



## STATUS OF STAKEHOLDERS OF SHRIMP MARKETING CHANNEL IN BAGERHAT DISTRICT WITH A VIEW TO ENVIRONMENTAL PROTECTION AND MANAGEMENT

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**Abstract:** The shrimp marketing channel included the stakeholders like *gher* owner, *faria*, depot, agent and processing plant. Presently the shrimp is considered as the prime exporting item and demands good quality product and satisfactory foreign buyers. Some concerning factors like source of pure water, irregular icing, improper handling and transportation were identified which affected the food safety and quality of the shrimp product. Lower stakeholders like *gher* owners, *farias* and depots were less aware about Hazard Analysis & Critical Control Points (HACCP) where as agent and plant complied HACCP system cautiously. In processing plants there was no child labour, low wage was paid to workers and other facilities were partially provided. In *ghers* wage was paid in terms of cash, food and cloth where as in depots and agents only low rate of cash was paid. Overtime wage was fully absent in the whole marketing channel. In *farias* and depots some unethical fair trade practices like pushing foreign materials (*shagu*, juice of ladies finger, water etc.) were observed. In case of depots, agents and processing plants lower grade was counted during the procuring where as higher grade was considered during selling period. Without *faria* all stakeholders had provision to get license. It was found that *gher* owners were less interested to get license but higher percentage of agents and factories were found having license from the competent authority.

**Keywords:** Stakeholders, HACCP, marketing channel, shrimp

### Introduction

Within the overall agro-based economy of the country, the contribution of fish production have been considered to hold good promise for creating jobs, earning foreign currency and supplying protein. About 97% of the inland fish production is marketed internally for domestic consumption while the remaining 3% is exported (Choudhuri, 1993; Rahman, 1994; Anon, 2001). A large number of people, many of whom living below the poverty line, find employment in the domestic fish marketing chain in the form of farmers, processors, traders, intermediaries, day labourers and transporters (Koonse,2001; Matsya, 2003; Pansuwanna, 2001; Richard,2002).

The fisheries sector, especially the shrimp sector has been playing an important role in the economy of Bangladesh. From time immemorial, freshwater prawns and shrimps have been caught as wild. In the past people living in coastal areas within the embankments along the banks of estuarine rivers allowed sea water carrying shrimp fry or juveniles to enter the enclosures. The production had always been very poor. The government has taken schemes to modernize the shrimp culture in the country from mid 1980s, as a result there have been considerable

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improvements in shrimp. The sector plays a dominant role in nutrition, employment and foreign exchange earnings. About 1.2 million people directly and 10 million people indirectly depend on fisheries for their livelihood. This figure is about 12% of the total population of the country (Chowdhuri, 1993).

Bangladesh shrimp and prawn exports comprise 2 species from freshwater and 9 species from marine water. Of these, *Macrobrachim rosenbergii*, (the *golda*), *Metapenaeus monoceros* (the *harina*), *Penaeus indicus* (the *chaka*), and *P. monodon* (the *bagda*) are worth mentioning. Tremendous prospectus exists for the development of the sector. The country has great potential for freshwater prawn culture, and marine and brackish water shrimp culture. Bangladesh shrimp is widely accepted for its freshness and pollution free production.

South-western region of Bangladesh is very famous for shrimp culture and processing. A considerable number of processing plants were established in this region especially in the district of Bagerhat, Khulna and Satkhira.

The objective of the present investigation mainly focused on how environmental protection and management activities are practiced by stakeholders of shrimp marketing channel.

#### Materials and Method

Nine upazillas of Bagerhat district were selected under the investigation. The marketing channel is interlinked with other district marketing channel. The surveyed upazillas were Sadar, Mongla, Rampal, Fakirhat, Kachua, Mollahat, Morelgong, Chitalmari and Sarankhola (Fig. 1). Different questionnaire were prepared for stakeholders, and survey was made. A total 81 gheras, 81 farias,

