A

GLOBAL / COUNTRY STUDY AND REPORT

ON

"**BANGLADESH**"

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PART I

Overview of Bangladesh

INTRODUCTION

Bangladesh is a combination of competitive market, business-friendly environment and cost structure that can give the best returns. Bangladesh offers a well-educated, highly adaptive and industrious workforce with the lowest wages and salaries in the region. 57.30% of the population is under 25, providing a youthful group for recruitment. The country has consistently developed a skilled workforce catering to investors needs. English is widely spoken, making communication easy. Bangladesh is strategically located next to India, China and ASEAN markets. Bangladesh has proved to be an attractive investment location with its 146.6 million populations and consistent economic growth leading to strong and growing domestic demand. Energy prices in Bangladesh are the most competitive in the region. Bangladesh offers the most liberal FDI regime in South Asia, allowing 100% foreign equity with unrestricted exit policy, easy remittance of royalty, and repatriation of profits and incomes. Bangladesh offers export-oriented industrial enclaves with infrastructural facilities and logistical support for foreign investors.

THE COUNTRY

GEOGRAPHY/STATISTICS

Bangladesh is located in the Southern Asia, bordering the Bay of Bengal with the coastline covering 580 km between Burma & India with the land boundaries 4,246 km where Burma covered 193 km and India covered 4,053 km. The time difference is GMT+6. The Total area is 147,570sq km and the total population is 164,425,491.The climate of the country is focused as tropical; mild winter (October to March); hot, humid summer (March to June); humid, warm rainy monsoon (June to October). Official language is Bangla (Bengali). English is widely used in Government, Business and Universities. Out of total population, Muslim 89.6 %, Hindu 9.3 %, Buddhist 0.5%, Christian 0.3% and Other 0.3%.

ECONOMY

The economic position of the country is GDP/PPP (2011 est.): $100 billion; per capita $664, Real growth rate: 6%, Inflation: 11.3%. The Industries are Textiles, Jute, Garments, Tea Processing, Paper Newsprint, Cement, Chemical Fertilizer, Light Engineering, Sugar, Ceramics and Pharmacy. Natural resources are Gas, Timber and Coal. Arable land covered 55.39% and permanent crops covered 3.08% of total land area. Bangladesh exports mainly Ready Made Garments including Knit Wear (75% of exports revenue). Others include: Shrimps, Jute Goods (including Carpet), Leather Goods and Tea. Bangladesh imports mostly Petroleum Product and Oil, Machinery and Parts, Soybean and Palm Oil, Raw Cotton, Iron, Steel and Wheat.

CURRENCY AND BANKING

Currency of the country is Bangladeshi Taka (Tk). The financial system of Bangladesh consists of Bangladesh Bank (BB) as the central bank, 4 State Owned Commercial Banks (SCB), 5 government owned specialized banks, 30 domestic private banks, 9 foreign banks and 29 non-banking financial institutions. The financial system also embraces insurance companies, stock exchanges and co-operative banks. Bangladesh Bank is both the Government’s banker and the banker’s bank, a “Lender of the Last Resort”. Bangladesh Bank, like most of the central banks of different countries, exercises monopoly over the issue of currency and the banknotes.

GOVERNMENT/POLITICS

The conventional long form is “People's Republic of Bangladesh” and the conventional short form is “Bangladesh”. The government type is parliamentary democracy. Capital is Dhaka and the administrative 7 divisions are Barisal, Chittagong, Dhaka, Khulna, Rajshahi, Rangpur and Sylhet. 26 March 1971 is the date of independence and 16 December 1971 is known as Victory Day and commemorates the official creation of the state of Bangladesh.

LEGAL SYSTEM

Bangladesh seceded from Pakistan in December 1971. The British-era legislation applied in Pakistan after 1947 and post-partition legislation enacted in Pakistan continued to form the basis of Bangladeshi personal status laws, but legal developments since 1972 have been distinct. Constitution adopted 4 November 1972. Amended in 1977 to remove principle of secularism included in Part II entitled Fundamental Principles of State Policy. After the emergence of Bangladesh in 1971, a rigid constitution has been adopted which came into force on 16 December 1972. The basic law of Bangladesh is the constitution of the People's Republic of Bangladesh, 1972 as amended from time to time.

Till 2010, fifteen amendments to the constitution have been made. All laws of the country are subordinate laws made by the elected Sangsad (the legislature consists of 350 members) conforming to the tenets of the Constitution. The laws enacted by the legislature and now in operation regulate almost all spheres of life. Ordinarily executive authorities and statutory corporations cannot make any law, but can make by-laws to the extent authorized by the legislature. Such subordinate legislation is known as rules or regulations. Unless found ultra vires of the parent law, such rules or regulations are also enforceable by the court like the laws made by the legislature. Important laws of the country may be classified under some broad heads such as land and property laws, personal laws, commercial laws, labour and industrial laws, election laws, law of crimes, service laws, fiscal laws, press laws and laws relating to the remedies

All laws, rules or regulations made by the competent authority are applied in the Courts and Tribunals. The Courts can be classified into two classes' viz. the Supreme Court and; Subordinate Courts and Tribunals. The Supreme Court of Bangladesh is the apex court with its two divisions, the High Court Division and the Appellate Division. As the apex court the high court division has been vested with the power to hear appeals and revisions from subordinate courts, and also to issue orders and directives in the nature of writs to enforce fundamental rights and to grant other reliefs available under the writ

Jurisdiction. There are civil courts presided by Assistant Judge to try the suits of civil nature and criminal courts presided by judicial magistrate to try the criminal cases.

In addition, there are various other laws on different subjects regulating different fields and spheres of activities of national life. To seek remedy a person has to file a case before the appropriate court or authority. Claims regarding money, property, compensation etc. is to be filed before the civil court presided over by the assistant judge or subordinate judge according to value of the claim, and complaint against commission of crime is to be filed either with the local police station or in the criminal court of the magistrate of the first class of the locality. The police investigate the cases lodged with the police station and produces witnesses before the court during trial. On the other hand, it is the responsibility of the complainant to produce witnesses before the court in the cases in which magistrates take cognizance on the basis of a written complaint. There are other authorities before which remedies may be sought by an aggrieved party. Those authorities are administrative authorities or tribunals. Except in respect of enforcement of fundamental rights, admiralty, company matters and writ petitions, relief cannot be sought directly from the high court division which mainly deals with appeals and revisions from the decisions of the subordinate courts.

One of the notable features of the legal system of Bangladesh is that the legislature can enact any special law for any particular purpose and thereby can form special courts or tribunals. For example, there are labour courts and labour appellate tribunals to decide labour disputes, administrative tribunals and administrative appellate tribunal to decide service disputes of public servants, income tax appellate tribunal to decide income tax disputes, custom, excise and VAT Appellate tribunal to decide disputes regarding custom and excise duties and VAT, court of settlement to decide disputes about abandoned properties, special judges to try corruption cases against public servants, special tribunals to try criminal cases under the Special Power Act 1974 and Nari-o-ShishuNirjatan Daman Adalats to decide cases of crimes committed against children and women. To decide election disputes the election tribunals are constituted with judicial officers. Family courts have been constituted with assistant judges to decide

family disputes. To decide money claims of the banks and other financial institutions ArthaRinAdalats have been set up presided over by judges, and insolvency courts have been set up presided over by district or additional district Judges to declare defaulting borrowers as insolvent. To try offences committed by children below the age of 16 years, juvenile courts have been formed with the magistrates and sessions judges, and juvenile courts follow the special procedure laid down in the children's Act.

PART II

Industry/Sector/Company Specific Study

Sea Food Industry

SEA FOOD INDUSTRY IN BANGLADESH

INDUSTRY OVERVIEW

A large number of different types of water bodies both inland and marine make Bangladesh one of the most stable countries of the world for freshwater aquaculture. The freshwater inland aquaculture production in Bangladesh is the second highest in the world after China (FAO, 2009). The total annual fish production is estimated at 2.90 million tonnes in 2009-10 (Bangladesh fiscal year: 1 July-30 June), of which 1.35 million tonnes (46.62%) are obtained from inland aquaculture, 1.02 million tonnes (35.53%) from inland capture fisheries, and 0.52 million tonnes (17.85%) from marine fisheries (DoF, 2010). Traditionally, people of Bangladesh like to eat fresh fish. However, chilled and dried fish are also marketed currently in large quantities in the towns and cities. Utilization and marketing distribution of fish is around 70 % fresh fish, 25% dried, and the other forms of locally processed fish include fermented products and frozen products.

