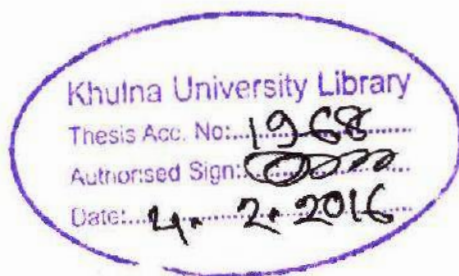


Status of Stakeholder of Shrimp Marketing Channel in Bagerhat District With a View to Achieving Vision 2008

A thesis
By



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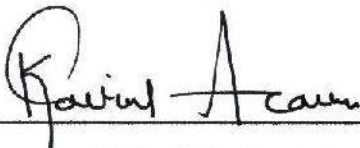
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DECLARATION

The results submitted in this thesis are entirely the candidate's own investigation and no part of these results has been accepted for any degree, nor is it being concurrently submitted for any degree.

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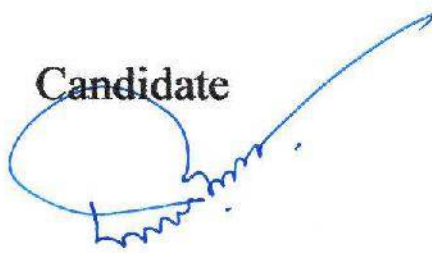
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Sk. Shafiqur Rahman

Abstract

Bagerhat district plays an important role in shrimp producing and exporting regime. About 33% shrimp of Khulna region is producing from Bagerhat district. A survey based study was conducted in Bagerhat district to identify the existing shrimp marketing channel and the steps taken by all stakeholders with a view to achieving the Vision-2008 (Export earning Tk 10,000 crore). The marketing channel included the stakeholders like gher owner, faria, depot, agent and processing plant. In the present situation shrimp is considered the exporting item assuring good quality product, satisfy the foreign buyers and thus promoting export growth. In this circumstances seven salient features were fixed up for increasing export and production. Environment friendly organic shrimp culture was found in the study area where shrimp processing plants destroyed the environment by dumping and discharging chlorinated water and shrimp waste materials arbitrarily. 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 seafood product. Lower stakeholders like gher owners, farias and depots were less aware about HACCP where as agent and plant complied HACCP system cautiously. In processing plants there was no child labour, less wage was paid to workers and other facilities were partially provided. In gher wage was paid in terms of cash, food and cloth where as in depots and agents only low rate of cash were paid. Overtime wage were fully absent in whole marketing channel. In farias and depot some unethical fair trade practices having pushing foreign materials (shabu, juice of ladies finger, water etc.) were observed. In case 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. Less number of lower stakeholders were aware about traceability and only factory owners were found conscious about it and tried to maintain. In the study it was observed that every stakeholder was improving their status among them depots were significantly improved by this time. This study suggests that the seven salient features must be strictly followed in each stakeholder to achieve the Vision 2008. The Government and other organizations must give more attention to develop this sector.

Abbreviation

BFFEA	Bangladesh Frozen Food Exporters Association
DoF	Department of fisheries
EU	European Union
FIQC	Food Inspection and Quality Control
HACCP	Hazard Analysis Critical control Point
NGO	Non Government Organization

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CHAPTER- ONE

INTRODUCTION

1.0. Introduction

Bangladesh is a primarily agricultural country. It is a small country but with vast water resources scattered all over the country in the form of small ponds, beels, lakes, canals, rivers and estuaries covering an area of about 4.34 million ha. The total fish production in Bangladesh was estimated at 1.78 million tones in 2000-01; of which 1.4 million tones (97%) were obtained from the inland waters, and the remaining 0.38 million tones (21%) came from marine water (DOF, 2002). Presently 1.4 million people are engaged full time and 12 millions as part time in fisheries sector in the country for livelihood and trade. Another 3.08 million fish and shrimp farmers are cultivating fish both at subsistence and commercial level. Bangladesh was a fish surplus country about a century back when the population was less than 20 million. However with the rapid growth of in population, fishing efforts increased greatly while fish culture and conservation were insufficient to keep pace with population explosion. In Bangladesh, fish farming is currently one of the most important sectors of the national economy. 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 (Hasan, 2001, BCAS, 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 (Ahmed *et al.*; Islam, 1996; Richard, 2002; Kleih, 2001).

The fisheries sector, especially the shrimp sector has been playing an important role in the economy of Bangladesh not only economy but also shrimp is a good delicacy for the best of choice. From time immemorial, freshwater prawns and shrimps have been caught as wild product of rivers, canals and floodplains. In the past people living in coastal areas used to make dikes or embankments along the banks of estuarine rivers and allowed sea water carrying shrimp fry or juveniles to enter the enclosures. As a result, production output had always been very poor (Hossain, 2001). The government of Bangladesh has taken up many schemes for the modernize the shrimp culture in the country from mid

1980s, as a result of which there have been considerable improvements during last twenty years. 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). Fisheries have contributed to 5.24% to GDP, 5.03% to national income, and 4.76% foreign exchange earning (Matshay pakkha, 2003). From this data it is obvious how important this sector is in the national context. Export of fish in the last fiscal (2004-2005) played great contribution in earning more foreign exchange amounted 12663 mt worth US\$ 54.93 million. The Government of Bangladesh encourages export of frozen foods giving 10% cash incentive for the value addition frozen shrimp and fish resulted a good impact on the exports of the shrimp and fish. The trend of export quantity is increasing every year showed in the table below.

Table 1. Frozen export from Bangladesh 1991-2005.

Year	Item	Quantity (Million lbs)	Value (Million \$)	Taka (Crore)	% of Growth/yr
1991-92	Shrimp and fish	44.32	130.53	496.91	25.40
1992-93	Shrimp and fish	48.35	165.34	642.34	29.20
1993-94	Shrimp and fish	55.51	210.52	838.90	30.60
1994-95	Shrimp and fish	78.36	305.64	1225.92	46.13
1995-96	Shrimp and fish	75.07	313.69	1283.00	4.66
1996-97	Shrimp and fish	76.05	320.73	1365.65	6.44
1997-98	Shrimp and fish	60.85	293.84	1333.13	-2.38
1998-99	Shrimp and fish	58.35	270.32	1316.16	-1.27
1999-00	Shrimp and fish	74.23	343.82	1722.52	30.87
2000-01	Shrimp and fish	76.70	363.23	1957.79	13.66
2001-02	Shrimp and fish	88.36	276.11	1585.25	-19.03
2002-03	Shrimp and fish	73.57	321.81	1863.27	17.54
2003-04	Shrimp and fish	84.48	390.25	2300.92	23.49
2004-05	Shrimp and fish	96.11	420.74	2587.90	12.47

Bangladesh shrimp and prawn exports comprise 2 species from freshwater and 9 species from marine water. Of these, *Macrobrachim rosenbergii*, (The giant freshwater prawn, locally known as golda), *Metapenaeus monoceros* (Brown shrimp, locally known as harina), *Penaeus indicus* (White shrimp, locally known as chaka), and *P. monodon* (Black tiger, locally known as 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. It is also free from any chemical environmental hazards. This advantage is fully exploited by the way of image promotion in the world market both with the consumers as well as marketing channels.

At present, consumer demand is clearly for absolutely safe and quality product. The concern over food safety is a great challenge to the industry and regulatory authorities. The earlier traditional fish inspection and quality control systems differ from country to country. This adversely affected the seafood exports of Bangladesh. The EU (European Union) countries also complained about the quality of Bangladesh sea food products. Now, the Bangladesh sea food industry facing a serious problem to maintain the sustainability of its exports to the foreign country. Some countries found nitrofurans and some percentage chemicals in the exported shrimp and they back about 52 containers shrimp in Bangladesh.

The Department of Fisheries (DoF), Bangladesh has adopted HACCP as the principal programme used to monitor the seafood processing industry for safety and quality. HACCP was implemented national wide in December 1997. According to the DoF, the quality of seafood products has improved and systematic hygiene operational systems are being followed by the seafood processing plants.

South-western site of Bangladesh is very famous for shrimp culture and processing of seafood products. A considerable amount of processing plants was established in this

zone especially three districts are famous for that sense like Bagerhat, Khulna and Satkhira districts. Among them Bagerhat district is focusing district from where highest shrimp (freshwater and marine) production are obtaining every year. According to DoF, 2004 the production statistic of Bagerhat district was shown bellow,

Table 2. Upazilla wise shrimp gher area and its production up to 2004.

Upazilla	Gher number		Area (ha)		Production (mt)		Depot
	Shrimp	Prawn	Shrimp	Prawn	Shrimp	Prawn	
Sadar	3014	6889	7227	4200	3613	315	200
Fakirhat	430	7066	229	3005	93	2404	110
Rampal	4100	550	13695	1457	4108	655	105
Mongla	4537	--	9089	--	2304	---	125
Mollarhat	1830	9287	896	4453	111	2727	89
Chitalmari	1545	7110	375	1614	78	888	62
Kachua	583	1287	1489	810	272	340	27
Morelgong	2010	1385	10170	505	1881	187	68
Sarankhola	08	687	38	172	04	64	37
Total	18057	34261	43208	16216	12467	7580	823

Source: Annual report of district fisheries officer Bagherhat 2004.

Our country is a developing country. Shrimp export contributes a vital play in our national economy. European countries as well as other countries are the exporting country. Recently the EU buyers demanded to develop the quality of the products and they are focusing on food safety, human rights, ethical trade practice etc. In this regard to ensure the requirement and to satisfy the buyer Bangladesh Frozen Food Exporters Association (ABFFEA), DoF, BFDC, ATDP, national and international organizations and NGO's had established vision 2008 on 28-29 November, which includes 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. Vision 2008 actually denotes a target of export earning 10,000 crore (1.5 billion US\$). To implement the vision 2008 seven salient features were considered, that are , Environmental protection and management, Food safety, Human rights, Fair labour practice and workers safety, Ethical and fair trade practice, Traceability and Certification. In the present study was conducted in the Bagerhat district to identify the stakeholders engaged with the existing shrimp marketing channel and the steps taken to achieving vision 2008.

1.1. Objectives of the study

The broad objective of the present investigation mainly focused on identification of the steps taken of each stakeholder to achieve Vision 2008, while the specific objectives were,

1. To identify how environmental protection and management activities practiced by each stakeholder of shrimp marketing channel.
2. To know how food safety activities improved by the stakeholders
3. To identify how human rights prevail in each stakeholder.
4. To identify how fair labour practices implemented by each stakeholder.
5. To identify how ethical and fair trade practices are going on.
6. To identify how traceability is assessed in each stakeholder.
7. To identify the certification system of the stakeholders and their products.

CHAPTER- TWO

REVIEW OF LITERATURE

2.0. Literature review

Josupeit (2001) stated about the overview of the world shrimp market where he stated that shrimp was the most commodity with about 20% of international trade in fish and fishery products in value terms. The EU, USA and Japan were the world's major importers of shrimp. Total shrimp trade expanded in 2000. For these three importers, total imports reached 950,000 mt, compared with 880,000 mt in 1995. For many years, the USA had been the main driving force behind shrimp trade, but recent developments point to a drop in demand in that country.

According to him, the overall market situation was leak at that moment, due to various factors. The most important was that the US market, the main player in that years, reporters a negative economic situation and consequently less demand for shrimp. The Japanese market also reported bleak demand due to an economic crisis, some moments could bring an illusion of better sales. The EU market seemed at that moment the strongest of that three, as demand was quite good and the Euro was recovering the US dollar. But the economic growth seemed to be less than forecast some time ago of that time. He though that the further expansion of shrimp consumption in EU countries depended on the value of the Euro and on the future outlook.

Fishermen are the main forces behind harnessing the enormous fishery resources. Fisheries provide livelihood to about 12 million people of Bangladesh directly or indirectly. This figure is about 12% of the total population of the country (Chowdhury, 1993). Fisheries have contributed to 5.24% to GDP, 5.3% to national income, 4.76% foreign exchange earning (Matshay Pakkha, 2003).

Systems of fish distribution vary greatly around the world and within the country itself. Factors which determine the fish/ shellfish distribution system are socio-economic variables, production functions and the end use of fish/shellfish (Lowson, 1984).

strict quality standards for ensuring safety of consumers. Imposition of HACCP regulations by the USA, EU regulations and the international Seafood Standards presented by the CODUS ALIMENTARIUS Commission had played a significant role in improving the standard of shrimp supply.

In general, there was a trend towards increased trust of value addition among the supplying countries. As a result of improvement in quality of supplies and probably also the increased share of value added products, the average unit value of shrimp imports had shown increased.

He also stated that the industry had been adjusting according to the needs of environmental protection and conservation of natural resources. Adopting of TED by shrimp trawling sector, and adoption of environment-friendly farming practices by the aquaculturists with the associated paradigm shift etc., were the clear examples of adjustments by the shrimp industry.

Globalization had impacted on the shrimp industry. Technology upgradation to meet global standards, global tariffs and steps adopted to address environment concern reflect that impact. According to him the total shrimp production grew from just about 1.602 million mt in 1979 to about 4.022 million mt in 1999 registering an increase of 151% over the 20 year period.

Pansuwanna (2001) highlighted Thai shrimp industry-heading towards more value-addition. He focused that the force competition from cheaper primary shrimp products from low cost producing countries like India, Vietnam and Indonesia had forced Thai exporters to produce and export more value added processed products. That was very evident in the US market which was Number 1 market for shrimp in place of Japan. Thailand supplied 85% of the US imports of cooked, ready-to-eat shrimp. In 2000, it exported 44,682 mt of processed shrimp products to the USA. Although it was not an

important supplier of raw primary shrimp to the Japanese market, the main supplier of processed shrimp to that market. The Thai industry was constantly looking to develop new products and to explore new markets. At the same time, it was striving to meet the challenges involved in producing good quality and safe products which would appeal to the highly demanding market.

Sait (2001) said that seafood exported last year from India registered a growth of nearly 25% in Indian Rupees and 18% in US Dollar terms. Exports amounted to around 64.5 billion and US\$ 1.42 million. The biggest contributor to this was aquaculture, with a share of almost 60%. Aquaculture will contribute even more in that year to come. Added to this, more and more value addition was taking place in the country. Within the next two years, export of value added products in the form of cooked, IQF, tray packs and other ready-to-use products for the supermarket and retail chains will form 50% of total exports. The Government was also encouraging value addition and aquaculture. In addition, the Government was focusing on conservation measures for improving ocean resources in the year to come.

Considerable investment had been made on the upgrading of the seafood processing plant in the country. He said that India had got 110 EEC approved plants (probably the highest number in the world) and nearly 250 processing plants approved for export into non-EU countries. All the processing plants had been HACCP approved, as it was a necessary provision of the Government that any processing plant exporting to any country had to have a HACCP system in operation. Some of the best processing plants in the world were in India. Indian's exports were mainly to Japan, USA and Europe.

Hoe (2001) focused on shrimp industry and production of organic shrimp in Vietnam, where he said that seafood exports of Vietnam accounted for over US\$ 1.4 billion in the year 2000, an increase of 45% compared with the year 1999, making seafood the third biggest export commodity, and accounting for more than 10% of total national exports. The export market structure has changed, with Japan still first but with a 33% share, USA growing to 21.3% and PR China and Hongkong coming third with 19.1%.

He also mentioned that production of cultured black tiger shrimp had exceeded 100,000 mt, making that a key species of the Vietnam seafood industry. There were more than 180 shrimp processing factories, with a freezing capacity of about 150,000 mt of finished products per year. There was a move towards investing in and improving food safety requirements, upgrading processing technologies, applying quality management systems compliant with GSM, SSOP, HACCP and starting to equities state owned enterprises. Markets and products had been diversified; in 2000 the proportion of value added products accounted for 50% of the total shrimp export volume.

The volume of shrimp produced for export in 2000 amounted to more than 70,000 mt with a value of US\$ 650 million, an increase of 47% compared with the year 1999. The shrimp industry had a 47.1% share in total seafood export turnover in the year 2000. The average price of shrimp product was US\$9.90/kg in 2000, an increase of US\$1.70 over 1999.

The target for the year that 2001 for export of shrimp product was US\$ 1 billion with more than 120,000 mt of finished products, an increase of 35% in turnover and 60% in volume compared with the year 2000. The drop in price on the world market at the beginning of 2001 had affected the Vietnam shrimp industry, making an average price decrease of about 30%, much more than expected. Many factories were trying to improve the processing procedure with the purpose of reducing cost and were looking for new contacts in value added products instead of ordinary HLSO to get better quality and price.

On the global scene, the Vietnam shrimp industry was trying to develop cooperation and investment relationship in the field of regional and world wide fisheries to strengthen and coordinate efforts, thus contributing to a balance in benefits to the consumers and the environment.

Shimizu (2001) said that the Japanese shrimp market was strongly influenced by the weak macroeconomy; competition from other low priced items such as eel and salmon; simplification of the distribution channels with the elimination of redundant middlemen and wholesalers; the rise in demand for prepared, precooked, semi-processed food rather than raw and unprocessed products resulting from the necessity of housewives to seek employment; and changes in the preference for the type of shrimp on the part of Japanese customers.

He also stated that the biggest segment of shrimp sales was in the institutional markets such as restaurants, cafeterias, and fast food outlets like Japanese noodle shops (soba) sushi shops, and rice bowl servers.

Light (2001) focused on the overview of the US shrimp market and said that the past 18 months in the American shrimp business define one of the most remarkable periods in the history of the international seafood trade. By any measure price, tonnage, value or risk- this is a time of record breaking extremes.

2001 is on course to exceed 2000 as the greatest revenue year in US shrimp history-over US\$ 4 billion in landed value. This represents a 20% growth rate in US shrimp sales-a remarkable accomplishment during a time when the economy is flat and retail sales are in decline. The supply side shrimp story is no less surprising. With a record crop failure gripping the Americans and landing in both the Pacific and Gulf shrimp fisheries waning the rest of the world's exporters have opened their shrimp gates. Many US sources are experiencing double and even triple digit growth in shrimp exports, more than compensating for the shortfall traditional western suppliers. Nearly one billion dollars in new US shrimp trade was created in the year 2000 alone and the growth continues today.

Fisheries activities are considered as a low-class profession and fishermen are traditionally poor. They live from hand to mouth (Hannan, 1994). These fishermen are socially, economically and educationally disadvantaged communities and lack their own

financial resources (Rahman, 1994). Fishermen and their families in the South and South East Asia often are considered to be among the poorest of the poor (Bailey, 1994).

Koonse (2001) said about ensuring of shrimp and HACCP and there he said that shrimp enjoy a reputation around the world as a safe, wholesome and healthy food. There is growing evidence that aquacultured shrimp may need additional controls at the farm level to reduce or minimize the risk of foodborne illnesses.

Historically, a relatively high percentage of shrimp offered for entry into the United States have been found to contain *Salmonella*. One FDA study also showed that aquacultured products had a significantly higher potential for being contaminated with *Salmonella* than non-aquacultured products. In addition, a recent outbreak of Salmonellosis illness from aquaculture shrimp demonstrated that the expectation proper handling and cooking by the consumers, directly or indirectly, couldn't always be relied upon as the sole measure to control microbial pathogen in contaminated seafood. It was evident that pathogens associated with raw seafood entering processing plants should be minimized further than was currently being achieved.

The US Food and Drug Administration, in collaboration with the aquaculture industry, academic institutions and government regulatory agencies, has initiated a study worldwide to determine the incidence level of salmonella on shrimp farms and to determine Good Aquaculture Practices which, when properly implemented, will reduce, minimize or eliminate human pathogens from their aquaculture products. Training for the aquaculture farmers will be developed based on GAPs. The FDA is also considering as incentive importers who can verify the importers because of a draft regulation that will not allow the re-export of shrimp from the US found to contain salmonella.

GAPs are therefore needed to reduce, minimize or eliminate human pathogens from aquaculture products, reduce the amount of shrimp rejection from entering the US market

and maintain the reputation of shrimp throughout the world as a safe, wholesome and healthy food.

In Bangladesh, most of the fishermen are illiterate and few have primary level of education (Rahman, 1994a; Bailey and Doulman, 1994). Only about fifteen percent of them are literate. Their per capita income and living standard are at the lowest ebb (Chowdhury, 1994).

It was found that in Mymensingh district 72% of farmers used their own money for their prawn farming, while rest (28%) received loans from banks, NGOs, relatives and moneylenders. In spite of poor socio-economic conditions, livelihoods outcome were positive and most of the farmers (72%) and traders (80%) had improved their social and economic conditions through prawn farming and marketing activities (Ahmed, 2004).

Ferdous (2001) mentioned about shrimp market and trend in non-Japanese oriental Asia. There she said that shrimp in Asia market, namely Singapore, Hong Kong, Malaysia, PR China, Taiwan Province of China and Thailand are usually sold in live and fresh/chilled forms. Here it fetches the highest prices compared to other international markets. This made the growing regional market lucrative until the financial blow hit the booming Far Eastern economies in late 1997. the crisis encouraged more exports out of Asia curbed consumption of all high value fishery products, including shrimp, in these market. Nonetheless, shrimp was still considered to be popular for occasional dinner and festive season.

High price black tiger and other marine shrimp enduring in the international market till late 2000. during this time the relative cheaper freshwater prawn made a comeback to many Asian markets. Lately, the decline market prices of black tiger have pushed local farmers and markets to promote it again in domestic and regional markets.

The popularity of shrimp in Southeast Asian countries had also allowed development of several shrimp based products made to appeal to the taste of regional consumers. Shrimp cracker, shrimp paste, cakes and granulates and preserved shrimp in jars and some worth mentioning. There were, popular extensive items for home consumption but could be regarded as ready to cook and ready to eat value added products.

Tropical shrimp were available almost round the year in Asia. Nonetheless, cold water shrimp from Canada, Iceland and Denmark had also made access to some of these markets. Cold water shrimp were exported to PR China, Hong Kong and Taiwan for local consumption. Even the sushi shrimp were gaining market share in non-Japanese Asian market (Ferdous 2001).

Shrimps are considered to be among the most perishable of food stuffs. Fresh shrimps are very susceptible to spoilage and as a consequence may be expected to undergo some degree of deterioration between catching and delivery to the receiving room of the processing plant. Temperature affects the rate at which bacteria multiply (Ronsivalli and Charm, 1975). The most important means of preserving fresh shrimp is by chilling to about 0-4°C. The most common chilling media are wet ice, mixture of ice and seawater or refrigerated seawater (Sikorski *et al.*, 1994).

The freshness of quality of a particular food refers to the degree of excellence (Botta, 1995). The degree of excellence referred all sensory/ organoleptic variables (appearance, texture, odor and flavor). Freshness quality is considered to be an extremely important factor in determining overall quality (Howgate, 1982). The location of harvest (Huss, 1988; Love 1988), time of the year (Love, 1975), method of catching (Botta *et al.*, 1987; Huss 1988) and the manner in which seafood handled (Botta *et al.*, 1986, 1989) seriously affect the degree of excellence.

Ziegler and Xavier (2001) proposed recent developments in processing and packaging of value added shrimp products. According to them just at the beginning of a new century,

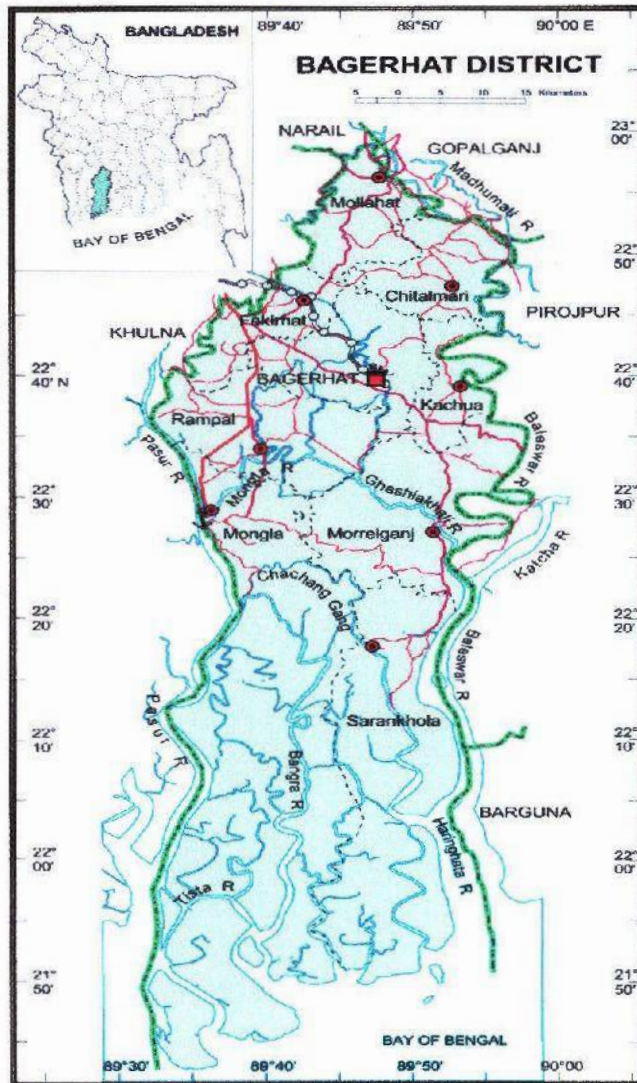


Fig. 1. Bagerhat district

To achieve the new desired target scheme they had established seven salient features viz., Environmental protection and management, Food safety, Human rights, Fair labour practice and worker's safety, Ethical and fair trade practices, traceability and certification in all stages. In the present study to identify the problems existing in the marketing system to bring revolution, data were collected from each and every stakeholder in the aspect of the recommended seven salient features (Table 3).

Table 3. Major considering factors taken under the study.

Salient features	Stakeholders				
	Ghers	Farias	Depots	Agents	Plants
General information	- o Source of fund - o Workers - o Education and religion - o Salary	- o Age - o Workers - o Education status - o Religion - o Salary - o Amount of shrimp buy everyday - o Amount of shrimp sell everyday	- o Ownership - o Source of fund - o Area - o Manpower - o Salary - o Structure	- o Ownership - o Source of fund - o Area - o Manpower - o Salary - o Production - o Structure	- o Ownership - o Source of fund - o Education - o Religion - o Manpower
(Feature-1) Environmental protection and management	- o shrimp culture period - o Source of water for culture - o Antibiotic use - o Harvesting method - o Harvesting type	—	- o Waster dumping place - o Dehead the shrimp and dumping of shrimp waste	o Waster dumping place	- o Waste treatment before dumping - o Shrimp waster dumping place - o Discharging place of factory used water
(Feature-2) Food safety	- o Source of water for wash - o Icing spot - o Ice used - o Ice ratio	- o Source of water - o Icing spot - o Ice used - o Ice ratio - o Shrimp	- o Source of water - o Ice used - o Ice ratio - o Shrimp	- o Source of water - o Ice used - o Ice ratio - o Shrimp handling hour	- o Source of water - o Separate toilate - o Ice used - o Ice ratio - o Initial rejection

	- o Shrimp handling hour - o Grading spot - o Transporting materials - o Transporting carrier - o Transporting route - o HACCP concept	- handling hour - o Grading spot - o Transporting materials - o Transporting carrier - o Transporting route - o HACCP concept	- handling hour - o Grading spot - o Transporting materials - o Transporting carrier - o Transporting route - o HACCP concept	- o Grading spot - o Transporting materials - o Transporting carrier - o Transporting route - o Production - o HACCP concept	- o Shrimp handling hour - o HACCP concept - o Product rejected from the abroad and its causes
(Feature-3) Human rights	- o Child labour percentage - o Payment of hari to the land owners - o Allowing paddy culture after shrimp	o Engagement of child as helper	- o Child labour percentage - o Health check of workers	- o Child labour percentage - o Health check of workers	- o Child labour percentage - o Health check of workers - o Other benefits to the workers - o Maternity leave
(Feature-4) Fair labour practice and worker's safety	- o Wages pattern - o Overtime wages	—	- o Wages pattern - o Overtime wages	- o Wages pattern - o Overtime wages - o Shifting pattern	- o Wages pattern - o Overtime wages - o Shifting pattern
(Feature-5) Ethical and fair trade practices	- o Handling of shrimp after harvesting - o Rejection of shrimp - o Causes of rejection	- o Handling of shrimp after purchasing - o Rejection of shrimp - o Causes of rejection	- o Handling of shrimp after purchasing - o Rejection of shrimp - o Causes of rejection	- o Handling of shrimp after purchasing - o Rejection of shrimp - o Causes of rejection	- o Rejection of shrimp - o Causes of rejection - o Grading system - o Fate of rejected shrimp
(Feature-6) Certification in all stages	- o Have any license - o License issuing organization - o Competent authority to give license	- o Have any license - o Necessity of license	- o Have any license - o License issuing organization - o Competent authority to	- o Have any license - o License issuing organization - o Competent authority to give license	- o Do you have trade license - o License issuing organization - o Competent authority to give license

			give license		
(Feature-7) Traceability	o Have you heard the term traceability o Where do you sell your shrimp o Keeping of record to whom shrimp was sold	o Record where it was bought o Record to whom shrimp was sold	o Record where it was bought o Record to whom shrimp was sold	o Record where it was bought o Record to whom shrimp was sold	o Record where it was bought o Record to whom shrimp was sold

3.2.2. Primary data collection

Primary data were gathered by field survey through structured questionnaires. This study involved the inspection of the socio-economy and livelihoods of the stakeholders as well as the step take all Stakeholders with a view to achieving the vision 2008.

3.2. 3. Secondary data collection

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.

3.3. Data analysis

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 data were processed with the help of data base software Microsoft Excel and SPSS.

CHAPTER- FOUR

RESULTS

4. Results

4.1. Existing shrimp marketing channel in Bagerhat district

Marketing channel is the sequence of intermediaries through which harvested shrimp go by 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 didn't accept any shrimp without via commission agents.

