangladesh.

This paper contains four sections. The first section is followed by section 2, which describes methodology and sources of data. Section 3 discussed the gender role and empowerment of coastal communities involved in shrimp industry. Conclusions and policy recommendations are made in the last section.

II. METHODOLOGY AND SOURCES OF DATA

Three study areas were purposively selected from Khulna, Satkhira and Cox's Bazar districts depending upon the concentration of shrimp farms and allied industry related to production, processing and distribution of shrimp products. The study areas included Paikgacha of Khulna, Shamnagar of Satkhira and Teknaf of Cox's Bazar district. From these districts, in total 220 stakeholders including both men and women were selected to determine the gender role and empowerment of stakeholders living in coastal areas of Bangladesh. The sample and study areas are shown in Table 1.

Data for this study were collected for the year 2005. Several visits were made for collecting required data and information. To determine the gender role and empowerment of stakeholders, 'before and after' method was applied. In this regard, most of the respondents were selected purposively from the age group of 30-50 years as an assumption was made that the fathers and forefathers of the respondents had an experience of traditional agriculture as practiced earlier. So, inferences about earlier and traditional social structure and changing gender role and empowerment were possible to know from their experiences. Stakeholders involved in different sub-sectors of shrimp industry were taken as the unit for analysis. The data and information so collected were analysed and presented in this paper.

Table 1. Sampling design and distribution of coastal communities (stakeholders) involved in shrimp industry

Stakeholders ¹ of shrimp industry	Sample households No.	Selected areas
Shrimp farmers	30	Satkhira and Teknaf
Land lessors	20	Teknaf and Paikgacha
Hatchery owners	15	Teknaf and Cox's Bazar
Depot owners	15	Teknaf and Paikgacha
Shrimp seed collectors	30	Teknaf and Cox's Bazar
Shrimp farm labourers	30	Teknaf and Paikgacha
Processing plants workers	20	Cox's Bazar
Hatchery workers	15	Cox's Bazar and Teknaf
Feed mill workers	15	Cox's Bazar
Depot workers	15	Teknaf and Paikgacha
Shrimp traders (<i>faria</i>)	15	Teknaf and Paikgacha
Total Sampled Stakeholders	220	-

¹Upper income group: shrimp farmers, land lessors, hatchery owners and depot owners; middle income group: processing plant workers, hatchery workers and shrimp traders and lower income group: shrimp farm labourers, shrimp seed collectors, feed mill workers and depot workers.

III. CHANGING GENDER ROLE AND EMPOWERMENT OF COASTAL COMMUNITIES

Changing Gender Role and Equity

Social status of gender depends upon various socioeconomic factors. This is partly due to literacy and social values, and attitudes towards different aspects of socioeconomic life. General socioeconomic backwardness of women in Bangladeshi society seems to be resulted in lower status of women in the family. It was observed that, usually women workers in different sections of shrimp industry were considered as assetless and poor, and some of them are widow and destitute or divorced women. They were compelled to get out from their houses in order to find out jobs for survival. Secondly, women are required to be employed to earn money to supplement the household income and to meet the basic need of the family members.

Table 2. Genderwise stakeholder involvement in sub-sectors of shrimp industry

Stakeholders in shrimp industry	Stakeholders involved in sub-sectors of shrimp industry	Percentage distribution of gender participation			
		Khulna region		Cox's Bazar region	
		Male	Female	Male	Female
Shrimp farmers	Shrimp farm	100	-	100	-
Land lessors	Shrimp farm	100	-	100	-
Hatchery owners	Shrimp hatchery	100	-	100	-
Depot owners	Shrimp processing depot	100	-	100	-
Shrimp seed collectors	Shrimp seed collection	50	50	70	30
Shrimp farm labourers	Shrimp farm	80	20	90	10
Processing plant workers	Shrimp processing factory/plant	55	45	45	55
Hatchery workers	Shrimp hatchery	100	-	100	-
Feed mill workers	Feed mill	100	-	100	-
Depot workers	Shrimp processing depot	40	60	50	50
Shrimp traders (<i>Faria</i>)	Shrimp trading (distribution)	100	-	100	-

From Table 2 it is clear that both men and women were employed in some specific sectors of shrimp industry where they got opportunity to find out jobs. Women workers participated in different activities of shrimp industry but still male participation and involvement are dominant compared to women. Secondly, it was observed that there was significant difference of wage rate or salary between male and female in different sectors of shrimp industry where both male and female labourers were employed.

