

An Analysis of Stakeholder Profiles in Relation to Production, Marketing and Processing of Shrimp in Bangladesh

M. S. Islam*
R. K. Talukder*
A. A. Miah**

1. INTRODUCTION

Shrimp farming and related activities contribute significantly to the national economy of Bangladesh. The main areas of contribution are export earning and employment generation through on- and off-farm activities. Bangladesh has about 2.5 million hectares of coastal tidal land under brackish water shrimp culture. Farming area is steadily expanding. But most of the farmers still follow the traditional method, and per unit production is very low (150-250 kg/ha). As a result, production cost is higher compared to other shrimp growing countries of the world (Braten 2001). However, even with the present production practices, a large number shrimp farmers and other stakeholders are involved in the shrimp industry, although some of them are adversely affected. In the recent past, Islam and Wahab (2000) conducted a study to assess the environmental and socioeconomic impacts of shrimp farming in Bangladesh. The present study addresses the effects of shrimp farming in changing the livelihoods of different classes of people involved in shrimp farming and the ancillary activities. The shrimp industry consists of four distinct subsectors viz., shrimp farms/*ghers*, shrimp hatcheries, feed mills and shrimp processing plants (Haque 1994). 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 country. Shrimp farming offers excellent employment opportunity through a

* Professors, Department of Agricultural Economics, Bangladesh Agricultural University, Mymensingh.

** Research Associate, Department of Agricultural Economics, Bangladesh Agricultural University, Mymensingh.

series of backward and forward linkage activities and accordingly, different groups of people (stakeholders) are directly and indirectly involved in the shrimp industry. The major stakeholders are shrimp farmers, shrimp farm labourers, owners of related establishments (feed mill, processing plant, depot and hatchery), shrimp seed collectors, land lessors and shrimp traders.

In many of the sub-sector activities, women get opportunity for employment and they are actively involved in different activities. Although both male and female workers participate in different activities, male participation is dominant compared to women. The gender role and equity issue in respect of income earning need to be determined. Also, the extent and pattern of involvement of different stakeholders and their stake in the industry needs to be carefully examined. In order to address all these issues, the paper aims to accomplish the following objectives:

- To determine the effect of shrimp related activities in changing the livelihoods of different classes of people (stakeholders) involved in the shrimp industry.
- To examine the differential aspect of livelihood effects for the stakeholder categories.
- To assess the gender dimension of participation in different activities and examine the related equity aspects, particularly in respect of income earning and social participation.

2. APPROACH OF THE STUDY AND DATA SOURCES

Three major socioeconomic aspects were considered in the assessment of the present status and livelihood patterns of the stakeholders and gender involvement in the shrimp industry.

- Access to fisheries resources of the stakeholders in shrimp production and overall shrimp industry.
- Contribution of shrimp industry's activities to household income generation and household livelihood security (e.g. food, housing, education, healthcare and other basic needs).
- Assessment of gender role and equity, and women involvement in the sub-sectors of the shrimp industry.

Three study areas were selected from Khulna, Satkhira and Cox's Bazar districts on the basis of concentration of shrimp farming activities in the areas. The study areas included Paikgacha of Khulna, Shamnagar of Satkhira and Teknaf of Cox's Bazar district. In addition, Bhaluka Upazila of Mymensingh district was selected

to study the employment opportunities created for workers in the feed meal. In total 300 stakeholders who were involved in shrimp farming and related activities were selected to examine the livelihood patterns of the stakeholders (Table 1).

Table 1: Sampling design for assessment of livelihoods of stakeholders of the shrimp industry

Stakeholders of shrimp industry	Sample households No.	Study areas
Shrimp farmers	80	Paikgacha, Shamnagar and Teknaf
Land lessors	30	Paikgacha and Teknaf
Hatchery owners	10	Cox's Bazar
Depot owners	10	Paikgacha
Shrimp seed collectors	40	Teknaf and Paikgacha
Shrimp farm labourers	30	Teknaf and Paikgacha
Processing plants workers	30	Khulna, Cox's Bazar
Hatchery workers	20	Cox's Bazar, Teknaf
Feed mill workers	20	Bhaluka, Mymensingh
Depot workers	20	Teknaf and Paikgacha
Shrimp traders (<i>faria</i>)	10	Teknaf and Paikgacha
Total	300	-