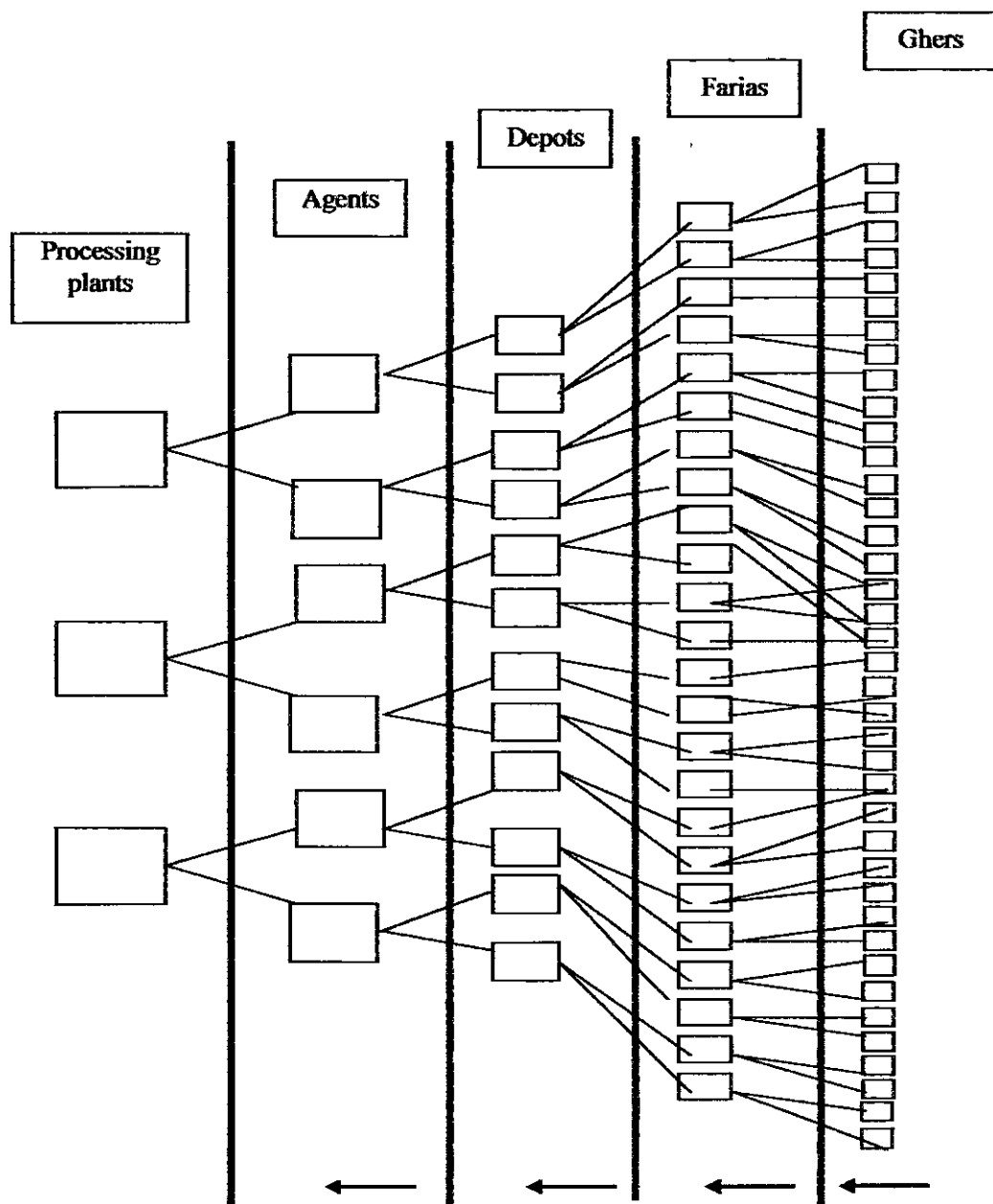


Fig. 2. Existing shrimp marketing channel in Bagerhat district.

4.1.1. Ghers

There were seven features were analyzed separately and general information was also collected for each stakeholders.

4.1.1.1. General information

4.1.1.1.1. Source of fund

Ghers normally run with self financial support. Table 4 shows that 66.67% ghers of Morelgong upazilla, 33.33% ghers from Mongla and Mollahat upazillas and also 16.67% ghers from Kachua and Sarankhola upazillas were established giving loan from somewhere.

Table 4. Source of fund of the ghers in the study area

Upazillas	Source of fund (%)	
	Self	Loan
Sadar	100	0
Mongla	66.67	33.33
Rampal	100	0
Fakirhat	100	0
Kachua	83.33	16.67
Mollahat	66.67	33.33
Morelgong	16.67	83.33
Chitalmari	100	0
Sarankhola	83.33	16.67

4.1.1.1.2. Education and religion

Figure 3 shows that 46.43% gher owners were found whose education level was primary and a large percentage (89.29%) gher owner was found Muslim.

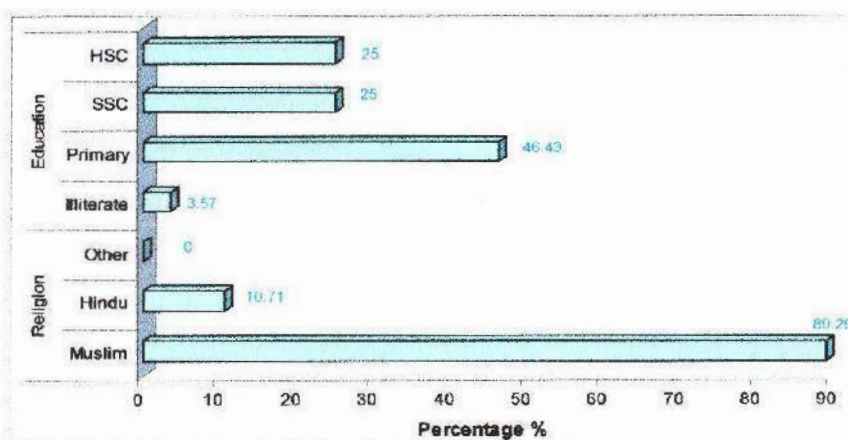


Fig. 3. Education and religion of gher owners.

4.1.1.1.3. Salary of the workers

In gher male and children workers were found with great percentage and sometimes manager or accountant was found in some gher but no grader was found. Table 5 shows that male, female and children workers salary were ranged between 60-120, 50-55 and 30-40 Tk/day where as manager was paid ranged between 3000-5000 Tk/month.

Table 5. Salary ranges of workers and staffs engaged with the gher.

Workers salary range (Tk/day)			Staff salary range (Tk/month)		
Male	Female	Children	Manager / accountant	Grader	Children/ other
60-120	50-55	30-40	3000-5000		

4.1.1.2. Environmental protection and conservation (Feature 1)

4.1.1.2.1. Shrimp culture period

Culture period of the gher were estimated. Figure 4 shows that 60.49% gher owners stated that they obtained two crops (shrimp) in each year from the gher, while 2.47% gher owners cultured shrimp for whole year that might affect worse impact on the environment increasing salinity, inorganic and organic nutrients into the gher.

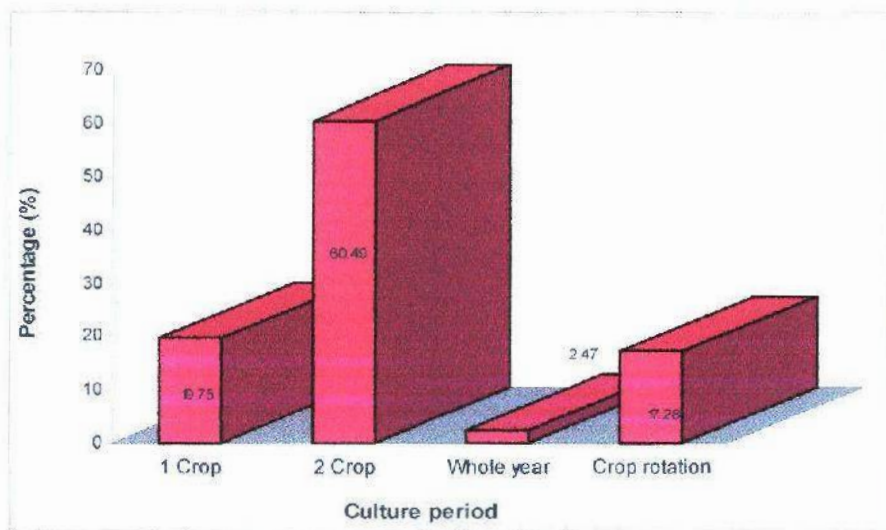


Fig. 4. Shrimp culture period maintained in the gher.

4.1.1.2.2. Source of culturable water

Source of water during culture period is the concerning factor to keep free the gher from disease. The culturable water should be linked directly from canal or river. Figure 5 shows that the source of water for culture was 70% and 30% from other gher and river/canal respectively.

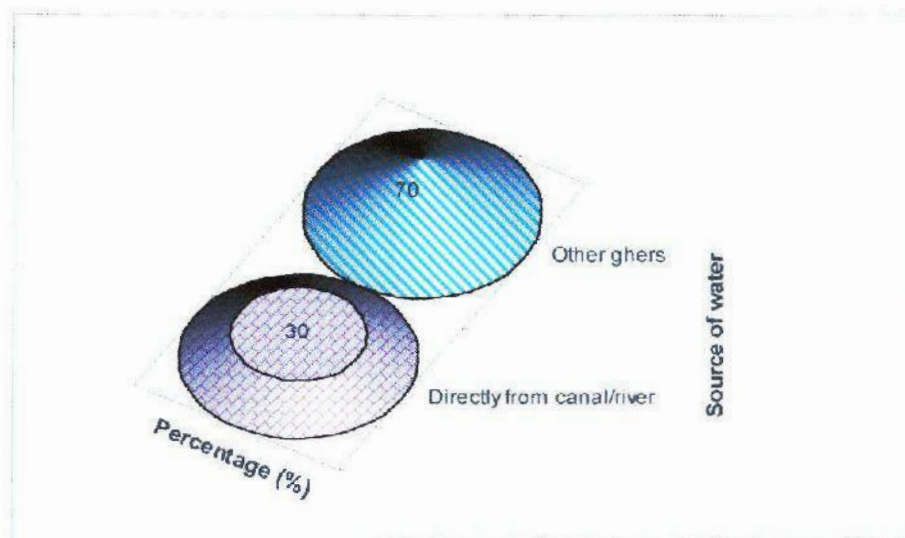


Fig. 5. Source of culturable water in the gher.

4.1.1.2.3. Use of antibiotics

Figure 6 shows that 100% gher of Bagerhat district declared that they did not use any sorts of antibiotics. Maximum gher of this region were interlinked and they used other gher water to solve their water source.

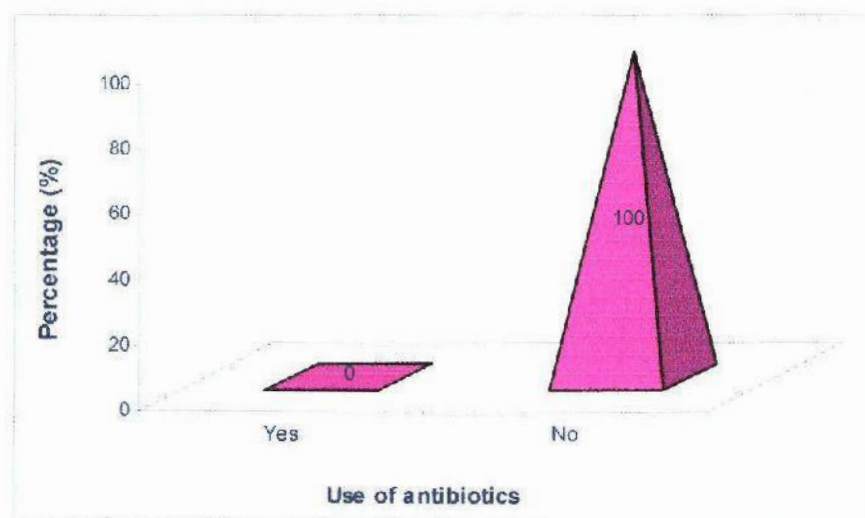


Fig. 6. Percentage of gher used antibiotics during the culture period.

4.1.1.2.4. Harvesting method and harvesting type

Figure 7 shows in all *ghers* of all nine upazillas harvesting method was netting (100%) and harvesting type was partial (100%).

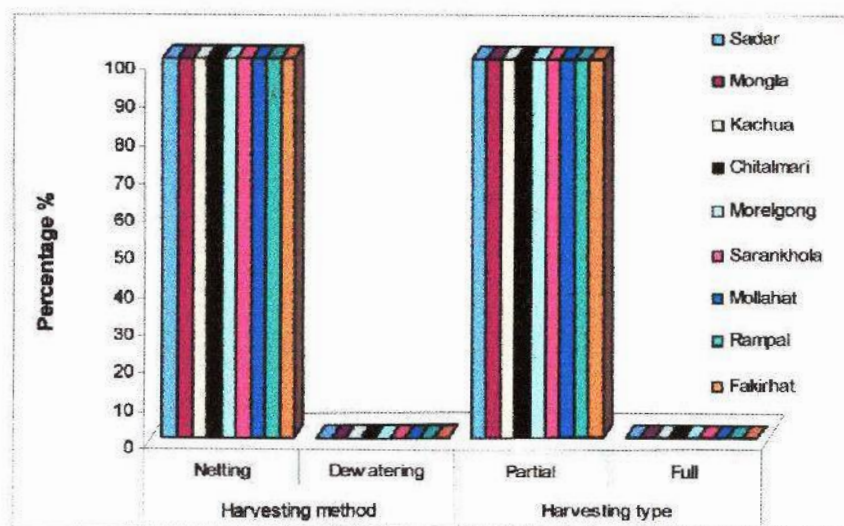


Fig. 7. Harvesting method and type performed in *ghers* of different upazillas.

4.1.1.3. Food safety (Feature 2)

4.1.1.3.1. Source of water

After harvesting shrimp should be washed out with clean water which is not contaminated with microbes. Normally deep tubewell water is fresh. From the survey it was found that only 20 and 16.67% *ghers* of Mongla and Fakirhat upazilla respectively were found mitigated their water source from deep tubewell and Chitalmari upazilla was found where 100% *gher* used *gher*/pond water to solve water source (Fig 8).

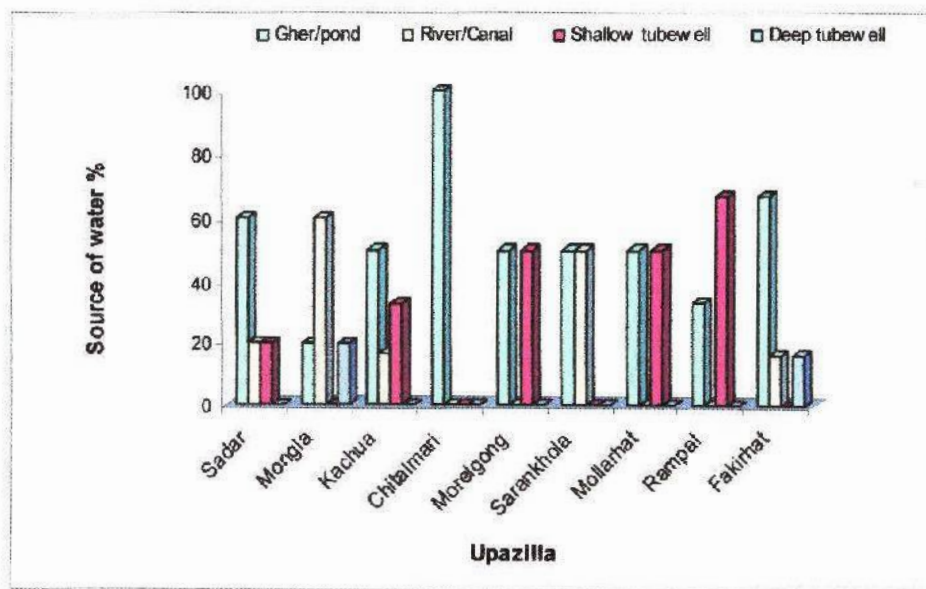


Fig. 8. Source of water of *ghers* in nine different upazillas.

4.1.1.3. 2. Ice used

Ice should be used immediately after harvesting to the consumer level. In the present study, only Chitalmay upazilla was found where 60% *ghers* of Sadar upazilla used ice after harvesting, while 100% *ghers* of Chitalmari and Rampal upazilla declared that they didn't use ice after harvesting (Table 6).

Table 6. Percentage of ice used in the *ghers* of the study area.

Upazillas	Ice used (% of <i>gher</i>)		
	Always	Occasionally	Never
Sadar	60	20	20
Mongla	20	10	70
Kachua	50	33.33	16.67
Chitalmari	0	50	100
Morelgong	50	0	50
Sarankhola	50	50	0
Mollahat	50	0	50
Fakirhat	0	66.67	33.33
Rampal	0	0	100

4.1.1.3. 3. Ice ratio (Ice: shrimp)

Table 7 shows percentage of ice ratio (ice:shrimp) used in *ghers* of nine different upazillas. From the survey it was clear that not all *ghers* used ice, if they used, 0.5:1 ratio maintained. Some upazillas like Mongla, Morelgong, Sarankhola, Rampal and Fakirhat were found where 100% *ghers* used ice;shrimp as a ratio of 0.5: 1 while 50% *ghers* used 1:1 ratio ice (Table 7).

Table 7. Ice ratio used in *ghers* of different upazillas.

Upazillas	Ice ratio (Ice: shrimp) % of <i>ghers</i>			
	0.5:1	1:1	1.5:1	2:1
Sadar	50	50	0	0
Mongla	100	0	0	0
Kachua	50	50	0	0
Chitalmari	-	0	-	-
Morelgong	100	0	0	0
Sarankhola	100	0	0	0
Mollahat	-	-	-	-
Rampal	100	0	0	0
Fakirhat	100	0	0	0

4.1.1.3. 4. Grading spot

Grading spot should be a fresh place. Table 8 shows grading spot used in *ghers* of nine different upazillas. In mongla, Rampal and Sarankhola Upazillas 66.67% *ghers* were found where grading was carried out only over the floor and in Sadar upazilla 75% *ghers* were found where wooden platform was used to grade the shrimp. Actually in every *gher* landing center and a steal or polythene grading spot should be remained, but very limited portion was observed in the surveyed area.

Table 8. Grading spot used in *ghers* of different upazillas

Upazilla	Grading places (%)			
	Floor	Tin/steal	Polythene	Wooden platform
Sadar	25	0	0	75
Mongla	66.67	0	0	33.33
Rampal	66.67	0	0	33.33
Fakirhat	33.33	0	33.33	33.33
Kachua	33.33	33.33	33.33	0
Mollahat	33.33	0	33.33	33.33
Morelgong	0	0	33.33	66.67
Chitalmari	0	33.33	33.33	33.33
Sarankhola	66.67	33.33	0	0

4.1.1.3.5. Shrimp handling hour

Shrimp handling time should be minimum which can increase the shelf life of shrimp. Figure 9 shows 33.33% *ghers* of Bagerhat District found that took 1-2hrs handling period where as more than half *ghers* took time 2-3hrs to send the harvested shrimp to the next stakeholders. Even 11.11% *ghers* also spent more than four hours to send their harvested product to the next step.

stakeholders. Even 11.11% *ghers* also spent more than four hours to send their harvested product to the next step.

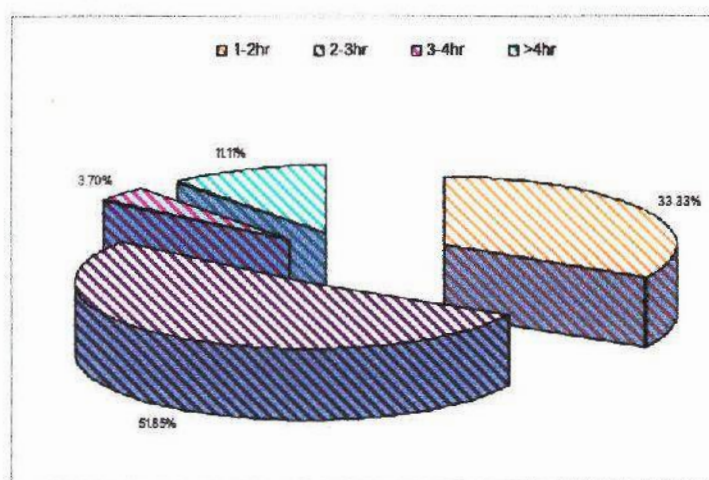


Fig. 9. Shrimp handling hour in *ghers* of Bagerhat district.

If the *ghers* take a significant time in their stock without or with lower ratio ice noticeably it can be said that the quality of those product would be deteriorated when it will reach to the factory and thus unfair trade takes place to sell those product. The farmers must be trained or informed to market the product as early as possible. Before harvest they should take necessary step that are required to keep the product comparatively free and contamination free.

4.1.1.3.6. Transporting material

Figure 10 shows upazilla wise transporting material variation, where bamboo baskets were present in Kachua, Mollahat, Morelgong and Sarankhola Upazilla where as 100% plastic materials were used in Mongla and Rampal Upazilla. Only cork (Styrofoam) sheet (25%) was found in the Sadar Upazilla (Fig. 10).

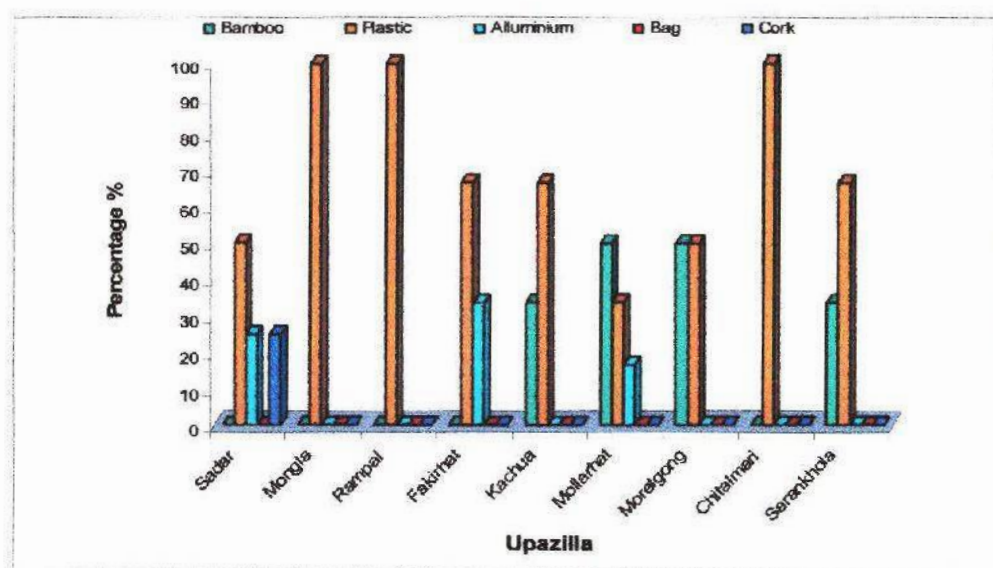


Fig. 10. Upazilla wise transporting materials using scenario.

It is suggested by quality control authorities carrying material should be food grade plastic materials because it can be easily clean and minimum chance to be contaminated.

4.1.1.3.7. Transporting carrier

Table 9 shows upazilla wise transporting carrier scenario. Maximum *ghers* were situated remote areas from where van was the only way to carry to the next stakeholder area. Sadar, Fakirhat, Kachua, Mollahat and Chitalmari upazillas were found where van was the only carrier way to carry shrimp to the next step. Some *ghers* of Morelgong and Sarakhola upazilla were placed comparatively in the remote area and from both area 66.67% shrimp were transported by mechanized boat.

Table 9. Upazilla wise transporting carrier using scenario.

Upazillas	Transporting carrier (% of gher)				
	Van	Head/hand	Bi-cycle	Truck/pickup	Mechanized boat
Sadar	100	0	0	0	0
Mongla	33.33	0	0	33.33	33.33
Rampal	66.66	0	0	33.33	0

Fakirhat	100	0	0	0	0
Kachua	100	0	0	0	0
Mollahat	100	0	0	0	0
Morelgong	33.33	0	0	0	66.67
Chitalmari	100	0	0	0	0
Sarankhola	33.33	0	0	0	66.67

4.1.1.3.8. Transporting route

Figure 11 shows from Rampal and Chitalmari upazilla 100% shrimp were transported through road (brick/pitch) where there was no brick/ pitch road in Sarankhola upazilla.

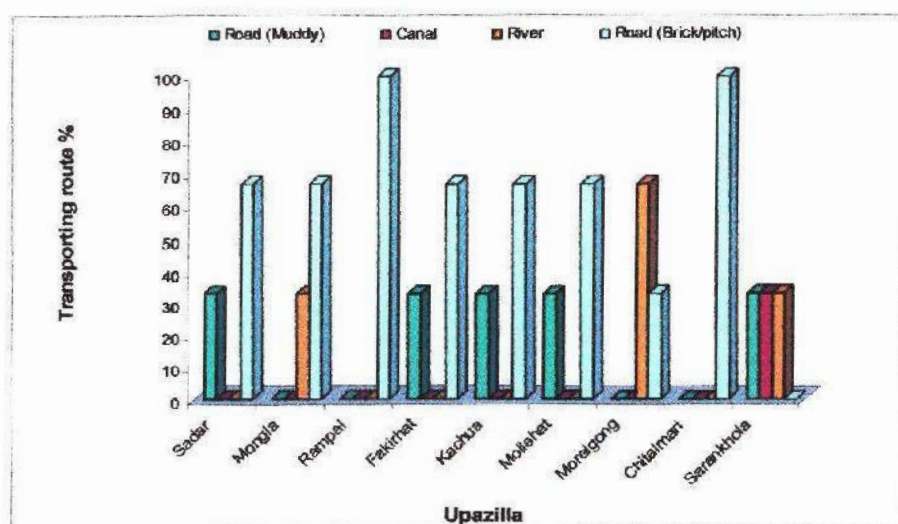


Fig. 11. Upazilla wise transporting route using scenario.

4.1.1.3.9. HACCP concept

Every person related with the shrimp post harvest activities up to consumer level must have to knowledge about HACCP and they must have to obey the norms of the HACCP at every sector of the shrimp marketing chain. In the present study 35.71% gher owners found who have no any idea about HACCP. A minimum portion 17.86% person was found who maintained HACCP (Fig 12).

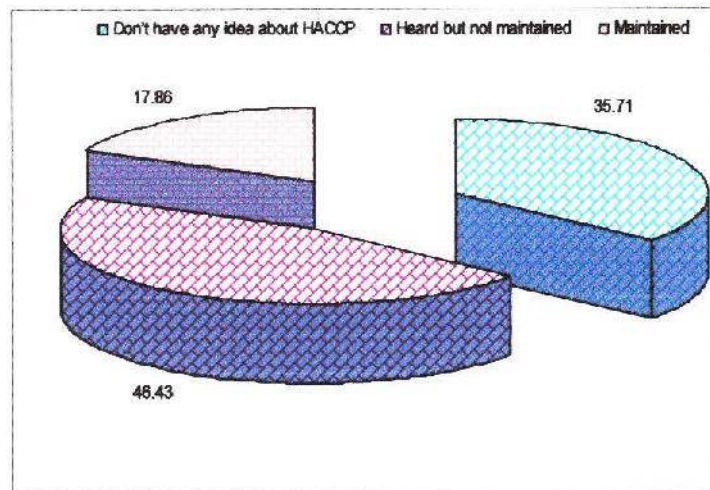


Fig. 12. HACCP concept of gher owners in Bagerhat District

4.1.1.4. Human rights (Feature 3)

4.1.1.4.1. Child workers

Figure 13 shows that 81.01% male workers were found who was engaged with gher operations, followed by 7.6 and 11.39% workers was found as female and children. No way at the existing situation to avoid child labor where social security for them by government could say completely absent.

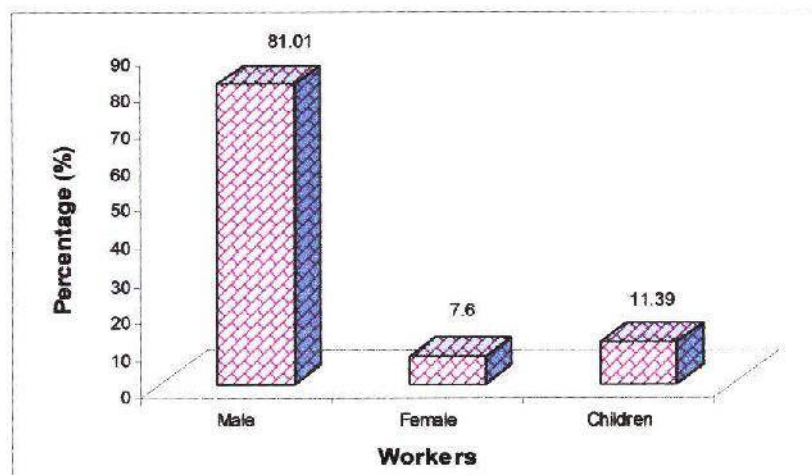


Fig. 13. Workers percentage in gher.

4.1.1.4.2. Payment of hari (land lease money) to the land owners

Payment of hari to the land owners reduces the internal conflicts of the land owners during the culture period. The 82% gher operators of Bagerhat district said that they paid hari (land lease money) to the actual land owners (Fig. 14).

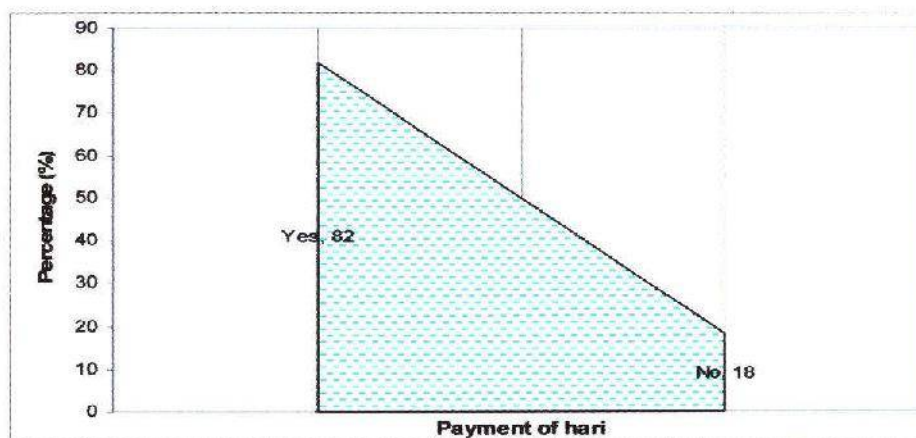


Fig. 14. Payment of hari (land use money) in gher.

4.1.1.4.3. Allowing paddy culture after shrimp culture

Continuous shrimp culture increases the organic and inorganic nutrients into the gher soil. Paddy culture after shrimp culture could minimize the excessive amount of nutrients that could be harmful for further culture. The 90% gher owners of Bagerhat region said they allowed paddy culture after shrimp culture in the same gher (Fig. 15). Paddy culture co-relates the antibiotics, so better management practice or good management practices (GMP) organic paddy cultivation could be also developed

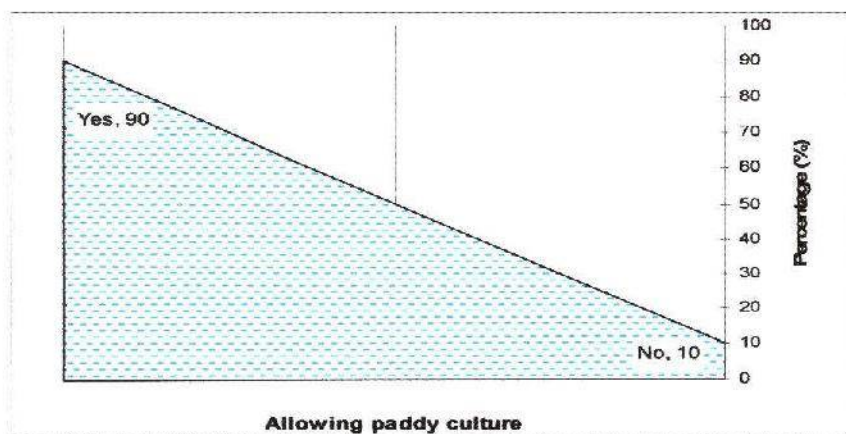


Fig. 15. Percentage of allowing paddy culture in gher.