Following are the types of fishes found in Bangladesh:

1. **SHRIMPS**

Due to its higher demand and value shrimps are considered one of the most prestigious food commodities round the world. A number of shrimp species are available here in Bangladesh of which the world famous **Black Tiger shrimp** (Penaeus Monodon), Fresh Water shrimp (macrobergum Rogenbergii), **Ocean Tiger** (Penaeus Monodon), **Sea White (Penaus Indicus), Cat Tiger** (Penaeus Semisulcatus), **Harina/Pink shrimp** (Metapenaeus Monoceros) are a few to mention which are commercially available as exportable shrimp in Bangladesh.

i. Black Tiger Shrimp:

Most probably the very name “Black Tiger” was given due to its dark strips that encircle their shell. Despite their black strips they are sometime known as Blue Tiger. The Black Tiger shrimp greatly consider the largest shrimp commercially available round the world which may rich 330mm i.e. 13 inches or more.

ii. Fresh Water Shrimp:

Unlike Black tiger shrimp the Fresh Water shrimp (Macrobrachium Rosenbergii) spend their life in the freshwater but returns to the brackish water of the estuaries. They may be found throughout the entire Malay archipelago as well as South East Asia. Bangladesh is considered the abandon supplier of Fresh Water scampi.

iii. Harina Shrimp:

Originally it is a marine shrimp but prefers low salinity environment. Therefore adopt brackish environment. In Bangladesh they are naturally caught from rivers and bay of Bangle. However, due to their low salinity preference they are commercially cultured into the same pond with Black Tiger shrimp. The texture and aroma of this species therefore remain quite the as Black Tiger shrimp its because like Black Tiger shrimps they also grow up eating only the natural algae.

iv. Cat Tiger Shrimp:

This is a marine shrimp usually caught in trawls. They live around 130 meters deep sandy and muddy bottom of the sea. In many countries it is called as flower shrimp. Commercially it is called as **SHRIMP MEAT**. Due to its **MULTI PURPOSE USES** this shrimp meat becomes one of its kind in the food service industry throughout the world. The meat is firm and fairly mild.

v. Ocean Tiger Shrimp

This is a wild species and probably the most expensive and prestigious shrimp item over the world. They may be grow up to 13 to 14 inches long. Being a marine species it likes mud or sandy bottom and could be found up to 110 meter or 360 feet deep into the sea bottom.

2. SEA FOOD:

Bangladesh enjoys a territorial water area of about 20 nautical km from the coast. The exclusive economic zone of the country extends about 320 nautical km from the territorial waters. Therefore, the marine fisheries zone of Bangladesh is roughly above 200,000 km2, which appears larger than the total area of the country itself. In general, based on their living nature the marine fisheries can be classified into 2 categories namely pelagic, and demersal.

3. BANGLADESH ORIGIN FISHES

When it is said that it is fish and rice that made a person Bengali it actually means inland fishes. Inland fisheries comprises of rivers, estuaries, beels, floodplains, polders, ponds, ox-bow lakes, brackish water etc. Bangladesh has a total of 8393000 hectors area of inland sweet water/fresh water resources. According to a study the total inland fish production during 2007-2008 stands 1 646 819 MT with marine catch total 455601MT. The total production form aquaculture stands 914752 during 2006-2007 which rank the nation sixth largest.

SIGNIFICANCE OF THE SEAFOOD SECTOR FOR THE NATIONAL ECONOMY

Bangladesh is located between India and Myanmar. The country has a large coastal line and a rich delta which is home to a large capture fisheries and aquaculture sector (Map 2.1). Bangladesh is divided into 7 administrative regions called divisions. Each division is further split into districts. The fisheries sector represents a significant portion of the national economy; the total production in 2009-10 was almost 3m tonnes, valued at around USD2.5bn and supplying 58% of the total national animal protein demand. 1 Its share in the Gross Domestic Product (GDP) and the value of the agricultural sector amounted to 3.74% and 22.23% respectively. Fish and shrimp are the third largest export item in Bangladesh and contributed 2.70% to the country's total export.

The fisheries sector is a major source of employment; about 10% of the total population (14.50m) is directly or indirectly engaged in the fisheries sector for their livelihood. Among this group, around 1m people are employed in the shrimp sector. By implementing new fishery and aquaculture activities the Department of Fisheries of the Ministry of Livestock and Fisheries expects that this sector will facilitate the creation of full-time employment opportunities for an additional 462,000 mainly unemployed person and part-time employment opportunities for 991,000 during the financial year 2012-13.

SEA FOOD EXPORTS:

According to the EU, there are 75 EU-approved seafood export establishments in Bangladesh. The Bangladesh Frozen Foods Exporters Association (BFFEA) states that there are additional 20-40 seafood-processing establishments that are currently not yet EU approved. Most seafood companies in Bangladesh are family owned and small or medium sized. EU-approved processing establishments are concentrated in Chittagong and Khulna. Furthermore, as can be seen in the table , there are a number of companies with processing and production facilities approved by the Aquaculture Certification Council (ACC) or Naturland. Interestingly, in 2011 only 37 exporters did business with the US. There are no data about the number of Bangladeshi companies that actually traded seafood products to EU buyers.

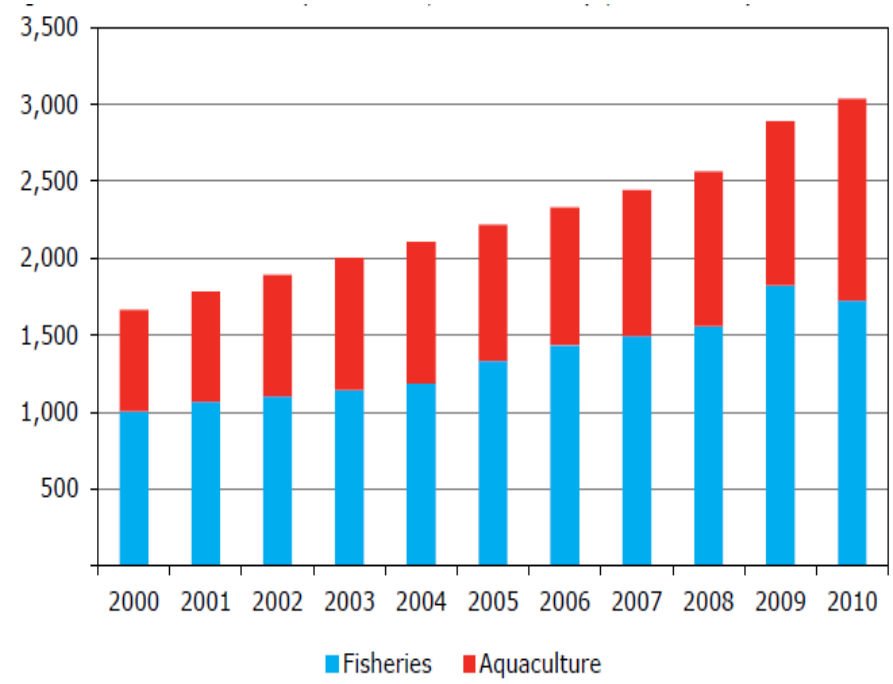
A number of EU-approved seafood processing establishments and certified seafood companies:

Divisions	Districts	Total no.	ACC	Naturland
Chittagong	Chandpur	1		
	Chitaggong	19	1	
	Cox's Bazar	3		2
	Subtotal	**23**	**1**	**2**
Dhaka	Dhaka	1		
	Narayanganj	1		
	Gazipur	1		
	Subtotal	**3**		
Khulna	Bagherhat	3	2	
	Jessore	2		
	Khulna	36	1	1
	Char Rupsa	2		
	Satkhira	4		
	Subtotal	**44**	**3**	**1**
Sylhet	Sunamganj	1		
	Sylhet	1		
	Subtotal	**2**		
	Total	**75**	**4**	**3**

Source: EU (2011)[1], processed by LEI

The above table shows the total production volume from aquaculture and fisheries in Bangladesh. Both aquaculture and fishery production grew rapidly and total production increased from 1.6m tonnes in 2000 to more than 3m tonnes in 2010. Between 2000 and 2010 aquaculture production increased by 100% while capture fisheries increased by 60%. Although there is no single explanation for the increase in production, it may be partly explained by the government emphasis on the importance of developing the fisheries sector to increase the supply of animal protein to its population.