3. SOCIOECONOMIC PROFILE OF STAKEHOLDERS INVOLVED IN THE SHRIMP INDUSTRY

3.1 Stakeholders' Access to Fisheries Resources and Opportunities for Employment

Table 2 shows the number of firms actively involved in the four sub-sectors of the shrimp industry in Bangladesh. However, each of these sub-sectors has different dimensions where rural people, both skilled and unskilled labourers, get opportunity to be employed. An integrated picture of the shrimp industry linking the relevant sectors is depicted in Figure I. Shrimp production and supply chain (Fig. I) clearly indicates the production process of shrimp and its distribution where different kinds of agents and firms are involved. From different sources and study, it was reported that a lot of workers and labourers, both male and female, were employed in the farms and processing factories, whereas small traders and agents were involved in marketing and distribution. But exact number of workers and/or agents involved in different stages of supply chain are not known precisely. However, it was reported that about 0.2 million people including men and women

were engaged in shrimp fry collection, transportation, processing and other related business activities (Azahar 2001).

Table 2: Shrimp farms and other allied establishments representing the subsectors of the shrimp industry

Sectors of shrimp industry	Cox's Bazar region	Khulna region	Other areas	Total
Shrimp farms	2369	4014	198	6581
Shrimp hatchery	38	5	-	43
Shrimp processing plants	69	27	19	127
Feed mill	1	1	18	20

Sources: DOF 1994, Hossain 1994, Karim and Aftabuzzaman 1995, Socioeconomic Survey 2002 and DoF (*Matshaw Pakha*) 2002.

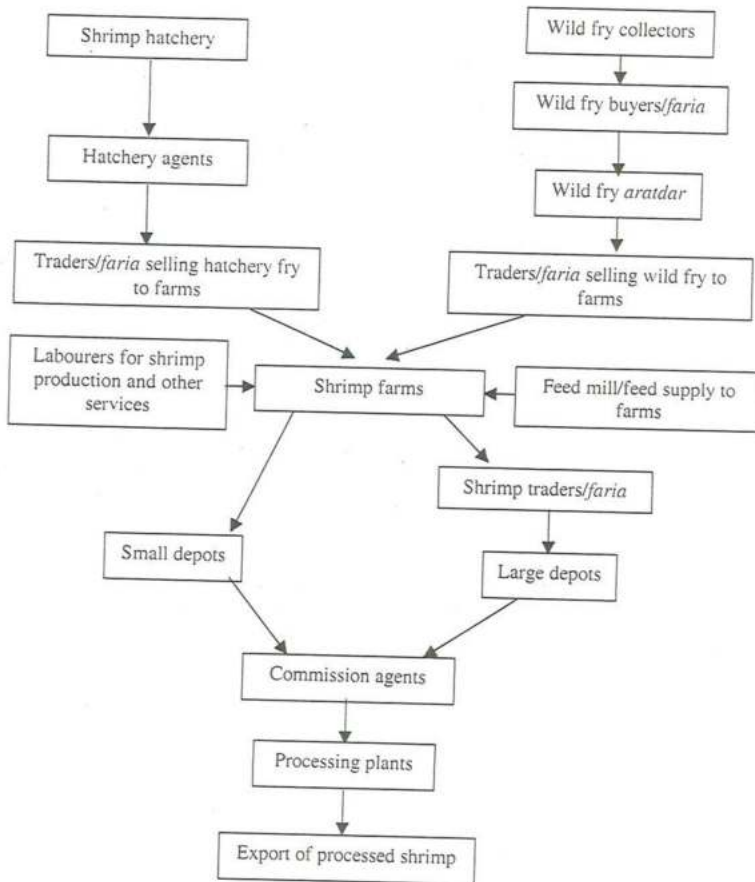
Commercial shrimp culture has created a substantial economic and social transformation in the shrimp belt of Bangladesh (Hamid and Alauddin, 1996). A large number of big *gher* owners, urban and semi-urban stakeholders have made a quick fortune by producing and trading shrimps. The gains of the big farmers and traders are alleged to have been achieved at the expense of the interest of small/marginal farmers and the fishers community. Alauddin and Tisdell (1996) reported an uneven distribution of gains from shrimp culture between big *gher* owners and the small land owners who lease out lands to the *gher* owners for shrimp cultivation.