Shrimp Industry and Gender Involvement Involvement in shrimp farm activities

As an effect of the development of shrimp industry specially for shrimp farm related activities women were increasingly involved in shrimp seed collection, shrimp processing plants and depots, and to some extent, construction of shrimp farms (Table 3). Actually shrimp farm labourers are resource poor farmers owning small amount of land. Usually they sell their labour to work in other farmer's field. They work as casual and contract labour and very few of them get permanent employment either in shrimp farm or other farm and/or nonfarm activities.

Table 3. StAebolder statement on gender wise labour involvement in shrimp farm activities

Shrimp and related activities	Labour involvement in shrimp farm activities (%)			
	Khulna region		Cox's Bazar region	
	Male	Female	Male	Female
Prepaing shrimp farm	80	20	75	25
Stocking shrimp seed	100	0	100	0
Watching farm	100	0	100	0
Construction of dyke	80	20	80	20
De-heading and processing of shrimp	55	45	45	55
Shrimp seed collection	50	50	70	30

However, two sectors of shrimp industry such as shrimp processing and shrimp seed collection, women are increasingly involved along with the male workers. Mid level educated women (SSC and HSC) were found to be engaged in shrimp processing plant while shrimp seed collectors are usually poor and illiterate.

Shrimp culture has also opened up the avenues of new employment pattern for rural women. Before the commencement of commercial shrimp farming, the rural women used to perform various household-based agricultural activities such as threshing, winnowing and drying crops, grading, processing and storing of agriculture produce, feeding and caring livestock and poultry. These were in addition to the normal household duties such as cooking family meals, cleaning utensils and looking after children. The emergence of commercial shrimp farming and the related backward and forward linkage activities has opened up new dimension for women's involvement in many of the activities. Shrimp fry collection is also an important source of employment for rural women. Collection of shrimp by women in knee- to shoulder- deep water in the coastal belt is a familiar scene. They also estimated that about 55,000 rural women were engaged in fry collection, constituting 36 per cent of the fry collectors. Besides, a large number of women are engaged in collection of shrimp feed (e.g. snail) and artisanal production of fish trapping and packing materials.

Regarding gender role and equity and to some extent, women empowerment Table 4 shows the works and activities performed by men and women and income earned by them from different sub-sectors of the shrimp industry. It was found that, female workers were deprived with the low wage rate and income desperately compared to male workers. For most of these cases, women workers had no bargaining power and the job market was controlled by the male contractor.

Table 4. Gender role and equity, and women involvement in the shrimp industry

Stakeholders involved in shrimp industry	Activities performed	Gender distribution (Per cent)		Estimated income, Tk/month		Gender equity
		Male	Female	Male	Female	
Shrimp farmer	Culture and management of shrimp farm	100	-	50000-85000	-	Usually only male are engaged in shrimp farming
Land lessors	Produce crops and vegetables in farms	100	-	12000-18000	-	Farms are owned by male and they leased out land for shrimp farming.
Hatchery owners	Production of shrimp seed	100	-	80000-120000	-	Shrimp hatcheries are owned and managed by male.
Depot owners	First hand processing of shrimp	100	-	17000-25000	-	Depots are owned and managed by male.
Shrimp seed collectors	Collection of shrimp seed	55	45	1500-1800	1000-1200	No discrepancy between men and women.
Shrimp farm labourers	<ul style="list-style-type: none"> • Watching farm • Reconstruction of dyke • Collecting weeds 	100 80 70	- 20 30	1500-2000 2500-3000 1000-1500	- 1000-1500 850-1200	Male and female had specified job. Male dominated and organized and managed by male labourers. Women were low paid.
Processing plant workers	Deheading, cleaning, and packing of shrimp	55	45	2500-5000	1500-2500	Maintained gender equity
Hatchery workers	Feeding shrimp, watering, harvesting of fingerlings	100	-	4000-6100	-	No women workers were employed.
Feed mill workers	Producing feed, dumping, crashing, loading and unloading	100	-	3000-4000	-	No women workers were recruited due to laborious job.
Depot workers	Cleaning and deheading of shrimp	60	40	2500-3000	1200-1500	Moderately maintained gender equity. Women were employed for deheading and cleaning.
Shrimp traders	Buying shrimp from the shrimp farm owners and sell to the depot owners	100	-	2500-5000	-	No female trader was engaged.

