

Prospect and Challenge of Bangladesh Frozen Food: A Way to Overcome

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Abstract

Frozen food is one of the agricultural subsectors in Bangladesh. From the total agriculture export, frozen food contributes around 23% and out of total frozen food export, shrimp contributes approximately 90%. The single sub sector shrimp also contributes near about 4.43% of the GDP and it could go up to 10% along with its 12 million employment generation. Notwithstanding the fact, however, this frozen food subsector is now facing many natural digester and manmade challenges like lack of infrastructural development, lack of standard labour practice and lack of government effective policy and political turmoil. This article focus on manmade challenges, analyzing the export earnings from frozen foods of Bangladesh, key export items and destination, strength and quality of Bangladesh frozen foods, prospect, challenge and the way out from the confront environment for sustainable development.

KEYWORDS: Bangladesh, economic impact, fish, frozen food, shrimp.

INTRODUCTION

Bangladesh is an agricultural based country in south Asia; farming here is the mainstay of around 80 million people (FAO, 2014) it is a large number of total population that are involving in different subsector of agriculture. The emphasizing sub-sectors those are playing a vital role to development of our economy are being considering crops and horticulture, livestock and poultry, forest and fisheries. Those sectors are contributing our economy by providing food, livelihood, foreign earning, creating employment and supplying raw materials for industrial development. Though the golden period of farming, at early 1970 the agricultural sector has contributed approximately 60 percent of our Gross Domestic Product (GDP) but dramatically this percentage went down 48 per cent by the early 1980, 24 percent by ending of the century and lastly went down it to unsatisfactory level near about 16 percent (Asaduzzaman, 2015).

But the positive ideogram is that, a recent statistic has shown a sharply change of annual rate of this sector just above 4% over 2005-06 to 2013-14 as a whole, where among those entire subsector *crops* grew only 3.6 per cent, a very few more *livelihood* 3.7%, *forestry* sector grew 5.3% and the top grew of *fishery* 5.8% (Asaduzzaman, 2015), but frozen food i.e. shrimp & fish was participate 22.76% on the agricultural sector in 2012 (BFFEA, 2013).

The fisheries sub-sectors are one of the important sectors to develop our rural economy and to motivate rural women to come out of their homesteads for longer hours work out of home (Hamid & Alauddin, 1998). Shrimps are the utmost worth seafood of fisheries sector that generate foreign currency by exports and create employment in the national economy (Ongsritrakul & Hubbard, 1996). Fortunately Bangladesh has been successful in shrimp farming because of favorable climatic. Not more early, the frozen shrimp were often called “White Gold” of Bangladesh that was

the second highest foreign exchange earning sector in our country. It was a proved theory to boost our economy and cut down unemployment problem. As information of the Bangladesh Shrimp and Fish Foundation (BSFF), the shrimp industries have been contributing on average approximately 4.43% of the GDP, it could go up to 10%, and has generated about 12 million direct and oblique employment (Hisham, 2013b). That is a big contribution to a developing economy. None the less, the producers and traders of shrimp also faced marketing problem in terms of quality and standard imposed by international buyer and consumers, while the products suffered from lack of sustained access to greater global market (Rahman & Hossain, 2013). This paper investigates recent export performance, challenges and defeat of challenges of Bangladeshi frozen shrimps and fish. Foremost, a brief of the shrimp industry in Bangladesh and its foreign market scope; in fine, presents the challenges with it defeat advocacy and some conclusions.

PROBLEM STATEMENT

Shrimps are the major items of frozen foods category (Hamid & Alauddin, 1998). It has a large demand in Japan, USA and European Union (EU) market (Ongsritrakul & Hubbard, 1996) and this demand being rising rapidly over the world. Bangladesh is a prospective country who has international standard frozen fish processing plants to produce and export frozen shrimp and fish. Among entire 162 processing plants (total processing capacity 3, 50,000 M. Tons approximately) 100 are renewed by Department of Fishery (DoF) where 75 plants of them has approved by European Union (EU) (BFFEA, 2013). Considering the market demand and our standard capacity, it could be a number one sub-sector for foreign earning and cut down our unemployment. But in spite of having market demand and international standard processing plants, our frozen shrimp and fish export market has been constraining day by day and diversified products of garment industry, jute industry, leather industry, ship breaking industry. A data of Export Promotion Bureau (EPB) shows that, Bangladesh has earned more than \$598 million from frozen foods exports at the FY 2011-2012, while the target set value was \$700 million and 9 percent lower (\$544 million) at the FY of 2012-13 with compare the previous FY (Hisham, 2013a) The prawn outbreak of disease and other infrastructural problems have identified behind the reduction. Not only prawn disease and infrastructural problem, but also environmental degradation and pollution, indiscriminate use of antibiotics, irreversible tapping of ground water resources (Ongsritrakul & Hubbard, 1996; Hamid & Alauddin, 1998) labour unrest, lack of quality seed with a reasonable price, domestic political turmoil and world competitive policy made this sector more complicated. But true is that, the Bangladeshi frozen shrimp has goodwill in the world market for better quality, price and test. So if we could take necessary action and better policy to reduce such challenges then the frozen shrimp and fish will be a paramount foreign earning sector of our economy. I believe this paper discussed the challenges of frozen food sector and the overcome way of the obstacle with answering the flowing two questions:

1. What are the challenges of Bangladesh's frozen shrimp and fish sector?
2. What are the ways to defeat these challenges?