The departure from predominantly rice based farming system to commercial shrimp culture has created a new employment structure involving movement of rural labour force within rural areas and between rural and urban areas (Hamid and Alauddin, 1996). According to MPO (1986) estimate, shrimp culture generated 10.2 million persons days of employment on- and off-farm from 51,000 hectares of shrimp area in 1983. With the projected increase in shrimp area, the volume of employment was projected to increase to 59.5 million person days in 2005.

Shrimp culture has also opened up the avenues of new employment opportunities for rural women. 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. Collection of shrimp fry by women in knee to shoulder-deep water in the coastal belt is a familiar scene (Talukder 1999).

Figure 1: Shrimp (bagda) production and its supply chain



Sources: Socioeconomic Survey (SES) Conducted in Coastal Areas of Bangladesh. NORAD Project. Bangladesh Agricultural University, Mymensingh.

Karim and Aftabuzzaman (1995) estimated that about 55000 rural women were engaged in fry collection, constituting 45% of the fry collectors. Besides, a large number of rural women are engaged in the collection of shrimp seed and production artisanal fish trapping and packing materials. However, to know the socioeconomic condition and livelihood patterns of stakeholders involved in the shrimp industry, occupational profile and household economics of respective group of stakeholders are discussed.

3.2 Contribution of Shrimp Industry's Activities to Household Income

Occupational Profile and Household Income

Shrimp farming was the main occupation of shrimp farmers. Main occupation of a farm family was considered as the occupation from which major portion of the income was earned. Occupation of shrimp farmers and other stakeholders who were involved in shrimp related activities are presented in Table 3. The table indicates that the majority of shrimp farm owners and depot owners (40-75%) had shrimp farming and shrimp related activities as their main occupation. Petty trading was practised mostly by land lessors, depot owners and shrimp traders (*faria*) (40-60%). Most of the shrimp farm labourers (73%) worked mainly in the shrimp farms. Shrimp seed collectors were mainly dependent on fry collection to maintain their livelihoods. While hatchery, shrimp processing and depot workers had shrimp related activities as their main occupation, shrimp feed mill workers derived major part of their livelihood support from sale of labour elsewhere.

Table 3: Distribution of principal occupation of stakeholders involved in the shrimp industry

Stakeholders	Principal occupation, %				
	Shrimp farming/Shrimp related activities	Agricultural crop farming	Petty trading	Rickshaw/ Van/Ear thwork	Labourers/ Service
Shrimp farmers	75	10	5	-	10
Land lessors	10	20	60	-	10
Hatchery owners	70	10	-	-	20
Depot owners	40	10	40	-	10
Shrimp seed collectors	67	-	13	20	-
Shrimp farm labourers	73	-	13	13	-
Processing plant workers	60	7	27	7	-
Hatchery workers	60	-	20	20	-
Feed mill workers	-	-	10	20	70
Depot workers	60	-	10	30	-
Shrimp traders (<i>faria</i>)	20	-	60	20	-

Most of the shrimp farm owners spent their time mainly in shrimp farming and some of them had opportunity to be engaged in crop (or salt) farming, petty trading and other non-farm activities. Land lessors, shrimp farm labourers, shrimp seed collectors and depot workers were also mainly involved in shrimp related activities, but their secondary occupation was rickshaw pulling and otherwise labour selling.

Household Income and Expenditure

The average annual income of different groups of stakeholders involved in the shrimp industry are shown in Table 4. Level of income of the sample households varied widely among different categories of stakeholders. Average incomes of the shrimp farmers, and depot and hatchery owners were several times higher than those of other categories of households. However, household incomes of shrimp seed collectors were substantially lower compared to those of land lessors and workers of processing plants. In case of shrimp farmers and shrimp farm labourers, shrimp related activities contributed more than 80% of the total income, while for other group of people contribution of these activities was 30-50% of total income.