4.1.1.5. Fair labour practice and worker's safety (Feature 4)

4.1.1.5.1. Wage given pattern

Figure 16 shows that 100% gher of Bagerhat district support their labourers by giving both cash and, food and cloth. Gher were situated in the remote areas, where labours worked all time and they got food, cloth, cash money and even shelter in the gher periphery.

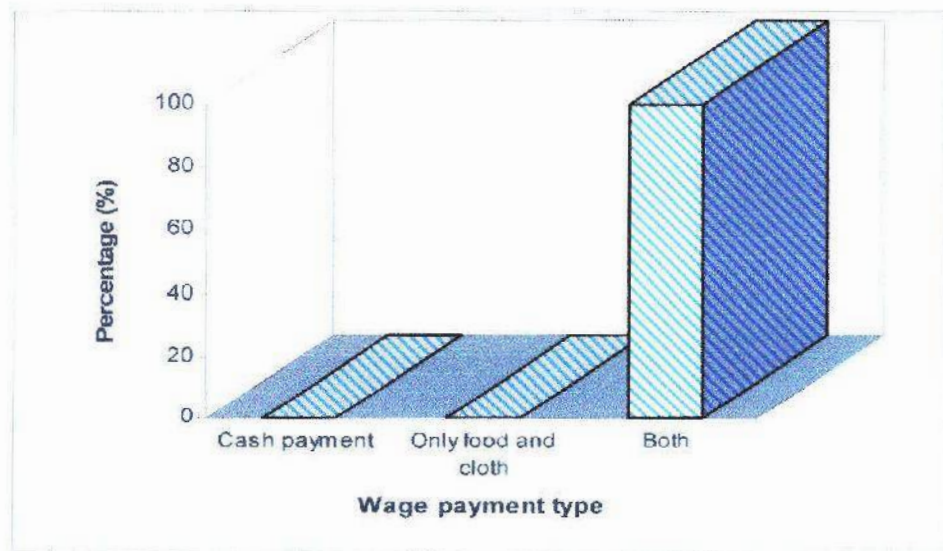


Fig. 16. Wage payment pattern in the gher.

4.1.1.5.2. Overtime wage payment

There was indication of providing overtime activities of the labourers. Figure 17 shows that 100 % gher of Bagerhat district declared that there was no option of overtime activities and the labourers had to work all time when necessary.

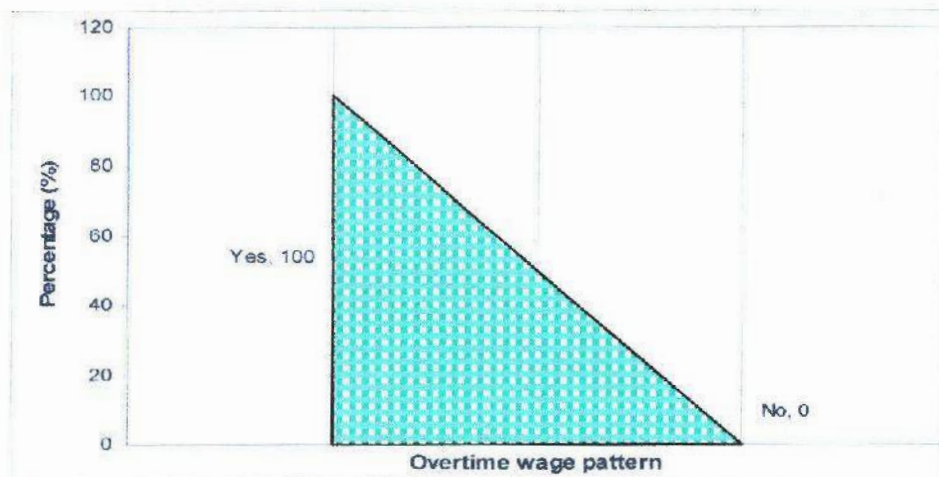


Fig. 17. Overtime wage payment pattern in the gher.

4.1.1.6. Ethical and fair trade practices (Feature 5)

4.1.1.6.1. Handling of shrimp after harvesting

To uphold the freshness quality of the post harvest shrimp up to reaching to the factory some techniques should be followed. In the present study the gher owners were asked what they did immediately after harvesting. Figure 18 shows 1.79% gher owners drip the harvested shrimp into the water and 57.14 and 41.07% gher owners informed they put the shrimp into the bucket without and with ice (1:1) ratio respectively.

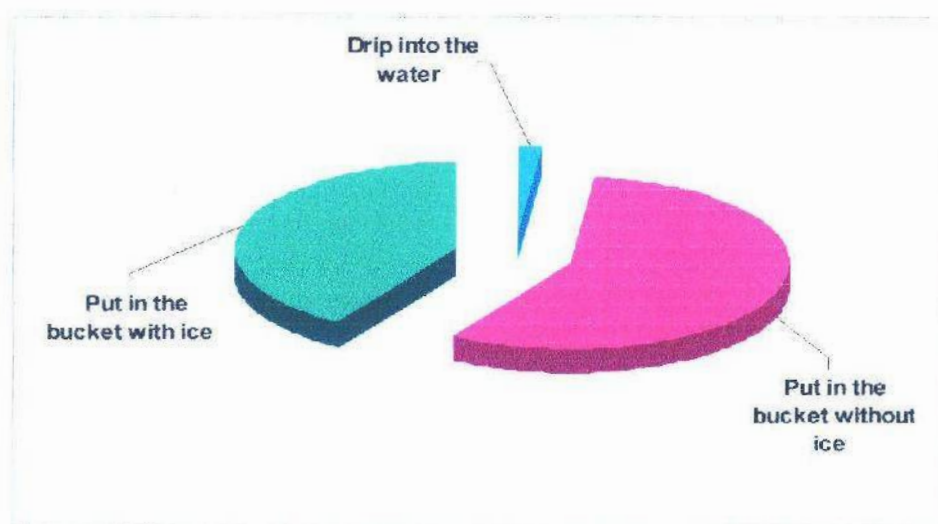


Fig. 18. Handling of shrimp after harvesting in the gher

4.1.1.6.2. Rejection of shrimp and its causes

During grading some harvested shrimps should reject, because it is natural phenomenon that some shrimp could be found like soft shell, undersized, loss of appendages etc. otherwise unfair trade takes place. In the present study 89.29% gher owners were found who rejected shrimp during after harvesting and 39.6% shrimp was rejected due to discoloration (Fig 19). Only 9.6% shrimp were rejected due to sponge body or mal nutrition.

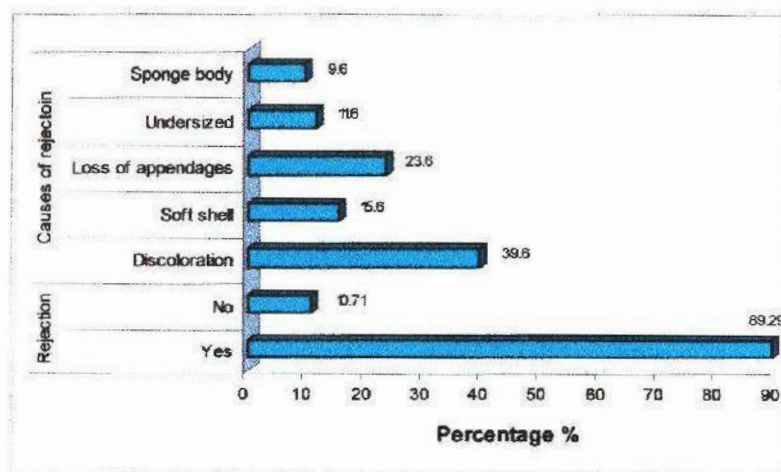


Fig. 19. Percentage of shrimp rejection in gher areas of Bagerhat district.

4.1.1.7. Certification ((Feature 6)

4.1.1.7.1. Percentage of licensed ghers

Figure 20 shows that 95% ghers of Bagerhat district said they had no license where 5% ghers owners said they had license. The upazilla Fisheries office provided the necessary facilities if the ghers faced any problem regarding shrimp culture, but the maximum ghers were found uncertified and they didn't get any amenities even the ghers were virus attacked.



Fig. 20. Percentage of certified gher in Bagerhat district.

4.1.1.7.2. License issuing organization

From the investigation it was found that 100% gher of Bagerhat district got their gher license from Upazilla committee while shrimp gher association, upazilla parishad and DoF had no authorization to provide license (Fig. 21).

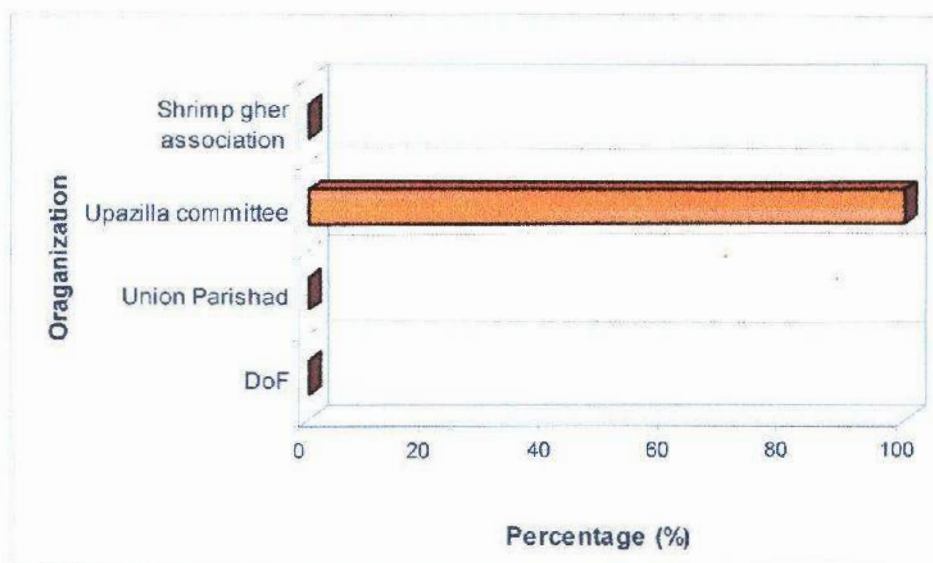


Fig. 21. Percentage of license issuing organization in gher.

4.1.1.7.3. Competent authority to issue license

The gher owners were asked about the competent authority to provide the gher operation certificate. According to their opinion it was found that 70% gher owners believed that upazilla committee would be the competent authority to issue the license while 10%, 10% and 10% gher owners opined that they believed it would be DoF, Union Parishad and Shrimp gher association, respectively (Fig. 22).

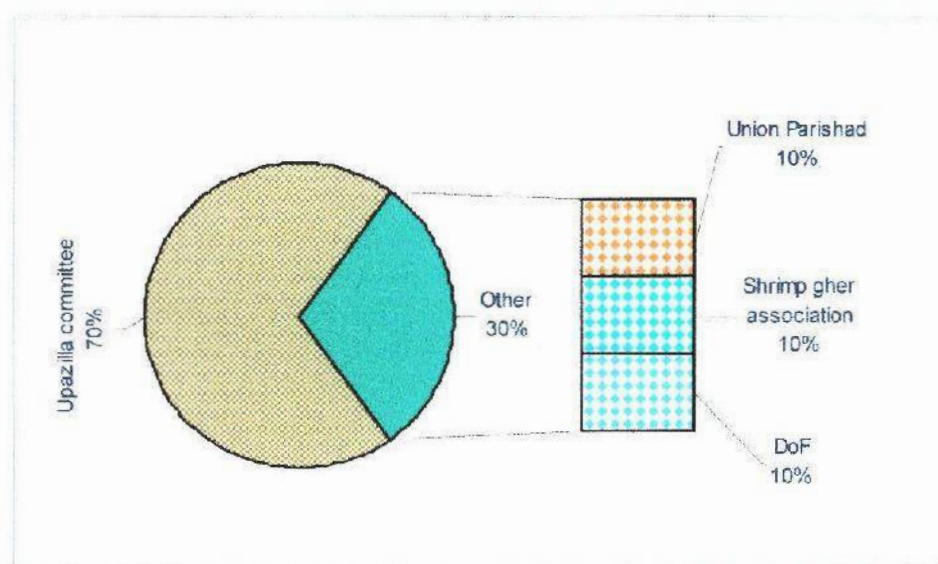


Fig. 22. Percentage of license issuing organization in gher.

4.1.1.8. Traceability (Feature 7)

4.1.1.8.1. Acquaintance with traceability

The 99% gher owners of Bagerhat said that they were not acquainted with the term traceability while the remaining (10%) said that they had heard the term traceability (Fig 23).

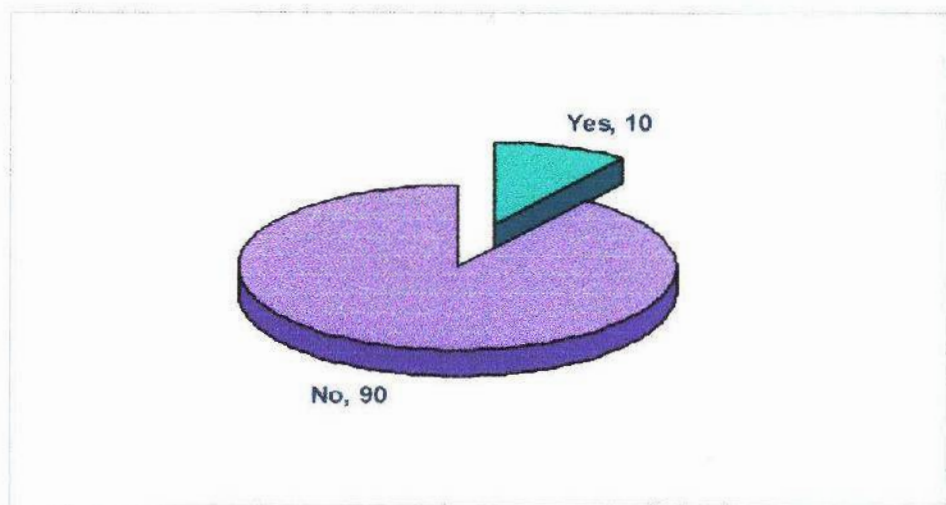


Fig. 23. Percentage of gher owners acquainted with traceability in Bagerhat district.

4.1.1.8.2. The harvested shrimp selling place

Figure 24 shows that 80% gher owners of Bagerhat district sold their harvested shrimp to faria where remaining 20% gher owners said that they sold their shrimp directly to the depots and none was found reached directly to the agents without via either faria or depot.

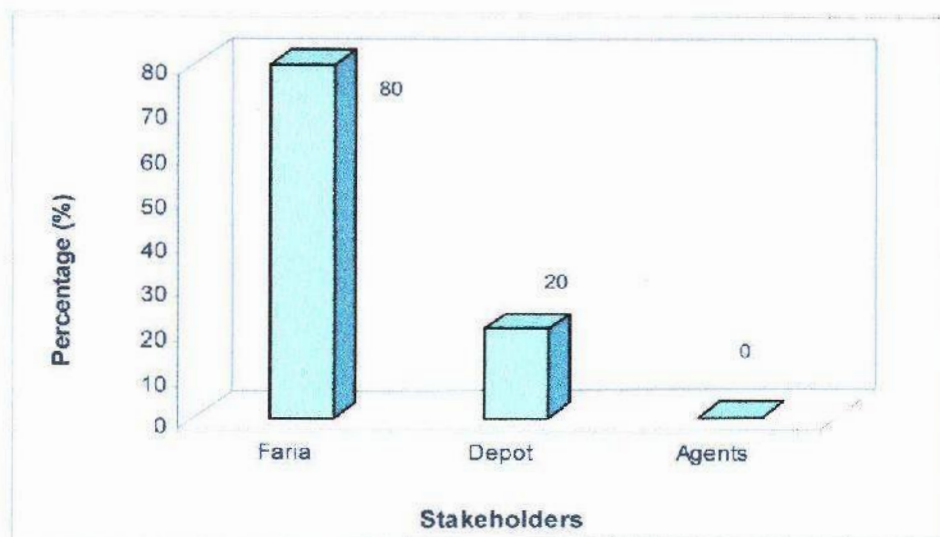


Fig. 24. Selling place of gher owners in Bagerhat district.

4.1.1.8.3. Keeping of record to whom shrimp was sold

Record keeping is the method to assess the traceability. Every gher should keep record to whom the shrimp is being sold. From the investigation it was found that only 30% gher of Bagerhat district kept record to whom, when and the amount of shrimp they sold (Fig. 25).

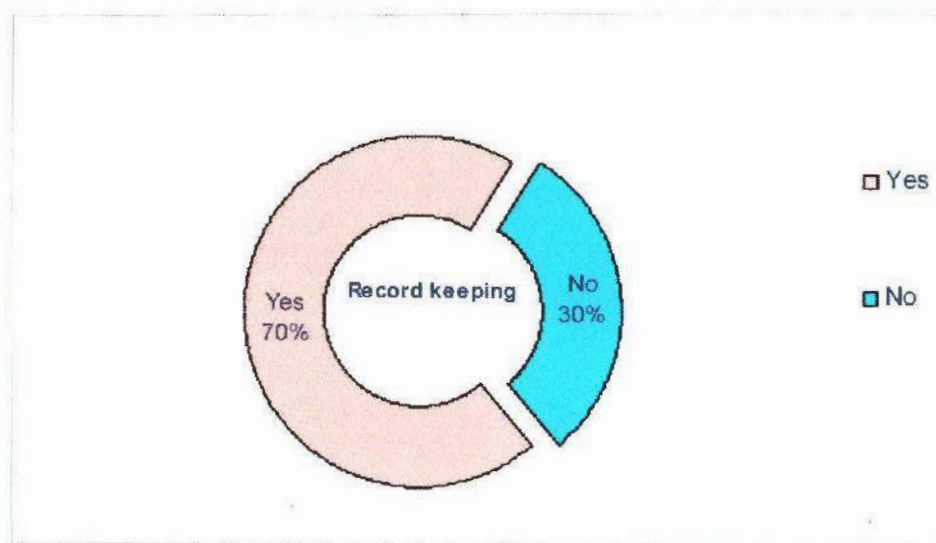


Fig. 25. Percentage of gherkeepers kept record in Bagerhat district.

4.1.2. Faria

4.1.2.1. General information

4.1.2.1.1. Age

Figure 26 shows age structure of all farias in Bagerhat district where maximum farias (40.74%) was found whose age was between 30-39 years and none was found below 20 years.

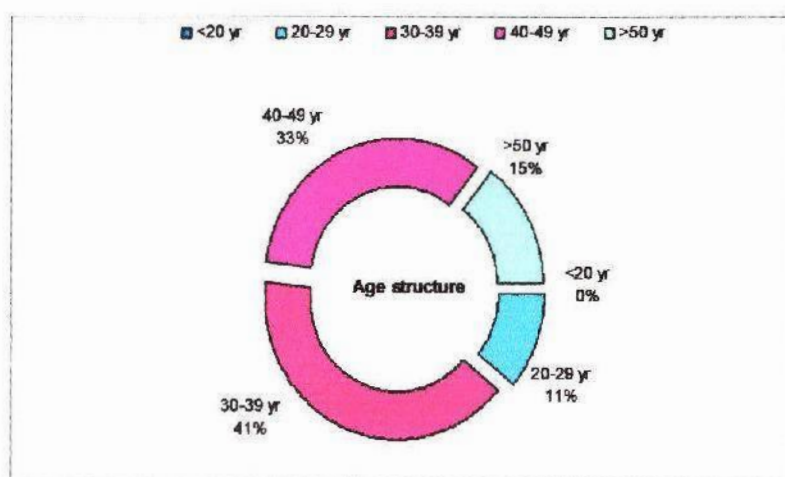


Fig. 26. Age structure of farias in Bagerhat district.

4.1.2.1.2. Religion

Upazilla wise religious were identified and data revealed that 33.33% Hindu were found in Mongla, Mollahat and Rampal Upazillas and 66.67% Hindu was found as faria in Chitalmari and without that all were in Muslim religion (Table 10).

Table 10. Upazilla wise religion percentage of faria.

Upazillas	Religion (%)		
	Muslim	Hindu	Other
Sadar	100	0	0
Fakirhat	100	0	0
Mongla	66.67	33.33	0
Kachua	100	0	0
Chitalmari	33.33	66.67	0
Morelgong	100	0	0
Sarankhola	100	0	0
Mollahat	66.67	33.33	0
Rampal	66.67	33.33	0

4.1.2.1.3. Education

The data focused that 33.33% farias was found from Mongla, Chitalmari and Rampal upazillas who were illiterate and highest percentage (66.67%) of primary educated and SSC educated were found in Sadar and Morelgong Upazilla respectively and also 33.33% farias were identified in Kachua upazilla who were University educated (Table 11).

Table 11. Education percentage of faria in Bagerhat district.

Upazillas	Education status (%)				
	Illiterate	Primary	SSC	HSC	University
Sadar	0	66.67	0	33.33	0
Fakirhat	0	33.33	33.33	33.33	0
Mongla	33.33	33.33	33.33	0	0
Kachua	0	0	33.33	33.33	33.33
Chitalmari	33.33	33.33	33.33	0	0
Morelgong	0	33.33	66.67	0	0
Sarankhola	0	33.33	33.33	33.33	0
Mollahat	0	33.33	33.33	33.33	0
Rampal	33.33	33.33	33.33	0	0

4.1.2.1.4. Amount of shrimp buy everyday

Table 12 shows 66.67% of farias from Sadar, Fakirhat, Kachua, Morelgong, and Mollahat upazillas purchased 40-60 Kg/day, where 33.33% of farias of Mongla, Kachua, Chitalmari, Morelgong, Mollahat and Rampal upazillas purchased shrimp more than 60 Kg/day.

Table 12. Amount of shrimp purchase by farias.

Upazillas	Amount of shrimp purchase (%)			
	<20kg	20-40kg	40-60kg	>60kg
Sadar	0	66.67	33.33	0
Fakirhat	0	66.67	33.33	0
Mongla	33.33	0	33.33	33.33
Kachua	0	66.67	0	33.33
Chitalmari	0	33.33	33.33	33.33
Morelgong	0	66.67	0	33.33
Sarankhola	33.33	33.33	33.33	0
Mollahat	0	66.67	0	33.33
Rampal	0	33.33	33.33	33.33

4.1.2.1.5. Sell to the next stakeholder

Table 13 shows that 100% farias of Sadar, Mongla, Kachua, Chitalmari, Sarankhola and Rampal upazillas sold their shrimp to Depot and 33.33% of farias of Morelgong and Mollahat sold shrimp to the big faria and also an exceptional was found that 33.33% farias of fakirhat upazilla sold shrimp directly to the agent, none was found who sold directly to the factory.

Table 13. Next stakeholder of farias in the study area.

Upazillas	Next stakeholder (%)			
	Big faria	Depot	Agent	Factory
Sadar	0	100	0	0
Fakirhat	0	66.67	33.33	0
Mongla	0	100	0	0
Kachua	0	100	0	0
Chitalmari	0	100	0	0
Morelgong	33.33	66.67	0	0
Sarankhola	0	100	0	0
Mollahat	33.33	66.67	0	0
Rampal	0	100	0	0

4.1.2.2. Food safety (Feature 2)

4.1.2.2.1. Source of water

A substantial amount of farias like 66.67% and 33.33% from Mongla, Kachua, Morelgong, mollahat and Sadar, Fakirhat, Chitalmari, Rampal Upazillas respectively were found who used water from gher/pond and also 33.33% of farias from Fakirhat and Rampal were used river/canal water (Fig. 27). But that water might be contaminated. Further 66.67% of farias from Chitalmari and Sarankhola Upazilla were found who used shallow tubewell water and a negligible percentage (33.33%) of farias from Sadar and Kachua used deep tubewell water.

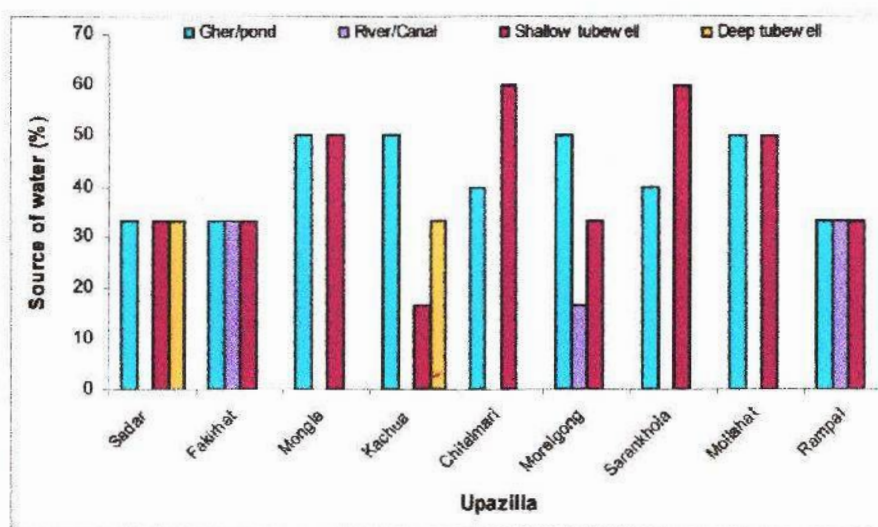


Fig. 27. Source of water in faria

4.1.2.2.2. Icing spot

Icing spot should be contaminated free and the place which is easy to clean. The data depicted that 66.67% of farias from Sadar and Morelgong upazillas used icing spot at their home (Table. 14). Further 66.67% farias from Kachua, Chitalmari, Sarankhola and Rampal upazilla was found who use ice at the depot area. That indicated that in the mean time from gher to the depot they didn't use ice. On the other hand 33.33% farias from Mongla and Morelgong and 66.67% farias from Mollahat stated that they didn't use ice ever to carry the shrimp from gher to the depot or next step of the marketing channel (Table. 14).

Table 14. Icing spot of farias in Bagerhat district.

Upazillas	Icing spot (%)				
	Home	Gher	Depot	Others	None
Sadar	66.67	33.33	0	0	0
Fakirhat	33.33	33.33	0	33.33	0
Mongla	33.33	0	33.33	0	33.33
Kachua	33.33	0	66.67	0	0
Chitalmari	33.33	0	66.67	0	0
Morelgong	66.67	0	0	0	33.33
Sarankhola	33.33	0	66.67	0	0
Mollahat	33.33	0	0	0	66.67
Rampal	33.33	0	66.67	0	0

4.1.2.2.3. Grading spot

It is strictly prescribe by quality control authority that grading spot must be the place where there is no chance to contaminate the shrimp with any sorts of foreign particles like microbes or other toxic material. Thus floor is strictly prohibited no to take place shrimp grading and or icing. From the present study it was found that 66.67% farias of Sadar, Mongla, Chitalmari, Millahat and Rampal upazillas did their shrimp grading on the floor where 33.33% farias from Fakirhat and Morelgong Upazillas used tin/steal material and also found 66.67% farias of Kachua upazilla used wooden platform for grading shrimp, but no polythene user was found in any upazilla (Table 15).

Table 15. Grading spot of farias in different upazillas of Bagerhat district.

Upazillas	Grading spot (%)			
	Floor	Tin	Polythene	Wooden platform
Sadar	66.67	0	33.33	0
Fakirhat	0	33.33	33.33	33.33
Mongla	66.67	0	0	33.33
Kachua	33.33	0	0	66.67
Chitalmari	66.67	0	33.33	0
Morelgong	0	33.33	66.67	0
Sarankhola	0	0	66.67	33.33
Mollahat	66.67	0	33.33	
Rampal	66.67	0	0	33.33

4.1.2.2.4. Shrimp handling hours

Table 16 shows only Fakirhat upazilla's faria (33.33%) took 1-2 hours handling period to send the shrimp to the next step, otherwise 66.67% farias from Sadar, Chitalmari, Sarankhola and Mollahat upazillas, and 33.33% farias from Fakirhat, Kachua and Morelgong upazillas took maximum time (5-6 hours) to pass the shrimp to the next step of the marketing channel.

Table 16. Shrimp handling period of farias

Upazillas	Handling hours (% of gbers)			
	1-2 (hr)	3-4 (hr)	5-6 (hr)	7-8 (hr)
Sadar	0	33.33	66.67	0

Fakirhat	33.33	33.33	33.33	0
Mongla	0	0	100	0
Kachua	0	66.67	33.33	0
Chitalmari	0	33.33	66.67	0
Morelgong	0	66.67	33.33	0
Sarankhola	0	33.33	66.67	0
Mollahat	0	33.33	66.67	0
Rampal	0	50	50	0

4.1.2.2.5. Transporting materials

Table 17 shows that 100% farias of Kachua upazilla used plastic material and 66.67% of farias of Mongla, Chitalmari, Morelgong, Sarankhola and Rampal upazillas were used aluminum material to carry shrimp.

Table 17. Transporting material used by farias.

Upazillas	Transporting material (%)				
	Bamboo basket	Plastic material	Alluminium	Bag	Cork
Sadar	0	50	50	0	0
Fakirhat	0	50	50	0	0
Mongla	0	33.33	66.67	0	0
Kachua	0	100	0	0	0
Chitalmari	0	0	66.67	0	33.33
Morelgong	0	33.33	66.67	0	0
Sarankhola	0	33.33	66.67	0	0
Mollahat	0	66.67	33.33	0	0
Rampal	0	33.33	66.67	0	0

4.1.2.2.6. Transporting carrier

Upazilla wise transporting carrier were investigated and found 33.33% of farias from Sadar, Mongla, Chitalmari, Sarankhola, Mollahat and Rampal upazillas carried shrimp to the next step either by hand or on head (Table 18). To early reaching carrier like truck/pickup was found in Fakirhat, Kachua and Rampal Upazillas at a percentage of 66.67 and 66.67% mechanized boat also found in riverine area of Morelgong upazilla.

Table 18. Transporting carrier of farias in the nine upazillas.

Upazillas	Transporting carrier (%)				
	Van	Head/hand	Bi-cycle	Truck/pickup	Mechanized boat
Sadar	50	33.33	16.67	0	0
Fakirhat	33.33	0	0	66.67	0
Mongla	66.67	33.33	0	0	0
Kachua	33.33	0	0	66.67	0
Chitalmari	0	33.33	66.67	0	0
Morelgong	33.33	0	0	0	66.67
Sarankhola	33.33	33.33	33.33	0	0
Mollahat	66.67	33.33	0	0	0
Rampal	66.67	33.33	0	66.67	0

4.1.2.2.7. Transporting route

Table 19 shows that 50% farias of Chitalmari upazilla used muddy road to carry their shrimp and but 100% farias of Kachua upazilla carried their shrimp to the next step through road (brick/pitch).

Table 19. Transporting route in farias.