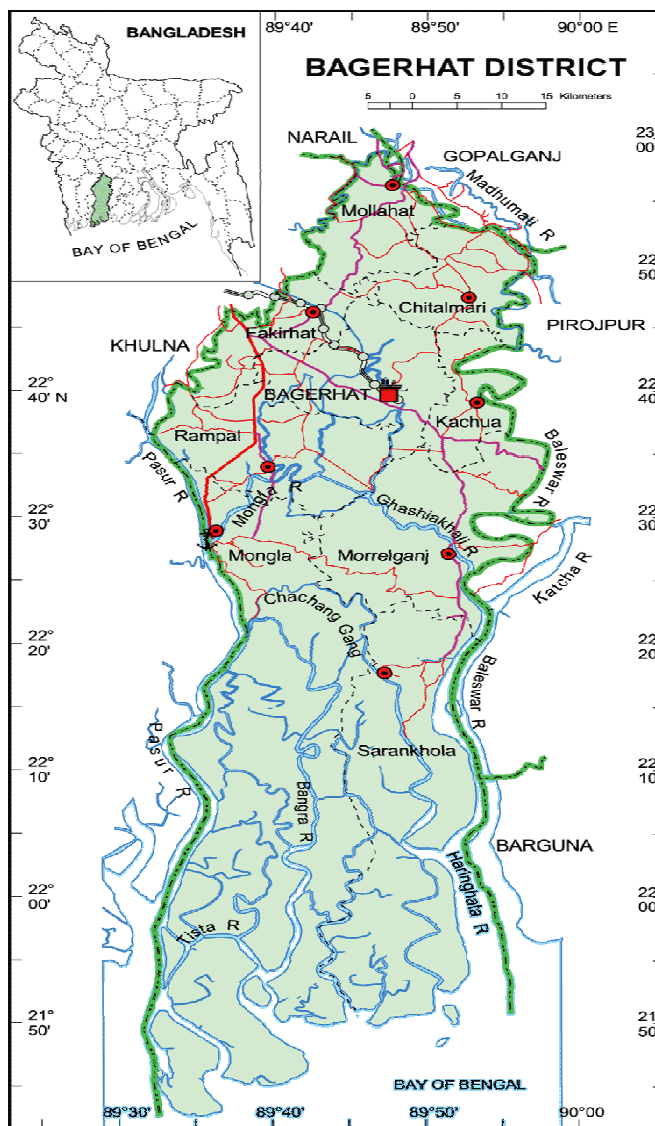


Fig. 1. Sampling area in Bagerhat district, Bangladesh

Rahman, S.S., Bagum, N.N. and Rahman, M.M. 2010. Status of stakeholders of shrimp marketing channel in Bagerhat district with a view to environmental protection and management. *Khulna University Studies* 10 (1&2): 99-105

54 depots, 8 agents and 2 factories were investigated. The participants were selected on random basis. The PRA tools including FGD (Focus Group Discussion), daily activities, cross check, seasonal calendar were performed. Nine FGDs were conducted at the gher level in 9 surveyed upazillas. In the present study to identify the problems existing in the marketing system to bring revolution, data were collected from each stakeholder in the aspect of the recommended salient features (Table 1).

Table 1. Major considering factors taken under the study

Salient features	Stakeholders				
	Ghers	Farias	Depots	Agents	Plants
General information	(i) Source of fund (ii) Workers (iii) Education and religion (iv) Salary	(i) Age (ii) Workers (iii) Education status (iv) Religion (v) Salary (vi) Amount of shrimp buy everyday (vii) Amount of shrimp sell everyday	(i) Ownership (ii) Source of fund (iii) Area (iv) Manpower (v) Salary (vi) Structure	(i) Ownership (ii) Source of fund (iii) Area (iv) Manpower (v) Salary (vi) Production (vii) Structure	(i) Ownership (ii) Source of fund (iii) Education (iv) Religion (v) Manpower
Environmental protection and management	(i) shrimp culture period (ii) Source of water for culture (iii) Antibiotic use (iv) Harvesting method (v) Harvesting type	---	(i) Waster dumping place (ii) Dehead the shrimp and dumping of shrimp waste	(i) Waster dumping place	(i) Waste treatment before dumping (ii) Shrimp waster dumping place (iii) Discharging place of factory used water

Primary data were gathered by field survey through structured questionnaires. This study involved the inspection of the socio-economy and livelihoods of the stakeholders. Secondary data were collected from Bangladesh Frozen Food Exports Association (BFFEA), Bangladesh Export Promotion Bureau (BEFR), Department of Fisheries (DoF), Shrimp Seal of Quality (SSoQ), Bangladesh Fisheries Development Corporation (BFDC), Marketing cooperatives, ATDP and NGO's. Data were gathered, sorted/ categorized and interpreted according to the objectives as well as the indicators and presented in graphs and tabular forms. Data were presented in the respect of seven salient feature mentioned earlier. Against each feature all the stakeholders were compared. Comparison between the stakeholders was taken in some cases to identify the particular problem existing in the particular stakeholder of the shrimp marketing channel. All the data were processed with the help of data base software Microsoft Excel and SPSS.