I believe the sight of answer of those questions will be a proper guideline to policymaker and will help the business leader to take necessary action to develop this sector and kick off foreign market.

Export Items & Destination of Bangladesh Frozen Foods

The shrimp industry has recognized by the Bangladesh Government under the second Five Year Plan (FYP) starting from 1980 to 1985 (Haque, 1994) and set Bangladesh Frozen Foods Exports Association (BFFEA) in 1984 to increase and monitoring the shrimp production. The BFFEA is the only trade body for about the members of Fish Processing Plants in Bangladesh. From the very beginning of the BFFEA, it has been working to endorse and shield the interest of Frozen food processors, Packers and Exporters in the Country. The BFFEA is also dedicated to set up and uphold congenial relation with the prospective foreign buyers, business association and the chamber of commerce and industries to expand export marketing of Frozen Foods to the world markets. There are ten frozen foods exports items from Bangladesh, mainly to European Union, America (North and South America), Russian, Middle East and Asian markets (Table 1).

Table 1. Exported frozen foods by the private and public capacities

No	Name of the frozen foods
1	Frozen Shrimp & Prawn
2	Frozen Fish
3	Fresh & Chilled Fish
4	Frozen Fillets & Steaks of Fish, Sharks Shells Skates & Rays
5	Shark Fins & Fish Maws
6	Salted & dehydrated Fish
7	Dry Fish
8	Live Crabs & Tortoises
9	Fish meals & Crushed
10	Value Added Shrimp & Fish Products

Source: Bangladesh Frozen Foods Exports Association (BFFEA)

The key items of the above products, frozen shrimp are the main goods and frozen fish is the second highest exporting items from Bangladesh. About 84% of frozen shrimp has been exported in the fiscal years 2012-2013 from Bangladesh to the world market, whereas only 16% of frozen fish has been taken place in the same fiscal year (Figure 1).

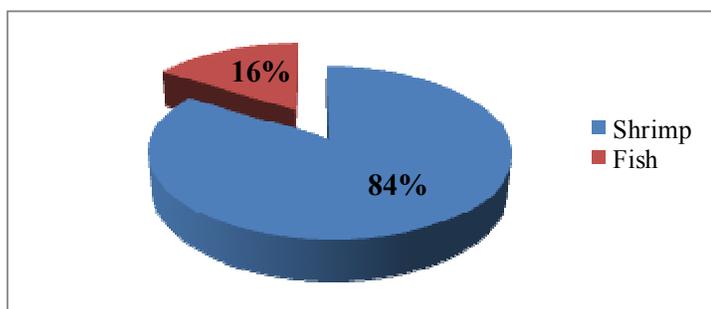


Figure 1. Individually Shrimp & Fish Exported from Bangladesh (2012-2013)

Source: Bangladesh Frozen Foods Exports Association (BFFEA, 2014)

In the same fiscal year (2012-2013), the top market of Bangladesh frozen foods were UK and Belgium by 28% from the total export. The second scores are also belonging to European countries, Germany and Netherland, stood 20% from the total frozen food export from Bangladesh (Figure 2).

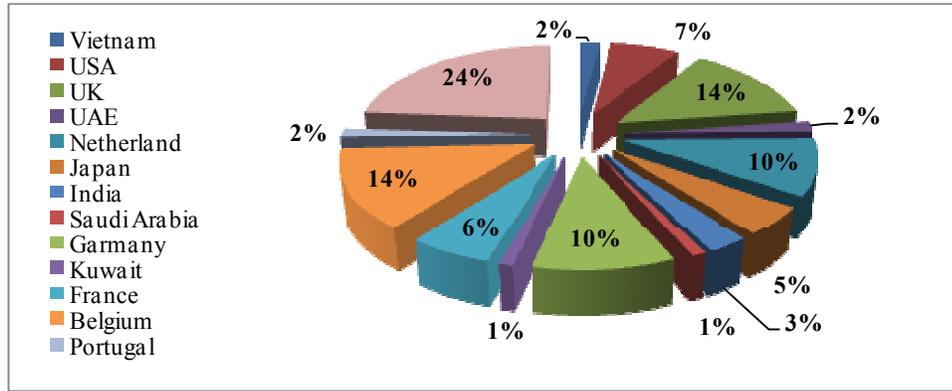


Figure 2. Country Wise Frozen Shrimp & Fish Exported from Bangladesh (2012-2013)

Source: Bangladesh Frozen Foods Exports Association (BFFEA, 2014)