- **Total fisheries production, 2000-2010 (1,000 tonnes)**

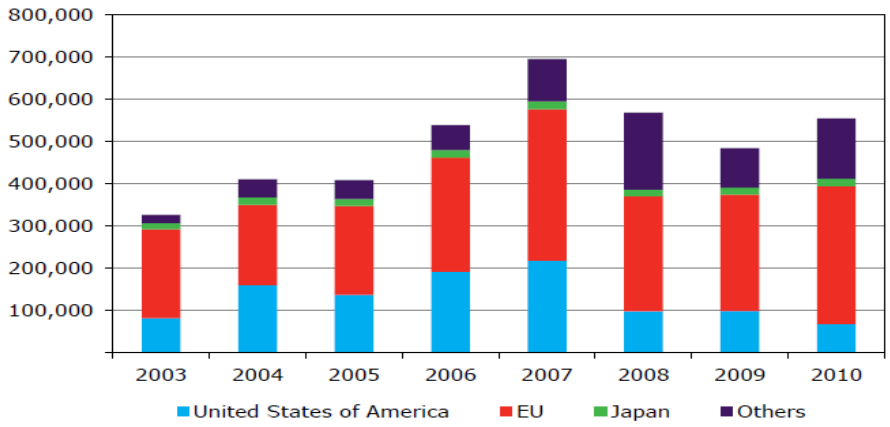


Source: FAO FIGIS (2012), processed by LEI

It shows the total export value of fishery products from Bangladesh. It increased from USD300m in 2003 to more than USD540m in 2010. The most important market for fishery products is the EU. While the share of the EU has increased, the share of the US has decreased drastically since 2004. This is mainly due to a reduction in shrimp exports to the US market Shrimp accounts for 80% of the total export value. Frozen and fresh fish account for 10%, while the remainder is accounted for by other products such

as bivalves, squid and cuttlefish. Important to note is that currently all seafood exports receive a 10% export subsidy from the Bangladesh government. This has a large positive impact on the competitiveness of Bangladeshi seafood products.

- **Export value of fishery products from Bangladesh by destination, 2003-2010 (USD1,000)**

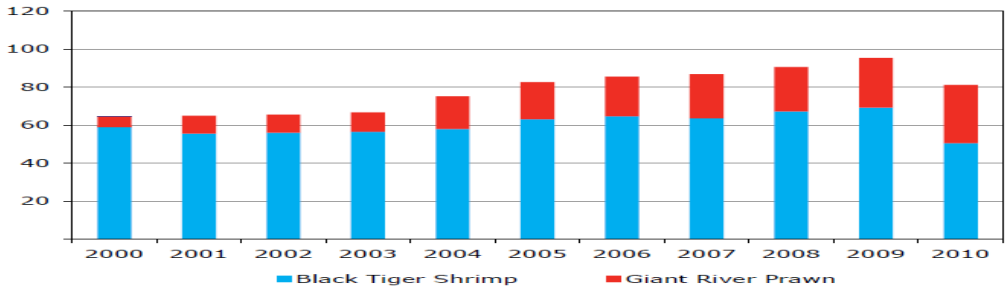


Source: ITC (2012), processed by LEI

SHRIMP EXPORTS:

Data show that the total production was 88,000 tonnes in 2010. Over 40 different species of shrimp are captured, of which only two are regularly exported: Indian White shrimp (Penaeus indicus) and Speckled shrimp (Metapenaeus Monoceros). The others are mostly consumed domestically.

- **Total cultured shrimp production, 2000-2010 (1,000 tonnes)**



Source: FAO FIGIS (2012), processed by LEI

As a comparison, production in India - where culture systems are more intensive - is on average three tonnes per hectare. The production volume of captured shrimp is expected to decline as a result of decreasing catches in the rivers and the Bay.

- **Shrimp production per region in 2010 (tonnes)**

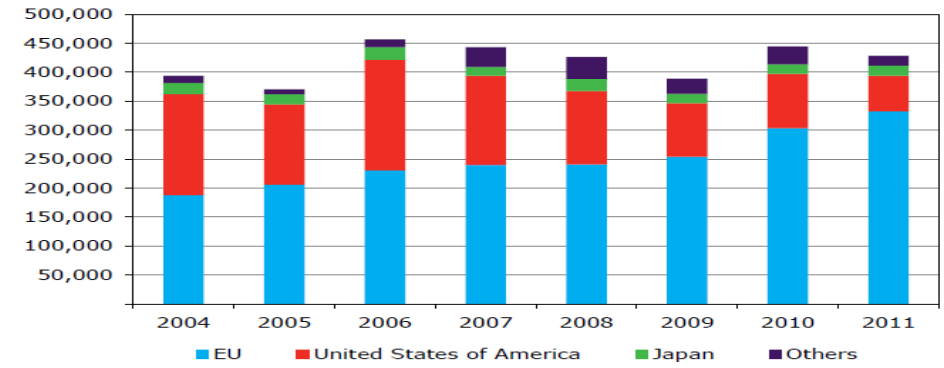
Table 2.2 Shrimp production per region in 2010 (tonnes)

Division	Cultured		Captured	Share of total production (%)	Total (tonnes)
	Black Tiger	Giant River Prawn			
Barisal	858	3,283	1,511	3	5,653
Chittagong	17,259	122	15,607	18	32,989
Dhaka	0	1,270	341	0	1,611
Khulna	38,451	35,165	71,020	78	144,636
Rajshahi	0	10	5	0	15
Rangpur	0	12	12	0	24
Sylhet	0	4	2	0	6
Total	**56,569**	**39,867**	**88,501**	**100**	**184,938**

Source: Department of Fisheries (2012)[1]

The total value of shrimp exports from Bangladesh increased from USD370m in 2004 to USD423m in 2011. The EU share increased from less than 50% in 2004 to more than 75% in 2011. The US share decreased from almost 50% in 2004 to less than 20% in 2011. The main reason for this shift in export markets from the US to the EU is that since 2004 Bangladesh has been confronted with anti-dumping duties in the US which made Bangladeshi shrimp less competitive in that market.

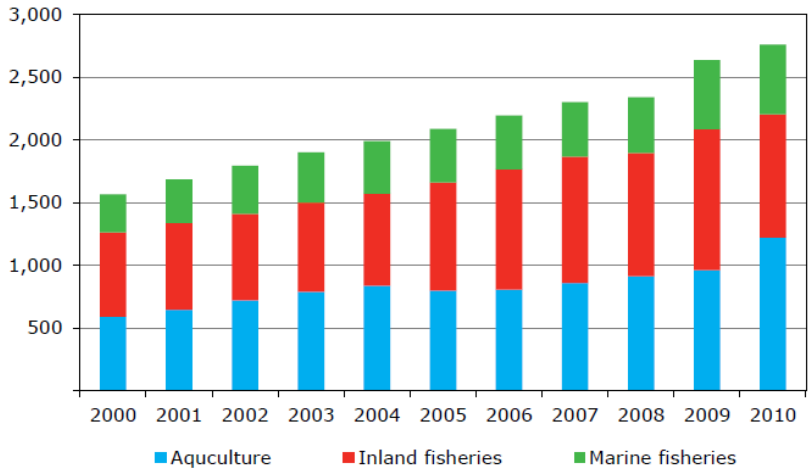
- **Value of shrimp exports by destination (USD1, 000)**



Source: ITC (2012) processed by LEI

FROZEN FISH EXPORTS:

- **Total fish production by type of activity, 2000-2010 (1,000 tonnes)**



- **Cultured fish production in Bangladeshi divisions in 2010 (tonnes)**

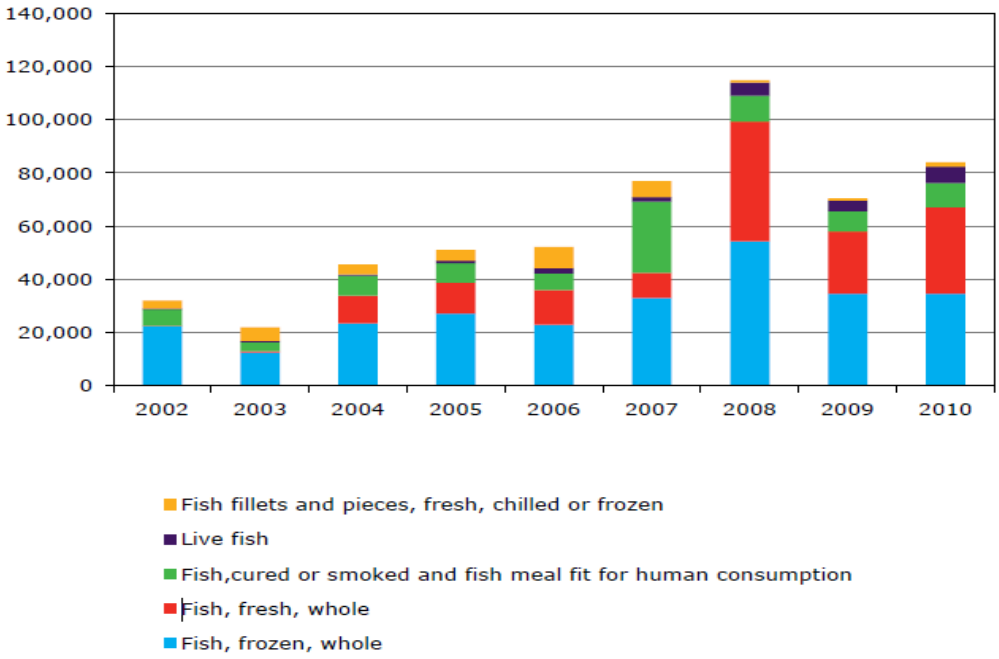
Province	Total production	Share of total production (%)	Area under cultivation (ha)
Barishal	67,629	6	33,318
Chittagong	222,747	18	67,658
Dhaka	419,978	34	97,075
Khulna	144,914	12	48,458
Rajshahi	232,053	19	64,435
Rangpur	78,788	7	29,980
Sylhet	53,627	4	30,385
Total	**1,219,736**	**100**	**371,309**

Source: Department of Fisheries (2011)[1]

The fish species that were exported in 2011 are listed in Table. Currently, the largest international demand is for captured fishes that are consumed by the Bangladeshi diaspora around the world and particularly by Bangladeshi consumers in India. Cultured species that do have a high demand in high-end markets in the EU and US such as tilapia and pangasius are currently not able to compete with supply from countries such as China and Vietnam as a result of the poor quality and high price of the product. The

high price is a result of the low productivity of fish ponds and the strong local demand for fish. As a result, farmers and traders often prefer to sell fish at local markets.

- **Value of fish exports by product, 2002-2010 (USD1, 000)**



Source: ITC (2012), processed by LEI

For frozen fish the most important markets are the UK, Saudi Arabia, the US and to some extent Italy and China. For fresh fish the most important markets are India, China, Germany and Oman. According to exporters and sector representatives, the processing categories exported are whole fish (40%), fillets (5%), slices (20%) and deveined headless and tailless (35%). This indicates that Bangladeshi frozen and fresh fish is currently mostly destined for low-value market segments.

MARKET TRENDS AND GROWTH POTENTIAL FOR SELECTED SEAFOOD PRODUCTS

This section elaborates on the market demand and growth potential as well as the value-added potential for each of the selected subsectors.

- ***Shrimp***

Market demand for shrimps in the EU is strong. Demand for shrimp products has increased during the past few years, and despite the financial crisis the EU demand remained strong. In the near future it is expected that competition between different shrimp species (especially between Pacific White and Black Tiger shrimp) will increase. The main result is likely to be that in Western Europe Black Tiger shrimp becomes more of a niche product because it is more expensive than Pacific White shrimp. However, in Southern Europe Black Tiger shrimp will remain a mainstream product because Black Tiger is preferred to Pacific White shrimp for reasons of taste and size. It is also expected that the market for value-added products such as marinated and battered shrimp will increase. This offers opportunities for Bangladeshi exporters that are able to invest in processing machines. The market for captured shrimp is expected to remain stable.

- ***Frozen fish***

Market demand for frozen fish in the EU is high, but competition is strong. Cheap bulk products such as pangasius and tilapia compete with more expensive captured species such as cod and plaice. In the main market segments new products can compete best if the quality, characteristics and price are equal to those of the currently available products. However, there are also market segments in which there is demand for less well-known products, presenting a niche opportunity for innovative frozen fish products. The market for native Bangladesh species, such as Hilsha, in the EU Bangladeshi diaspora is expected to remain stable.

INFLUENCERS AND SUPPORTERS OF THE BANGLADESHI SEAFOOD INDUSTRY

- ***Department of Fisheries (DoF)***

The DoF falls under the Ministry of Livestock and Fisheries and is located in Dhaka. The latest official government policy document for the fisheries sector was published in 1998. However, the Ministry of Fisheries and Livestock published an annual report that gives some insights into the government policy. In the 2010-2011 annual report, the ministry writes that the main objectives for the fisheries sector are:

- To enhance fishery resources and production,
- To alleviate poverty through self-employment,
- To improve the socio-economic position of fishermen,
- To meet the country's huge demand for animal protein,
- And to contribute to foreign exchange.

- ***Export Promotion Bureau (EPB)* 1*, Ministry of Commerce:***

The EPB falls under the ministry of commerce and is entrusted with the responsibility of promoting export from Bangladesh. It is responsible for marketing Bangladeshi products abroad but also for providing the different sectors in Bangladesh with market information. Furthermore, the EPB is responsible for conducting research that aims to identify new market opportunities for Bangladeshi products. Recently the EPB facilitated the participation of seafood exporters in the European Seafood Exhibition by financing a country pavilion.

- ***Fishery Products Business Promotion Councils (FPBPC), Ministry of Commerce:***

The FPBPC falls under the ministry of commerce. It was formed in 2003, and consists of representatives of different parts of the seafood sector. It is not clear to what extent the FPBPC works together with the EPB. It seems, however, that the activities of the

FPBPC are limited to Bangladesh while the activities of the EPB also extend beyond the borders. The prime objective of the FPBPC is to support the sector in achieving competency in the local and global context as well as to help the industry develop capacity in the areas of human resources, product diversification, quality and standards, and acquiring suitable technology. The FPBPC aims to develop fishery products, improve quality through addressing problems associated with compliance by creating a traceability system throughout the value chain, develop human resources and expand the export market.

RESEARCH INSTITUTES

There are many universities and research institutes involved in research pertaining to fisheries and aquaculture. The major players are listed below.

- ***Bangladesh Fisheries Research Institute (BFRI)***

The BFRI is the most important institute for research on fisheries and aquaculture. BFRI is a national research institute that is a part of the Ministry of Fisheries and Livestock. It was founded in 1984 and has its headquarters in Mymensing. Regional offices are located across all the main fishery and aquaculture provinces in the country. BFRI conducts research and provides training programmes to improve productivity within the fisheries sector. The research and training mainly focuses on primary production.

- ***Marine Fisheries Academy***

The Ministry of Fisheries and Livestock also founded the Marine Fisheries Academy (MFA). The MFA was established under the Ministry of Fisheries and Livestock for training fishing vessel personnel. The centre is located in Chittagong. The MFA mainly trains crews of marine fishing vessels.

- ***Bangladesh Fisheries Development Cooperation (BFDC)***

The BFDC is also part of the Ministry of Fisheries and Livestock and was established back in 1964. The role of the BFDC is to develop and support the marine fisheries sector. The BFDC builds and maintains various harbours and landing sites and also supports the industry in developing and modernising the fishing fleet. The BFDC is located in Dhaka.

Denim Industry

BANGLADESH DENIM MARKET

Bangladesh is one of the most important centre for denim apparel production and export around the world. In fact, it has come up as **the 3rd most important exporter of denim apparel to US after Mexico and China and second highest to EU after China**. With thousands of small and big garment units in Bangladesh, it is also one of the cheapest production centre for apparel around the world. Also, it is the world's most concentrated cluster of apparel production with most of the units centered in and around the city of Dhaka and some around Chittagaong.