Upazillas	Transporting route (%)			
	Road (Muddy)	Canal	River	Road (Brick/pitch)
Sadar	0	33.33	0	66.67
Fakirhat	33.33	0	0	66.67
Mongla	16.67	33.33	16.67	33.33
Kachua	0	0	0	100
Chitalmari	50	16.67	0	33.33
Morelgong	33.33	66.67	0	0
Sarankhola	16.67	66.67	0	16.67
Mollahat	16.67	0	33.33	50
Rampal	16.67	33.33	16.67	33.33

4.1.2.2.8. HACCP concept

A big percentage farias of Bagerhat district stated that they had no idea about HACCP while a few percentages (3.7%) farias declared that they maintained HACCP and rest of the farias of Bagerhat district said that they knew but didn't maintained (Fig. 28).

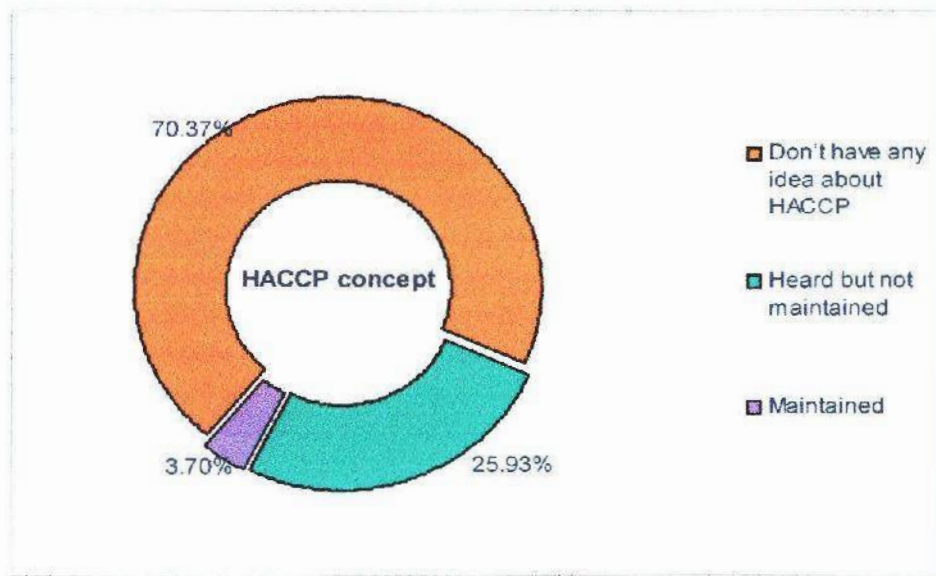


Fig. 28. HACCP concept in farias.

4.1.2.3. Human rights (Feature 3)

4.1.2.3.1. Engagement of child as helper

Some farias used child as helper. Actually they helped to sort shrimp, washing transporting etc. Table 20 shows that farias of Sadar (33.33%), Mongla (66.67%) and Rampal (66.67%) upazillas used child as helper.

Table 20. Percentage of farias used child as helper.

Upazillas	Child helper (%)	
	Yes	No
Sadar	33.33	66.67
Fakirhat	0	100
Mongla	66.67	33.33
Kachua	0	100
Chitalmari	0	100
Morelgong	0	100
Sarankhola	0	100
Mollahat	0	100
Rampal	66.67	33.33

4.1.2.4. Ethical and fair trade practices (Feature 5)

4.1.2.4.1. Handling of shrimp after purchasing

After purchasing 33.33% farias dripped shrimp in the water and 14.82 and 51.85% of farias put the shrimp in the bucket without and with dry ice respectively (Fig. 29).

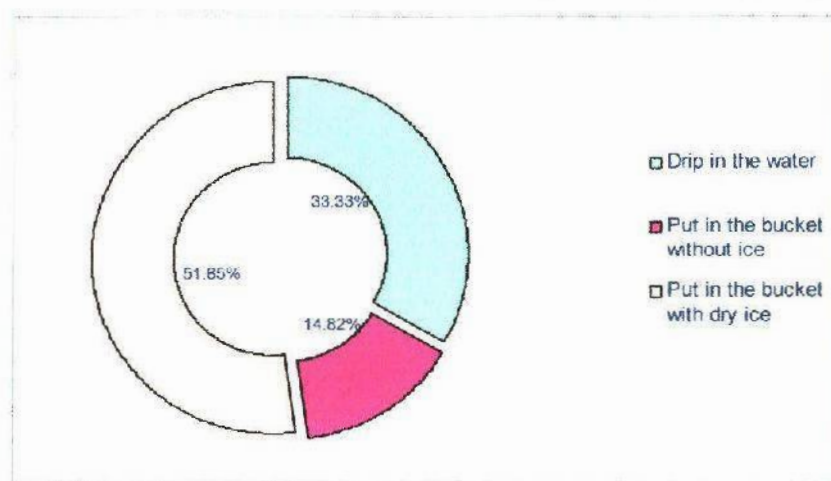


Fig. 29. Handling of shrimp after purchasing by farias.

4.1.2.4.2. Rejection of shrimp by farias

From the data very unpleasant result has been found that in every upazilla some farias didn't reject shrimp, while 100% farias of Sadar upazilla stated that they didn't ever reject shrimp and, 33.33% farias of Mongla and Rampal upazillas and 16.67% farias of Fakirhat, Kachua, Chitalmari, Morelgong, Sarankhola and Mollahat upazillas stated that they didn't reject shrimp (Fig. 30).

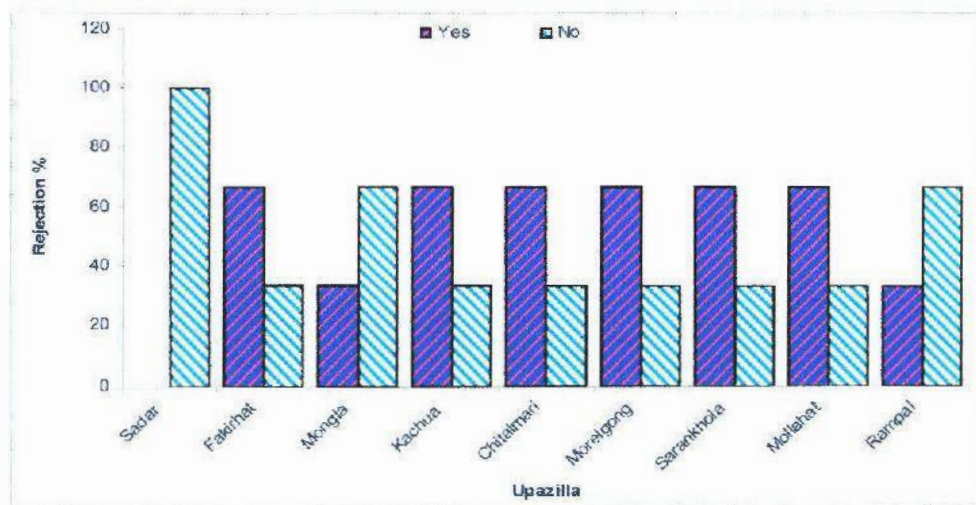


Fig. 30. Rejection of shrimp by farias.

4.1.2.4.3. Causes of rejection

Some reasons were identified from the investigation. A greater amount of ejection (46.17%) cause was found as soft shell while 30.76% shrimp were rejected by discoloration followed by 10.31, 6.38 and 6.38% shrimp were rejected for spongy body or malnutrition, loss of appendages and water in body respectively (Fig. 31).

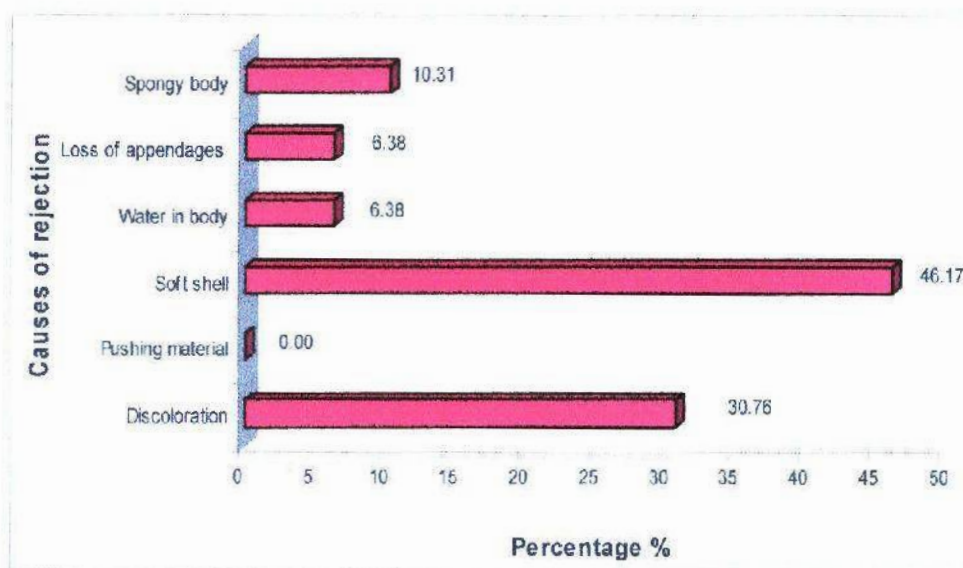


Fig. 31. Causes of shrimp rejection in farias.

4.1.2.5. Certification in all stages (Feature 6)

4.1.2.5.1. Percentage of licensed farias

From the present investigation it was found that 100% farias of Bagerhat district were not under licensed (Fig. 32). Actually farias acted to transport the harvested shrimp from gher to the other stakeholders either depots or depots and in the mean time they lost the quality of the shrimps using illegal or unscientific transporting system. Even they are not licensed by any authorities.

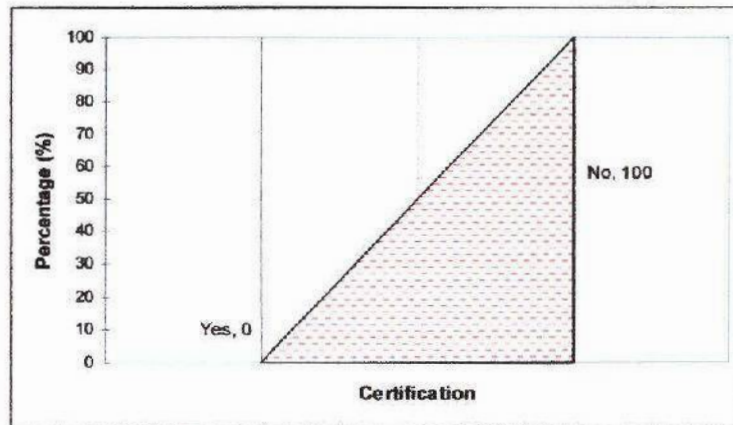


Fig. 32. Percentage of certified farias in Bagerhat district.

4.12. 5.2. Necessity of their license

The farias were asked about the necessity of licensed to run their activities. According to their opinion it was found that 100% farias of Bagerhat district claimed that they don't require any license to run their activities (Fig. 33).

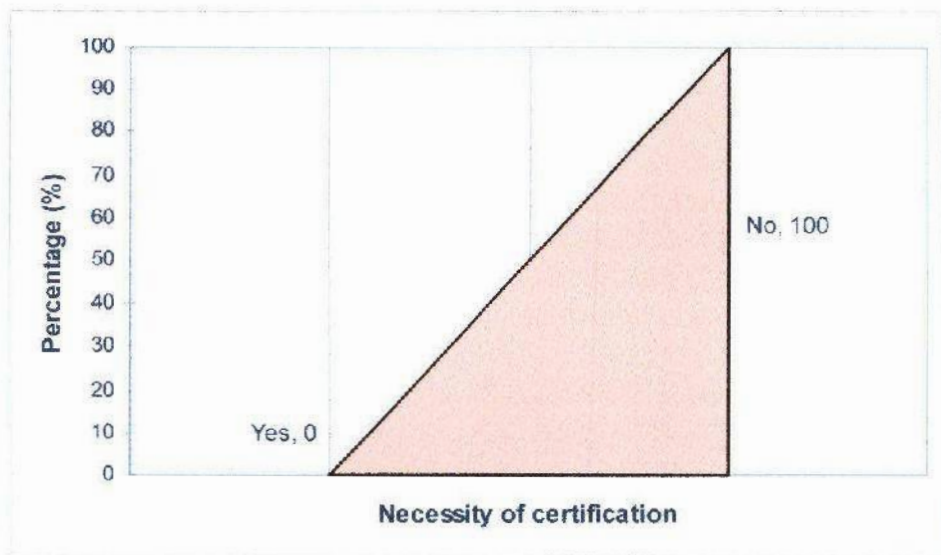


Fig. 33. Percentage of certified farias in Bagerhat district.

4.1.2.6. Traceability (Feature 7)

4.1.2.6.1. Acquaintance with the term of traceability

From the present study it was found that 100% farias of Bagerhat district stated that they didn't heard the term of traceability (Fig. 34).

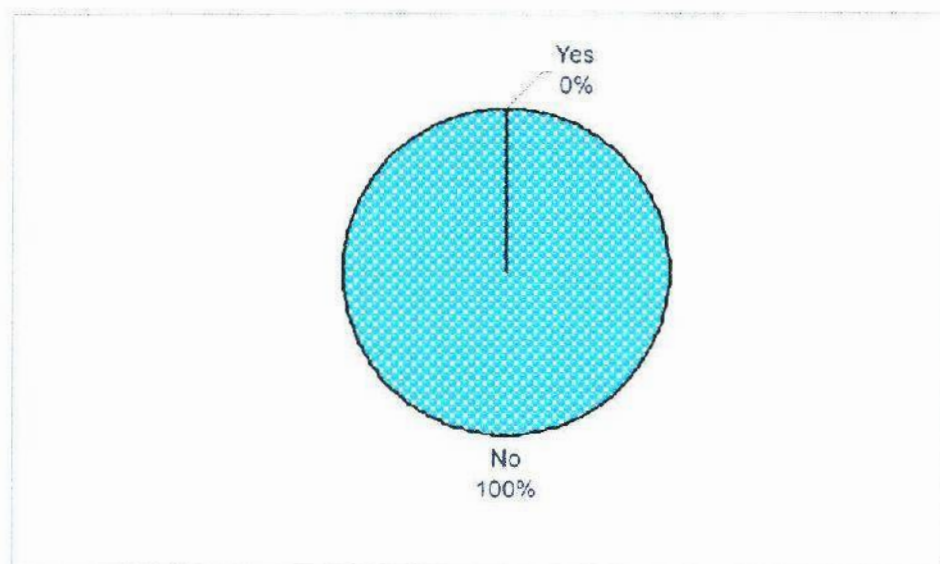


Fig. 34. Percentage of farias acquainted with the term of traceability.

4.1.2. 6.2. Keeping of traceability record

Fig. 35 shows that 100% farias of Bagerhat district didn't keep record from where they buy and where they sell that shrimp.

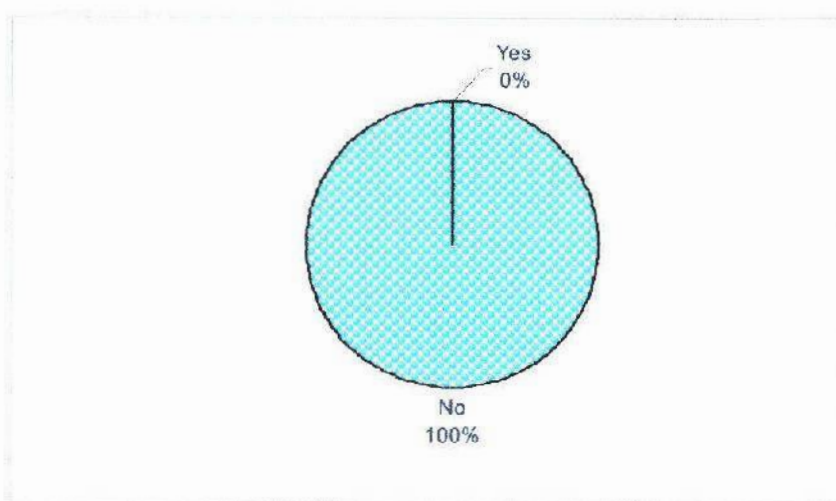


Fig. 35. Percentage of farias keeping traceability record.

4.1.3. Depot

4.1.3.1. General information

4.1.3.1.1. Ownership

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 (Fig. 36). Further figure 36 shows 37.04% depot was identified whose source of fund was loan from somewhere.

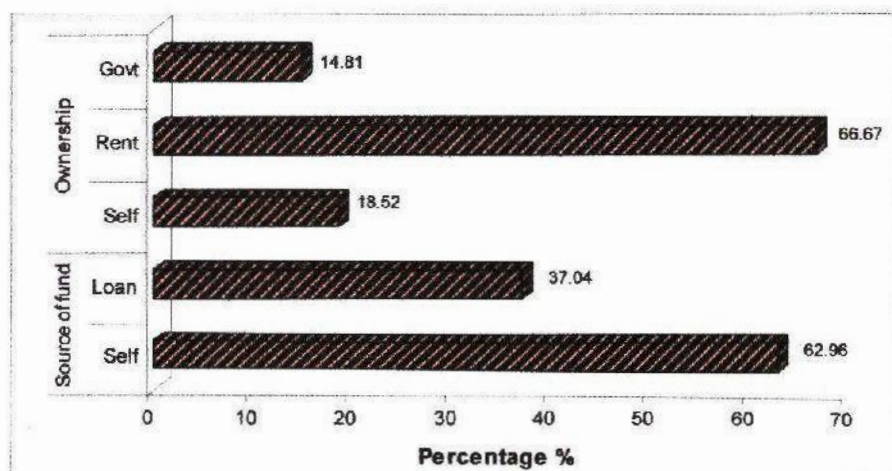


Fig. 36. Source of fund and ownership percentage of depot in Bagerhat district.

4.1.3.1.2. Area

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 (Fig. 37).

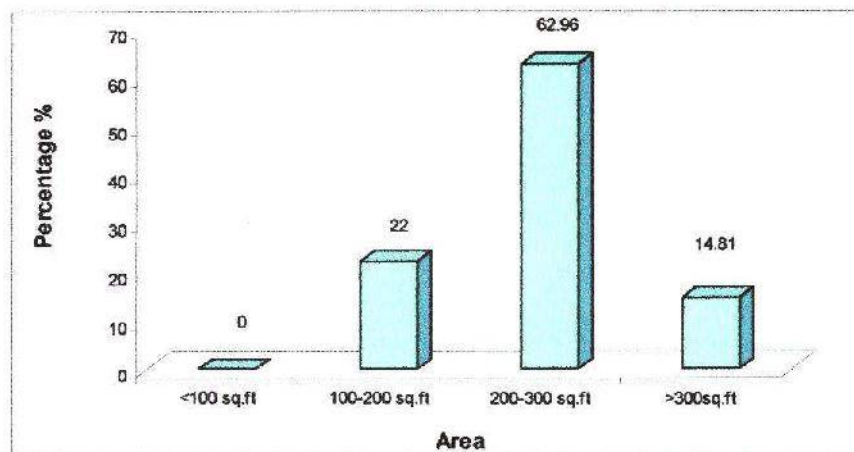


Fig. 37. Area of depots in Bagerhat district.

4.1.3.1.3. Structure

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 (Fig. 38). 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 upazillas. Further same figure (fig. 38) shows that 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 (Fig. 38).

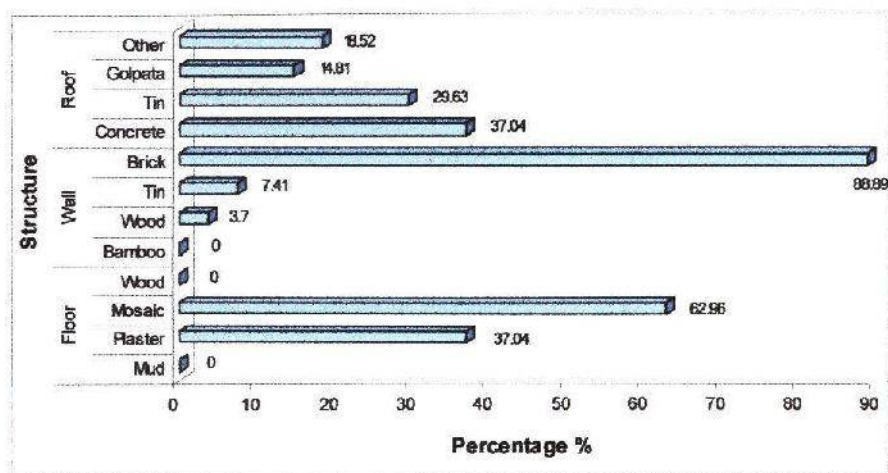


Fig. 38. Structure of depots in Bagerhat district.

4.1.3.1.4. Salary

Females and children were employed giving lowest salary into the depots. Table 21 shows that male workers were getting higher salary (60-120 Tk/day) 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. Table 21 also shows that in the depots of Bagerhat district there was no permanent children staff and manager/accountants salary varied ranged between 2500 to 6000 Tk/month.

Table 21. Salary range of workers and staffs engaged with the depots of Bagerhat district.

Workers salary range (Tk/day)			Staff salary range (Tk/month)		
Male	Female	Children	Manager / accountant	Grader	Children/ other
60-120	40-70	25-40	2500-6000	1500-3000	

4.1.3.2. Environmental protection and management (Feature 1)

4.1.3.2.1. Waste water disposal

Figure 39 shows that 70% of the depots dumped their waste materials to the nearable pond/ditch and remaining 30% depots dumped their waste to near drain.

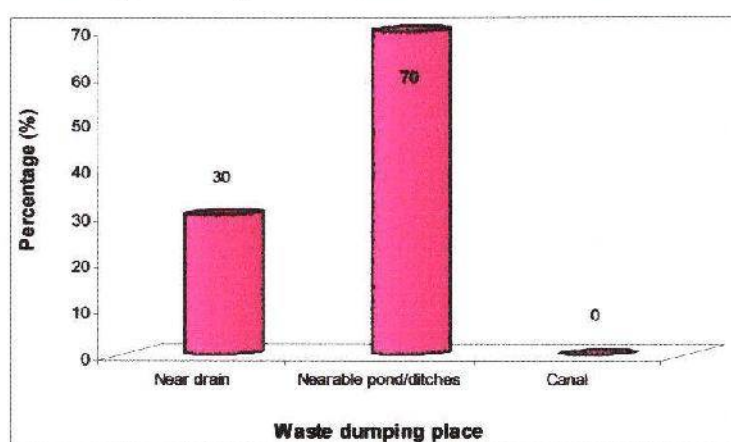


Fig. 39. Waste dumping places of depots of the study area.

4.1.3.3. Food safety (Feature 2)

4.1.3.3.1. Source of water

Upazilla wise source of water in the depots was checked and there was no depot was found where river/canal and deep tubewell water used. In sadar, Mongla and Morelgong Upazilla were found where depots used shallow tubewell to solve their water activities (Table 22). Rest of the upazillas a few percentage depots were found where gher/pond water used.

Table 22. Source of water in the depot of Bagerhat district.

Upazillas	Source of water (%)			
	Gher/pond	River/Canal	Shallow tubewell	Deep tubewell
Sadar	0	0	100	0
Mongla	0	0	100	0
Rampal	16.67	0	83.33	0
Fakirhat	66.67	0	33.33	0
Kachua	33.33	0	66.67	0
Mollahat	33.33	0	66.67	0
Morelgong	0	0	100	0
Chitalmari	33.33	0	66.67	0
Sarankhola	33.33	0	66.67	0

4.1.3.3.2. Ice ratio

Properly icing can increase the freshness of the shrimp. Depot is the second step after harvesting. In this step shrimp should be iced and as early as possible. Table 23 shows that 66.67% depot of maximum upazillas (Sadar, Mongla, Rampal, Fakirhat, Mollahat, Morelgong and Chitalmari) and depot of Kachua upazilla kept shrimp with ice at a ratio of 1:1 and none was found who kept shrimp with ice at a ratio 2:1 (Table 23).

Table 23. Ice ratio used by depots in nine different upazillas.

Upazillas	Ice ratio (%)			
	0.5:1	1:1	1.5:1	2:1
Sadar	0	66.67	33.33	0
Mongla	0	66.67	33.33	0

Rampal	33.33	66.67	0	0
Fakirhat	0	66.67	33.33	0
Kachua	0	100	0	0
Mollahat	33.33	66.67	0	0
Morelgong	0	66.67	33.33	0
Chitalmari	0	66.67	33.33	0
Sarankhola	33.33	33.33	33.33	0

4.1.3.3.3. Grading spot

Grading place is the point from where shrimp can be contaminated. To maintain HACCP it is suggested that shrimp should not grade in a place which is contaminated. In the present survey a noticeable portion (66.67%) depots of some upazillas (Mongla, Fakirhat, Kachua, Morelgong and Chitalmari) were found where shrimp grading was taking place on the floor (Table 24). But 100% depots were found that where grading was taking place over the steal table.

Table 24. Grading spot in depots of nine different upazillas.

Upazillas	Grading spot (%)			
	Floor	Steal table	Polythene	Wooden platform
Sadar	0	100	0	0
Mongla	66.67	33.33	0	0
Rampal	33.33	33.33	0	33.33
Fakirhat	66.67	0	0	33.33
Kachua	66.67	0	0	33.33
Mollahat	33.33	33.33	0	33.33
Morelgong	66.67	33.33	0	0
Chitalmari	66.67	33.33	0	0
Sarankhola	33.33	0	0	66.67

4.1.3.3.4. Transporting materials

Table 25 shows that bamboo baskets were disappeared from depot area only in Fakirhat upazilla 16.67% depot bamboo baskets used to transport shrimp. Four upazillas like Rampal, Morelgong, Chitalmari and Sarankhola where 100% depots were found who used plastic drum to transport shrimp. Transporting by bamboo baskets- the freshness or quality could be experimented. Because that could find out solution for better carrier.

Table 25. Transporting materials used in depots.

Upazillas	Transporting materials (%)		
	Bamboo basket	Plastic basket	Plastic drum
Sadar	0	33.33	66.67
Mongla	0	33.33	66.67
Rampal	0	0	100
Fakirhat	16.67	0	83.33
Kachua	0	16.67	83.33
Mollahat	0	66.67	33.33
Morelgong	0	0	100
Chitalmari	0	0	100
Sarankhola	0	0	100

4.1.3.3.5. Transport route

Figure 40 showed that shrimp of 100% depot of eight upazillas without Sarankhola were transported through road (brick/pitch) and only 33.33% muddy road was used in Sarankhola Upazilla.

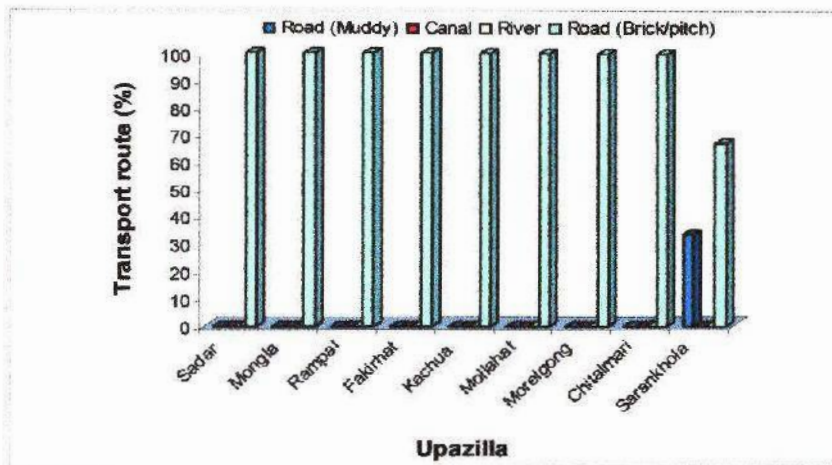


Fig. 40. Transporting route of depots in Bagerhat district.

4.1.3.3.6. Transporting carrier

Depots were comparatively situated in the urban area rather than gher in the Bagerhat district. From the investigation it was found that pickup van was used almost all upazillas. Table 26 shows that in Sarankhola upazilla van were the only means to

transport shrimp from depot to the next step and without Sarankhola and Morelgong rest of the upazillas depots used pickup van and sometimes bus/truck to carry their shrimp towards the processing plants.

Table 26. Transporting carrier used in depots.

Upazillas	Transporting carrier (%)			
	Van	Bus/truck	Bi-cycle	Pickup
Sadar	16.67	16.67	0	66.67
Mongla	0	66.67	0	33.33
Rampal	33.33	33.33	0	33.33
Fakirhat	66.67	0	0	33.33
Kachua	66.67	0	0	33.33
Mollahat	66.67	0	0	33.33
Morelgong	83.33	16.67	0	0
Chitalmari	50	0	0	50
Sarankhola	100	0	0	0

To use pickup van has a great advantage that with less mechanical injury shrimp can be reached to the next step within shortest time. There was a less chance to reject the shrimp causing spoilage.

4.1.3.3.7. Shrimp handling hours

Table 27 shows that less than three hours handling period was found in Sarankhola upazilla (33.33%) in all depots average handling hours were 4 hours or more than 5 hours. The 100% depots of Mollahat upazilla were found whose shrimp handling period was 4 hours (Table 27).

Table 27. Shrimp handling period in depots.

Upazillas	Handling hour (%)			
	<3 hr	3 hr	4 hr	5 hr
Sadar	0	0	33.33	66.67
Mongla	0	33.33	33.33	0
Rampal	0	0	33.33	0
Fakirhat	0	0	33.33	0
Kachua	0	0	66.67	0
Mollahat	0	0	100	0

Morelgong	0	0	66.67	33.33
Chitalmari	0	66.67	0	0
Sarankhola	33.33	0	33.33	33.33

4.1.3.3.8. HACCP concept

From the survey it was found that 51.85% depots of Bagerhat district maintained HACCP norms while 29.63% depots reported that they heard but not maintained and rest of the depots (18.52%) reported that they didn't know what HACCP is (Fig. 41).

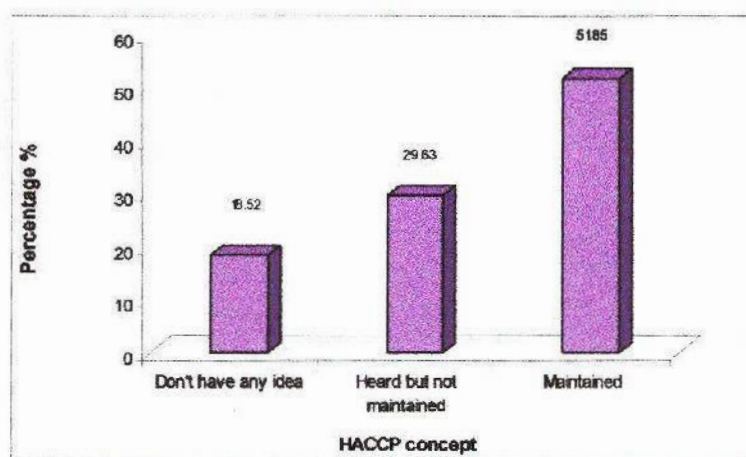


Fig. 41. HACCP concept to the depots.