Homebased Income Generating Activities

Gender issues are important for women development in developing countries like Bangladesh. Results indicate that male members were engaged in field based shrimp farm activities while female members actively participated in homebased income generating activities (Tables 4 & 5). Female persons play vital role especially in homebased activities (Sobhan and Khundaker, 2001). Irrespective of gender, stakeholders themselves and their women partners were involved in rearing poultry and livestock, kitchen gardening and sewing clothes and *katha* for household use and nursery reforestation.

Table 5. Genderwise stakeholders involvement in homebased income generating activities

Homestead activities	Views of gender involvement of all stakeholders (%)			
	At present, 2004-05		Before development of shrimp industry	
	Male	Female	Male	Female
Poultry rearing	2	98	2	98
Cattle rearing (stall feeding)	55	45	65	35
Milch cow rearing	50	50	54	46
Goat/sheep rearing	30	70	25	75
Sewing	-	100	-	100
Vegetable production	15	85	20	80
Vegetable selling	85	15	88	12
Nursery reforestation	40	60	75	25

Reproductive activities

Women participation and involvement are greater in reproductive activities. Table 6 shows that women were directly engaged in reproductive activities and every day they spent 4.00-5.00 hours for collection of water, washing and cleaning, fuel and firewood collection, food preparation, childcare, and keeping house and yard (Table 6). Most male members acknowledged direct involvement of female in reproductive activities and less involvement of male members in respective families.

Table 6. Genderwise stakeholder involvement in reproductive activities

Reproductive activities	Views of gender involvement of all stakeholders (Per cent)			
	At present, 2004-05		Before development of shrimp industry	
	Male	Female	Male	Female
Collection of water for household use	8	92	7	93
Washing and cleaning	5	95	2	98
Fuel and firewood collection	26	74	20	80
Food preparation	0	100	0	100
Raising children	28	72	20	80
Family health care	30	70	25	75
Guiding children education	25	75	15	85
Keeping house and yard	10	90	5	95

Changing Gender Participation and Empowerment Household decision making

Each sub-sector of shrimp industry is a decision making unit for the respective stakeholders. Income earned from each of this sub-sector and disposal patterns are always being affected by respective decision maker. Table 7 shows the gender roles on taking decision on spending fisheries income and performing other household activities. It is interesting to observe from the Table that most of the stakeholders made decision on family as well as family budgeting and spending, children education, purchasing household asset and household management after consultation with their wives. In case of spending shrimp industry's income, small number of stakeholders shared views with their wives but women participation in decision on making family well-being was higher for all the stakeholders. Therefore, the role of women in different sectors of shrimp industry clearly indicate that they actively participated in their family affairs.

Table 7. Women participation of stakeholders family in decision making in household activities

Stakeholders	Household women of stakeholders shared and participated in decision making (Per cent)				
	Spending shrimp industry's income	Family budgeting and spending	Children education	Purchasing household asset	Household management
Shrimp farmers	30	40	45	35	50
Land lessors	20	35	40	30	43
Hatchery owners	10	45	50	42	48
Depot owners	15	40	50	35	45
Shrimp seed collectors	50	55	25	44	55
Shrimp farm labourers	40	45	30	50	58
Processing plant workers	60	55	45	55	60
Hatchery workers	20	30	35	30	45
Feed mill workers	15	25	30	32	46
Depot workers	45	50	35	45	45
Shrimp traders (Faria)	15	25	28	30	40

Percentage presented here is the estimation of individual issue.

Table 8. Changes in level of women empowerment

Stakeholders involved in shrimp industry	Percent distribution of stakeholder's perception about empowerment							
	Before development and involvement				After development and involvement			
	High	Moderate	Low	Absent	High	Moderate	Low	Absent
Shrimp farmers	0	5	45	50	38	30	27	5
Land lessors	0	2	47	51	32	26	37	5
Hatchery owners	0	8	46	46	48	29	20	3
Depot owners	0	7	46	47	46	31	19	4
Shrimp seed collectors	0	3	47	50	46	31	17	6
Shrimp farm labourers	0	2	35	63	34	23	36	7
Processing plant workers	0	5	52	43	52	36	12	0
Hatchery workers	0	4	52	44	44	27	22	7
Feed mill workers	0	4	42	54	42	29	24	5
Depot workers	0	3	46	51	42	32	20	6
Shrimp traders (Faria)	0	2	44	54	37	25	30	8
All stakeholders	0	4	42	54	42	29	24	5