While most of the aforesaid is known, what is not well known is that Bangladesh is also coming up as large textile industry centre . A number of new spinning and weaving mills have come up in the country and these include denim weaving mills also. While Bangladesh has traditionally been a fabric importer, the emergence of these mills is changing the equation for the exporters of fabrics to this country.

DENIM SUPPLIER IN BANGLADESH

At present, 21 domestic denim makers supply 40% of the demand, while the remaining 60 percent is imported.

On an average every factory has a production capacity of six lakh yards per month.

Managing Director of ***Partex Denim Showkat*** Aziz Russell said he is investing another Tk 350 crore to raise the production capacity from 2 million yards per month to 4.5 million yards.

The relaxed RoO have both pros and cons, as the garment manufacturers will get zero duty facility either way under the new GSP rules. "But we have the advantage of lead time now." Russel said.

Syed Mohammad Kamruzzaman, a marketing executive of ***Ha-meem Denim***, said they will start production in the expanded unit of its mauna factory, which has doubled its capacity to 1.7 million yards from 8.5 lakh yards per month.

The company invested Tk 100 crore for the expansion, he said. “we are waiting for government’s permission for new gas connection. We hope to start production from June or July, “ he added.

Obaydul Hoque, an advisor to ***Silver Denim Composite Ltd***, said they are setting up a Tk 300 crore factory to produce 8 lakh yards of denim fabrics per month, and will go for production within a year.

“The relaxation of the GSP rules is an added advantage. But we are predicting better future of denim in Bangladesh due to the China factor. Bangladesh will enjoy the advantage of lead time in the demand driven market,” he said.

Hoque said the demand for Bangladeshi textile product is increasing since China, the largest apparel supplier in the world, is shifting its attention to other industries. Bangladesh is a good place for international buyers for its relatively lower production cost.

InDIGO: International Denim Industry – Growth Opportunities

InDIGO was created with the objective of facilitating professional networking among the industry & professionals, engaged in the fast growing denim industry & rapidly evolving denim wear market in the Asian region.

InDIGO enables all the stakeholders in the entire denim eco-system in coming together for networking, exchange of ideas, sharing of current experiences & vision for the future. Planned to be much more than a buyer-seller meet, InDIGO proposes to be the window to the future of denim industry, by ay of show-casing the best and the latest, fro, the complete denim value chain, from India & abroad.

InDIGO proposes to enhance the visibility of players related to the denim industry, highlight their capabilities, expertise & achievements, and provide an avenue to forge strategic alliances with potential clients or partners in India & overseas.

UNDER THE NEW GSP RULES

Exporter will get zero duty facility even if the product are made from imported fabrics. Previously, the exporters used to get this benefit if only local fabrics were used.

The demand for local denim will rise due to such flexibility in GSP rules. Till now, the garment makers were importing fabrics from China, India, Pakistan and Indonesia, costing at least 45-day lead time, experts said.

If the Bangladesh garment makers get the fabrics from the local market they will not import at higher cost, lead time and freight charges, they added.

LATEST NEWS Of DENIM INDUSTRY BY DENIM CLUB INDIA

India and Bangladesh have much to gain by opening up more trading routes through India's land locked north east.

Airtel, ***Arvind Ltd*** and few other Indian firm are already in Bangladesh , the countries esteem neighbors are keen to show that it has more to offer than just jamdani saris and Hilsa fish.

Besides opening up more road and rail links to India's northeast, accepting each other standard certification and quick testing of goods would also boost trade enormously, say officials.

Around percent of Bangladesh exports to India passes through the Benapole(Bangladesh side) petrapole (India side) check point, though the two countries have several other such Integrated Check Postm(ICP).

There are too much dependence on one trading point; it creates too much pressure and consequently hampers trade. There is need to open up the other ICPs too, a Bangladesh diplomatic source said, declining to be identified.

Bangladesh high commissioner Tariq Ahmed Karim had made an impassioned plea to open up other border trading points, saying, ‘we need to sit down and say, apart from

two ICPs we have a dozen other customs trading post, let's open up the passage of goods . That is where connectivity takes up meaning.

Till connectivity is not opened up, northeast will remain land locked and business will remain peanuts.

Karim had said Bangladesh was eager to export to the northeast its manufactured goods – raging from electronics items like refrigerators, air conditioners, LCD, TVs, etc.

We have more to offer than just Jamdani saris and Hilsa fish.

FUTURE PROSPECTS WITH BANGLADESH DENIM MARKET

India last year removed apparel items from its negative list of trading. The two countries also removed all tariff lines, but he voiced concern over it not being implemented at the ground level.

Indian foreign secretary Rajan Mathai had said India 'would also welcome investment by Bangladesh company in India.

The backward linkage industries would be at risk because the manufacturers will get zero –tariff benefit if they make garment from the fabrics of other countries," Sarker said

Jahangir Karim, a teacher of a fashion and design institute, said now denim jeans for both men and women are in the market,"The denim product match almost all designs now and they are made for all seasons," Karim said.

Jalal Ahemed, vice chairman of export promotion Buereau , said in fiscal 2009-10 Bangladesh exported knitwear worth $4.71 billion and woven garment product worth $2.47 billion to EU. During the same period the country exported knitwear worth $891 million and woven garments worth $2.73 billion to the US.

We are expecting a higher growth of both knitwear and woven garment to EU from now because of the latest EU move on GSP," Ahmed said.

In September last year, Nitol group signed an agreement with Arvind, the largest denim company in India, to set up an 80:20 joint venture plant in Bangladesh under Comilla Export processing zone.

The investment will be about $69 million over a period of three years. In the first phase , a plant of 10 million meter capacity will be setup at about $25 million and then it will be scaled up gradually.

Foreign investment is coming in the denim sector because the country has ready consumers and it enjoys the GSP facility to EU.

Bangladesh exports product worth over $6 billion a year to EU, of which 90 percent are garment item.

Executive Director of centre for policy Dialogue (CPD) mustafizur Rahman said the peaking demand should depend on competition." If we can supply denim at a competitive price then the demand will increase obviously, " he said.

STRONG COMPETITORS IN DENIM MARKET

Winner International

Fashion Sourcing Bd

Akash Tex Trade

Dhaka Clothing Ltd.

Ripon Group Of Company

Pensive Sourcing Int.

Tex Associates

Ahana Fashion Ltd

Elora International

Dapple Design Ltd

Upright Textile Supports

Maah-Noor International

Powertex Fashions Ltd

Thikana Trading Ltd

Craft And Fashion

Topstyle (Bd).

Fashion Tex Ltd.

Sikder Buying Ltd

Expo Bangla

COMPARING COST OF BANGLADESH & U.S.

DENIM MANUFACTURING PROCESS

Yarn Manufacturing

The initial stage of denim production is Opening and Blending. Opening begins with baled cotton fibre being separated into small tufts. A blend of cotton fibres is made on each opening line. These bales are selected using USDA High Volume Instrument (HVI) data, and PCCA's unique computer blending software produces optimal yarn strength.

Cotton is delivered by air suction from the Opening and Blending lines, through additional cleaning and blending machines, to the Cards. The major functions of Carding are to remove foreign matter and short fibres, form the cotton into a web and convert the web into a rope-like form known as a sliver.

The drawing process produces a single, uniform sliver from six card slivers. The additional blending, paralleling of fibres and cleaning in this process produces a sliver for Open End and Ring Spinning. For Ring Spinning, however, the sliver must pass through an additional process called Roving.

Cotton Fibres are formed into a yarn by centrifugal action in Open- End Spinning. Individual fibres are laid down in the groove of a fast spinning rotor and twisted into yarn. After the cotton fibres are spun into yarn, the yarn is wound into a large package.

Knitwear Industry

BANGLADESH KNITWEAR INDUSTRY

INTRODUCTION

For some low-income countries, exports of labour-intensive manufactured goods have held out the promise of economic growth and poverty reduction. During the last two and a half decades, Bangladesh has succeeded. In developing an export-oriented garment industry, facilitated by the multi-fiber Arrangement (MFA) that came into effect in 1973. Because exports of garments account for nearly three quarters of the total export earnings of Bangladesh, there have been serious concerns over whether the industry would survive the post-MFA onslaught of Competition. Further, the sector accounts for the employment of two million unskilled and semi-skilled workers. Most of them are female and have migrated to urban areas from the countryside. Fortunately, the industry seems to have withstood the challenges that have confronted it, and has performed well, with double-digit growth in exports of Garments to the United States since the phasing out of the MFA in 2005. The industry's contribution to exports and the abundant employment Opportunities for female workers without high educational backgrounds have been studied intensively.