Table 4 also shows annual expenditure of stakeholders of the shrimp industry. Since household income of shrimp farm labourers and shrimp seed collectors were very low, they spent more than 90% of their income on basic items. Shrimp farmers and depot owners spent 84.22% and 44.41% of their income as investment in shrimp farming and other activities, whereas land lessors used about 31% of their total expenditure for crop production activities. Since other stakeholder groups had relatively lesser income, they had to spend major part of their income on food, clothing and other necessities, and had therefore very negligible proportions of their income left for investment.

4. MARKETING CHANNEL OF SHRIMP AND GROWERS' SHARE OF THE EXPORT PRICE

Some of the stakeholders such as shrimp producers, depot owners, wholesalers and processing plant owners were involved in shrimp marketing activities. Long and short marketing channels, marketing margins and marketing costs of market participants are shown in Tables 5 and 6. In the long marketing channel, shrimp producers sold their harvested shrimp to depot owners/traders (Table 5), while in the short marketing channel they sold it directly to wholesalers/commission agents (Table 6 and Fig 2). Through these two channels, usually processing plant owners and exporting agents exported shrimp abroad and their net margin was same (Tk 49/Kg) in both the channels.

Table 4. Annual income and heads of expenditure of stakeholders of the shrimp industry

Sample respondents (stakeholders)	Household income (TK/Year)			Total household expenditure (TK/Year)	% of expenditure spent					
	Shrimp related activities	Farm and non-farm activities	Total household income		Food	Clothing	Health care	Education	Housing	Investment in Shrimp/crop farming and other options
Shrimp farmers	670180 (78.34)	185270 (21.66)	855450	785190	6.13	3.40	1.25	3.20	1.80	84.22
Land lessors	32890 (23.82)	105185 (76.18)	138075	85475	25.75	11.90	5.50	16.70	9.10	31.05
Hatchery owners	870135 (84.96)	153985 (15.04)	1024120	812570	5.95	4.50	2.30	5.70	8.50	73.05
Depot owners	126600 (47.42)	140400 (52.58)	267000	205450	18.19	8.25	7.25	14.50	7.40	44.41
Shrimp seed collectors	13550 (37.85)	22250 (62.15)	35800	33915	64.00	17.00	5.20	5.25	7.80	0.75
Shrimp farm labourers	40170 (75.00)	13340 (25.00)	53510	49370	55.00	15.00	6.50	9.00	10.25	4.25
Processing plant workers	50780 (51.33)	48150 (48.67)	98930	87840	53.00	17.25	6.10	11.25	8.93	3.47
Hatchery workers	61000 (70.64)	25350 (29.36)	86350	81375	57.00	12.00	5.12	11.65	9.13	5.10
Feed mill workers	55584 (78.41)	15300 (21.59)	70884	65031	58.00	15.00	5.15	12.30	8.30	1.25
Depot workers	19200 (36.20)	33840 (63.80)	53040	51250	54.00	16.00	7.10	9.25	9.70	3.95
Shrimp traders (<i>jaria</i>)	48500 (65.63)	25400 (34.37)	73900	67950	57.00	12.00	5.50	12.00	10.00	3.50

Figures within parentheses indicate percentage of total income

From Tables 5 and 6, it may be observed that purchase and sale price were the main determinants in making net margin for both the channels. In the short marketing channel, per Kg sale price for shrimp producer was higher by Tk 12 compared to long marketing channel, and the net margin of producer was Tk 84/Kg in the short marketing channel. On the other hand, purchase and sale price for wholesalers/commission agents was lower in the short marketing channel. In this case, sale price for wholesaler was lower by (Tk 630- Tk 524) Tk 106/Kg and as a result, wholesalers earned 56% less profit in the short than in the long marketing channel.