To compare with the exporting destination in the fiscal year 2012-2013, the new booming markets were USA, Russia and France, exported 20488 thousand US\$, 18964 thousand US\$, and 16910 thousand US\$, respectively, in the year 2014-2015 from July-December. According to Figure 2, among thirteen frozen food exporting destination in fiscal year 2012-2013 there was no place of Canada, now, in the year 2014-2015, a new market took place where exported 3068 thousand US\$ from July-December. According to the Export Promotion Bureau (EPB) data, the maximum frozen food exporting area from Bangladesh to the world market during the period July-December 2014-2015 were Belgium by 80518 thousand US\$, Netherlands 62132 thousand US\$, UK 55742 thousand US\$, Germany 38785 thousand US\$, USA 20488 thousand US\$, Russia 18964 thousand US\$, France 16910 thousand US\$. The other flourishing frozen food markets and exports were China by 7306 thousand US\$, Denmark 5717 thousand US\$, Saudi Arabia 5163 thousand US\$, Portugal 5015 thousand US\$, Hong Kong 3443 thousand US\$, and UAE 3029 thousand US\$ (Table 2). So, due to introducing new market, this sector has a good prospect.

Table 2. Export Frozen Food from Bangladesh July-December 2014-2015 (key countries)

No	Countries	Frozen Food (value in '000' US\$)
1	2	3
1	Belgium	80518
2	Canada	3068
3	China	7306
4	Denmark	5717

5	France	16910
6	Germany	38785
7	Greece	1078
8	Hong Kong	3443
9	India	2506
10	Italy	1394
11	Japan	7849
12	Korea Rep.	1311
13	Mauritius	1177
14	Netherlands	62132
31	Portugal	5015
15	Russia	18964
16	Saudi Arabia	5163
17	Spain	1269
18	UAE	3029
19	UK	55742
20	USA	20488
Total target to export including other countries		≈ 355 012

Source: Compiled author from various sources mainly Export Promotion Bureau (EPB), Bangladesh.

Strength & Quality of Frozen Foods in Bangladesh

The total area of Bangladesh is 147 570 square kilometers and the population is 160 million people. According to Bangladesh Frozen Foods Exports Association (BFFEA, 2014), there are 1, 60, 13000 fisherman i.e. shrimp and fish farmer directly and indirectly five times more livelihood depend on the sector. There are two types of fishery resources in Bangladesh:

- 1) Inland Water Body (47,03,658 Ha)
- 2) Marin Water Body (Artisan) (68, 480 S. Nautical Mile) (Table 3).

Table 3. Fishery Resource of Bangladesh (Source: BFFEA, 2014)

1	Inland Water Body	
	Closed Water Body (A)	
	i) Pond	3,71,309 Ha
	ii) Semi Flood Plain	25,435 Ha
	iii) Oxbow Lake	5,488 Ha
	iv) Shrimp Farm Zone	2,76,492 Ha
	Total of Closed Water Body	6,78,724 Ha
	Open Water Body (B)	
	i) River and Estuary	8,53,863 Ha
	ii) Sunderban	1,77,700 Ha
	iii) Beel	1,14,161 Ha
	iv) Kaptai Lake	68,800 Ha

	v) Flood Plain	28,10,410 Ha
	Total open Water Body	40,24,934 Ha
	Grand Total of Inland Water (A+B)	47,03,658 Ha
2	Marin Water Body (Artisan)	68480 S. Nautical Mile

Inland water body is the main area and has been using for cultivating shrimp and prawn. *Pond* is an area where as usually do not flooded. Farmer can cultivate various fish including shrimp in a pond as locally known as *Gher*. As a closed water body, the *semi flood area* and *oxbow lake* as usually not belong to a particular owner for cultivating fish, prawn and shrimp however all people may captivate over the season. The flip side, *River* and *Sundarban* area as the open water body people may fish all time over the year. *Beel* as flood area cultivation depend on the basis of season. Similarly, *Kaptai Lake* is also remaining open all time of a year as a fishing zone.

The marin water body is the long area for fishing and remains open all season. As an economic zone Bangladesh can exercise 68, 480 square nautical miles in the surrounding of Bay of Bangle. So, considering geographical dimension marin water body, there is a huge opportunity to use as a fishing zone in Bangladesh.

At present, the world oceans and all the open inland waters produce 50% of world fish and remaining 50% producing from aquaculture. Even though, in 1950, $\approx 3\%$ of the world fish production was of aquaculture origin. In Bangladesh, more than 55% aquaculture supplies out of the total national production of fish from all sources. And 80-85% of all fisheries export is of aquaculture origin. Near about 80% of the global aquaculture production came from Asian countries including Bangladesh. Bangladesh fisheries sector road map 2015 projects a total production of 3.54 million metric tons of fish of which 57% will be of aquaculture origin. And out of the total export earnings from shrimp export, aquaculture product contributes at least 90% (Islam, 2014).