Initially, Bangladesh developed woven garments on the basis of an upstream Process that involved spinning and weaving. Production of knitwear for exports started much later but then grew rapidly. Besides sweaters and socks, the major output of the Knitwear industry involves two processes, namely the knitting of fabric and the making of knitwear using the fabric thus knitted. Production of knit fabric in Bangladesh Expanded rapidly following the introduction in 1995 of the European Union's (EU) Stricter rules of origin (ROO) that requires greater backward linkage to meet the terms of its generalized system of preferences (GSP) facility.

SOME FEATURES OF THE KNITWEAR INDUSTRY IN BANGLADESH

The knitwear industry of Bangladesh is characterized by several distinct Features. Most of the manufacturers are located in the principal centers of knitwear Production in Chittagong, and in suburban Dhaka, Gazipur, and Narayanganj districts outside the export processing zones (EPZS). Thus, most of these enterprises are outside the “enclave” environments provided for EPZ enterprises in Bangladesh. In the Ready-made garments sector, the knitwear firms tend to be of recent origin.

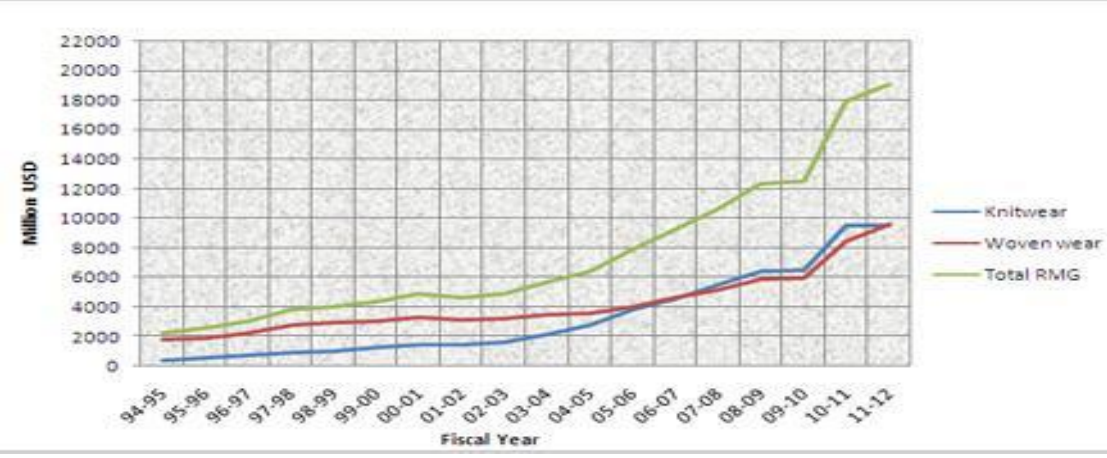
The knitwear firms employ female operators and helpers who work under the Supervision of male managers, most observers agree that the ready-made garment Industry is the first formal industry in Bangladesh to provide abundant employment Opportunities for female and young workers. In terms of the size of the employment that they provide, the knitwear and the woven garment industry have obviously contributed to Poverty reduction in Bangladesh.

Knitwear products such as t-shirts, polo shirts, knit underwear, and knit Trousers are made in two processes, namely knitting fabrics from yarn, and making Garments from knit fabrics. The standard method for knitting fabrics is to run a circular Knitting machine loaded with yarn to produce fabrics, while the standard method for making garments from fabrics is to use an assembly line of sewing machines and Operators. In addition, other types of knitwear, such as sweaters and socks, are made with different machines and different methods of production.

HISTORY OF DEVELOPMENT OF KNITWEAR OF BANGLADESH

The RMG business in Bangladesh started in the late 70s with merely a casual & cursory effort. The first consignment of knitwear export was made in 1973 while the first shipment of woven was made in 1977. In 1981-82 the contribution of woven garments to total exports was about 1.10% whereas the agro-based the then economy received much of her foreign earnings from Jute & Jute products famously known as the Golden Fiber. But with the passage of time from agrarian to manufacturing transformation Bangladesh developed significantly in areas of poverty alleviation, employment, women empowerment, industrial growth and economic diversification - thanks solely to labor intensive RMG sector. Since 2004 the growth of Bangladesh knitwear has escalated rapidly as statistically supported export volume adduces adequate proof to it despite its somewhat cluttered and shoddy start with absence of rudimentary plans and evolutionary industrial mechanism. In fact, from fiscal year 2007-08 Bangladesh knitwear continues to capture lion's share in national exports (39.06% in FY 2011-12) what was slightly 7.64% in the two decades back, thereby slanting the economy towards knit garments.

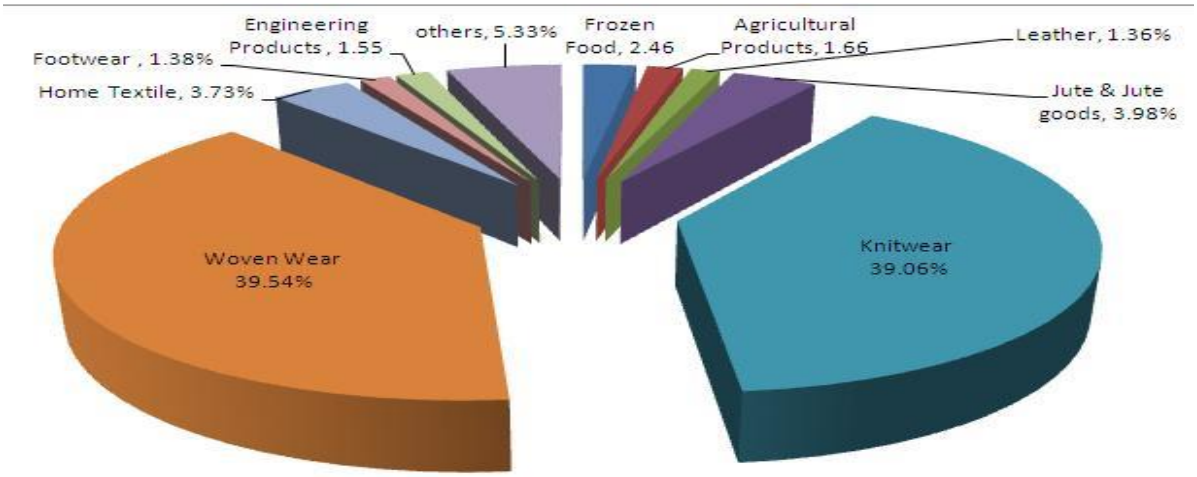
- **Export Trend of Bangladesh RMG Sector**



The central history of this tremendous development could be attributed to entrepreneurial expertise who aptly applied their gleaned knowledge to adopt technological modifications in the mechanical and management principles to the overall factory supervision methods. Supported with strong backward linkage and Generalized Systems of Preference (GSP) benefit, Bangladesh has showed remarkable agility over time for a prosperous future eschewing the hiccups in areas of overall management and infrastructures in this industry.

At present, the apparel sector continues adding fresh ideas and modules like business intelligence, state-of-the art technology, modern management practices and production technique. These are indeed the manifestations of the relentless efforts to the global standards what was once considered unparallel to emulate techno-based advance economies.

- **Bangladesh Exports by Major Products in FY 2011-12**



Over the decades the growth of knitwear sector has been incessant rising over 20%. This recent robust growth is partly achieved owing to preferential support from the European Commission's GSP & Relaxation of Rules of Origin (ROO) and the Duty Free Quota Free (DFQF) access granted by Canada, Australia, Japan and members of European Free Trade Agreement (EFTA). Along this growth momentum favorable

policies from the government of Bangladesh in the form of export subsidies i.e. cash incentives also contributed greatly for making it the most attractive sourcing hub.