4.1.3.4. Human rights (Feature 3)

4.1.3.4.1. Child labour percentage

Normally females and children were engaged with the depot to do soft works and they were to give lower price comparatively to male workers. In the depots female and children were employed with to grade, deheading of shrimp and other chore. Moreover, from the investigation 70.16% workers were identified as male and, 22.58 and 7.26% were found female and children workers, respectively (Fig. 42).

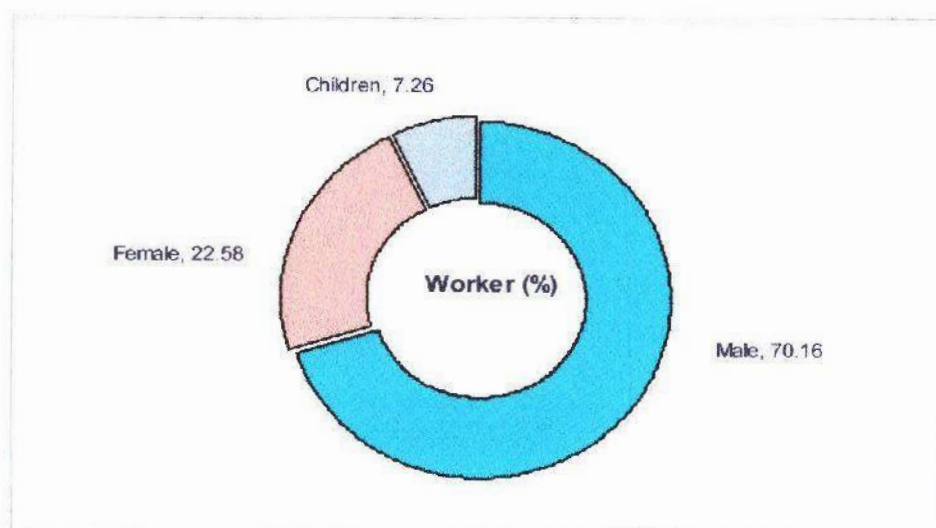


Fig. 42. Workers found in the depots of Bagerhat district.

4.1.3.4.2. Health check of workers

100% depot of the study area stated that they didn't check the health of their workers (fig. 43).

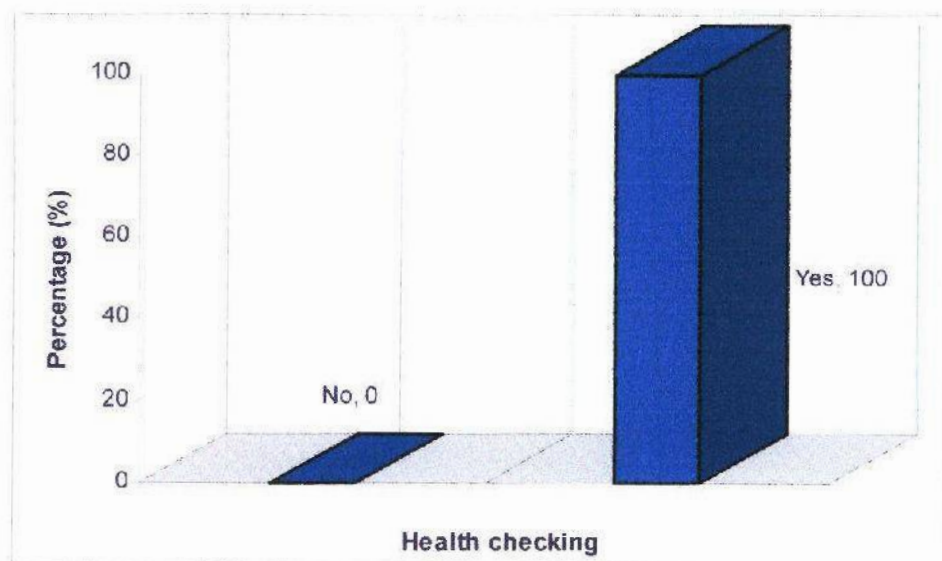


Fig. 43. Health check done in the depots.

4.1.3.5. Fair labour practice and worker's safety (Feature 4)

4.1.3.5.1. Wage payment type

From the investigation it was found that 100% depots of the study area paid cash as wages of their workers, while none was found providing food and cloth to the labourers in return of their work (Fig. 44).

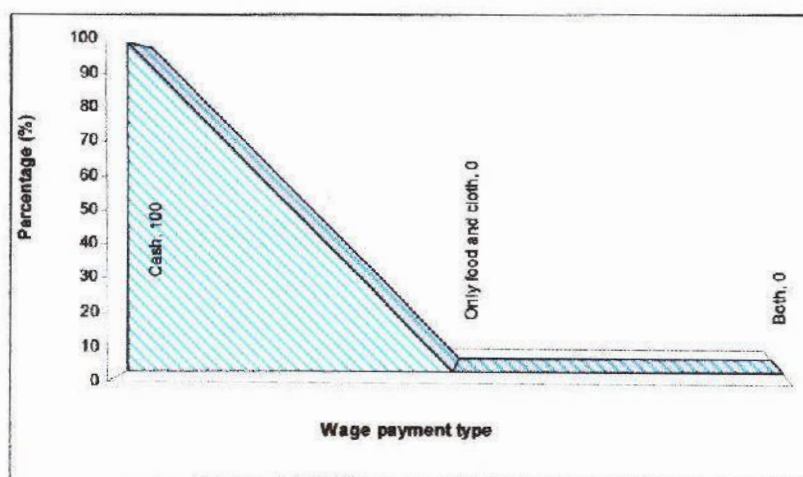


Fig. 44. Wage payment style of the depots in the study area.

4.1.3.6. Ethical and fair trade practices (Feature 5)

4.1.3.6.1. Handling of shrimp after purchasing

After purchasing the shrimp must be put in the safe place with ice. Figure 45 shows that 96.3% depots put their shrimp immediately after purchasing shrimp and a negligible amount of depots (3.7%) put shrimp in the bucket without ice. From the result the depots are showing positive result in the respect of icing shrimp in proper time.

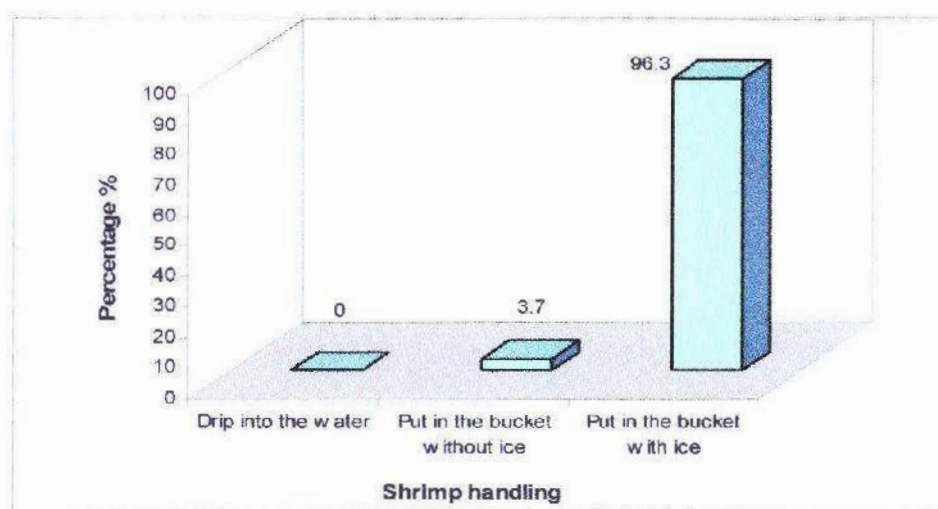


Fig. 45. The activities done after purchasing shrimp in depots.

4.1.3.6.2. Rejection

Shrimp rejection also done in the depots. Figure 46 shows that 92.59% depots of Bagerhat district rejected shrimp for several causes that were visually inspected.

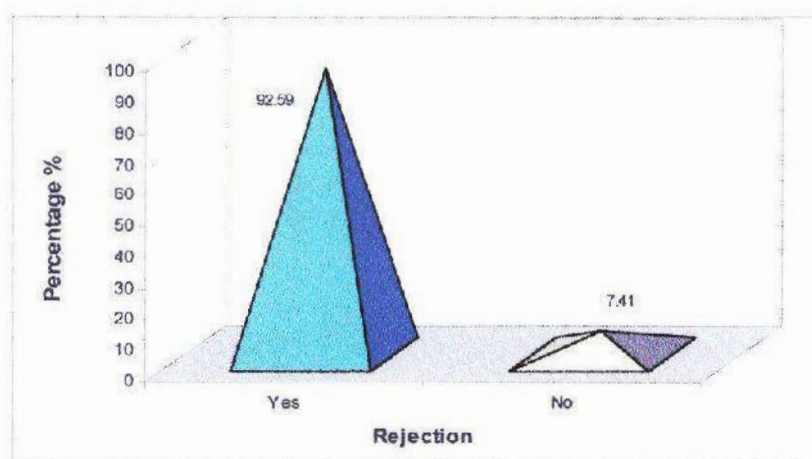


Fig. 46. Rejection of shrimp from depots.

4.1.3.6.3. Causes of rejection

From the depots of Bagerhat district 33.45 and 32.39% shrimp were rejected for discoloration and soft shell respectively (Fig 47). In the depots 5.39% shrimp were rejected due to pushing material and among foreign materials shabu, juices of ladies finger etc were available.

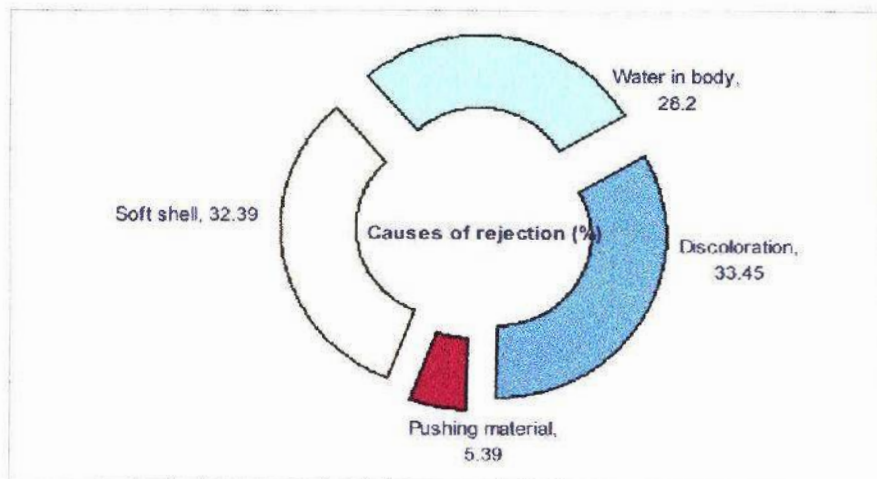


Fig. 47. Causes of rejection of shrimp in depots.

4.1.3.7. Certification in all stages (Feature 6)

4.1.3.7.1. Percentage of licensed depots

From the figure 48 it was found that large number (66%) depots of Bagerhat district have no license while the remaining portion (34%) were found under licensed.

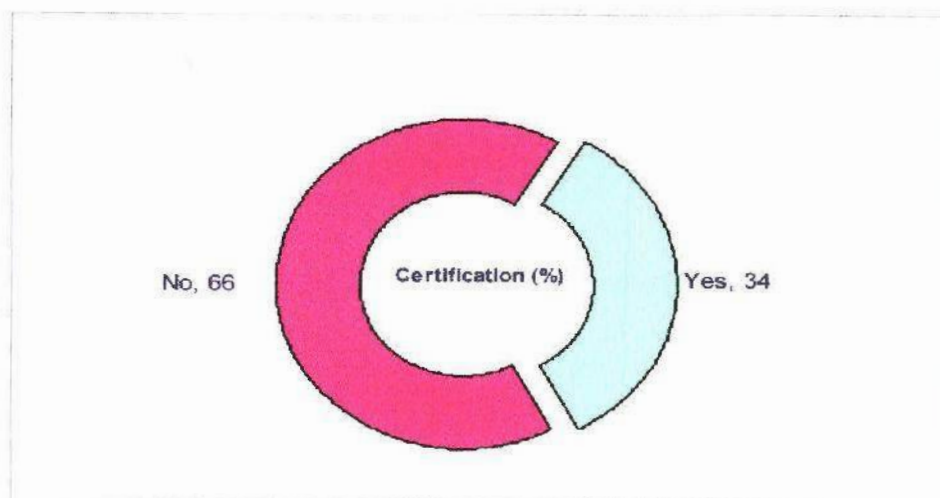


Fig. 48. Percentage of certified depots in Bagerhat district.

4.1.3.7.2. License issuing organization

From the investigation it was found that 100% depots of Bagerhat district got their license from FIQC (Fig. 49).

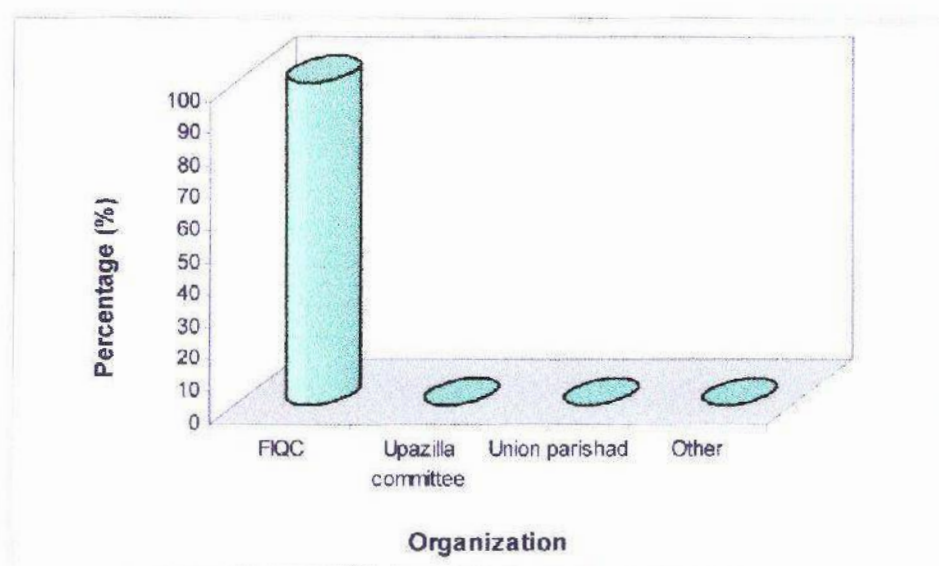


Fig. 49. License issuing organization.

4.1.3.7.3. Competent authority to issue license

The depots owners were asked about the competent authority to provide their certificate. According to their opinion it was found that 75% depot owners believed that union parishad would be the competent authority to issue the license while 20% and 5% depot owners stated as FIQC and Upazilla committee, respectively (Fig. 50).

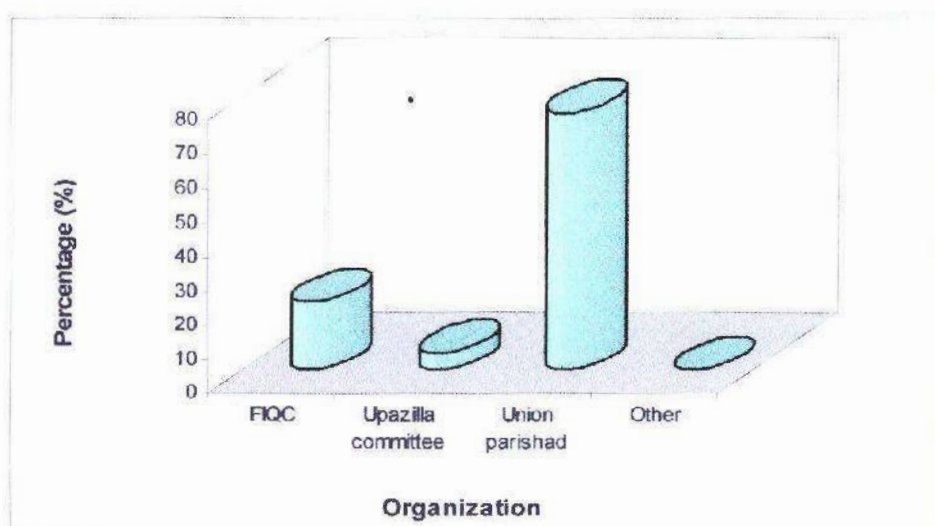


Fig. 50. Competent authority of issuing license.

4.1.3.8. Traceability (Feature 7)

4.1.3.8.1. Acquaintance with traceability

When the depot owners were asked about the term traceability a majority portion (60%) respondents were declared that they were known the term traceability while remaining (40%) were completely unknown about the term (Fig. 51).

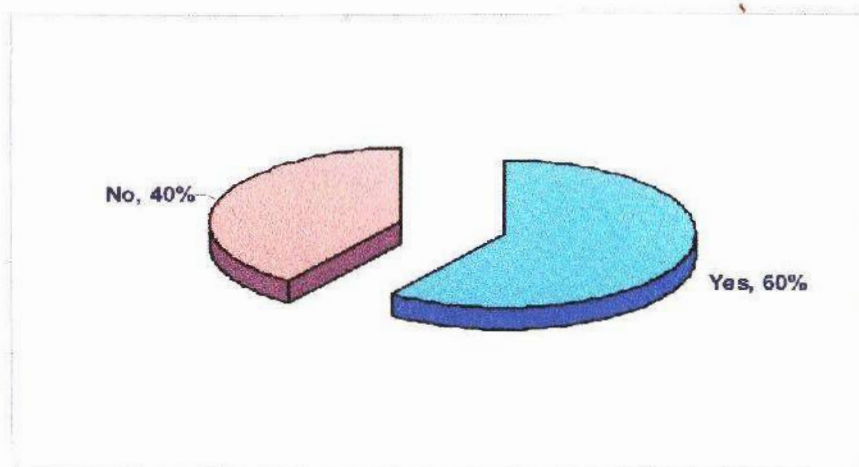


Fig. 51. Percentage of depots acquainted with traceability in Bagerhat district.

4.1.3.8.2. Keeping of record to whom shrimp was sold

Record keeping is the method to assess the traceability. Every depot should keep record from where the shrimp was bought and where it is being sold. From the investigation it was found that only 60% depots of Bagerhat district kept record to whom, when and the amount of shrimp they sold (Fig. 52).

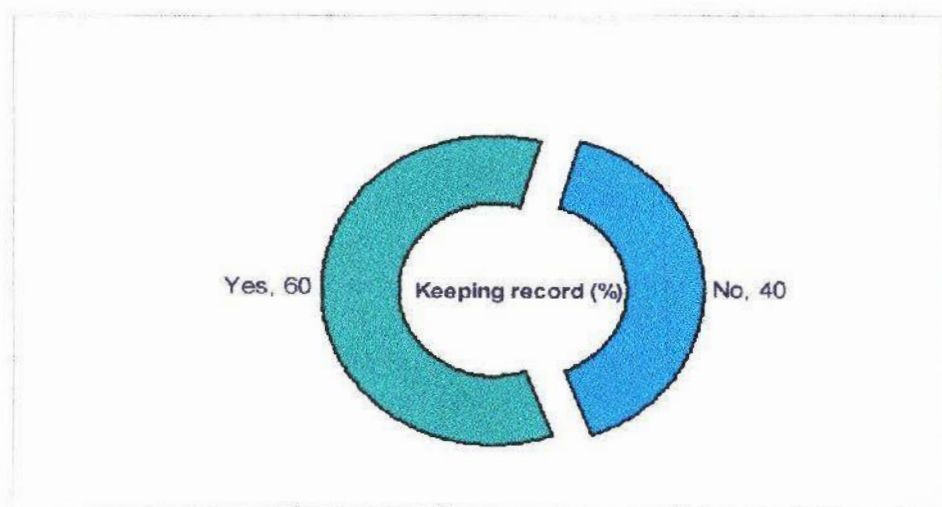


Fig. 52. Percentage of depots kept record in Bagerhat district.

4.1.4. Agents

4.1.4.1. General information

4.1.4.1.1. Ownership

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 (Fig. 53).

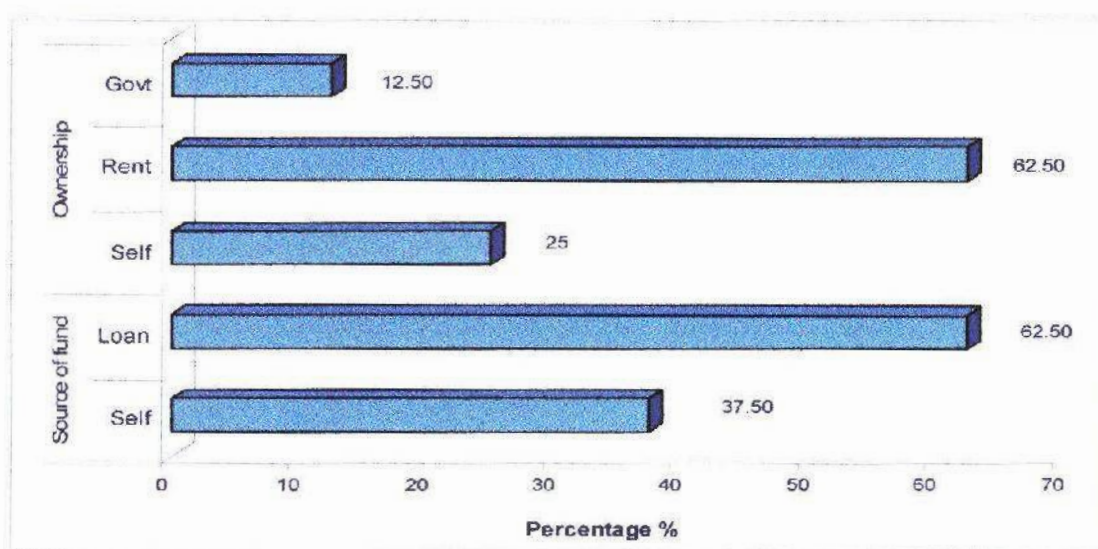


Fig. 53. Ownership and source of fund for the agents.

4.1.4.1.2. Area

Area wise agents were divided into five different categories such as 200-300, 300-400, 400-500, 500-600 and >600 sq. ft groups. Figure 54 shows that 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.

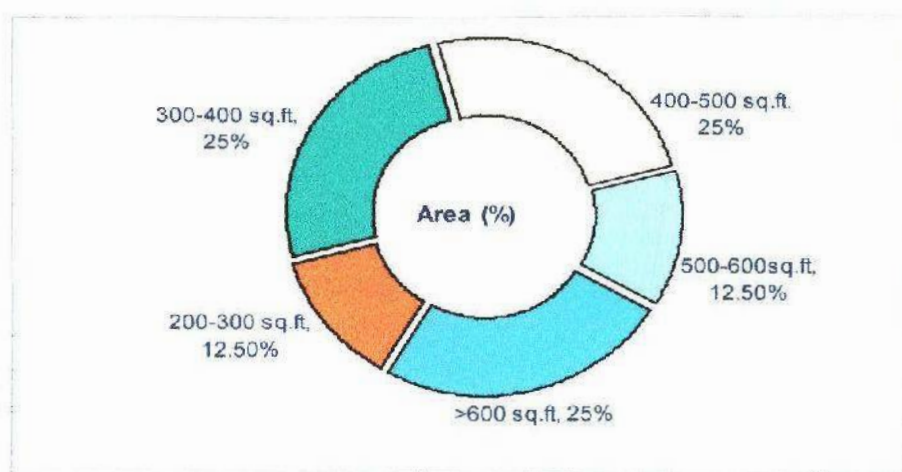


Fig. 54. Area of agents' office room in the study area.

4.1.4.1.3. Structure

Floor of almost all agents were 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 (Fig 55). Where 31.25% floor was found plastered and very little (6.25%) was found wooden floor which could be vulnerable to contaminated. No one was found which floor was muddy.

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 (Fig 55). Figure 55 also shows the roof structure of surveyed agents where 25, 50, 12 and 12% for concrete, tin, goolpata and other respectively.

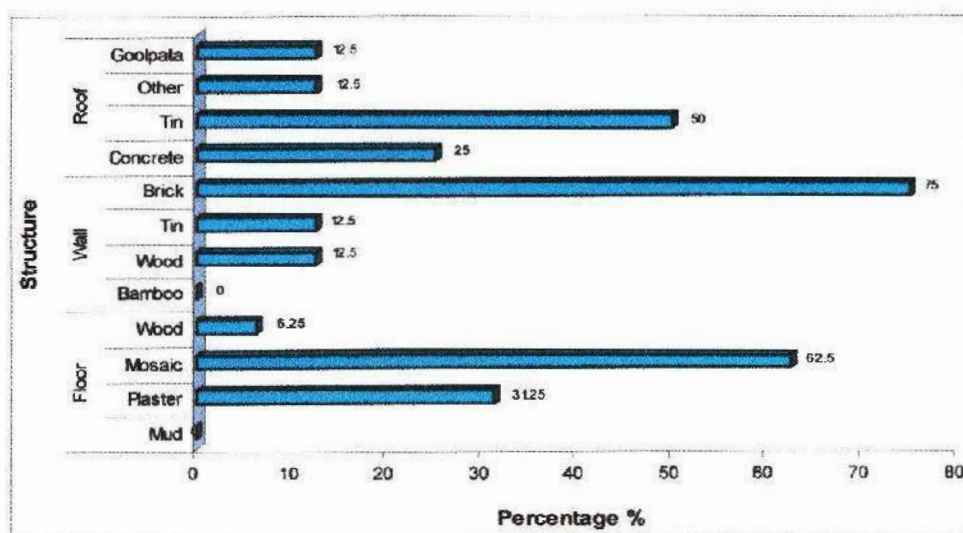


Fig. 55. Structure of agents' office in study area.

4.1.4.2. Environmental protection and management (Feature 1)

4.1.4.2.1. 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 (Fig. 56).

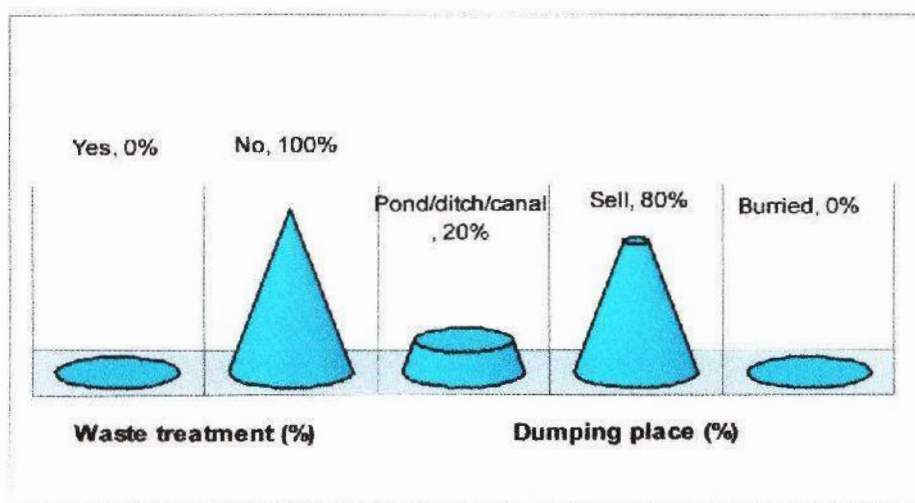


Fig. 56. Waste dumping places of agents in Bagerhat district.

4.1.4.3. Food safety (Feature 2)

4.1.4.3.1. Source of water

Use of water is an important key factor to maintain HACCP. Water is used to wash shrimp as well as agent floor, wall and keep hygienic the environment. In the survey source of water was checked out. Greater portion (62.50%) agents used water from shallow tubewell and 25% agents used deep tubewell water while 6.25 and 6.25% agents were identified who mitigate their water problem from gher/pond and river/canal respectively (Fig. 57).

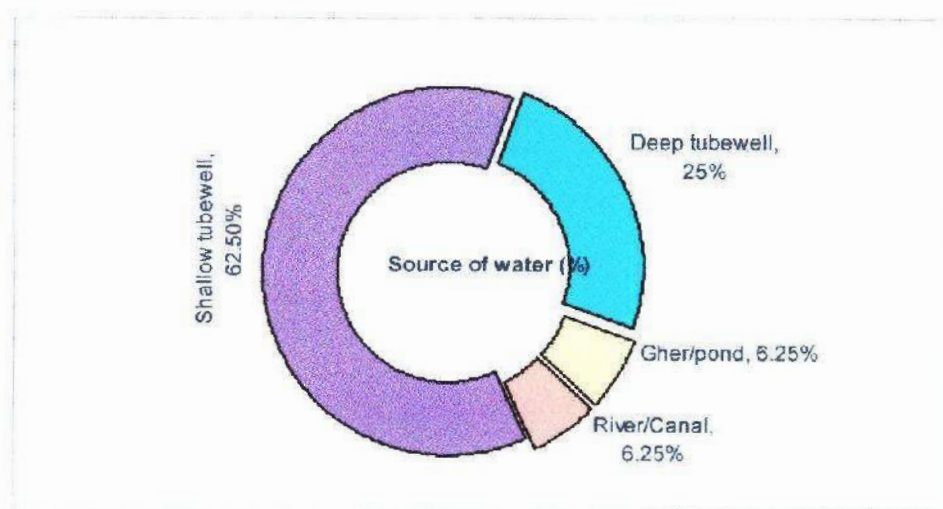


Fig. 57. Source of water in agents.

4.1.4.3.2. Icing ratio

After entering shrimp to the agents and up to reaching to the factories it is needed to keep the product dipping into ice. Some factories were identified which didn't use ice while some used. The shrimp were preserved with dry ice the ratio was varied from agent to agent. In the present study 62.50% agents were found where ice was used with a ratio of 1.5: 1 (Ice: shrimp) while 25 and 12.5% were found for 1:1 and 2:1 ratio groups respectively (Fig 58).

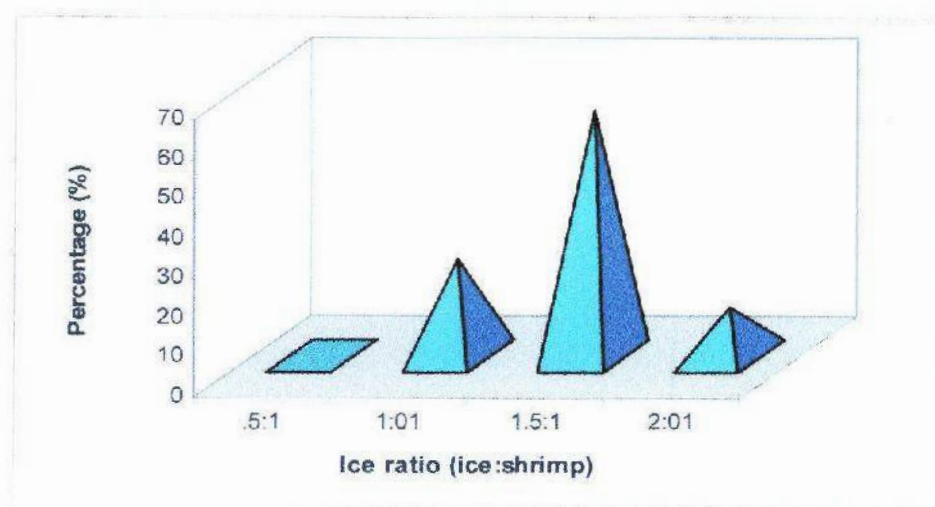


Fig. 58. Icing ratio (ice:shrimp) used in agents.