As for testing capacity of Bangladesh frozen foods, starts under the Fish Inspection and Quality Control (FIQC) Ordinance in 1983, and department of fisheries has started activity as regulatory body. At the same time, three microbiology laboratories established at Dhaka, Chittagong and Khulna. For to lack of HACCP based quality system this sector had to face problem in 1997. Therefore, processing plants upgraded and quality control system improved in 1998. In order to satisfy European Union demands, after 2002 effective chemical testing facilities has introduced and first LC-MS-MS system installed in 2006 at Dhaka laboratory and subsequently chemical analysis started in early 2007 at Dhaka laboratory.

Key Exporting Items from Bangladesh

Bangladesh is going up by producing various manufacturing goods i.e. garments, jute and jute related goods, leather and leather related goods along with frozen foods. The Bangladesh readymade garment is took place the second top position in the world market. The garment sector has taken 81% share of the total exporting items from July 2014 to January 2015 and compare with others the frozen foods only 2% of its kind, however, the frozen foods of Bangladesh has goodwill to the world market as a testy food and with a reasonable price (Figure 3).

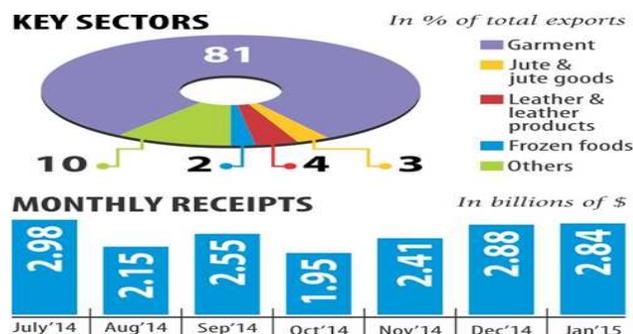


Figure 3. Sector Wise Exported from Bangladesh July 2014 - January 2015 (Source: EPB)

Since July, 2014 to January, 2015, frozen food contributes only 2% from the total export of Bangladesh. From the following *table 4* has shown that US\$ 429.35 million frozen food has been exported from July to February, 2014-2015. And it was 6.32% down trend compare with the previous year of the same time. Even though, the total target of various exporting items from July- February, 2014-2015 was \$ 21.28 billion however, it was actually achieved \$ 20.31 billion. Despite of 4.56% downward trend, shipment grew 5% year- to- year in February 2015.

Table 4. Export is Upward Trend Accept Frozen Foods (July-February, 2014-2015)

SL	Items	Exports	Percent	Trends	Target	Actual	Short
1	Garment	\$ 16.55 Bn	2.56%	Upward	Total Target \$ 21.28 Bn	Reached \$ 20.31 Bn	Down Trend 4.56%
2	Jute & Jute Goods	\$ 569.01 Mn	6.4%	Upward			
3	Leather & Leather Goods	\$ 740 Mn	0.54%	Upward			
4	Frozen Foods	\$ 429.35 Mn	6.32%	Down			

Source: Compiled author himself, data from Export Promotion Bureau (EPB), Bangladesh

According to the EPB, total export target was \$ 2.7 billion in February 2015. However, the actual export was \$ 2.51 billion for the February 2015 and accordingly shortfall was 7.03%.

Export Earning of Bangladesh Frozen Foods

The frozen foods export from Bangladesh has been increasing gradually. Even though the increasing hub was not remains straight to upward from fiscal year 2000-2001 to 2013-2014. Notwithstanding the fact, this curb was ups and down from the beginning to date. In the fiscal year 2000-2001 the frozen food exporting value was \$ 363.23 million, but the next fiscal year in 2001-2002 export earning was \$ 276.11 million only. The following fiscal year 2002-2003 to 2007-2008 the export earnings trend was remain upward. Even though, the fiscal year 2008-2009 to 2009-2010 was the poor export earnings from frozen food. However, in the fiscal year 2010-2011 were the booming export earning and the fiscal year 2011-12 and the fiscal year 2012-2013 the export earnings from the frozen food remain poor. None the less, in the fiscal year

2013-2014 export earnings from frozen food stood the top score of more than \$ 638 million (Table 5).

Table 5. Frozen Shrimp & Fish Exported from Bangladesh (2000-2001 to 2013-2014)

Year	Item	Value (million US\$)
2000-2001	Shrimp & Fish	363.23
2001-2002	Shrimp & Fish	276.11
2002-2003	Shrimp & Fish	321.81
2003-2004	Shrimp & Fish	390.25
2004-2005	Shrimp & Fish	420.74
2005-2006	Shrimp & Fish	459.11
2006-2007	Shrimp & Fish	515.32
2007-2008	Shrimp & Fish	534.07
2008-2009	Shrimp & Fish	454.53
2009-2010	Shrimp & Fish	445.18
2010-2011	Shrimp & Fish	625.04
2011-2012	Shrimp & Fish	598.42
2012-2013	Shrimp & Fish	543.84
2013-2014	Shrimp & Fish	638.19

Source: Data collected author himself from Export Promotion Bureau (EPB), Bangladesh & DoF

Export performance for July-Feb. 2014-15 has shown 429.35 million \$ where the strategic target was 468.62 million \$ or $\approx 8.38\%$ less of export performance over export target. At the same time, the previous FY (July – February) 2013-2014 export performance was 458.30 million \$, $\approx 6.32\%$ more export performance July-Feb. 2014-2015. The frozen food export target in the year 2014-2015 (July – February) was 731.08 where the export performance was 429.35 million US\$ or ≈ 301.73 million US\$ less from the target level. The export performance in the fiscal year 2013-2014 (July-June) was \$ 638.19 million US\$. Of them most of the items were shrimp about 550.16 million US\$ and only a bit portion was frozen fish of 52.46 million US\$ only.