Figure 2: Short and long marketing channels of shrimp

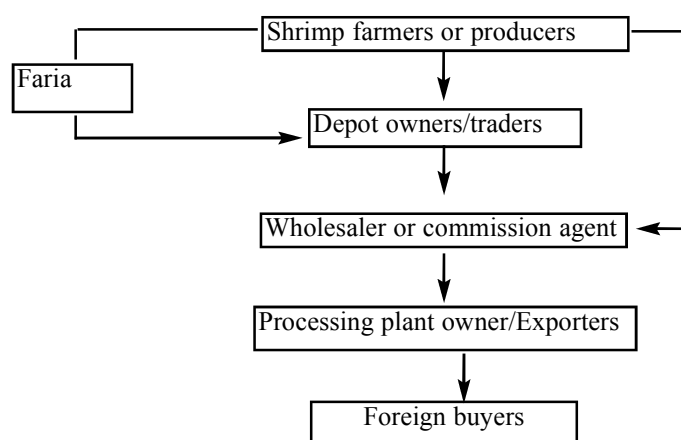


Table 5: Long marketing channel, marketing margin and marketing cost of the market participants

Market participants	Particulars of marketing (Tk/Kg)					
	Production cost	Purchase price	Sale price	Marketing margin	Marketing cost	Net margin
Shrimp producers	347	-	427	-	5 ^a	75
Depot owners/traders	-	427	470	43	11 ^b	32
Wholesaler/ commission agent	-	470	630	160	26 ^c	134
Processing plant owners/ exporters	-	630	720	90	41 ^d	49

Table 6: Short marketing channel, marketing margin and marketing cost of the market participants

Market participants	Particulars of marketing (Tk/Kg)					
	Production cost	Purchase price	Sale price	Marketing margin	Marketing cost	Net margin
Shrimp producers Wholesaler/ commission agent	347	-	439	-	8 ^a	84
Processing plant owners/ exporters	-	439	524	85	26 ^c	59
	-	524	601	77	41 ^d	49

a Cost items of producers/ shrimp farmers: transportation, loading and unloading, basket, ice, wastage, and personal expenses.

b Cost items of depot owners/traders: wages and salaries, ice, basket, house rent, wastage, transportation and personal expenses.

c Cost items of wholesaler/commission agents: wages and salaries, ice, transportation, loading and unloading, basket, entertainment, house rent, wastage, telephone, polythene, and electricity.

d Cost items of processing plant/exporters: commission paid, loading and unloading, processing plant rent, salary for employee, transportation, maintenance, ice, freezing, electricity, packing, bleaching powder, medicine and others.

Table 7. Price spreads and farmers' share in the export price of shrimp

Channel	Export price (Tk/Kg)	Farmers gross price (Tk/Kg)	Farmers net price (Tk/Kg)	Price spreads (Tk/Kg)	Farmers gross share as % of export price	Farmers net share as % of export price
1	2	3	4=GP-MC	5=2-3	6=(3/2)*100	7=(4/2)*100
Long channel	720	427	422	293	59.30	58.61
Short channel	601	439	431	162	73.04	71.71

Note: GP = Gross price, MC = Marketing cost

Price spread and farmers' share under two shrimp marketing channels are shown in Table 7. In the long marketing channel the export price, farmers' gross price and net price per Kg of shrimp were Tk 720, Tk 427 and Tk 422 respectively. The corresponding price spread was Tk 293 per Kg of shrimp and the farmers' gross share and net share were 59.30 and 58.61 percent of export price respectively. On the other hand, in the short marketing channel the price spread was Tk 162 per Kg

of shrimp and the farmers received 73.04 and 71.71 percent of export price as gross share and net share respectively. The lower share of shrimp producers in the long marketing channel compared to the short marketing channel indicated that farmers' gross share and net share of export price decreased with the increase of middlemen in the long marketing channel.

5. HOUSEHOLD LIVELIHOOD SECURITY OF STAKEHOLDERS

5.1 Livelihood Security

The livelihood of a household is assumed to be secured when the members have adequate and sustainable access, through farm and non-farm activities, to income and resources to meet their basic needs. The typical basic needs include food, clothing, health care, educational opportunities, physical safety and housing. The principal components of household livelihoods security examined in the exercise were food security, economic security, educational security, health services and childcare, and social status of the people.

Food security

Adequate and sustained food consumption was considered as the main determinant of household food security. Food consumption and food purchasing capacity of the stakeholders were critically dependent on their income. The lower income group could not afford to manage a reasonably balanced diet and they could hardly eat fish in 10-15 meals and meat once in a month. Most middle-income groups could manage a moderately balanced diet. The upper income groups obviously managed a reasonably sufficient balanced diet (Table 8). The consumption of meat, milk, vegetables and fruits were found insufficient for lower income group, while rice and fish were either sufficient or moderately sufficient for them. As can be seen from Table 8, the level of consumption varied substantially among the different stakeholder groups in the study areas.