4.1.4.3.3. Grading spot

Grading spot should be contaminated free. To ensure good quality of shrimp contaminating less quantity of microbes it is suggested to use such a material which could be cleaned easily after every use. It was suggested from the shrimp consumer country shrimp should be graded over the steal table. Moreover in the present study 37.5% agents were found where grading was taking place on the floor and remaining (62.5%) was done over the steal table (Fig 59).

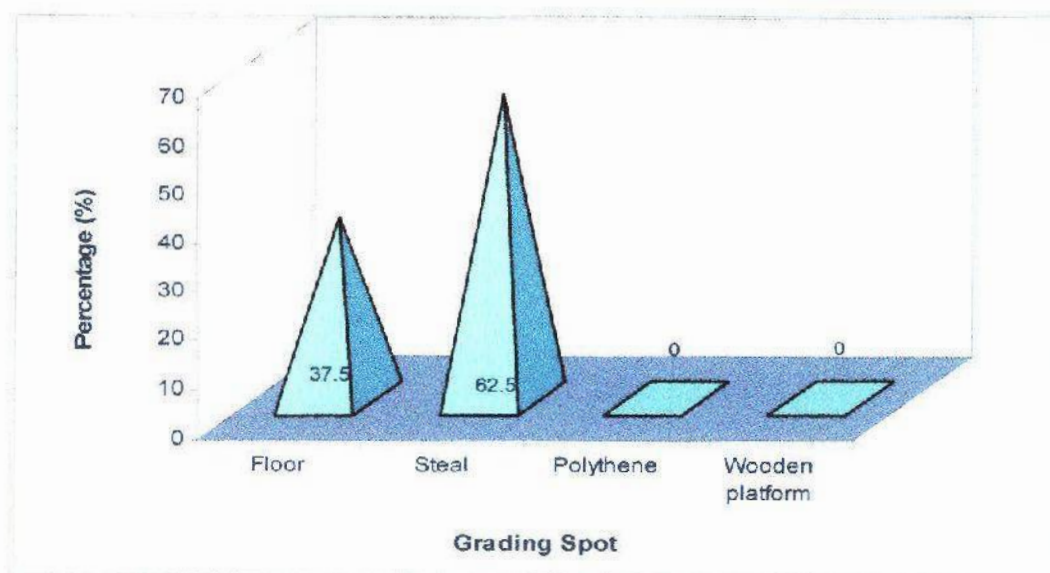


Fig. 59. Grading spot percentage in agents.

4.1.4.3.4. Transportation

The shrimp, transported from different agents to the processing plants was found with the help of plastic drum and plastic materials. A significant percentage (68.75%) was found in case of plastic drum where as 31.25% found for plastic materials (Fig. 60). No bamboo baskets were identified. The result showed that the agents were followed HACCP norms in this respect though it is either practiced consciously or not. Plastic drum or plastic materials were easy to clean.

A significant portion (50.26%) shrimp were identified transferring from agents to the factories by pickup van and next big amount (25%) was bus/truck (Fig. 60). Some portion (12.5%) was transported by van when the quantity of selling product was lower and if the agents were situated nearby to the factories. Very lower amount (6.25%) was appeared transferring from agents to the factories by mechanized boats.

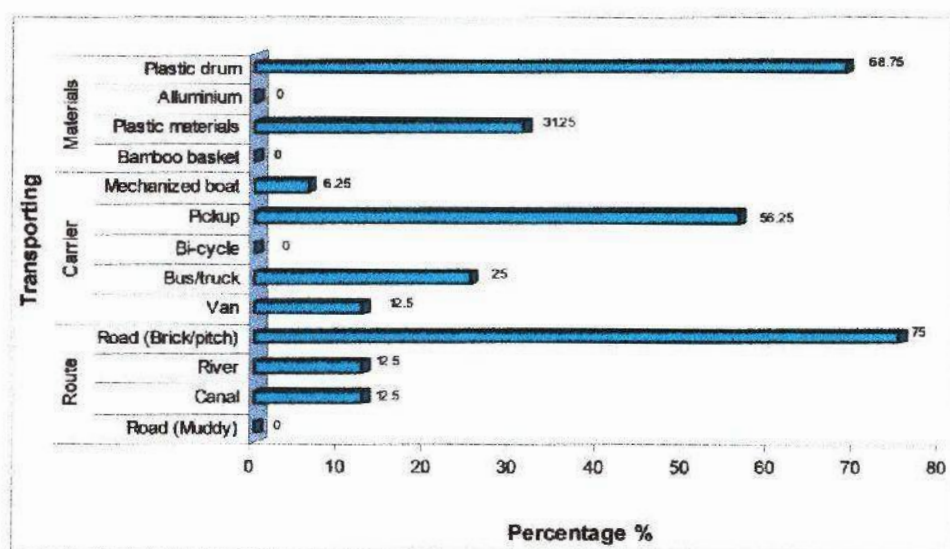


Fig. 60. Transportation scenario of shrimp from shrimp to processing plants.

The survey result revealed that a huge amount of shrimp (75%) were transported from agents to the factories through the route of road (Brick/pitch) and remaining was from river or canal (Fig. 60). Muddy road was not found because almost all agents were

situated comparatively urbanized area from where transport was easier and convenient. Due to unstressed transporting route shrimp had not to get handling stress before reaching to the factories.

4.1.4.3.5. Production

Table 28 shows that the average production of shrimp to all three seasons. In peak season it was ranged between 20000 to 50000 Kg/day and post season it was comparatively higher amount than pre-season.

Table 28. Production range of shrimp in agents for three seasons.

Average production (Kg/day)		
Pre-Season	Peak season	Post-Season
500-12000	20000-50000	2000-12000

4.1.4.3.6. HACCP concept

It is necessary to know HACCP concept who are engaged with the shrimp post harvest activities. In the present study HACCP concept was investigated and 62.5% agent owners were declared that they maintain HACCP, while 12.5% agent owners stated that they didn't know what is HACCP and 25% agent owners said they knew but couldn't maintained properly (Fig 61).

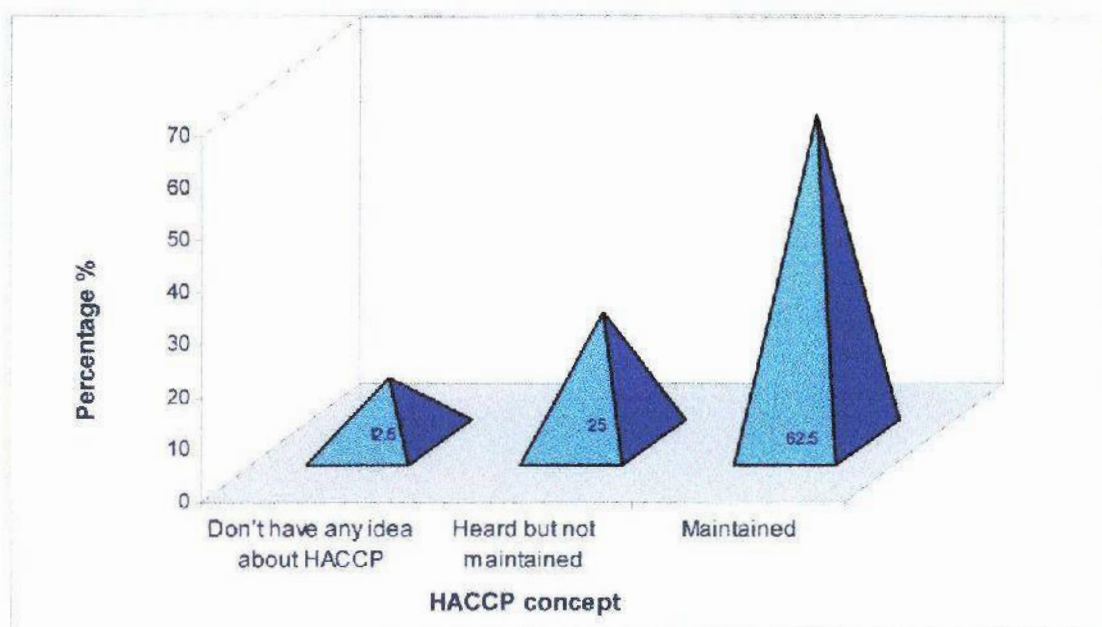


Fig. 61. HACCP concept percentage in agents.

4.1.4.4. Human rights (Feature 3)

4.1.4.4.1. Child workers involvement

Male, female and children workers were found working into the agent as labour. Female and children were employed due to they were given very lower price comparatively to males. Moreover male workers percentage was always high in all the agents. Females and children were engaged to perform less laborious work. In the present investigation it was observed that 68.90 % of male workers were engaged with the agents followed by 21.34 and 9.76% for female and children respectively (Fig. 62).

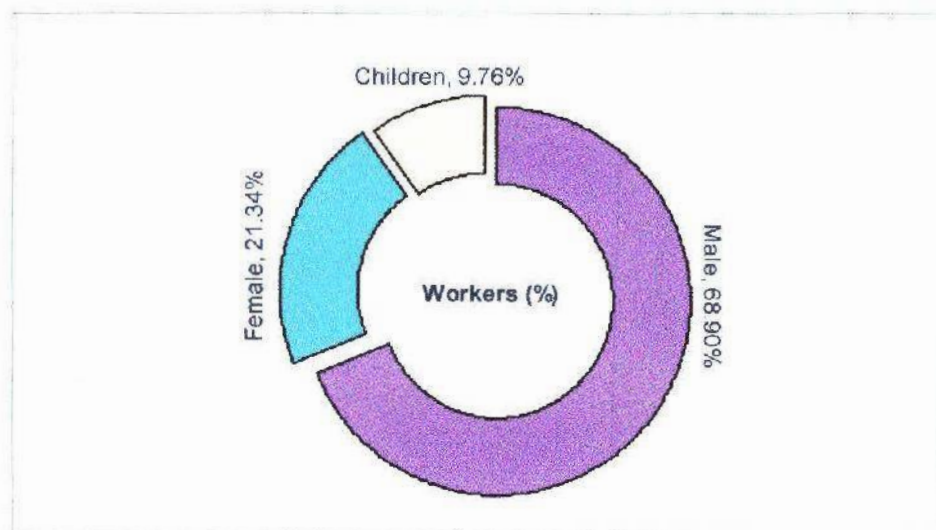


Fig. 62. Manpower involved in agents.

It is needed to increase male percentage into the agents. Because it is assumed that males are able to work hard and they are able to maintain HACCP. To maintain HACCP additional works have to be done by shrimp handlers.

4.1.4.4.2. Salary

Table 29 shows salary range for workers and staff personnel engaged with the agents surveyed. Salary varied from agent to agent depending on its position or place where it is situated, its amount of products that needs to deal everyday, availability of the workers and staff, its degree of income etc.

Table 29. Salary ranges of workers and staffs engaged with the agents.

Workers salary range (Tk/day)			Staff salary range (Tk/month)		
Male	Female	Children	Manager / accountant	Grader	Children/ other
100-150	50-70	30-60	4000-6500	2000-5500	1000-1200

From the survey it was observed that workers (Male, female and children) were not fixed and they earned money from the agents in daily basis, when there was no production they couldn't get any wages. Female and children workers got very lowest amount of wages

and that was 50-70 and 30-60 Tk/ day respectively. The permanent staffs like manager/ accountants, graders and children were getting salary ranges between 4000-6500, 2000-5500 and 1000-1200 Tk/ month respectively (Table 29).

4.1.4.5. Fair labour practice and worker's safety (Feature 4)

4.1.4.5.1. Wage payment pattern

From the investigation it was found that 100% agents of the study area provided cash as during payment of wages of their workers (Fig. 63).

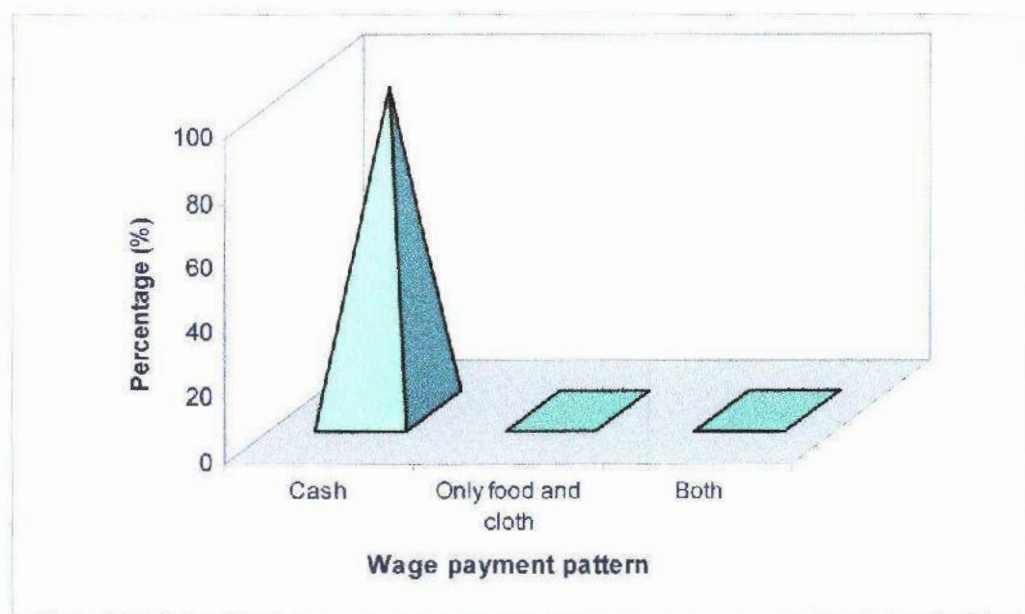


Fig. 63. Wage payment pattern of the agents in the study area.

4.1.4.5.2. Overtime

From the investigation it was found that the agents of the study areas provided overtime to their workers. Figure 64 shows that 70 agents of the study area offered 12 hours overtime to their workers while remaining (30%) agents proposed 24 hours overtime.

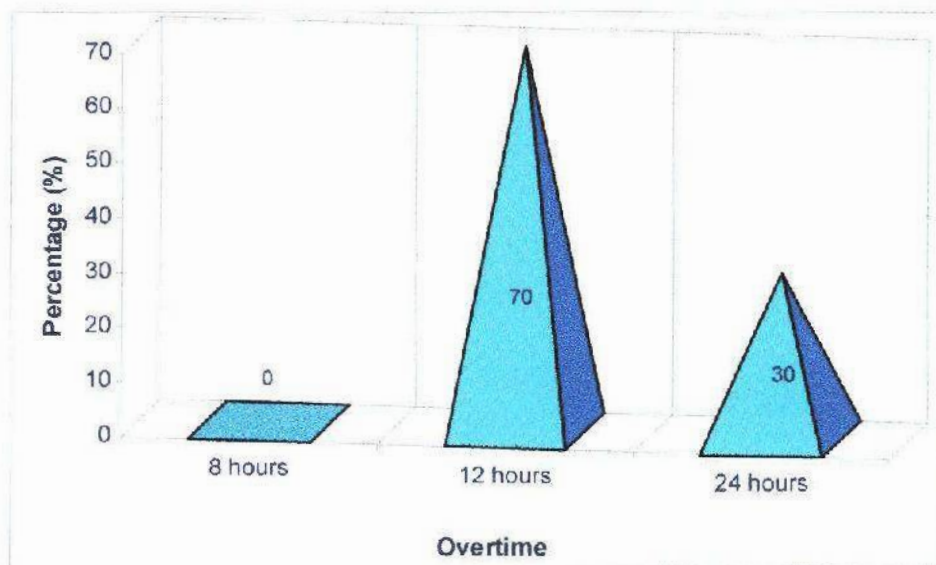


Fig. 64. Overtime facility provided by agents in the study area.

4.1.4.6. Ethical and fair trade practices (Feature 5)

4.1.4.6.1. Handling of shrimp after purchasing

To protect the shrimp from spoilage it is urgently needed to keep the shrimp into ice as early as possible. In the present study it was inspected whether the shrimp was preserved in the safe position with ice or not. From the study 93.75% agents were identified where shrimp was put in the bucket with at different ratio and remaining portion (6.25%) of agents claimed that they send the shrimp directly to the factories that indicated that before sending, shrimp was not kept with ice (Fig 65). This was obviously bad practice.

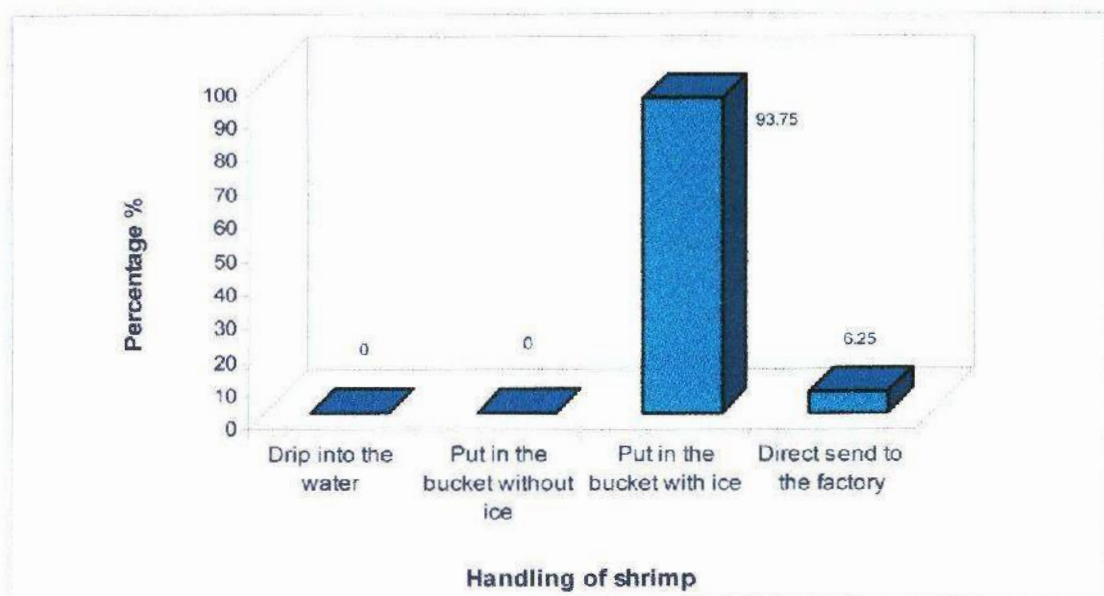


Fig. 65. Activities done after purchasing shrimp in agents.

4.1.4.6.2. Shrimp handling hour

Short time preservation was done into the agents. So it is necessary to reduce the time from gher to the factory. From the present study 62.5% agents were identified whose shrimp handling period was 3-4 hours, where only 12.5% agents informed that the handle the shrimp 1-2 hours (Fig. 66).

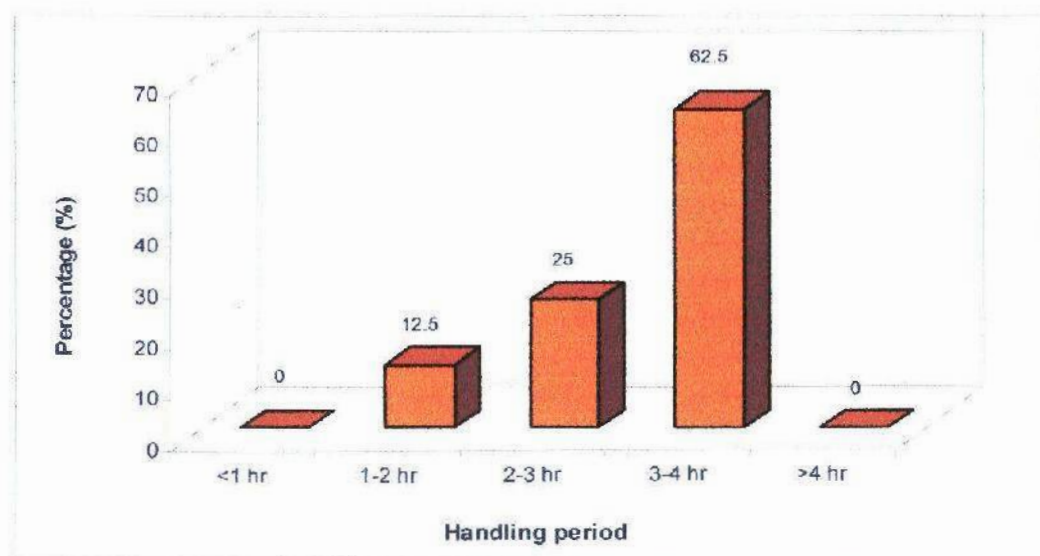


Fig. 66. Shrimp handling period in agents.

4.1.4.6.3. Rejection of shrimp

Rejection of shrimp was done. From the survey it was depicted that 75% agents rejected shrimp and 25% didn't reject (Fig. 67). Rejection was done for several reasons through visual inspection.

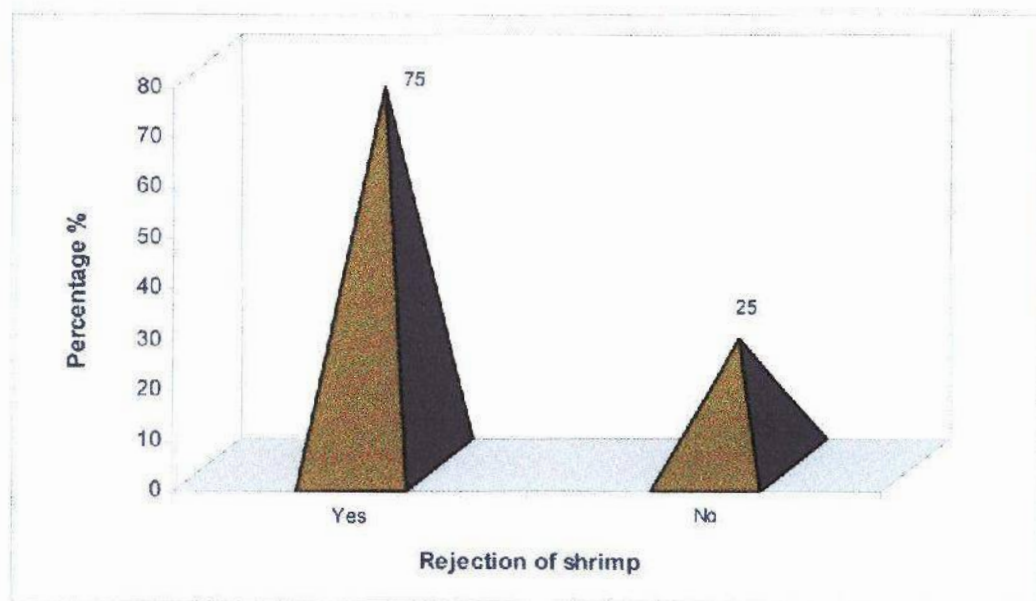


Fig. 67. Percentage of rejection shrimp for agents.

4.1.4.6.4. Reasons of shrimp rejection

Some reasons were identified; if those were found into the shrimp appearance then it was rejected by agents. Figure 68 showed that 39.17% of shrimp was rejected due to discoloration and 12.5, 35.83 and 12.5% were detected to reject for pushing material found inside the shrimp body, soft shell and water in body respectively.

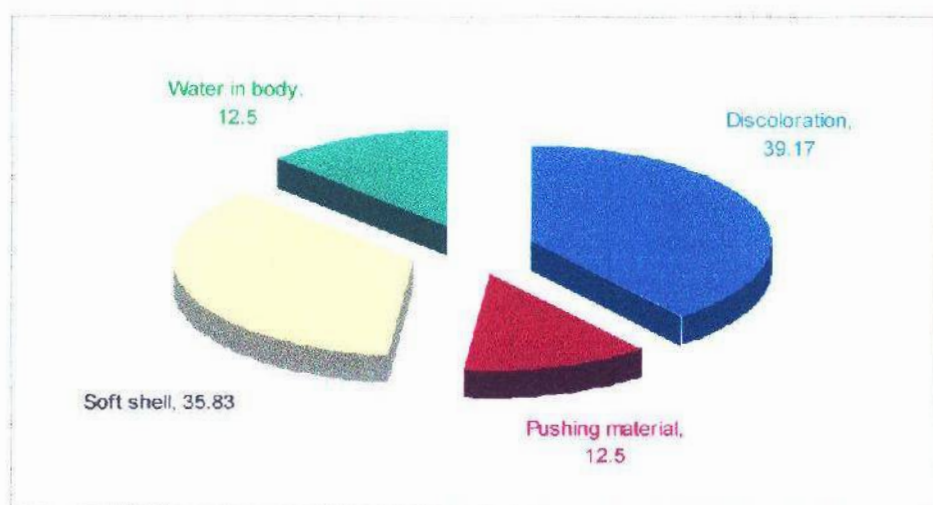


Fig. 68. Percentage of causes of shrimp rejection in agents.

4.1.4.7. Certification in all stages (Feature 6)

4.1.4.7.1. Percentage of licensed agents

In the Bagerhat district 100% agents were found who had license (Fig. 69). Agents were the main supplier by which the shrimp was entered into the factories.



Fig. 69. Percentage of certified agents in Bagerhat district

4.1.4.7.2. License issuing organization

From the investigation it was found that 100% agents of Bagerhat district got their license from FIQC (Fig. 70).

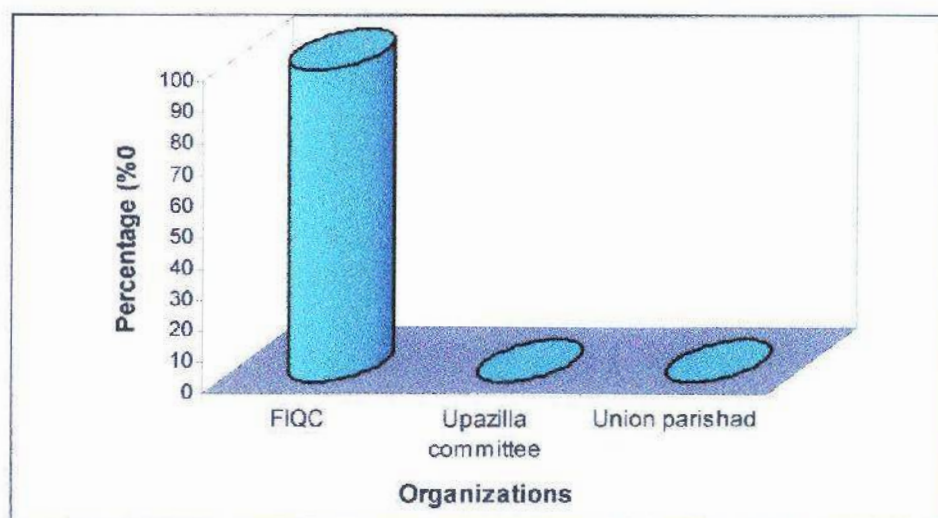


Fig. 70. License issuing organization.

4.1.4.7.3. Competent authority to issue license

The depots owners were asked about the competent authority to provide their certificate. According to their opinion it was found that 100% agent owners believed that FIQC would be the competent authority to issue the license (Fig. 71).

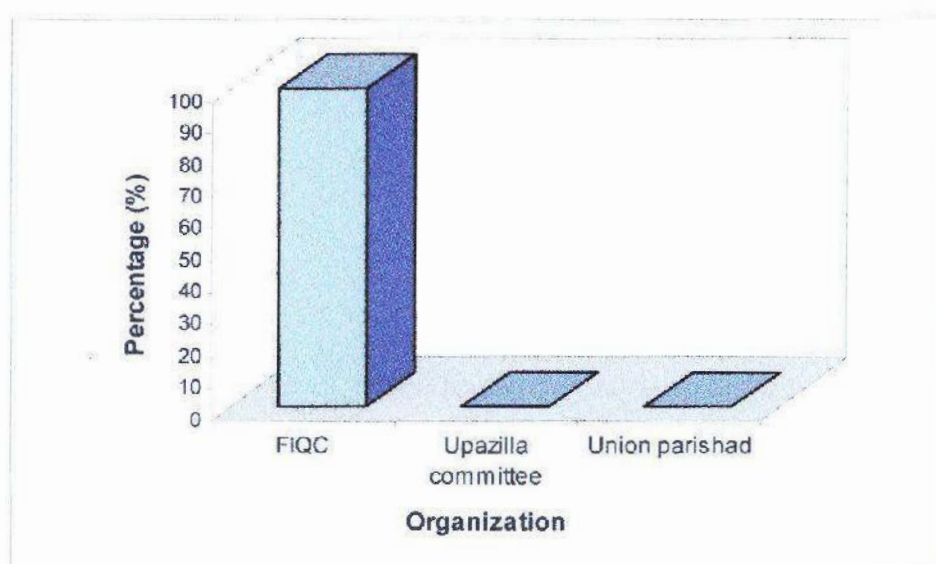


Fig. 71. Competent authority of issuing license.

4.1.4.8. Traceability (Feature 7)

4.1.4.8.1. Acquaintance with traceability

When the depot owners were asked about the term traceability where 100% depot owners said that they had heard the term traceability (Fig. 72).

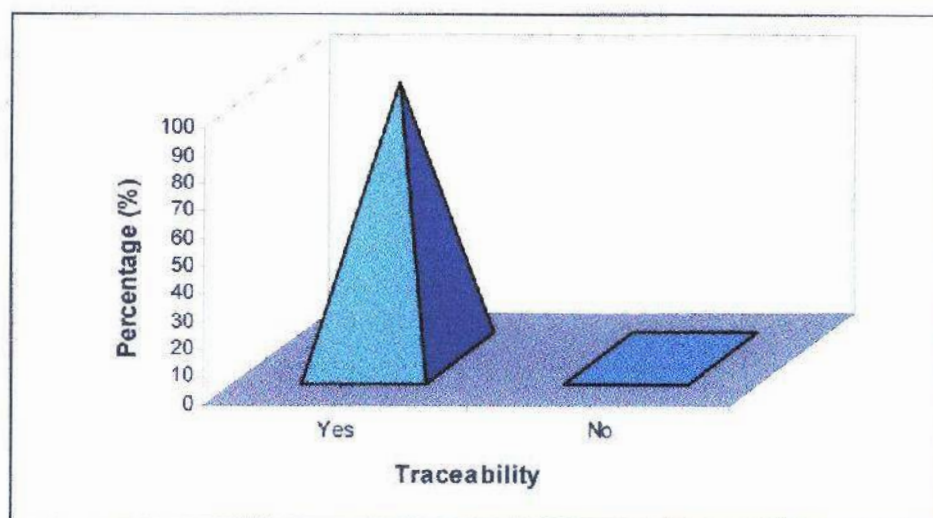


Fig. 72. Percentage of agents acquainted with traceability in Bagerhat district.