In order to fulfill the target of export, frozen fish was remain so far for complete the target. The summary of the export performance in July – February 2014-2015 is about 6.32% less compare to the July –February 2013-2014. Data are shown in Table 6.

Table 6. Export performance July-February 2014-2015 (million US\$)

Products	Export Performance 2013-2014 (July-June)	Export target for 2014-2015	Strategic target for July-Feb. 2014-15	Export Performance for July-Feb. 2014-15	% change of export Performance over Export Target	Export Performance for July-Feb. 2013-14	% change of export performance July-Feb. 2014-15 over July –Feb. 2013-14
1	2	3	4	5	6	7	8
1) Frozen Food	638.19	731.08	468.62	429.35	-8.38	458.30	-6.32
a) Frozen Fish	52.46	55.08	35.31	33.36	-5.52	35.93	-7.15
b) Shrimps	550.16	635.50	407.36	386.38	-5.15	396.06	-2.44
c) Others	35.57	40.50	25.96	9.61	-62.98	26.31	-63.47

Source: Data collected author himself from Export Promotion Bureau (EPB), Bangladesh

The following table (Table 7) shows that the export target of Bangladesh frozen food for July- February 2013-2014 was 578.77 million US\$ and the strategic target for July- February 2013-2014 was 368.27 million US\$. However, the export performance for July-Feb. 2013-2014 was 458.30 million US\$. It was 24.45% more export performance over strategic target. The export performance for July-Feb. 2012-2013 was 368.90 million US\$, where about 24.23% more in July-Feb. 2013-14 compare to July-Feb. 2012-13. In July – February 2013-2014, the shrimp item was exported 28.77% more than July – Feb 2012-2013. The ‘other item’ frozen food was exported 28.91% more in July–February 2013-2014 compare to July–Feb 2012-2013. Only a bit portion of frozen fish, 35.93 million US\$, was exported in July–February 2013-2014 or about 12.17% less than July-February 2012-2013. In summary, in July – February, 2013-2014 was a very positive trend of froze food export earning over the July – February 2012-2013 (Table 7).

Table 7. Export performance July-February 2013-2014 (Million US\$)

Products	Export performance July-June 2012-13	Export target for 2013-14	Strategic target for July-Feb. 2013-2014	Export Performance July-Feb. 2013-2014	% change of export Performance over Strategic target	Export Performance for July-Feb. 2012-2013	% change of export performance July-Feb. 2013-14 over July-Feb. 2012-13
1	2	3	4	5	6	7	8
1) Frozen Food	543.84	578.77	368.27	458.30	24.45	368.90	24.23

a) Frozen Fish	57.99	60.89	38.74	35.93	-7.25	40.91	-12.17
b) Shrimps	454.93	477.68	303.95	396.06	30.30	307.58	28.77
c) Others	30.92	40.20	25.58	26.31	2.85	20.41	28.91

Source: Data collected author himself from Export Promotion Bureau (EPB), Bangladesh

Challenges of Bangladesh Frozen Food

Infrastructural Development. Infrastructure is a key component for productivity and growth. It is now has proved by various empirical and theoretical research that an awful infrastructure can affect growth of a country's economy. On the other hand, better infrastructures not only improve the economy but also educational sector, health sector and all other pertinent sectors as well. For example, 32 of 39 studies of OECD countries find a positive effect of infrastructure on some combination of output, efficiency productivity, private investment and employment. Furthermore, 9 of 12 studies on developing countries indicate a significant positive impact (Hussain, 2015). According to the same source, studies based on panel data combining industrial and developing countries suggest that a 1 percent increase in physical infrastructure stocks, given other variables, temporarily raises GDP growth by as much as 1-2 percentage points (Hussain, 2015). In Bangladesh, we have a huge infrastructural lacuna. Bangladesh took a shocking position considering access to infrastructure in the South Asia. And the situation is going from bad to worse day by day. Within the worse infrastructural situation, communication i.e. the total road networking infrastructure, port, electricity is the main problem in Bangladesh. According to World Bank estimation in 2013, Bangladesh needs to spend 74 to 100 billion US dollars for the development of worse infrastructure within 2020. As per the report, per year Bangladesh require to provide between 7.4 to 10% (Hussain, 2015).