## Results

**Existing shrimp marketing channel in Bagerhat district:** Marketing channel is the sequence of intermediaries through which harvested shrimp go from producers to consumers. It may be noted that some shrimp were harvested and marketed to the local consumer. Those marketing channel was different from the marketing channel where harvested shrimp were exported through a channel to the abroad. In the present study all types of shrimp like *Penaeus monodon (bagda)*, *Macrobrachium rosenbergii (golda)*, *Metapenaeus monoceros (horina)*, *P. indicus* etc. were taken under consideration. Those are used to export in the foreign. This marketing channel is simple comparative to the fish marketing channel. Marketing channel participants included farmers,

farias, depot holders, commission agents and processing plants (Fig. 2). Including freshwater and marine water shrimp a general marketing channel was sketched. The first stakeholder was identified as farmer that was indicated as gher owners/gher, second stakeholder was appeared that was farias. In the present marketing system two types of farias were found. Some were called small farias and other was called as large farias. Though in the analysis both farias were combined and used in the result in a body. Gher owners sold their shrimp to the farias sometimes in the gher areas or sometimes they carried their harvested shrimp directly to the depot. The third stakeholder was depot holder. In that section also two types of depots were found, one was primary and another was secondary. Shrimp can be marketed from farias to the both places and even primary depot owners sold shrimp to the secondary shrimp owners. Also in that section two depots were analyzed jointly. The fourth stakeholder was found agents or commission agents. Either farias or depots all shrimp was firstly entered into any commission agents then those were passed to the processing plants. The last one was processing plants. There was a very interesting matter that processing plants did not accept any shrimp without via commission agents.