4.1.4.8.2. Keeping of record to whom shrimp was sold

Record keeping is the method to assess the traceability. Every agents should keep record from where the shrimp was bought and where it is being sold. From the investigation it was found that only 100% agents of Bagerhat district kept record to whom, when and the amount of shrimp they sold (Fig. 73).

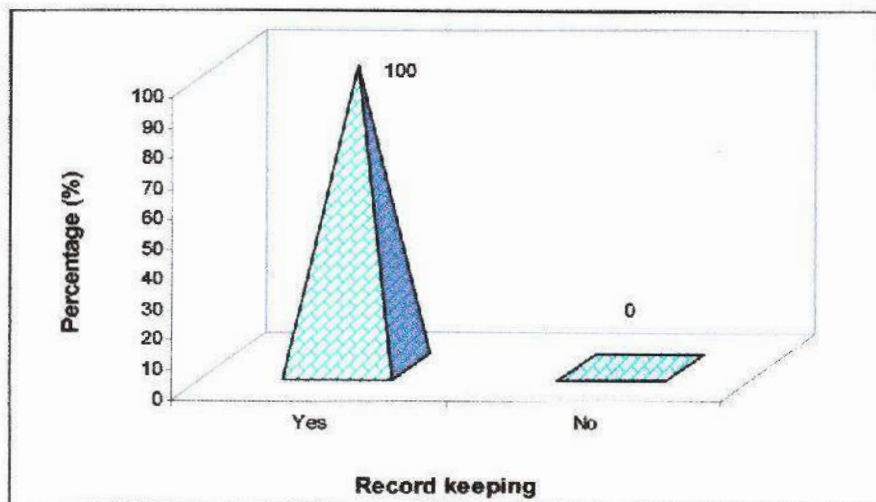


Fig. 73. Percentage of agents kept record in Bagerhat district.

4.1.5. Factory/ processing plant

4.1.5.1. General information

4.1.5.1.1 Ownership and source of fund

Fig. 74 shows that 100% factories were running taking loan from others and also 100% factories were constructed making partnership with other.

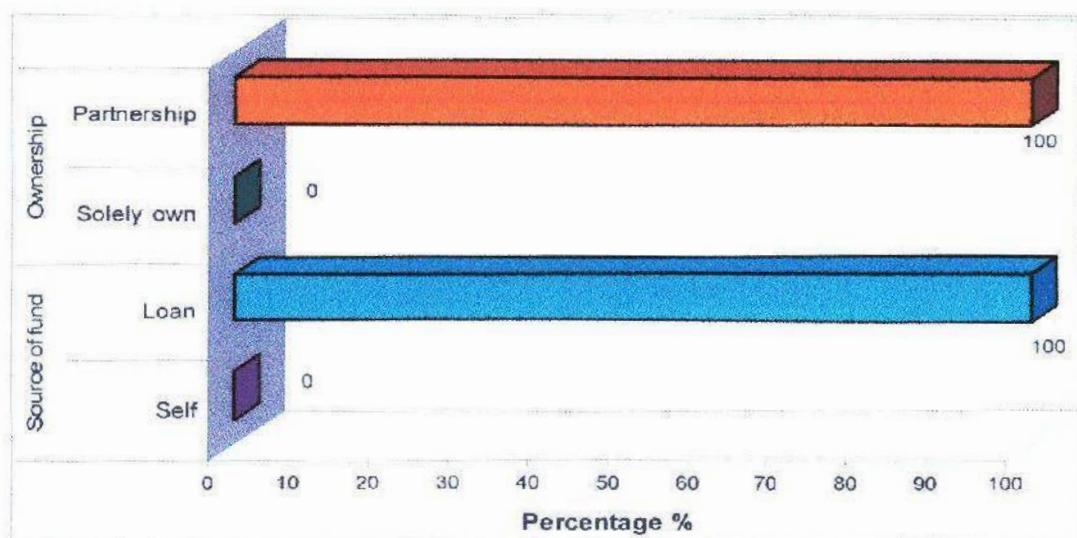


Fig. 74. Ownership and source of fund of factories.

4.1.5.1.2. Education and religion of factory owner

Figure 75 shows that 100 % factory owner's educational background was SSC pass and religious status was Muslim.

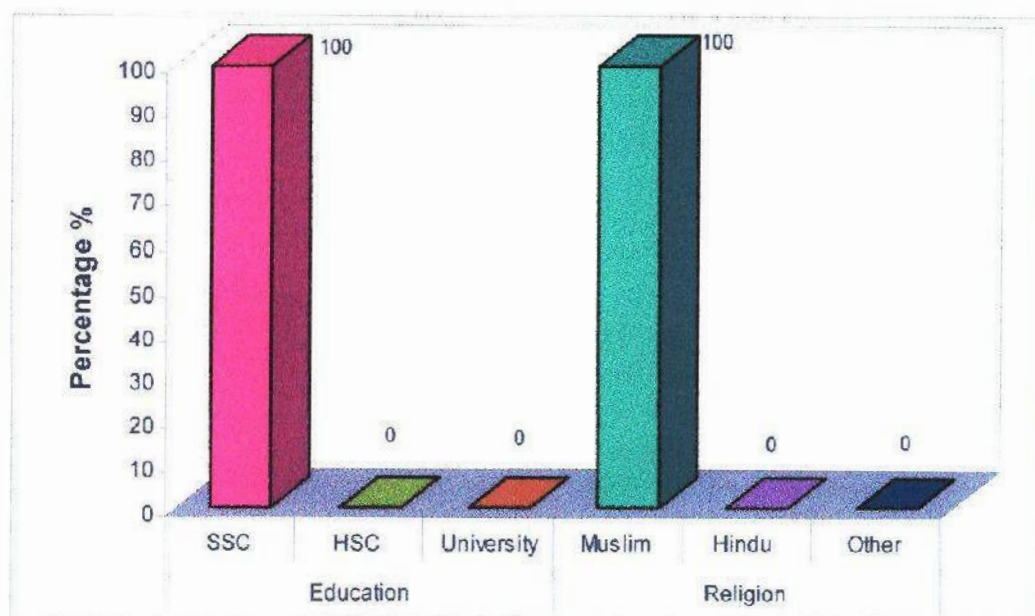


Fig. 75. Educational and religious status of factory owners.

4.1.5.2. Environmental protection and management (Feature 1)

4.1.5.2.1. 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 (Fig. 76).

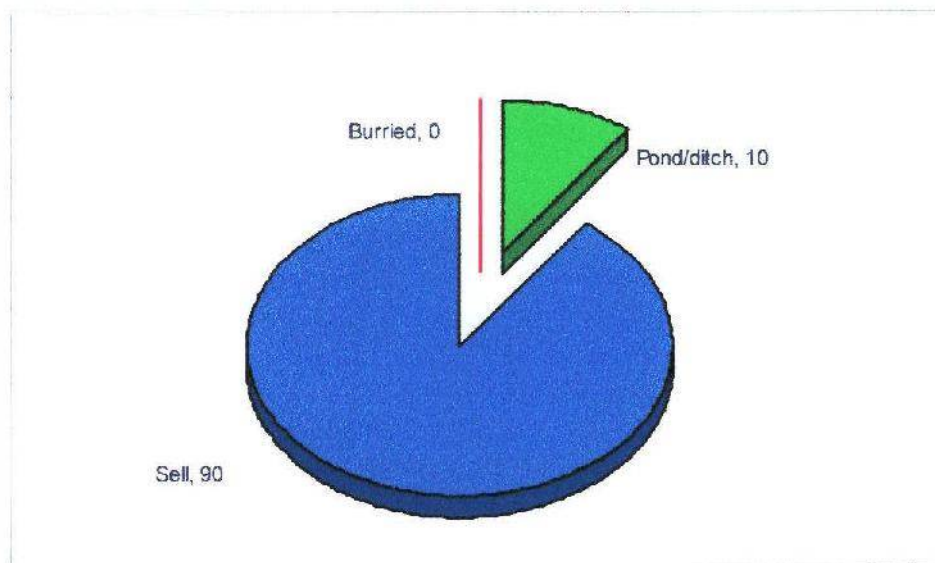


Fig. 76. Waste dumping places of the factories.

4.15.2.2. 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 (Fig. 77).

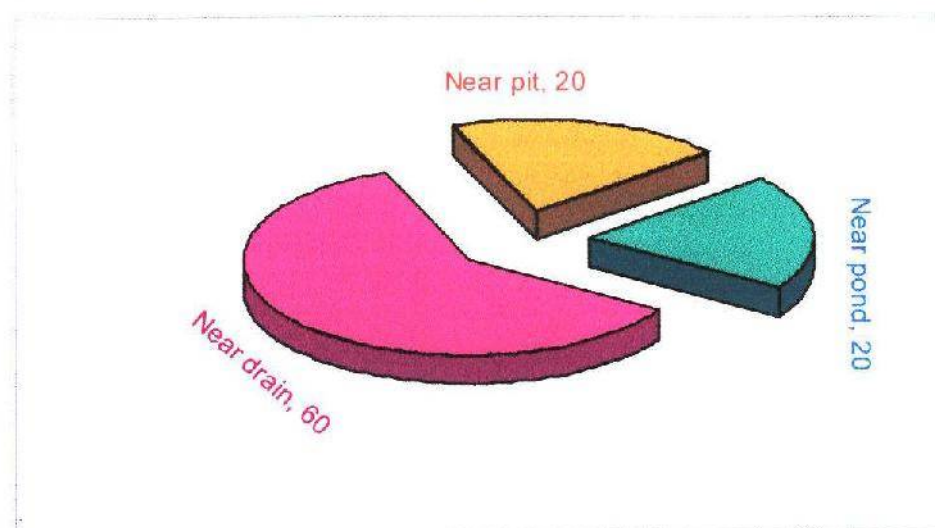


Fig. 77. Water discharging places of factories.

4.1.5.3. Food safety (Feature 2)

4.1.5.3.1. Source of water

Water use is the vital concerning matter to maintain HACCP. It is recommended by shrimp importing countries to use water from deep tube well that is safe and free from microbes. Moreover in factories quality of water is checked. In the present study it was found that 100% factories were found where deep tubewell water used (Fig. 78). Moreover the using water was found treated with chlorine to disinfect hand, leg or other processing related materials.

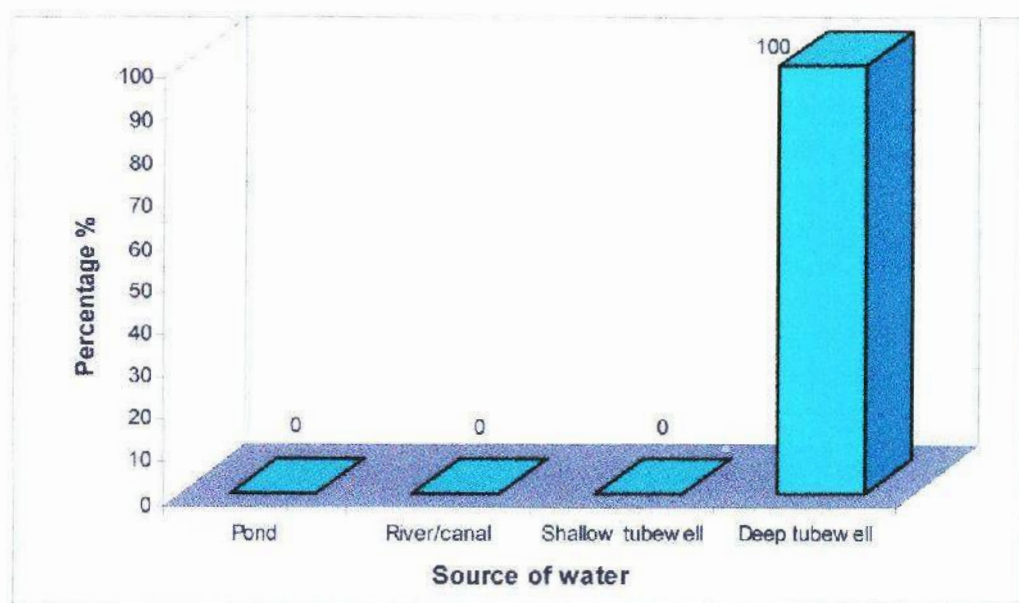


Fig. 78. Source of water in factories.

4.1.5.3.2. Icing

After receiving in the factories shrimp must be cleaned and washed and as well as removed old ice, water because old ice could carry microbes or contaminated. From the investigation it was found that 75% factories cleaned both ice and pots and 25% factories stated that they washed and then iced (Fig. 79).

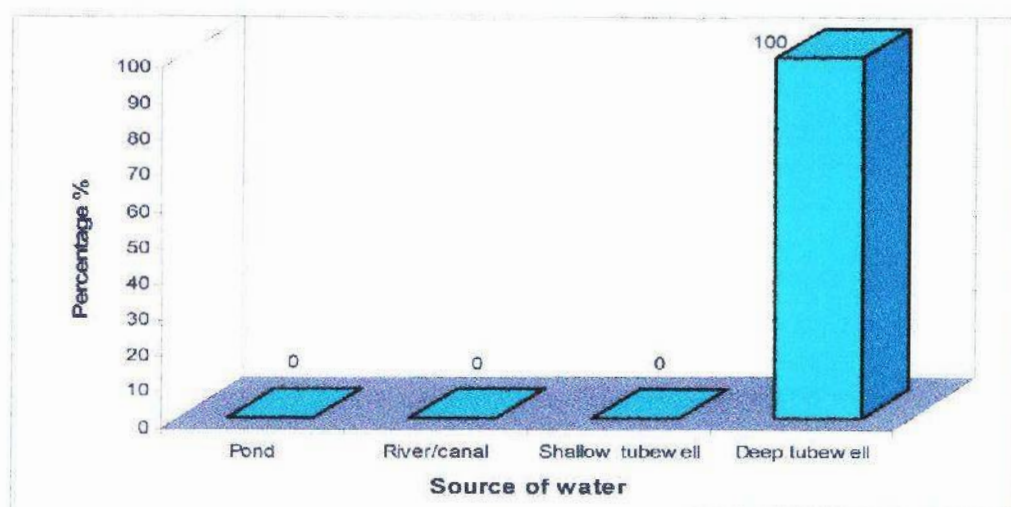


Fig. 79. How icing done in factories.

4.1.5.3.3. Icing ratio

Before processing the received shrimp was stocked or plied in chilled room and then different factories use ice at different ratio. From the fig. 80 it was found that 50% of factories use ice ratio 0.5:1 (ice: shrimp) and 50% factories ice at a ratio of 1:1.

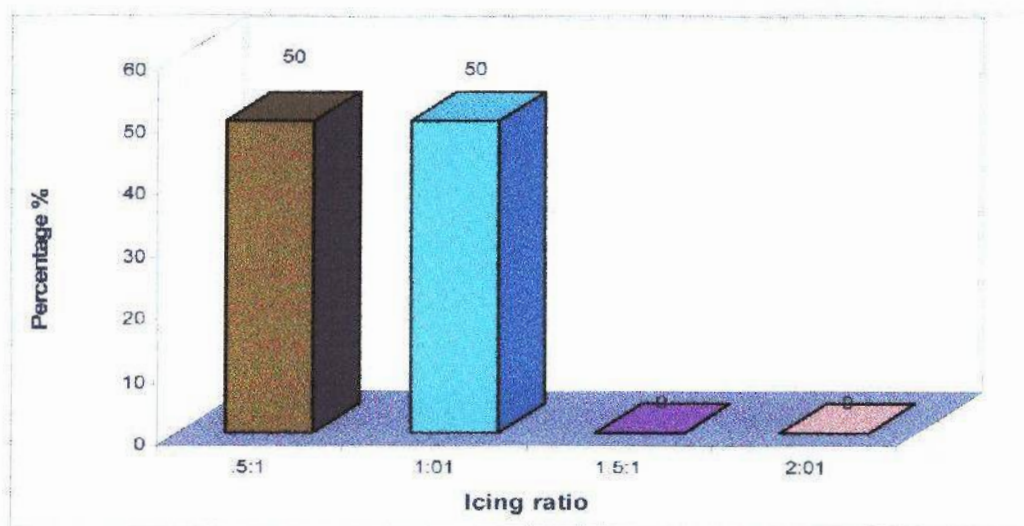


Fig. 80. Icing ratio in factories.

4.1.5.3.4. Shrimp handling hour

Before processed the shrimp handling period should as less as possible is best for keeping good quality. Figure 81 shows that 75% factories took 2-3 hours to handle the shrimp and 25% factories stated that was 1-2 hours.

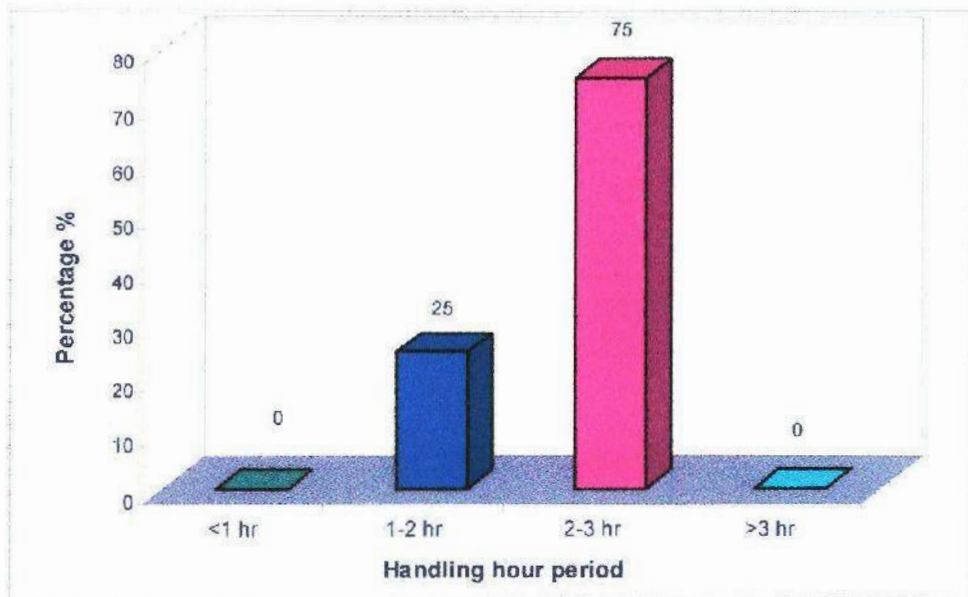


Fig. 81. Shrimp handling period in factories.

4.1.5.3.5. HACCP concept

Figure 82 also shows same that 100% factories maintain HACCP norms. HACCP concept and consequently maintaining is the very important key factor to continue the processing plant.

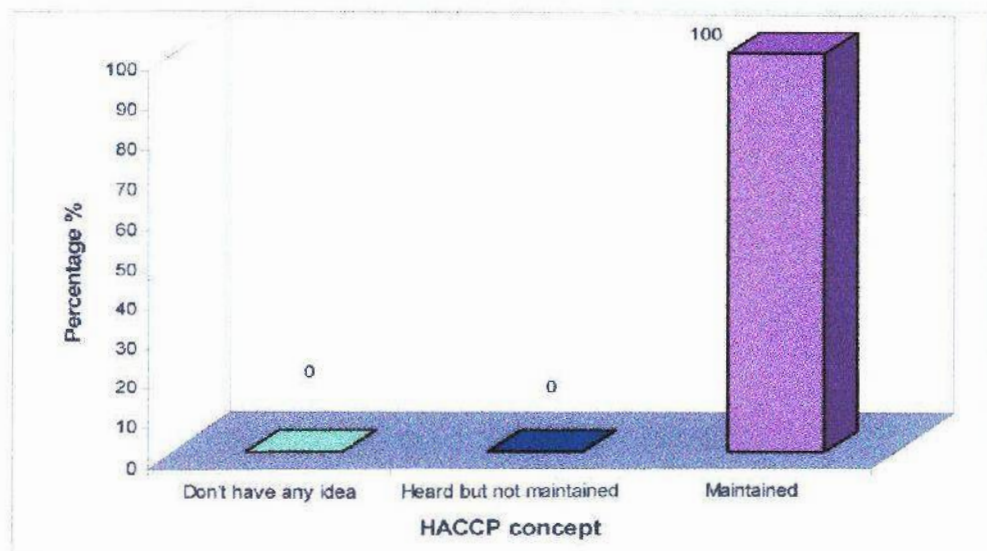


Fig. 82. HACCP concept in factories.

Every persons related with the factories should recheck and investigate continuously if any lacking is present in HACCP marinating works.

4.1.5.4. Human rights (Feature 3)

4.1.5.4.1. Child labour involvement

Fig. 83 shows in the factories 57.58% male workers were employed and 42.42% workers were female, no child was found.

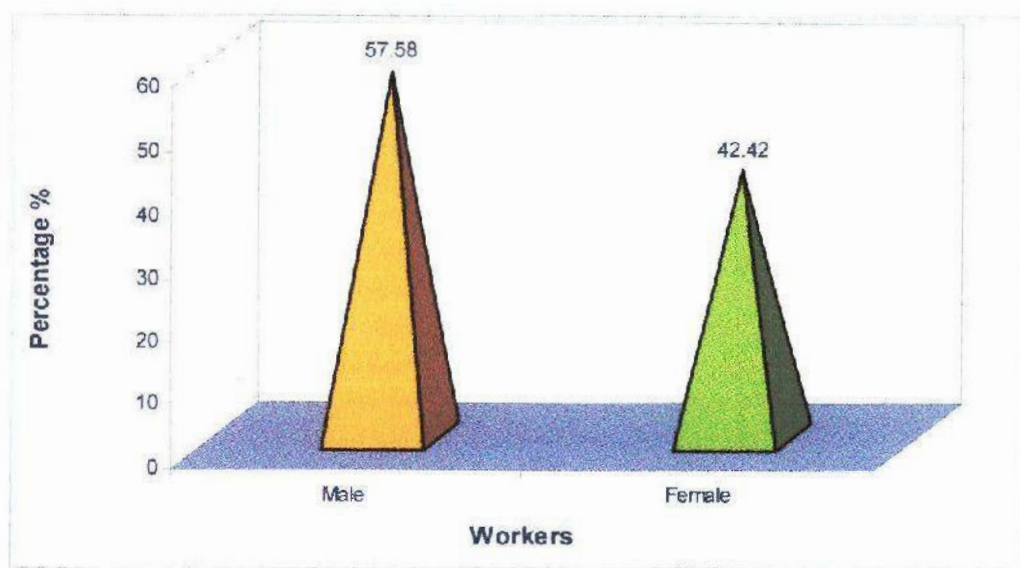


Fig. 83. Workers percentage in factories

4.1.5.4.2. Other benefits, overtime wages, maternity leave and separate toilet for separate gender

In the present investigation focused that factories of the studied area did not provided other facilities including health check of the workers, overtime benefits and there was no maternity facility in the factory compound while 100% factories provided only separate toilet to separate gender (Fig. 84).

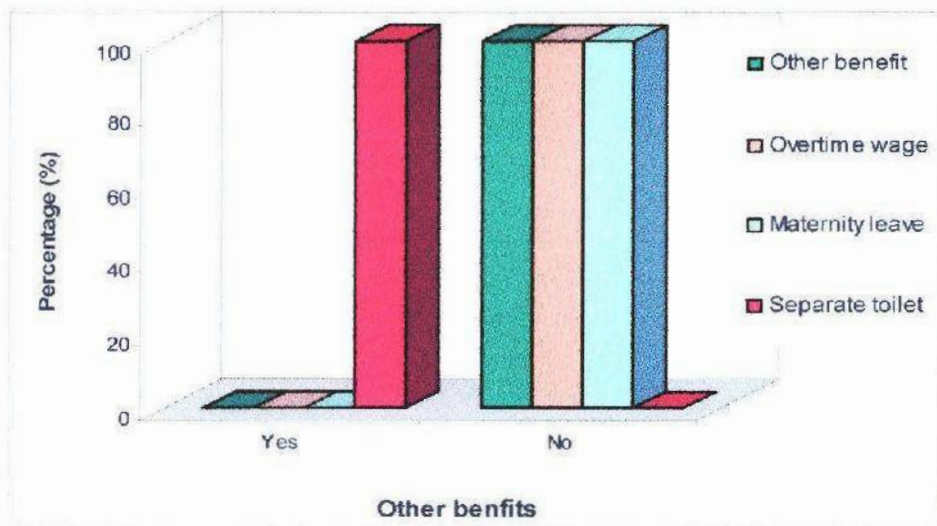


Fig. 84. Other benefits, overtime, maternity leave and separate toilet facility in the factories.

4.1.5.5. Fair labour practice and worker's safety (Feature 4).

4.1.5.5.1. Wages pattern

In the study area 100% factories were found paid cash to their workers in return of their labour in the factories (Fig. 85).

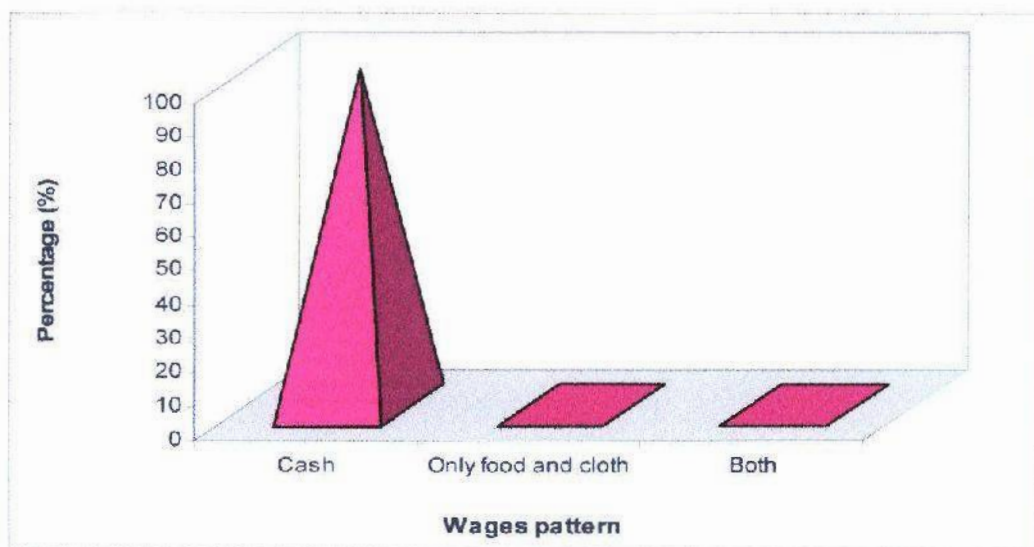


Fig. 85. Wage payment pattern of the factories in the study area.

4.1.5.6. Ethical and fair trade practices (Feature 5)

4.1.5.6.1. Initial rejection and fate of rejected shrimp

Figure 86 shows that 100% factories rejected the received shrimp at receiving point and after rejected 100% factories also returned the shrimp to the agent.

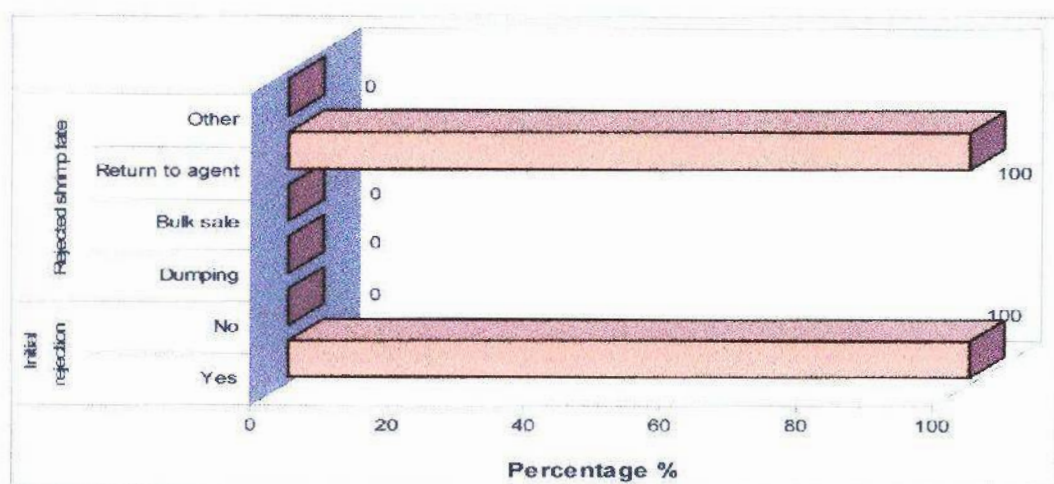


Fig. 86. Rejection of shrimp in factories.

4.1.5.6.2. Grading system

From the investigation it was revealed that there was miss grading took place in the factories trading section. In the present study miss grading was assessed by using counting system key point. Figure 87 shows that during procurement 90% shrimp was counted taking upper grade while during exporting 70% shrimp was counted taking lower grading.

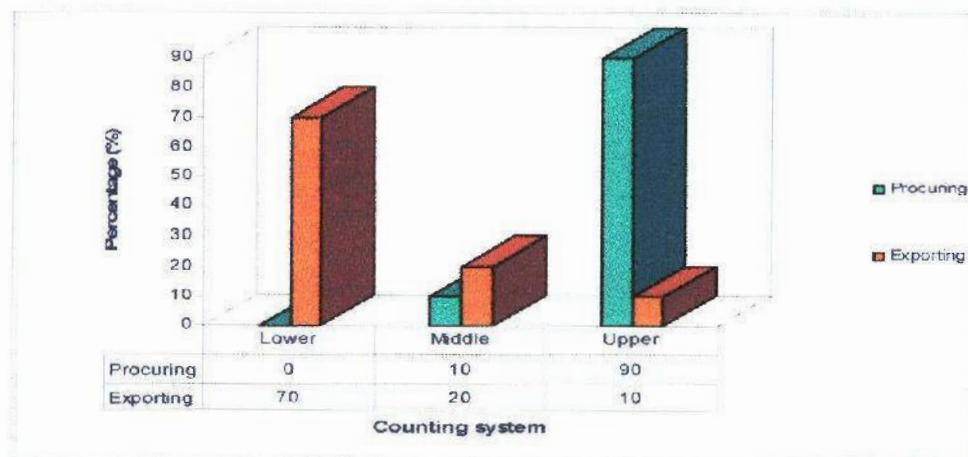


Fig. 87. Counting system followed in the factories of Bagerhat district.

4.1.5.7. Certification in all stages (Feature 6)

4.1.5.7.1. Percentage of licensed agents

In the Bagerhat district 100% factories were found who had trade license (Fig. 88).



Fig. 88. Percentage of certified factories in Bagerhat district

4.1.5.7.2. License issuing organization

From the investigation it was found that 100% factories of Bagerhat district got their license from FIQC (Fig. 89).