Currency Devaluation. About 90% of Bangladesh frozen foods have been exporting to the EU, USA and other developed countries (Khairul, 2013). However, due to political unrest merchant could not receive frozen food order. They are facing problem in transportation of frozen foods from fish processing zone to port. In 2013-2014 Bangladesh exported 55 074 tons of frozen food, including shrimp. Whereas near about 70% of Bangladesh frozen food exports to European Union and Russia. But, due to continuing political unrest, frozen food sector is losing business inside the country and on the other hand, losing money for currency devaluation with Euro and the Russian ruble against the dollar. So a quick fall of the euro and the Russian ruble against the dollar, coupled with the ongoing political turmoil at home, has hit the frozen food industry hard. In September 2014, each euro traded for Tk. 110, nevertheless, at present it is trading at Tk. 87 only, it mean about 21% decline in worth (Daily Star, 2015).

Price Collapse. High bulk of frozen foods i.e. frozen shrimp (black tiger) and fish goes to EU markets. However, the price of frozen shrimp and fish drooped 42% to \$ 5.25 a pound (16-20 pieces) from August 2014. According to Bangladesh Frozen Foods Exporters Association (BFFEA), they are compelled to sell at lower prices to retain the international buyers. According to the BFFEA, largely shipment fell 5% year-on-year to 32 800 tons in July-January of this fiscal 2013-2014 and 2014-2015. According to export Promotion Bureau, earnings were down 5% to US\$ 397.6 million during the period compared to the same period a year ago.



Figure 4. Shrimp and fish exports (2013-2015) *Source: BFFEA, 2014*

It is assuming that processors would incur losses of around Tk 600 crore for selling shrimp at reduced prices and for ongoing political chaos has dealt another blow to the frozen food processors by affecting transportation of raw and processed shrimp and fish. As a result, production in factories has also dropped. Due to the political unrest, buyers are not placing new orders even they feel insecurity due to political instability. This will also affect the 8.33 lakh shrimp farmers in the country. So, buyer is looking for a new market for the same goods. The neighboring countries Thailand, Philippine, etc, are the main competitors for Bangladesh to export frozen food in the European and American market.

To ride out the problem, the association demanded the government increase cash subsidy for frozen food export to 25% from 10% nowadays. As the shrimp exporters had to face a liquidity crisis as they cleared their stock at 40% lower than the procurement prices. On the other hand, the world economic crisis and shortfall of high quality shrimp are offering less value in the world market. In instance, the early price of one pound big size shrimp was 8 US dollars where now is offering only 5-5.5 US dollars only. Currently one pound standard size (16-20 pieces per pound) black tigers¹ count only 3.5-4 US dollar in the EU market where even a few month back it was a good deal of 6.6.5 US dollars (Khairul, 2013). However, lower bank interest rate for shrimp entrepreneurs (7-8%) may temporarily mitigate the situation. At present they have been counting 15% bank interest.

Application of Labor Law. Bangladesh Labor Act was enacted in 2006. It was amended in June 2013 to ensure the standard of International Labor Organization (ILO) and ensure the labour rights of Bangladesh. However the application of labour law still remains so far. Most of the shrimp farming zone located in the south-western region of Bangladesh, a survey has found on the area that, the average wage received by workers only Tk. 4466 per month. The gender analysis, however, exposed that the average wage for a male worker was Tk. 5778 compared to the average wage for a female workers Tk. 3589 which is about 38% per cent lower than that of male labour (Nuruzzaman & Kabir, 2014). From the same study exposed that among the skilled and educated male workers get permanent employment opportunity and holding key positions with higher salary. While most of the female were lagging behind both in education and skills and fetching lower wages. It is also state that there was only 4 (0.4%) respondent mentioned that they are drawing less than Tk. 2645 per month which is the minimum wage declared for the shrimp industry. More or less all the respondents nodded that they get lump-sum festival bonus during two Eid and amount range from Tk. 2000 to Tk. 5000 varying from factory to factory (Nuruzzaman & Kabir 2014). So the application of labour law such as unfair labour deals, safety and

¹Black tigers is kind of shrimp are cultured naturally in Bangladesh and have good taste.

working environment in the shrimp industry is remain the big challenges of shrimp industry as it is the concern of buyers, consumer and civil society.

Finding Foreign Investors. There are no foreign investors in this sector. As Bangladesh has huge human resource and they can be employed by poor labor cost, foreign investors may attract to invest in Bangladesh. So, the government can play a vital role for inviting foreign investor for this sector.

The Japan External Trade Organization, known as JETRO, is the giant business investor in the world. In 2015 they have published a report that the Bangladesh is the 2nd best business investment priorities country in the world. The main cause for choosing lower production costs, lowest worker wage levels among the competing countries. Workers' wages in the manufacturing sector in Bangladesh is \$100 a month, while Cambodia has the second lowest wages at \$113 (Figure 5).



Figure 5. Workers wages per month in Bangladesh.

Source: JETRO Dhaka office on 22nd February 2015 (survey October-November 2014).

On the basis of production cost, Bangladesh also shall remain the top priority among the other competitive countries like Japan, Thailand, Indonesia, India, China, Vietnam and Sri-Lanka. According to the report, the production cost in Bangladesh is the lowest, only 48.7%. Where the nearest competitive production cost shall remain 70.8% in Sri-Lanka. Sri-Lanka is almost more than 22% more productive cost has to be counted compare with Bangladesh productive cost. In comparison to Japan, the cost of production is 78.5% in India and Indonesia, 77.8% in China and 73.2% in Vietnam (Table 8).