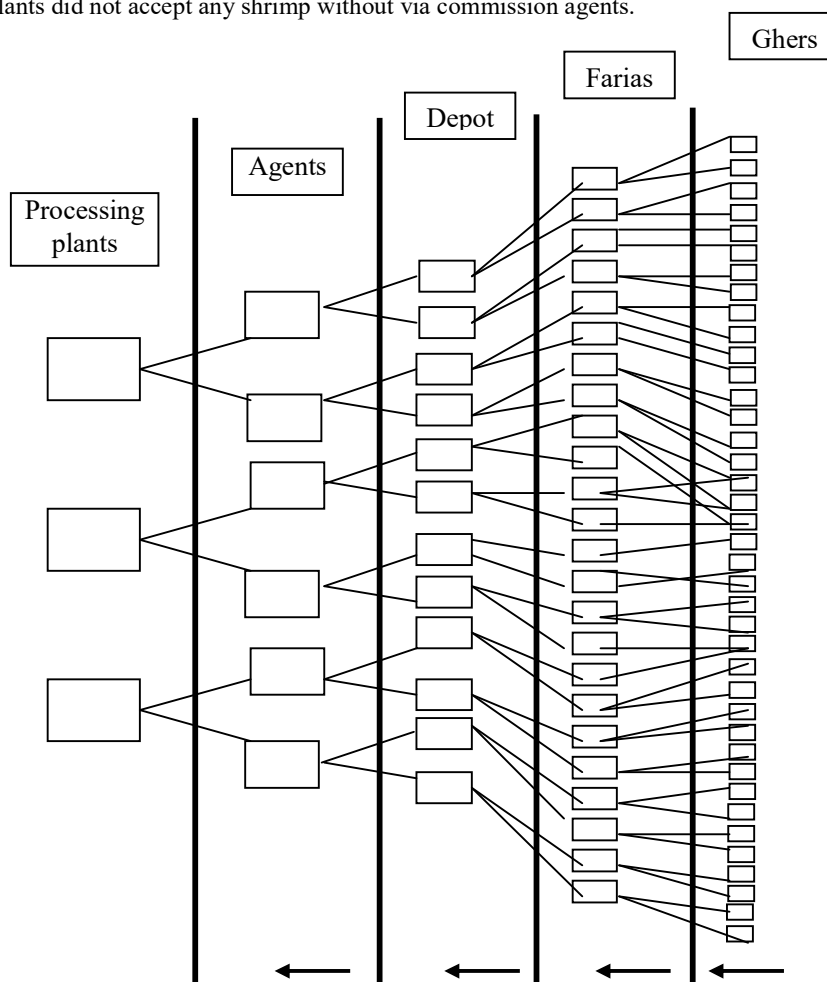


Fig. 2. Existing shrimp marketing channel in Bagerhat district

Rahman, S.S., Bagum, N.N. and Rahman, M.M. 2010. Status of stakeholders of shrimp marketing channel in Bagerhat district with a view to environmental protection and management. *Khulna University Studies* 10 (1&2): 99-105

**Source of fund of the ghers:** *Ghers* normally run with self finance. The 66.67% *ghers* of Morelgong, 33.33% from Mongla and Mollahat upazillas and 16.67% from Kachua and Sarankhola upazilas were established giving loan from somewhere.

**Education and religion of the ghers:** About 46.43% *gher* owners were found whose education level was primary and a large percentage (89.29%) *gher* owner was found Muslim.

**Salary of the workers of the ghers:** In *ghers* male and children workers were found with great percentage and sometimes manager or accountant was found in some *ghers* but no grader was found. The male, female and children workers salary were ranged between 60-120, 50-55 and 30-40 Tk day<sup>-1</sup> where as manager was paid ranged between 3000-5000 Tk month<sup>-1</sup>.

**Shrimp culture period:** Culture period of the *ghers* were estimated. About 60.49% *gher* owners stated that they obtained two crops (shrimp) in each year from the *ghers*, while 2.47% *ghers* owners cultured shrimp for whole year that might affect worse impact on the environment increasing salinity, inorganic and organic nutrients into the *ghers*.

**Source of culturable water:** Source of water during culture period is the concerning factor to keep free the *gher* from disease. The culture water should be linked directly from canal or river. The source of water for culture was 70% and 30% from other *ghers* and river/canal respectively.

**Use of antibiotics:** About 100% *ghers* of Bagerhat district declared that they did not use any sorts of antibiotics. Maximum *ghers* of this region were interlinked and they used other *ghers* water to solve their water source.

**Harvesting method and harvesting type:** In all *ghers* of all nine upazilas harvesting method was netting (100%) and harvesting type was partial (100%).

**Ownership of depot:** In the present investigation 66.67% depot of Bagerhat district was found whose ownership was rented while 14.81 and 18.52% were found Govt. and self respectively. About 37.04% depot was identified whose source of fund was loan from somewhere.

**Area of depot:** Area wise depots were divided into four different groups, where below <100 sq.ft depot was not found and 62.96% depots were found having area of 200-300 sq.ft. Too large depot is difficult to keep clean and free from contamination of maintain HACCP. In Bagerhat district only 14.81% depots were found having area more than 300 sq.ft.

**Structure of depot:** In the surveyed area (Bagerhat district) 62.96% depots were found where floor had been made of mosaic and rest of the depots floor was plaster. It was very positive result in the context of HACCP that there was no muddy and wooden floor found in any of the nine surveyed upazilas. About 88.89% depots made their wall with bricks. Though a few (14.81%) depots were appeared whose roof was made of *golpata*, but a significant portion (37.04 and 29.63%) depots were visible whose roof was made of concrete and tin respectively.

**Salary of depot:** Females and children were employed giving lowest salary into the depots. Table 5 shows that male workers were getting higher salary (60-120 Tk day<sup>-1</sup>) rather than others. Workers were employed as daily basis and salary increases depending upon season and production of the depot. Staff and also workers salary varied with the size of the depot, situation, availability of labour, production and other factors. The depots of Bagerhat district there was no permanent children staff and manager/accountant salary varied ranged between Tk 2500 to Tk 6000 *per* month.

**Waster dumping place:** The 70% of the depots dumped their waste materials to the nearest pond/ditch and remaining 30% depots dumped their waste to near drain.

**Ownership of agents:** From the investigation 62.50% agents were identified as rented and, 25 and 12.50% were identified as self and Govt. respectively. 62.50 % agents were running by getting loan from others where remaining was self funded.