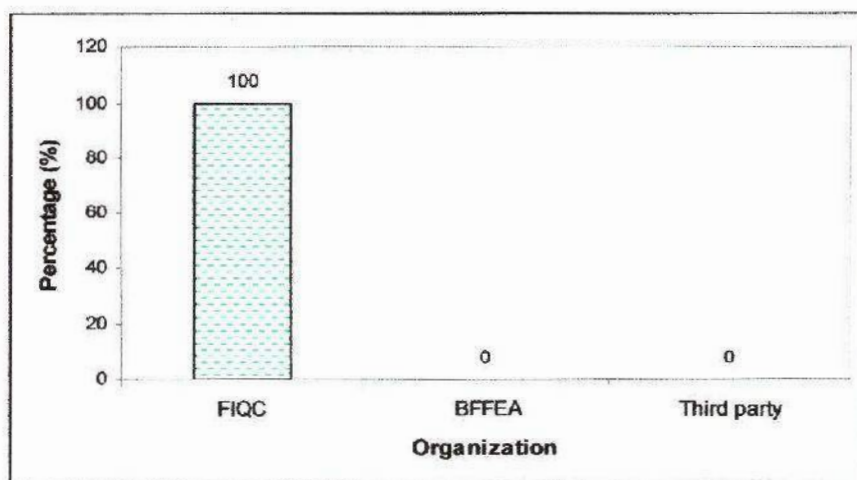


Fig. 89. License issuing organization.

4.1.5.7.3. Competent authority to issue license

The factory owners were asked about the competent authority to provide their certificate. According to their opinion it was found that 100% factory owners believed that FIQC would be the competent authority to issue the license (Fig. 90).

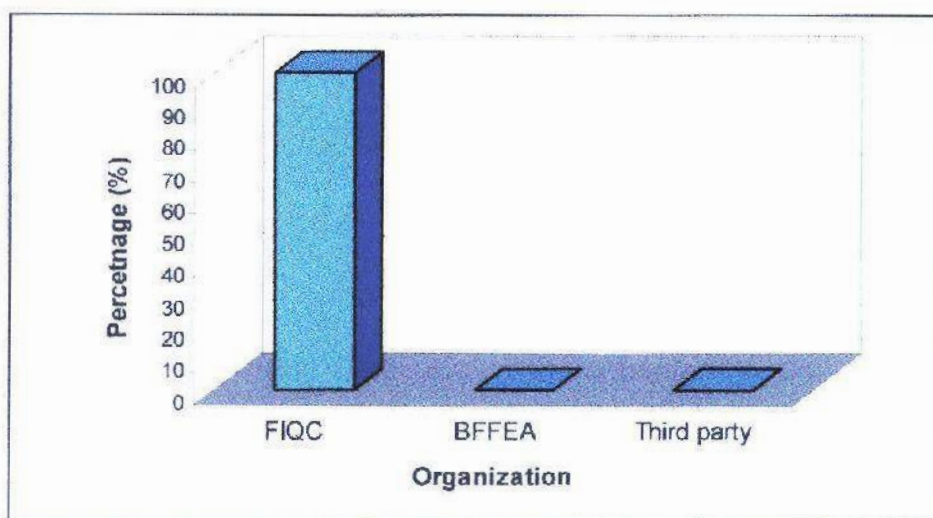


Fig. 90. Competent authority of issuing license.

4.1.5.8. Traceability (Feature 7)

4.1.5.8.1. Acquaintance with traceability

When the factory owners were asked about the term traceability where 100% factory owners said that they had heard the term traceability (Fig. 91).

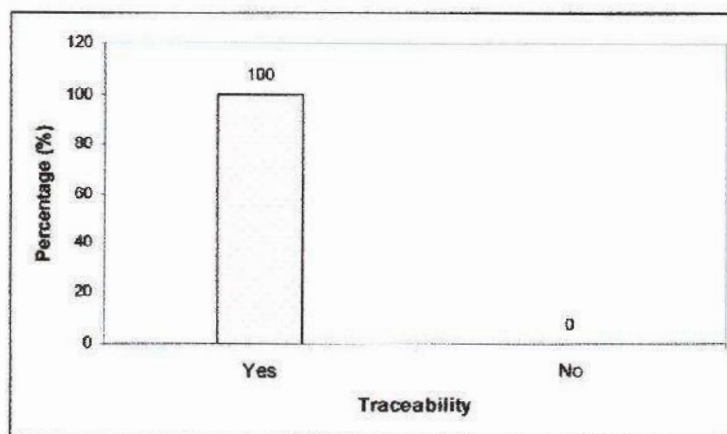


Fig. 91. Percentage of factories acquainted with traceability in Bagerhat district.

4.1.5.8.2. Keeping of record to whom shrimp was sold

Record keeping is the method to assess the traceability. Every factories should keep record from where the shrimp was bought and where it is being sold. From the investigation it was found that only 100% factories of Bagerhat district kept record to whom, when and the amount of shrimp they sold (Fig. 92).

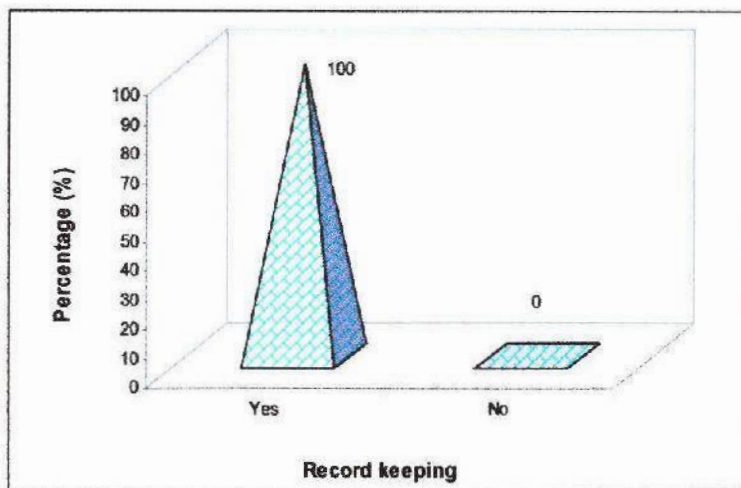


Fig. 92. Percentage of agents kept record in Bagerhat district.

CHAPTER- FIVE

DISCUSSION

5.0. Discussion

The EU team after visiting the factories in Bangladesh on 16th November 2005 and commented as “ With regard to the results of the last FOOD AND VETENARY 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 shrimp, seven salient features were established. In the present study seven salient features were investigated in each stakeholders.

Environmental protection and management (Feature 1)

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.

Food safety (Feature 2)

Food safety is the burning issue in world consumer market. Shrimp buyers are more sensitive about food safety and quality assurance. In this case they gave attention on sanitation and phytosanitation facility prevailing on each tire of the channel. Food safety were hampering using unhygienic water (gher, pond, river and canal water) during the shrimp washing period in lower stakeholders. Also use of unhygienic ice, improper ratio of ice, bamboo baskets, grading on the floor, long term handling were found in the study are. A considerable amount of gher were found where bamboo baskets were replace to plastic material which improving the food safety. Degree of HACCP acquaintance and their implementation were found higher in agents and processing plants. Long time shrimp handling period was observed in farias and depots which deteriorated the quality of the shrimp. Once harvested flow of shrimp from gher to processing plants takes place within 8-10 hours. The post harvest flow goes from farmers to processing plants through passing a series of intermediaries such as faria, depot, agents. There is no direct links between farmers to processing plants, thus quality of the shrimp deteriorated continuously.

Human rights (Feature 3)

According to the UNICEF 16 years age workers are considering as child. The international labour law working on to ensure the rights of child, female labour. In this regard the foreign buyer also focusing on to ensure the labour rights. In the present study ensuring of human rights were investigated. A large number of gher owners were found paid hari (land rent) to the land owner, which might reduce the social conflicts. Even the gher operators allowed the land owners if they urged to culture paddy after shrimp. The female workers were concentrated in depots (22.58%), agents (21.34%) and factory (42.42%). Child labour was completely absent in the factory but found in gher (11.39%), depots (7.26%) and agents (9.76%). There was no provision for maternity leave in the processing plants. Separate toilet facilities for female was prevailed in the processing plants.

Fair labour practice and workers safety (Feature 4)

It was observed and discussed that how fair labour practice and workers safety were existed in each stakeholder in the present study. There was no uniform wage pattern was found in the marketing channel. Only gher owners paid cash, food and cloth while workers from other stake holders got only cash. In case of cash payment male workers got higher wages followed by female and child workers. In case of agents and processing plants the accountants, manager and other officials were getting more wages. In processing plants all workers were performed their duties in two shifts (12 hours interval). In depots and agents workers were not provided gloves and gum boots like processing plants. There was no overtime provision in any sector of the marketing channel.

Ethical and fair trade practice (Feature 5)

The image and quality of Bangladeshi frozen food products are losing day by day due to unethical trade practices. Shrimp are generally dripping by water and also are pushed

foreign materials such as shabu, juice of ladies finger and water. That unethical activities were seriously observed in Farias and depots. Rejection of shrimp for natural causes like soft shell, lose of appendages, discoloration were also found in every tire. Consequently the price of shrimp is reducing up to US\$2/lb in the foreign market in comparison to other shrimp exporting countries. Most interesting thing was found in case of counting system (grade). During the procuring the stakeholders showed keen interest to count lower c grade but in case of selling they tried to push higher grade.

Traceability (Feature 6)

According to EU guide line 2006 to assess the traceability the records of all the products must be kept. To find out the history of the product it is mandatory to keep the record of one step backward and one step forward for all stakeholder. Very few amount of gher owners, faria and depots were found aware about traceability. All the gher owners and farias didn't keep record from where and to whom the shrimp was marketed. The depots and agents significantly kept record and preserved it. In case of processing plants they maintained the record only, but other factors in the context of traceability were not properly maintained.

Certification (Feature 7)

For resource assessment and its better management certification is an important fatctor through out the channel. It was observed that there was a provision to take license from the competent authority except faria. Lower stakeholders were less interest to get license where 100% agents and processing plants took license. The farias were not come under licensing system and it was their opinion that need not license to run their business. In this study it was found the processor need health certificate and it was issued by FIQC, Department of Fisheries.

CHAPTER- SIX

RECOMMENDATIONS

6.0. Problems and Recommendation

Problems

Farmer

- Farmers are plagued with their inherent problems of fund crisis for the operational cost of galda farming
- Insufficient supply of good quality seed and feed for galda farming during the on set of culture season
- Higher price of seed and feed during the on set of the peak season
- Lack of proper knowledge and training on galda culture and management
- The powerful stakeholders, in the marketing chain through pricing, grading and weighing, exploit the farmers.
- There are no chances left for the farmers to determine the price of their products because of taking dadon
- High rate of interest of the Dadonders, local Mohajons
- Natural disasters (i.e. flood and drought) and environmental degradation (excess hot weather)
- Social problems like pouching, poisoning etc.
- There is no credit facilities for galda farming
- Farmers don't have any association to make them as a stronger body to have their says to the powerful exploiter groups
- There are no appropriate policies at the national level on production processing and marketing of galda

Depot owners

- Depot owners also suffer from fund crisis since there are no credit facilities from Banks, or GOs (Government Organizations) for galda business.
- Instability of price in galda marketing system
- Pricing is determined by the buyer, not the seller and sellers have nothing to say
- There is no pricing policy

- Lack of proper knowledge and training on sanitation, hygiene and handling
- High rates of dadon of the commission agents
- They have no direct access to the fish processing factories to sell their product
- Depot construction according to HACCP requires quite a big amount

Factory workers

- They are too low paid compared to their labor to cope with the minimum family expenditure
- Their working hour is more than 12 hour with out any interval which is quite inhuman
- As there are no papers about their appointment, they have to rely on the mercy of the authority for the security of their job.
- Their working condition is miserable
- They have to suffer from skin diseases due to working with naked hand and feet and they are not provided with medical facilities
- There are no chances left for them for extra income through over duties
- They have no association to make them stronger bodies to have says against inhumanity on them
- They have no alternative means for coping during the off-season.
- They lead a very poor and miserable life

Recommendations

- Galda hatchery and nursery technologies should be improved to ensure supply of good quality, stronger PL to the farmers
- Shrimp production should be increased both horizontally and vertically
- Organic shrimp culture and crop rotation should be followed
- All antibiotics and chemicals should be stopped in shrimp culture
- Disease free PL (tested by PCR) should be ensured
- Poultry feed and poultry litter should be carefully avoided in shrimp culture especially *Macrobrachium rosenbergii*

- Fish feed formulation and production with locally available ingredients should be developed to ensure supply of feed at low cost
- Training of the farmers is necessary to improve their skill in farming technologies
- Farmers and the depot owners should form association for them to be stronger as bodies to have their say on the price rate and ease of obtaining loans from GO and NGOs
- The intermediary groups in the chain should be lessened; the depot owners should have direct access to the factories to sell their products
- Agents control the whole marketing system, so it should be eliminated.
- Training on sanitary and phyto-sanitation should be provided in depot, agents
- Dignity of labour should be improved for the factory workers
- Working hour should be limited to 8 hours
- Three shifting working system should be maintained in the processing plants
- The factory workers should be well paid
- All stake holder should come under licensing system
- HACCP system should be imposed in all sector
- Traceability including record keeping one step backward and one step forward should be followed.
- Farmers → Agents → Factories. Supply chain with transport and all other facilities could only produce safety food in our social concept. Farias and depots should be eliminated in future.

CHAPTER- SEVEN

CONCLUSION

7.0. Conclusion

As shrimp is the second largest exporting commodity in Bangladesh. 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 on apex body future development.

CHAPTER- EIGHT

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CHAPTER- NINE

ANNEX



Fig. 93. A extensive shrimp farm



Fig. 94. A crop rotation farm



Fig. 95. A improve extensive farm



Fig. 96. FGD with farmers



Fig. 97. FGD with faria



Fig.98. FGD with depot holder



Fig. 99. FGD with agents

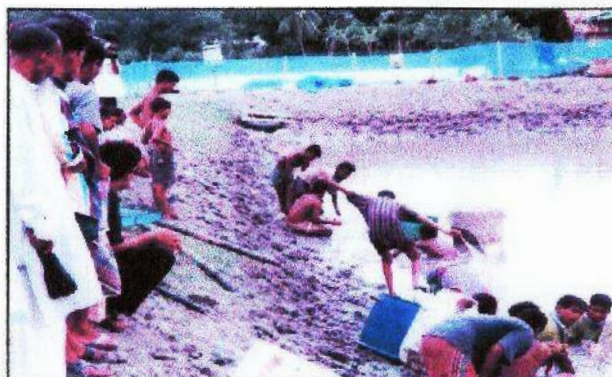


Fig. 100. Harvesting shrimp from the farm



Fig. 101. Harvested shrimp maintaining HACCP



Fig. 102. Faria collected shrimp from farm side

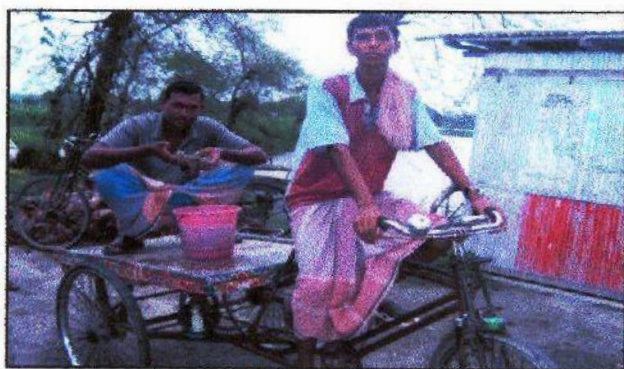


Fig. 103. Unethical practice by faria (carrying dripped shrimp)



Fig. 104. A faria carry his shrimp to the depot



Fig. 105. Penalty imposed to faria for pushing



Fig. 106. Dripping into water and losing the quality



Fig. 107. Push and dripped shrimp are buried



Fig. 108. Food safety is not maintained in depot



Fig. 109. A well managed agent



Fig. 110. Shrimp is transported from depot to agent



Fig. 111. Shrimp are grading on wooden platform



Fig. 112. A well managed agent

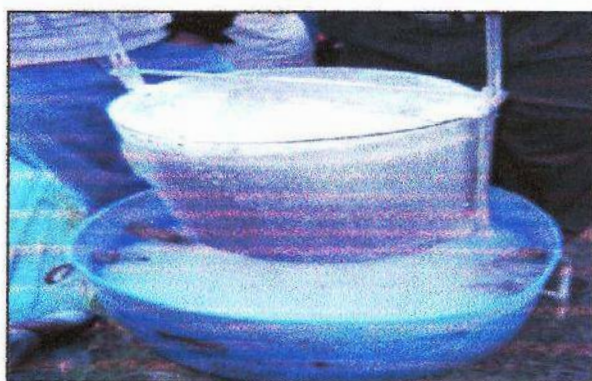


Fig. 113. Ice crushing machine



Fig. 114. Shrimp is exporting

Questionnaire for gher

General information

1. Name:
2. Address:
3. Age:
4. Education: Illiterate ☐ Primary ☐ HSC ☐ SSC ☐ University ☐
5. Religion: Muslim ☐ Hindu ☐ Other ☐
6. Source of fund: Self ☐ loan ☐

Environmental protection and management status (feature 1)

7. Shrimp culture pattern

- Only shrimp ☐
- Shrimp + paddy ☐
- Whole year shrimp ☐

8. Source of water

- Direct from canal/river, ☐
- Through the gher ☐

9. Open toilet in the farm

10. Do you use any antibiotics or chemicals

If yes, mention the name and dose

11. harvesting method,

Dewatering and ☐

Netting, ☐

Harvesting type,

Partial, ☐

Full, ☐

Food safety (Feature 2)

12. Source of washing water:

Gher/ pond ☐ river/canal ☐ shallow tubewell ☐ deep tubewell ☐

13. Icing spot: Home ☐ gher ☐ depot ☐ other ☐

14. Ice used after procurement: Always ☐ Occasional ☐ Never ☐

15. Ice ratio: 5:1 ☐ 1:1 ☐ 1.5:1 ☐ 2:1 ☐

16. Grading spot: Floor ☐ tin ☐ polythene/mat ☐ wooden platform ☐

17. Transporting materials: Bamboo basket ☐ plastic material ☐

Aluminum/ steal ☐ bag ☐

18. Transporting route: Muddy road ☐ brick road ☐ river ☐ canal ☐

19. Transporting carrier: Van ☐ Hand/head ☐ bicycle ☐ truck/pickup ☐

20. Handling period of shrimp:

21. Have you any idea about HACCP?

Human rights (Feature 3)

22. Do you have any child labour or helper?

23. Do you check health of your workers?

24. Do you pay the hari to the land owner

Yes, ☐

NO ☐

25. Do you allow paddy culture in time after shrimp harvesting

Yes, ☐

NO ☐

26. Mention wage payment system

Cash ☐

Only food and cloth ☐

Both ☐

27. shifting duties of your workers

1 shift ☐

2 shift ☐

3 shift ☐

Fair labour practice and workers safety (Feature 4)

28. No of workers

Male ☐

Female ☐

Child ☐

29. Salary

Male ☐

Female ☐

Child ☐

30. Salary of others

Manager ☐

Grader ☐

Other ☐

Ethical and fair trade practice status (Feature 5)

31. After procurement what do you do with the shrimp?

Drip into water ☐

Put into the bucket without water ☐

Put it with ice 1:1 ☐

32. Do you reject any shrimp? Yes ☐ No ☐

33. if yes then causes the rejection:

Discoloration ☐ foreign material ☐

Water in body ☐ Soft shell ☐

Traceability (Feature 6)

34. Have you heard the term traceability? Yes ☐ No ☐

35. Where do you sale the shrimp?

36. Have you taken record? Yes ☐ No ☐

Certification (Feature 7)

37. Do you have any license? Yes ☐ No ☐

38. Do you think every faria should get license? Yes ☐ No ☐

39. Who will be the competent authority to issue license?

Union parishad ☐

Upazilla committee ☐

Gher association ☐

Questionnaire for farias

General information

1. Name:

2. Address:

3. Age:

4. Education: Illiterate ☐ Primary ☐ HSC ☐ SSC ☐ University ☐

5. Religion: Muslim ☐ Hindu ☐ Other ☐

6. Source of fund: Self ☐ loan ☐

Environmental protection and managemental status (feature 1)

7. Do you dehead shrimp? Yes ☐ No ☐

8. If yes then where do you dump the waste material?

Food safety (Feature 2)

9. Source of washing water:

Gher/ pond ☐ river/canal ☐ shallow tubewell ☐ deep tubewell ☐

10. Icing spot: Home ☐ gher ☐ depot ☐

other

11. Ice used after procurement: Always ☐ Occasional ☐ Never ☐

12. Ice ratio: 5:1 ☐ 1:1 ☐ 1.5:1 ☐ 2:1 ☐

13. Grading spot: Floor ☐ tin ☐ polythene/mat ☐ wooden flat form ☐
14. Transporting materials: Bamboo basket ☐ plastic material ☐
Aluminum/ steal ☐ bag ☐
15. Transporting route: Muddy road ☐ brick road ☐ river ☐ canal ☐
16. Transporting carrier: Van ☐ Hand/head ☐ bicycle ☐ truck/pickup ☐
17. Handling period of shrimp:
18. Have you any idea about HACCP?

Human rights (Feature 3)

19. Do you have any child labour or helper?
20. Do you check health of your workers?

Fair labour practice and workers safety (Feature 4)

21. No of workers
22. Salary

Ethical and fair trade practice status (Feature 5)

23. After procurement what do you do with the shrimp?
- Drip into water ☐
- Put into the bucket without water ☐
- Put it with ice 1:1 ☐

24. Do you reject any shrimp? Yes ☐ No ☐

25. if yes then causes the rejection:

Discoloration ☐ foreign material ☐

Water in body ☐ Soft shell ☐

Traceability (Feature 6)

26. Have you heard the term traceability? Yes ☐ No ☐

27. Where do you sale the shrimp?

28. Have you taken record? Yes ☐ No ☐

Certification (Feature 7)

29. Do you have any license? Yes ☐ No ☐

30. Do you think every faria should get license? Yes ☐ No ☐

31. Who will be the competent authority to issue license?

Union parishad ☐

Upazilla committee ☐

Gher association ☐

Questionnaire for depots

General information

1. Name:

2. Address:

3. Age:

4. Education: Illiterate ☐ Primary ☐ HSC ☐ SSC ☐ University ☐

5. Religion: Muslim ☐ Hindu ☐ Other ☐

6. Source of fund: Self ☐ loan ☐

Environmental protection and management status (feature 1)

7. Do you dehead shrimp? Yes ☐ No ☐

8. If yes then where do you dump the waste material?

Food safety (Feature 2)

9. Source of washing water:

Gher/ pond ☐ river/canal ☐ shallow tubewell ☐ deep tubewell ☐

10. Icing spot: Home ☐ gher ☐ depot ☐

other

11. Ice used after procurement: Always ☐ Occasional ☐ Never ☐

12. Ice ratio: 5:1 ☐ 1:1 ☐ 1.5:1 ☐ 2:1 ☐

13. Grading spot: Floor ☐ tin ☐ polythene/mat ☐ wooden flatform ☐

14. Transporting materials: Bamboo basket ☐ plastic material ☐

Aluminum/ steal ☐ bag ☐

15. Transporting route: Muddy road ☐ brick road ☐ river ☐

canal ☐ ☐ ☐ ☐

16. Transporting carrier: Van ☐ Hand/head ☐ bicycle ☐ truck/pickup ☐

17. Handling period of shrimp:

18. Have you any idea about HACCP?

19. Average production (kg/day)

Pre season, ☐

Season, ☐

Post season ☐

20. Handling period of harvested shrimp (hours)

21. Quality of shrimp,

Extremely good, ☐

Very good, moderately ☐

Good, ☐

Not good, ☐

Moderately ☐

Poor, ☐

Very poor ☐

Human rights (Feature 3)

22. Do you have any child labour or helper?

23. Do you check health of your workers?

Fair labour practice and workers safety (Feature 4)

24. No of workers

Male ☐

Female ☐

Child ☐

25. Salary

Male ☐

Female ☐

Child ☐

26. Salary of others

Manager ☐

Grader ☐

Other ☐

27. Mention wage payment system

Cash ☐

Only food and cloth ☐

Both ☐

28. shifting duties of your workers

1 shift ☐

2 shift ☐

3 shift ☐

Ethical and fair trade practice status (Feature 5)

29. After procurement what do you do with the shrimp?

Drip into water ☐

Put into the bucket without water ☐

Put it with ice 1:1 ☐

30. Do you reject any shrimp? Yes ☐ No ☐

31. if yes then causes the rejection:

Discoloration ☐ foreign material ☐

Water in body ☐ Soft shell ☐

Traceability (Feature 6)

32. Have you heard the term traceability? Yes ☐ No ☐

33. Where do you sale the shrimp?

34. Have you taken record? Yes ☐ No ☐

Certification (Feature 7)

35. Do you have any license? Yes ☐ No ☐

36. Do you think every faria should get license? Yes ☐ No ☐

37. Who will be the competent authority to issue license?

Union parishad ☐

Upazilla committee ☐

Gher association ☐

Questionnaire for Agents

General information

1. Name:

2. Address:

3. Age:

4. Education: Illiterate ☐ Primary ☐ HSC ☐ SSC ☐ University ☐

5. Religion: Muslim ☐ Hindu ☐ Other ☐

6. Source of fund: Self ☐ loan ☐

Environmental protection and management status (feature 1)

☐ ☐

7. Do you dehead shrimp? Yes ☐ No ☐

8. If yes then where do you dump the waste material?

Food safety (Feature 2)

9. Source of washing water:

Gher/ pond ☐ river/canal ☐ shallow tubewell ☐ deep tubewell ☐

10. Icing spot: Home ☐ gher ☐ depot ☐ other ☐

11. Ice used after procurement: Always ☐ Occasional ☐ Never ☐

12. Ice ratio: 5:1 ☐ 1:1 ☐ 1.5:1 ☐ 2:1 ☐

13. Grading spot: Floor ☐ tin ☐ polythene/mat ☐ wooden ☐
platform

14. Transporting materials: Bamboo basket ☐ plastic material ☐
Aluminum/ steal ☐ bag ☐

15. Transporting route: Muddy road ☐ brick road ☐ river ☐ canal ☐

16. Transporting carrier: Van ☐ Hand/head ☐ bicycle ☐ truck/pickup ☐

17. Handling period of shrimp:

18. Have you any idea about HACCP?

19. Average production (kg/day)

Pre season, ☐

Season, ☐

Post season ☐

20. Handling period of harvested shrimp (hours)

21. Quality of shrimp,

Extremely good, ☐

Very good, moderately ☐

Good, ☐

Not good, ☐

Moderately ☐

Poor, ☐

Very poor ☐

Human rights (Feature 3)

22. Do you have any child labour or helper?

23. Do you check health of your workers?

Fair labour practice and workers safety (Feature 4)

24. No of workers

Male ☐

Female ☐

Child ☐

25. Salary

Male ☐

Female ☐

Child ☐

26. Salary of others

Manager ☐

Grader ☐

Other ☐

27. Mention wage payment system

Cash ☐

Only food and cloth ☐

Both ☐

28. shifting duties of your workers

I shift ☐

2 shift ☐

3 shift ☐

Ethical and fair trade practice status (Feature 5)

29. After procurement what do you do with the shrimp?

Drip into water ☐

Put into the bucket without water ☐

Put it with ice 1:1 ☐

30. Do you reject any shrimp? Yes ☐ No ☐

31. if yes then causes the rejection:

Discoloration ☐ foreign material ☐

Water in body ☐ Soft shell ☐

Traceability (Feature 6)

32. Have you heard the term traceability? Yes ☐ No ☐

33. Where do you sale the shrimp?

34. Have you taken record? Yes ☐ No ☐

Certification (Feature 7)

35. Do you have any license? Yes ☐ No ☐

36. From where get the license?

Union parishad ☐

Upazilla committee ☐

FIQC ☐

Other ☐

37. Who will be the competent authority to issue license?

Union parishad ☐

Upazilla committee ☐

Gher association ☐

Questionnaire for factories

General information

1. Name:

2. Address:

3. Age:

4. Education: Illiterate ☐ Primary ☐ HSC ☐ SSC ☐ University ☐

5. Religion: Muslim ☐ Hindu ☐ Other ☐

6. Source of fund: Self ☐ loan ☐

Environmental protection and managerial status (feature 1)

7. Where do you discharge the waste water?

Ditches ☐

Drain ☐

Canal/river ☐

8. Do you have waste treatment plant

Yes ☐ no ☐

Food safety (Feature 2)

9. Source of washing water:

Gher/ pond ☐ river/canal ☐ shallow tubewell ☐ deep tubewell ☐

10. Icing spot: Home ☐ gher ☐ depot ☐ other ☐

11. Ice used after procurement: Always ☐ Occasional ☐ Never ☐

12. Ice ratio: 5:1 ☐ 1:1 ☐ 1.5:1 ☐ 2:1 ☐

13. Grading spot: Floor ☐ tin ☐

polythene/mat ☐ wooden platform ☐

14. Transporting materials: Bamboo basket ☐ plastic material ☐

Aluminum/ steal ☐ bag ☐

15. Transporting route: Muddy road ☐ brick road ☐ river ☐ canal ☐

16. Transporting carrier: Van ☐ Hand/head ☐ bicycle ☐ truck/pickup ☐

17. Handling period of shrimp:

18. Have you any idea about HACCP?

19. Average production (kg/day)

Pre season, ☐

Season, ☐

Post season ☐

20. Handling period of harvested shrimp (hours)

21. Quality of shrimp,

Extremely good, ☐

Very good, moderately ☐

Good, ☐

Not good, ☐

Moderately ☐

Poor, ☐

Very poor ☐

Human rights (Feature 3)

22. Do you have any child labour or helper?

23. Do you check health of your workers?

24. Do you have any provision for maternity leave?

Fair labour practice and workers safety (Feature 4)

25. No of workers

Male ☐

Female ☐

Child ☐

26. Salary

Male ☐

Female ☐

Child ☐

27. Salary of others

Manager ☐

Grader ☐

Other ☐

28. Mention wage payment system

Cash ☐

Only food and cloth ☐

Both ☐

29. Do you have any over time

Yes ☐

No ☐

30. shifting duties of your workers

1 shift ☐

2 shift ☐

3 shift ☐

Ethical and fair trade practice status (Feature 5)

31. After procurement what do you do with the shrimp?

Drip into water ☐

Put into the bucket without water ☐

Put it with ice 1:1 ☐

32. Do you reject any shrimp? Yes ☐ No ☐

33. if yes then causes the rejection:

☐ ☐
Water in body ☐ Soft shell ☐

Traceability (Feature 6)

34. Have you heard the term traceability? Yes ☐ No ☐

35. Where do you sale the shrimp?

36. Have you taken record? Yes ☐ No ☐

Certification (Feature 7)

37. Do you have any license? Yes ☐ No ☐