Health security

A household may be said to be 'health secured' when all of its members have sustainable access to medicare facilities and get health problems addressed by competent health care professional. The upper income group had almost 100% health facilities. Among the other stakeholder groups, 60% of the households were dependent on local quacks. Particularly the labourers, depot workers, feed mill workers and shrimp seed collectors were the clients of these local village healers. Most respondents reported not to be getting health service facilities from the loca

Table 8: Food consumption and food security of the stakeholders

Stakeholders	Adequacy of food consumption						
	Rice	Flour	Milk	Meat	Vegetable	Fish	Fruit
Shrimp farmers	S	S	MS	S	MS	S	S
Land lessors	S	S	MS	S	MS	S	MS
Hatchery owners	S	S	S	S	S	S	S
Depot owners	S	S	MS	S	MS	S	MS
Shrimp seed collectors	MS	I	I	I	I	I	I
Shrimp farm labourers	MS	I	I	I	I	I	I
Processing plants workers	S	MS	I	I	I	MS	I
Hatchery workers	S	I	I	I	I	MS	I
Feed mill workers	MS	S	I	I	S	I	I
Depot workers	MS	I	I	I	I	I	I
Shrimp traders (<i>faria</i>)	S	M	I	I	I	MS	I

Note: S=Sufficient, MS=Moderate sufficient, I=Insufficient

Educational security

Since primary education service is compulsory and free, there exists the scope for every child to become literate. But the universal primary education facility was not utilized due to poor socioeconomic condition of the households. It was evident that a good number of households could not take advantage of such facility. Considering all categories of stakeholders, on an average 75-80% of upper income groups had educational security. On the other hand, 40-50% of the middle income groups and 10-15% of the low income groups had educational security (Table 9).

Social status

The low income group of the stakeholders had relatively lower social status in the community. In most cases, the lower income group did not get proper judgment from the community. Their poor social status prevented them from getting access to information and in using public resources.

Physical capital of the stakeholder households

Among the stakeholder groups, upper income group used to live in *pucca* houses, and middle and low income groups lived in small houses which were either tin roofed or straw roofed. Sixty to 100% of upper income respondents used *pucca* toilet and safe drinking water from HTW. Sanitation of middle and low-income group was not developed. Most low income stakeholders used *Kutcha* toilet and a few stakeholders in the study areas did not have any toilet facility at all.

Maximum stakeholders were found to have electricity connection, except shrimp farm labourers, shrimp seed collectors and depot workers. Only a few labourers owned some modern amenities like radio, television and watch (Table 10).

5.2 Gender Equity in the Shrimp Industry Activities

Both men and women were engaged in shrimp farming and related activities in the coastal areas. Women were involved in shrimp related activities as shrimp seed collectors, shrimp farm labourers and workers in the shrimp-processing plant. It was observed that shrimp farms provided an opportunity for socially displaced women, particularly those who had marital problems and were deserted by their husbands. It was also observed that, usually women workers in different section of the shrimp industry were assetless and poor, and some of them were widow and destitute or divorced women. They were compelled to get out from their houses in order to find jobs for survival. In some cases women had to work to earn money to supplement the household income and to meet the basic need of the family members.

It was revealed that women participation was considerably higher in some of the shrimp production and processing activities as shown in Table 11. However, male participation and involvement was dominant. Secondly, it was observed that there was significant difference of wage rate between male and female in different sectors of shrimp industry where both male and female labourers put similar efforts.

Most of the farm labourers were resource poor and had only a small amount of land. Usually they sold their labour to work in other farmers' fields. They worked as casual and contract labourer and very few of them got permanent employment either in shrimp farm or in other farms and/or non-farm activities.