Table 8 shows the per centage distribution of stakeholder's perception about women empowerment. Higher participation of women in family's different decision making regarding family planning, sending children to school, visiting physicians, visiting kins house, purchasing or selling properties, getting Offspring married, voting behaviour etc. were evaluated as indices of women empowerment (Mahmud, *et al.* 2001 and Islam, 1995). More than 50 per cent of the stakeholders reported that the issues of women empowerment were absent in the society when they were not involved in shrimp industry. But in postindustrialization period, a quite reverse scenario was observed. About 32-52 per cent of stakeholders reported that a high level of women empowerment prevailed in the study areas. A few stakeholders denied the extent of women empowerment in all locations in this period.

Although the wage rate of women stakeholders is lower than men stakeholders in all locations, the social acceptance and increasing opportunity of women working outside have increased tremendously. Their financial achievement has earned them a bargaining power in this patriarchal society as well-as let them run the household activities more smoothly. But it was revealed in discussion with the male stakeholders that although women are more participating in family's decision making process than before, in most cases, the decisions are ultimately taken by household heads who are male, except a very few female headed family.

Per day time budget by gender

As discussed earlier that development of shrimp industry and other technological development have direct impact on the pattern of women's involvement in both productive and domestic activities (Mwaka, 1993). Before industrialization women had less opportunity to be employed in income earning activities and they spent relatively small amount of time compared to men. Table 9 indicates that before involvement in shrimp industries women worked about 12.75 hours per day compared to that of 11.30 hours by men while after involvement, working hours of women had increased by 16.15 hours per day against men by

15.45 hours. It may be noted here that after development of shrimp industry, involvement of women in income earning activities have increased by about an hour per day (Table 9).

Table 9. Time spent on productive and domestic activities by men and women stakeholders in shrimp industry

Activities	At present 2004 (working hours/day)	Before developing or involvement in shrimp industry (working hours/day)
Men stakeholders¹		
Income earning ³	7.95 (1.15)	6.80
Home production (2)	2.10 (0.20)	1.90
All productive activities (3 = 1+2)	10.05 (1.35)	8.70
Household management (4)	2.70 (0.20)	2.50
Total (5 = 3+4)	12.75 (1.45)	11.30
Women stakeholders²		
Income earning ³	8.05 (1.15)	6.90
Home production (2)	3.65 (0.40)	3.25
All productive activities (3 = 1+2)	11.70 (1.55)	10.15
Household management (4)	4.45 (-0.85)	5.30
Total (5 = 3+4)	16.15 (0.70)	15.45

¹Average time spent of all men stakeholders involved in different sub-sectors of shrimp industry

²Average time spent of all women stakeholders involved in different sub-sectors of shrimp industry

³Income earning at present, it was mainly from shrimp related activities and that of income earning before involvement in shrimp industry, it was from agriculture farming

III. CONCLUSIONS

With respect to gender role analysis, the study implied that most of the women were involved in farm activities as seed collectors, shrimp farm labourers and workers in the shrimp-processing plant and depot. Women workers participated in different activities of shrimp industry but still male participation and involvement are dominant compared to women. Secondly, it was observed that there was significant difference of wage rate or salary between male and female in different sectors of shrimp industry where both male and female labourers were employed. For most of these cases, women workers had no bargaining power and the job market was controlled by the male contractor.

Women participation and involvement were greater in reproductive activities and to some extent, homebased income generating activities. Usually, in every day women spent 6.00-7.00 hours for reproductive and homebased income generating activities. Most of the men stakeholders acknowledged direct involvement of women in their activities and less involvement of male members in respective families. Higher participation of women in family's different decision making process regarding family planning, sending children to school, visiting physicians, visiting kins house, purchasing or selling properties, getting offspring married, voting behaviour etc. were evaluated as indices of women empowerment. Considering the per day time budget the study showed that, before industrialization women had less opportunity to be employed in income earning activities and they spent relatively small amount of time compared to men. But after development of shrimp industry, involvement of women in income earning activities has increased by about one hour per day. However, Policy interventions should be implemented to ensure equity of income and

resource endowments among the stakeholders in general and between men and women stakeholders in particular.

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