**Area of agents:** Area wise agents were divided into five different categories such as 200-300, 300-400, 400-500, 500-600 and >600 sq. ft groups. About 25% agents were identified for each of 300-400, 400-500 and >600 sq.ft groups and 12.5% for each of 200-300 and 500-600 sq.ft groups.

**Structure of agents:** Floor of almost all agents was constructed by mosaic and it is prerequisite to construct the floor and wall with such a material that can be easily cleaned to maintain HACCP. In the present survey a large percentage (62.5%) of agents were identified which floor was constructed with mosaic or tiles. Where 31.25% floor was found plastered and very little (6.25%) was found wooden floor which could be vulnerable to contaminated. Like floor 75% agents were found which wall was made of brick and remaining was found whose wall was made of tin (12.5%) and wood (12.5%) while bamboo wall was absent. The roof structure of surveyed agents is 25, 50, 12 and 12% for concrete, tin, *goolpata* and others respectively.

**Waste treatment and waste dumping place:** The 100% agents of Bagerhat district said that they didn't treat their waste material before dumping and 20% agents dumped near ponds/ditches/canals where as 80% agents sold their waste materials.

**Ownership and source of fund of Factory/ processing plant:** Hundred percent of factories were constructed with partnership and they are running on loans.

**Education and religion of factory owner:** About 100% factory owner's educational background was SSC and religious status was Muslim.

**Waste dumping places:** The owners of the surveyed shrimp processing plants said that they sold their 90% shrimp waste including shrimp head, shrimp shell, shrimp telson while 10% waste materials were dumped near pond/ditches which included unused parts of other exporting products like, finfishes, vegetables, fruits etc.

**Water discharging place of factory used water:** Factory water contained chlorinated water, which disinfectants or destroys microbes, when it reaches into drain or canal it reduces microbes those microbes are responsible for spoiling the waste materials. In the present study it was found that 60% factory discharged their used water to near drain.

## Discussion

The EU team after visiting the factories in Bangladesh on 16<sup>th</sup> November 2005 and commented as "With regard to the results of the last food and veterinary mission in 1997 major investments and improvements were found in the establishments generally worked under good structural and hygienic conditions and have improved and invested significantly". These were very encouraging words for the Government of Bangladesh as well as for the stakeholders of shrimp marketing channel especially for all processors and exporters. Understanding the importance of our exports to EU countries and knowing fully well about the incidents of 1997, all the exporters had prepared their establishments or facilities in all respects and most importantly they had made substantial investment inside the factories, updating all their documentations and training the workers to meet the requirements of the HACCP and EU Guidelines.

Shrimp is the second exported commodity which are producing and processing in our country but are not consuming in local market. So, to satisfy the buyer is the main concerning matter to promote the export. In this regard to improve the infrastructure of the shrimp marketing channel and to assure food safety Vision 2008 had been established on 28-29 November 2004. The target of vision 2008 was to achieve exporting earning 10,000 crore (1-5 billion US\$) from the shrimp exporting section. This vision 2008 included many things like improvement of local marketing system, development of handling resources, development of sustainable aquaculture strategies, feed mill development, seal of quality, foreign marketing strategies, operational strategies (an alliance) etc. The present study only confined in internal marketing system specially shrimp marketing channel in Bagerhat district and present status of all stakeholders of the channel with a view to achieving the vision 2008. To promote the production and ensuring the food safety of

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shrimp, seven salient features were established. In the present study seven salient features were investigated in each stakeholders.

Now a days environment is a big issue in shrimp culture. The buyers are giving more attention in the environment friendly shrimp culture. Shrimp farming affects the environment by water logging. In the study area large number of gher affected the environment by water logging where as less number of gher were found eco-friendly. All the gher owners declared that they didn't use any antibiotics and chemicals. Faria and depots effected the environment in negligible quantity, dumping their waste material. While processing plants were hampering the environment and aquatic ecosystem dumping the used water and shrimp waste materials directly to nature without treatment.

### **Conclusion**

This sector is very potential and contributing a vital role in the economy of the country. Complying the above discussed seven salient features, the existed shrimp marketing channel could be developed and promoted the export growth figure. Now this is the right time to take initiative for homogeneous development of all the stakeholders related with the marketing channel. In this regard Government, NGO's, BFFEA and other national and international organizations should come under an apex body future development.

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