6. CONCLUSIONS

The emergence of commercial shrimp farming and the related backward and forward linkage activities opened up new dimension for the employment of both men and women in different activities. The majority of shrimp farm owners and depot owners (40-75%) had shrimp farming and related activities as their main occupation. Petty trading was practiced mostly by land lessors, depot owners and shrimp traders (*faria*) (40-60%). Labourers working in *bagda* hatchery, processing plant, depot, and feed mill earned wage and salary as their main occupation. Shrimp farmers and other related stakeholders derived major proportion of income from respective activities of the shrimp industry. Farmers'

Table 9: Wealth ranking of the stakeholders

Heads of wealth ranking	Characteristics of stakeholder groups		
	Upper income group Tk. 138000 – 855000	Middle income group Tk. 73000 – 99000	Lower income group ¹ Tk. 35000 – 71000
Yearly household income			
Savings	Most of the households could make a good savings	Most of the households could make a moderate savings	Had little savings
Credit	Generally did not require credit	Credit was required by some	Generally required credit
Housing shed	Pucca/tin shed house	Tin shed house	Tin shed/straw shed house
Food security	Had reasonably sufficient balanced diet	Had moderately sufficient balanced diet	In some households food was not available for 3 times in a day
Consumption of fish and meat	Could consume meat for 10–12 days and fish for 20–25 days in a month	Could consume meat for 5–7 days and fish for 15–20 days in a month	Could consume meat for 1–2 days and fish for 10–15 days in a month
Availability of drinking water	100% of households had own HTW, all could drink tube well water	80–100% of households had own HTW, all could drink tube well water	50–80% of households had own HTW, all could drink tube well water
Latrine	Pucca sanitary latrine was available	Semi-pucca latrine was available	Used traditional latrine
Social status	Had higher status in the society	Had moderate status in the society	Had poor social status in the society
Radio/TV	About 100% households had Radio/TV	About 75–80% households had Radio/TV	About 40% households had Radio and 10% had TV
Electricity supply	90% households had electricity connection	50% households had electricity connection	10–20% households had electricity connection
Educational security	Every households had educational facility	Every households had educational facility but not of good quality	Educational facility was limited
Health security	100% households had healthcare facility	Moderate healthcare facility was available	Healthcare facility was inadequate
Skillness	Almost all were technically skilled in respective work	Most of them were semi-skilled	Most of them were non-trained and unskilled

Note:

1. Shrimp farmers, land lessor, hatchery owners and depot owners
2. Processing plant workers, hatchery workers and shrimp traders
3. Shrimp farm labourers, shrimp seed collectors, feed mill workers and depot workers

Table 10: Physical assets of the stakeholder households

Stakeholders	% of stakeholders owning and using physical assets									
	Housing shed		Sources of water for household use		Toilet		Modern amenities			
	Pucca	Straw roof	HTW	Pond/river	Sanitary	Kutcha	Radio	Watch	TV	Electricity
Shrimp farmers	70	30	100	-	100	-	80	100	90	80
Land lessors	60	40	100	-	90	10	90	100	50	70
Hatchery owners	100	-	100	-	100	-	90	100	100	100
Depot owners	60	40	100	-	90	10	80	100	60	80
Shrimp seed collectors	-	20	80	20	-	100	50	30	-	-
Shrimp farm labourers	-	20	80	20	-	100	40	40	-	-
Processing plant workers	-	60	80	20	40	60	60	70	20	80
Hatchery workers	-	60	80	20	30	70	70	80	20	80
Feed mill workers	-	50	100	-	-	100	40	90	-	50
Depot workers	-	20	70	30	-	100	30	50	-	-
Shrimp traders (faria)	-	60	90	10	30	70	40	80	20	70