- **Statistics of Bangladesh Apparel Export Value in US$ million; Quantity in million dozen)**

	Knitwear		
Fiscal Year	Value	Quantity	% Share of value in BD Export
94-95	393.26	15.30	11.32
95-96	598.32	23.18	15.41
96-97	763.30	27.54	17.28
97-98	940.31	32.60	18.22
98-99	1035.36	36.66	19.49
99-00	1269.83	45.27	22.08
00-01	1496.23	52.54	23.14
01-02	1459.24	63.39	24.38
02-03	1653.83	69.18	25.26
03-04	2148.02	91.60	28.25
04-05	2819.47	120.13	32.58
05-06	3816.98	165.02	36.26
06-07	4553.60	199.54	37.39
07-08	5532.52	241.60	39.21
08-09	6429.00	290.92	41.30
09-10	6483.29	292.70	40.01
10-11	9482.06	441.03	41.36
11-12	9486.39	441.23	39.06

Source: Export Promotion Bureau

SCOPES OF KNITWEAR INDUSTRY IN BANGLADESH

With the advancement of the knitting technology, the use of knitted fabrics is expanding rapidly all over the world. The Knitwear sector and its markets are constantly evolving worldwide. This segment of the garment industry has experienced many changes in recent years. With improved technology, the limitations like shrinkage and torque in knitted fabrics or garments have been reduced to a great extent and this has opened more opportunities.

Many global players are eyeing the Bangladeshi Market with great interest as one of leading markets in the Post Quota Scenario. The Knitwear Exporters from all over Bangladesh have already been equipped with making new designs and collections which complements with the current fashion trend and to meet with International Buyers' requirements. Dhaka is one of the Bangladeshi cities that took advantage of globalization and economic reforms, along with export-led growth. The export of knitwear products from Dhaka is always on the rise every year and the industry continues to show rapid growth.

SOME SCOPES OF THIS INDUSTRY ARE AS FOLLOWS:

- Knitwear is a near self-sufficient sector in all respect; currently Bangladeshi Knitwear manufacturing companies are supplying 90% of the knit fabric requirements of the sector.
- Local yarn suppliers provide around 75% of the total requirement of the sector.
- We have more than 100 composite factories; besides the composite units many garments have their own dyeing and finishing units. A separate dyeing and finishing industry also has grown up over the time to support the sector.
- Good capacity exists in the sector.
- Bangladeshi knitwear is almost unbeatable in price advantages.
- Bangladesh provides not only a cheap labor force which is unbeatable but they are also unparallel in stitching capability.
- Employment rate in lower middle class increased

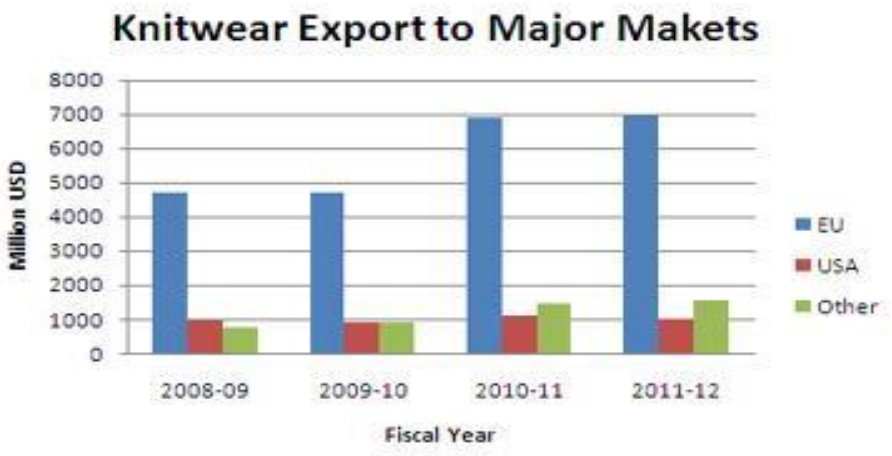
- Number of fashion houses are increasing day by day that has good quality of knitwear goods
- Bangladesh is taking part in various fashion events which is giving new identity to the Bangladeshi knitwear goods.
- Bangladeshi Knitwear is exported to 90 countries of the world.

NEW DEVELOPMENT IN KNITWEAR:

- Some new developments are added for increasing better scopes in knitwear industry, the initiatives are
- A new software is developed for cost calculation, production costing, accounting costing in knitwear industry.
- This software is also used to calculate unit cost of goods in which material cost, labor cost, overhead cost etc.
- Aggressive programs are taken for developing the working environment of the industry such as more incentives in fulfilling the target, incentive for sound behavior in the organization etc.
- Organizing new training programs for marketing, maintenance, managing.
- Various programs are held for developing entrepreneurial qualities in the industry holders to run the industry very sound.
- Developed system in sea port such as internal working system, toll system to run the shipment very safely than the previous period.

KNITWEAR EXPORTS TO MAJOR MARKETS

Traditionally, the exports basket of Bangladesh has been leaning towards EU and the USA. So far the EU is the largest destination for Bangladesh knitwear, worth of value $6.9 billion with share of 73.03% exported in the year 2011-12 followed by the USA with $1.10 billion and a share of 10.69%. The one-stage transformation requirement of ROO in 2011 boosted signs for market penetration in the EU further; hence a growth of 46.63% in the FY 2010-11 over 2009-10 was remarkably noticeable.



CAPACITY AND ACTUAL PRODUCTION OF KNITWEAR FIRMS

Bangladesh's entry into the "modern" textile trade is relatively new, but textile entrepreneurs have been able to quickly adapt to the nature of demands. The knitwear sector in Bangladesh is generating large efficiencies through operating as groups of spinning, fabric knitting, dyeing, finishing. In other words, knitwear firms are effectively operating as conglomerates, there by reaping many of the efficiencies of vertical integration in a sector where individual capital shares and firm size remain relatively small.

SOURCES OF FINANCE

Retained earnings are the single most source of financing for the knitwear firms. During FY 08 about 71.46% of the total finance (about Tk.195 million) originated from retained earnings or internal source. On average large firms retained Tk.35 million in FY 08. The rest were generated from other sources including bank loans and overdraft facilities. Only 3.08% of total fund was for used for new investment by the large firms in FY 08. Medium firms source about Tk.100 million a year and, bank loans are the prime sources of finance for medium firms which contribute to 49.26% of funds. Suppliers' credit constituted 4.92% of funds and only 1.47% originates from family and friends; all of the funds were used for working capital and only 0.49% was used for new investment in FY 08. Small firms sourced Tk.20 million in FY 08; about 41% of total fund originated from retained earnings and 40% from banks and financial institutions. The rest originate from suppliers credit (15%) and family and friends (4%). Most of the funds sourced were used for working capital and only 5% was used for new investment in FY 08. Global recession might be one of the reasons for reluctance of the entrepreneurs towards new investment.

COMPETITIVENESS AND EFFICIENCY PERCEIVED BY FIRMS

Most of the large firms consider themselves as more competitive than their competitors. About three-fourth revealed this opinion and another two-thirds consider themselves as equally efficient as their next large firms. About 60% medium firms think that they are more efficient in intra-market segment competition and the rest consider them as equally efficient. The perception is quite different among small firms; only 30% firms think that they are equally efficient with their market competitors and the majority of the rest think that they are less efficient than their next large competitors. Perception of large and medium firms indicates that majority of these firms spend time and resources for innovative activities to gain cutting edge competition. They often do so without specific financial and managerial resources. Thus, they tend to undertake a significant amount of innovative activities in their design, production and sales departments rather than in form of R&D expenditure which often do not exist at all.

RISE AND FALL AND RISE …OF THE KNITWEAR MANUFACTURING FIRMS IN BANGLADESH

Knitwear manufacturing firms in Narayanganj comprises of small and medium size units operating with limited capital and low capacity. These firms depend entirely on regular turnover for generation of resources. Three factors were found responsible for their emergence and development: (a) pull factors (good prospect, ever increasing demand, etc.), (b) push factors (previous experience, family business, etc.) and (c) distress factors (low capital or skill required, etc.). According to the push factors many of the employees previously working in such units start new firms of their own after acquiring some training and experience. Such a step provides them with marginally higher income (from wages and profits) compared to the low wage paid by their ex-employers; about three-fourth of the firms initiated business due to push factors. But at mature stage many firms fall behind due to distress factors with low capital per units. Many of these firms report to suffer from both resource and marketing problems. At the opposite end, the relatively better off units are those that are enjoying higher capital and returns per capital. Recently established firms came into being due to pull factors. Both composition and growth pattern of the knitwear industry have shown tremendous heterogeneity. There are segments of firms with linkage to the organized sector; fortunes of these types of firms vary with the whole industrial sector in the country. In contrast, there are segments that grow when the organized sector is slackening as people without alternative employment opportunities get deposited therein. While certain segments of them cater to the industrial demand for intermediaries, some others fulfill the demand of the final consumers. This heterogeneity is not only across size class of the units but across product groups also. As a result, their growth is influenced by diverse economic processes.