The survey has been conducting since 1987, opined 10 078 firms and chief executive from 20 countries of Japanese Affiliated Firms in Asia and Oceania for the Year 2014. According to the official trade and investment promotion agency of Japan about 71.7% Japanese-affiliated firms in China want to expand their operations in Bangladesh. Whereas 78.2% favoring India, 66% Vietnam and 60.9% Thailand. However, the survey stressed to improve worker competence in the country by providing basic education and vocational training. Among the countries assessment, Bangladesh ranked the lowest in quality of employees. The average rate of workers' productivity in Bangladesh is 31.6%, while it is 77.8% in Sri Lanka, 68.4% in Pakistan, 44.4% in China and 42.1% in India. So, to ensure quality employees shall remain a big challenge in Bangladesh labour markets (Table 8).

Table 8. The production cost in different countries

Country	Production Cost (%)	Position
Japan	100%	First
Thailand	81%	Second
Indonesia	78.5%	Third (combined with India)
India	78.5	Third (combined with Indonesia)
China	77.8	Fourth
Vietnam	73.2	Fifth
Shri-lanka	70.8	Sixth
Bangladesh	48.7	Seventh

Source: Compilation by author based on the JETRO Report.

Table 9. Bangladesh - the best investable country in 2015 (opined by CEO of Japanese Company)

Country	Opinion in percent	Position
China	28.9%	Seventh
Vietnam	44.3%	Sixth
Thailand	44.8%	Fifth
Shri-lanka	50%	Fourth
Myanmar	52%	Third
India	58.2%	Second
Bangladesh	71.1%	First

Source: Compilation by author depend on the JETRO report

Introducing New Product

Over the last couple of decade, Bangladesh has losing their opportunity to clutch a larger market share in the EU due to a lack of efforts to diversify its export basket. Bangladesh's total exports to the EU are more than \$18 billion a year, of which more than \$15 billion are garments (Zillul, 2015). Bangladesh has to formulate of its business strategy for exporting goods to the EU market and may not limit and emphasis only Readymade Garment (RMG) export. The other lucrative goods to the EU market like foot wear, frozen foods i.e. shrimp, ships and bicycles, jutes and jute related goods are demandable and government may concentrate for booming their market to the EU. Around 96 percent of all exported goods are manufactured commodities. So export diversification is very essential for the context of positive economy in Bangladesh. The clothing industry of Bangladesh has a very significant role in the global market. About 93% of Bangladeshi market / goods have exported in 2009, namely the USA, the EU and Canada. However, it has been decreased to 85% in the fiscal year 2014 (Faaria, 2015).

By the end of 2014 Bangladesh has exported \$ 30.2 billion, whereas in 2009 it was \$ 0.36 billion only. Readymade Garment (RMG) is a single sector 81.2% has been exported in the FY year 2014 and shared more than 10% of GDP (Faaria, 2015). Similarly, the frozen food sector in Bangladesh has also an opportunity and advantage of high capacity and low wages of labour compare with the other competitive

countries. So, Bangladesh can create a bulky frozen food market to Europe, American and Russia. In addition, it can create a new market to the Asia and Africa. Such a geographical diversification of exports can be sustainable even during the world economical crisis. However, it will be a big challenge for Bangladesh to get a duty free benefit from the existing and new market in the world as African countries enjoying duty free benefit from USA under the African Growth and Opportunity Act. So the new scope may open for these products to increase their exports further with the help of correct policies. So the country can take the new challenge and focus to increase exports from the existing frozen item that can prove to be lucrative.

Though it may be a challenge, with appropriate policies, the country will be able to diversify exports and increase its overall exports and hence economic growth rates.

Overcome the challenges

The frozen food of Bangladesh has a challenge to keep its sustainable growth. To attain the vision 2021 private, public and private-public sector should come forward to overcome the present infrastructure crisis; Government of Bangladesh may consider funds in upcoming FY budget 2014-2015 for financial assistance. In order to technical assistance and improve this sector Department of Fisheries (DoF) also can play a vital role. However, due to overcome the challenge and the crisis of the frozen foods of Bangladesh the following suggestion may consider:

- To create new policy, new exporting destination, introducing to the world market as a new product,
- To find foreign investor for development of the sector, keeping stable political atmosphere, development of pertinent infrastructure and introducing labour law following by ILO and practice accordingly.
- The proper human resource management can play a vital role to take the sector vibrant. Skilled, innovative and committed labour can make dramatic change in the business performance and sustainability (Agarwala, 2011; Nankervis & Compton, 2002). Labour satisfaction of this sector can play an important role for higher growth and productivity (Rubel & Kee, 2013; Shabnam & Sarker, 2012). An unhappy labour will never work for progress and prosperity however, dissatisfied worker create unrest (Hossan *et al.*, 2012; Noe *et al.*, 2007). So, satisfaction of frozen food worker is also important to overcome the challenges. Adequate salary, bonus and admissible benefit may satisfy the shrimp and fish worker. In order to ensure the frozen food worker safety and build their legitimate rights telephone helpline may introduce for mitigate their grievance. Directorate of Labour (DL) may open a new wing under the supervision of DL to receive aggrieved worker complain call and can suggest accordingly. It will play a better role for mitigate the grievance or workers.
- Introducing frozen food product i.e. frozen shrimp to the world market can play a positive role for overcoming the existing challenge. As GSP facility has suspended for readymade garment export from June 2013 to the American market, frozen shrimp can take over the same market as a quality foods.
- Government can allocate bank loan in a soft condition and lower rate like 6 to 7 per cent interest to the investor specially shrimp farmer. Even though, the bad loan practices discourage bank authorities to sanction loan in favor of businessman. According to Bangladesh Bank, in 2014, bank made operational profit \$212.65 billion (Tk. 21 265 crores). It was almost 17% profit dropped on year-on-year in 2014 due bad lone practice. However, it should monitor that how many shrimp farmer has been defaulting to pay bank loan.

- Infrastructure development is more important to overcome the crisis of frozen food. The road and highway communication development from shrimp and fish farming area to packet processing area and packet processing area to port area should be smooth or have to create alternative way to reach the goods within a short time. Port area infrastructures have to develop and corruption free. Government can allocate a portion in upcoming budget in the fiscal year 2014-2015 for developing infrastructure. This sector may facilitate to import duty free modern technological raw for frozen food process and high productive species for proper fertility of shrimp and fish.
- In order to diseases control in the shrimp and fish project government can provide vermicide to the project owner. There are several evidence that farmer has been losing to fulfill the target of cultivation shrimp and fish due to shrimp diseases disruption. Providing proper environment for fisheries and bio-secure management practices is essential for overcoming this challenge.
- It is also a huge backward that shrimp farmer has no genetically improved shrimp stocks. So a sustainable policy for shrimp farm by acquisition land and proper training to investor can resolve the problem.
- Government subsidy can play a significant role model as a motivation of the shrimp farmer.
- Proper price of shrimp and fish has to be ensuring for reinvest and booming this sector.
- Political instability is playing vital role for loosing this sector. So, political party's morality and ethic should be improved within the all political parties for the sake of economical development.
- Due to climate change and physical environmental factors including natural hazards such as floods, drought, tornado etc. making sector vulnerable. So, it may over come to introduce new farming policy with adaptation of environmental atmosphere.
- Lack of technological support for cultivating and processing fish is a problem to the shrimp and fish famer in Bangladesh. So technological support may improve by the government, prospective buyer other pertinent stockholder.
- Lack of pre plane and inadequate plane for farming fish and shrimp remain the sector poor situation. So by acquisition of new land may build modern fishery industry in Bangladesh.
- Inland water shrimp and fish farming area may expand to the whole prospective area of Bangladesh.
- Reduction of electricity bill, exemption of tax and duty on shrimp feed and introduction of cash incentive for shrimp farmers may consider for the sustainable development of this sector.
- Self monitoring, Government monitoring, ILO monitoring and Stakeholder monitoring may over come from the crisis.
- Shrimp and fish firm might be brought under a certification and yearly licensing system and yearly renew system.
- Shrimp and fish firm registration, written lease documents may control form forgery made by dishonest business man.
- In order to control hazardous pesticide, necessary data relating to soil and aqua are also necessary for better cultivation of shrimp and fish.

- To maintain a virus-free environment and have to cultivate in bio-secure place and controlled environment for better cultivation of fisheries.

Conclusions

There are around two thousand species of the real shrimp are known in the world. America is the biggest shrimp buyer in the world, importing more than 5 000 000 tones in a year. Japan imports around 250 000 tones and four European shrimp importing countries are France, the UK, Spain and Italy together they import near about 5 000000 tones annually. Thailand is the largest producer of shrimp in the world. Bangladesh is also leg behind China, Vietnam and India in terms of shrimp production. About 75 per cent of farmed shrimp is produced in Asia. The other 25% is produced mainly Latin America, where Brazil is the biggest producer. The growth of shrimp production in Bangladesh is not remarkable despite of huge demand and scope of the world market. Notwithstanding the fact, however, it contributes to our poverty mitigation, employment generation and export earnings. Among the various items of frozen foods, only shrimp item contribute about 90% of the total export earnings from the frozen foods export of Bangladesh. In spite of positive contributions, the shrimp industry is not beyond the criticisms- legal and social including labour issues, environmental sustainability, and food safety i.e. farmer use unpreserved and hazardous chemical highly risk for human health. So therefore, it is essential for government and non-government to support such as soft loan, training, good infrastructure, virus free fry and quality feed supply to ensure good harvesting. In addition to identify and finding the lapse and lacuna of proper shrimp and fish cultivation practice, effective strategy and awareness development among the stakeholders as well as address national and inter criticism may keep this sector stable and sustainable developed.

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