Table 11: Gender role and equity and women involvement in the shrimp industry

Stakeholders involved in shrimp industry	Activities performed	Gender distribution (%)		Estimated income, Tk/month		Gender equity condition
		Male	Female	Male	Female	
Shrimp farm labourers	<ul style="list-style-type: none"> • Preparing shrimp farm • Stocking shrimp seed • Watching farm • Reconstruction of dyke • Collecting weeds 	80	20	2000-3000	850-1200	Male and female had specified job. Male dominated and organized and managed by male labourers. Women were low paid.
		100	-	1500-2500	-	
		100	-	1500-2000	-	
		80	20	2500-3000	1000-1500	
Shrimp seed collectors	Collection of shrimp seed from the Sea, Rivers and Sundarban	70	30	1000-1500	850-1200	Self-employed. Free movement.
		55	45	1500-1800	1000-1200	No discrepancy between men and women.
Depot workers	Cleaning and deheading of shrimp	60	40	2500-3000	1200-1500	Moderately maintained gender equity. Women were employed for deheading and cleaning.
Workers of shrimp processing plants	Deheading, cleaning, icing and packing of shrimp	55	45	2500-5000	1500-2500	Maintained gender equity but in some factories male supervisors control the supply of women labour.
Feed mill workers	Producing feed, dumping, crushing, loading and unloading	100	-	3000-4000	-	No women workers were recruited due to laborious job.
Hatchery workers	Feeding shrimp, watering, harvesting of fingerlings	100	-	4000-6100	-	No women workers were employed.
Shrimp traders	Buying shrimp from the shrimp farm owners and sell to the depot owners	100	-	2500-5000	-	No female trader was engaged.

gross share and net share of export price of shrimp were higher in the short marketing channel compared to the long marketing channel.

Among the stockholders involved in the shrimp industry, livelihoods of upper income group and to some extent, middle income group were more secured compared to those of lower income group. Male participation and involvement was dominant almost in all works of the shrimp industry. Usually women workers in different sections of the activities were relatively poor, and some of them were widow, destitute or divorced women. Women were required to be employed to earn money to supplement the household income and to meet the basic needs of the family members. There was significant difference of wage and salary between male and female in different sectors of the shrimp industry where both male and female put similar efforts. However, social attitude towards increasing empowerment and improving socio-economic status of women was gradually increasing.

Some policy interventions are warranted to ensure equity of income and resource endowments among the stakeholders in general and between male and female stakeholders in particular.

References

- Alauddin, M. and Tisdell. 1996. Bangladeshis Shrimp Industry and Sustainable Development: Resource Use Conflict and Environment. Working Paper No. 1. Dept. of Economics, The University of Queensland, February. 1996
- Braten, B. 2001. Environmental Impacts and Socio-economic Problems of Shrimp Farming in Various Countries. Paper presented at the workshop on Environmental and Socioeconomic Impacts of Shrimp Farming in Bangladesh, held at BAU, Mymensingh, February, 2001.
- Hamid, M. A. and Alauddin, M. 1996. 'Shrimp Production and Employment Generation in Bangladesh: Changing Role of Women', A Paper Presented at the Bangladesh: Economy, People and the Environmental Conference, Brisbane, June 10, 1996.
- Haque, S.M. 1994. Annual Report of Bangladesh Frozen Food Exporters' Association(BFFEA). In BFFEA Special Bulletin, January 1994. Dhaka.
- Islam, M.S. and Wahab, M. A. 2000. A PRA Report of Socioeconomic and Environmental Impact of Shrimp Farming in Bangladesh.
- Karim, M. and Aftabuzzaman, M. 1995. Brakiswater Marine Water Aquaculture: Potential, Constraints and Management Needs for Sustainable Development. A Paper Presented at the National Workshop on Fisheries Resources, Development of Management, Dhaka. October 29-November 1, 1995.
- Miah, A.A. 2001. An Economic Study on Alternate Shrimp- Crop Farming in Coastal Areas of Bangladesh. M. S. Thesis, Submitted to the Department of Agricultural Economics, Bangladesh Agricultural University, Mymensingh.
- MPO.1986. Coastal Shrimp Aquaculture Resources, Technical Report No. 18, Dhaka: Master Plan Organization, Government of Bangladesh.
- SES 2002. Socioeconomic and Environmental Impact of Shrimp Farming in Bangladesh. Socioeconomic Survey (SES) Conducted in Coastal Areas of Bangladesh, NORAD Project, Bangladesh Agricultural University, Mymensingh.
- Talukder, R.K. 1999. Financial Profitability of Shrimp-based Farming System in Bangladesh. Paper presented at the closing workshop on Economic, Social and Environmental Implications of Shrimp-Rice Integrated Farming System in Bangladesh, held at BIDS, Dhaka on 26 December 1999.