REQUIREMENT OF KNITWEAR GARMENTS IN BD & WORLD

According to statistics of the Bangladesh Knitwear Manufacturers and Exporters Association (BKMEA), Bangladesh exported 7.78 billion pieces of knitted garments in 2010, amounting to Taka 61.9 billion (approximately US$855.0 million) in value. In terms of export volume, Bangladesh became the world's **second largest knitwear exporter**, surpassing Turkey, which exported 7.74 billion pieces in 2010. China remains to be the world's biggest exporter of knitwear in terms of both export volume and value, making up 50% of the world's knitted garments market. Despite viewing Bangladesh as a competitor in the garment market, Turkey is also a significant export market of Bangladeshi apparel, given its fast growing economy. As a result, Turkey has started to step up preventive measures, for instance, it has imposed 27% tariff on garments imported from Bangladesh.

BKMEA is confident about the potential of the country's garment industry. It noted that if the country's apparel export can grow by this year's rate of 40%, it will beat Turkey to be the world's second largest knitwear exporter by value next year.

Bangladesh requires near about 3.15 billion pieces. Of knitwear garments that amounts 21.5 billion taka (approximately 302.5 million US dollars) in value.

GROWTH RATE NOW & IN FUTURE

Until the early 1980s, India and Sri Lanka were the major South Asian suppliers of RMG to USA and Western Europe. After the onset of political problems in Sri Lanka and a consistent anti-export environment in India, Western buyers and Eastern producers became interested in trying their luck in Bangladesh, which was able to respond quickly. The industry demonstrated spectacular growth since the 1980s. In 1983 only 21 units were registered with the Bangladesh Garment Manufacturers and Exporters Association (BGMEA), which generated sales of only about US$10 million. The volume of export was exciting throughout the 2000 and was $1,201 million in 2002-04, $2,608 million in 2005-06 and $4,149 million in 2007-08. In FY 2007-08, the share of RMG in total

exports earnings was 73 percent (World Bank 2009). Bangladeshis own more than 95 percent of the garment factories. The industry directly employs 1.5 million people (majority of who are female) and it is estimated that another 10-15 million benefit indirectly. There are 15 companies/groups, which are the major holders of quotas and are capable of producing in excess of 10,000 doz. of garment per month with fabric outsourcing capabilities. Around 500 companies producing between 5,000 to 10,000 doz. per month work mainly for importers and agents and produce about half their work on Cost of Manufacture (CM) basis and half on FOB basis. Some 1500 units, producing up to 5,000 dozen per month, work mainly on sub-contracting basis. The remaining 200 companies are classified as sick usually as a result of financial problems. The exports of Bangladesh are highly concentrated in two major markets: EU and USA. In 1998-99, Bangladesh exported 52.4 percent of its RMG to EU. In 2008-09, Germany was the main buyer (14.5%) followed by UK (10%), France (8%), Netherlands (5.4%) and Italy (5.3%). During the same year, Bangladesh exported 43.2% of its exports to USA, while to Canada it was only 2.3 percent .The high concentration in a few markets is risky; consequently Bangladeshi RMG must diversify into different markets. This is measured by the specialists that if there is no problem in the operations of the knitwear industry then the exports are supposed to be than now that is if the sector grew with vengeance and the country currently exports over US$11 billion in textiles and garments, with a projected target of US$24 billion dollars by 2020.

STRENGTH OF KNITWEAR SECTOR OF BANGLADESH

- Competitive wage rate together with easily trainable workforce, entrepreneurial skill, expanding supply side capacity, and government policy support helped to translate the comparative advantages into competitive advantages.
- The core strength of the knitwear sector is its backward linkage. The entrepreneurs of the sector not only increased their stitching capacity overtime but also invested in the allied industry to augment the overall capacity of the total sector with the same pace. Over the period of time knitwear sector gradually became almost self sufficient in fabric and yarn. This improvement has become possible because of the integrated growth of spinning factories in line of the growth of country's stitching capacity and increased need of the yarn and fabric.
- As the export increased in the knitwear sector, the capacity of backward linkage also increased accordingly. The result is local suppliers can provide now 95% of the total fabric requirement of the sector. The growth of spinning mills also stepped with the growth of knitwear exports. In 2010-11 total number of Yarn Manufacturing Member Mills was 383, whereas Fabric Manufacturer Member Mills was 743. As of now the total investment in the backward linkage in knitting, dyeing and spinning industry is more than US$ 5.03 billion or € 4.00 billion.
- Knitwear is the highest contributor in terms of both gross and net export earnings. In 2010-11, the contribution of knitwear in national export earnings is 41.36%. This has resulted because of the backward linkage industry that has grown over time which helped the knitwear sector to have the higher value addition and therefore a much higher net retention rate. In addition to, relaxation of Rules of Origin (ROO) has accelerated the export growth.
- Knitwear garments from Bangladesh have gained remarkable access to the EU market during the period 1996-2005 because mix of RMG products exported from Bangladesh to the EU changed significantly. The top five product groups contributed to 76% of the total garment export earnings of Bangladesh from the EU in 1996, and that share increased to 82% in 2005. The share of shirts in total

garment exports from Bangladesh to the EU has decreased, whereas the shares for overcoats, jackets, sweaters, suits and some other knitwear products have increased in recent years. These changes demonstrate that Bangladesh is achieving some level of product diversification in exporting garment products to the EU. In addition, a gender analysis of products indicates that Bangladesh has achieved some upgrading of its products recently in terms of exporting garment products to the EU.

- Garments for females are treated as upgraded products compared with garments for males, since they add more value. The earnings of Bangladesh from the export of garments for females to the EU have increased during the period 1996-2005.

WEAKNESS OF KNITWEAR SECTOR OF BANGLADESH

- **Cotton issues:** The industry faces a demand and supply gap of cotton. Moreover, contamination of cotton results in its low quality.
- **Industry Issues:** The low labor productivity, along with high-energy cost and subsequent high input costs are serious weaknesses of the industry. Moreover, lack of research & development has made the industry uncompetitive. Besides the poor infrastructure of the industrial sectors and the high utility expenses are also obstacles to proper growth. There is also a lack of some coordination and synergy between the public and private sector.
- There is no pursuance of sub-regional clustering with neighboring countries like India, Pakistan, and Sri Lanka. A number of Bangladeshi entrepreneurs operate their clothing manufacturing units in the Gulf countries, Morocco, Jordan and South America, relying on supplies of materials and labor from Bangladesh and other countries of the region. This could be seen as of cross-border cooperation in the manufacture of textiles and clothing. Pakistan has concluded a Free Trade Agreement with Sri Lanka.

- **Lack of business-to-business partnerships:** There are virtually no alliances in terms of business-to-business partnerships but there are important linkages between the textile mills and the value-added textiles through the Textile Associations.
- **Low value added capability:** Garments and apparels is Bangladesh's weakest sector. Appropriate measures need to be taken in this sector to meet global trade challenges. This essentially requires enhancing value added capability of this sub-sector.
- **Narrow product and market base:** Unlike other countries Bangladesh has failed to diversify its exports and still a major chunk of exports depends on cotton production and associated textile industry. Such a high degree of concentration of exports in a few items is a major source of instability in export earnings. A poor cotton crop would thus seriously affect total export proceeds, as has been the case in the past.
- **Lack of improvement in the blended sector:** There is an urgent need to bring improvement in the textile production, especially in blended sector. Blended products made from a combination of natural and man-made fabrics, are preferred in clothing the world over. Moreover, as the global production and consumption trends show, the manmade fibers (MMF) are taking the lead. It is a high time that Bangladesh begins focusing on the MMF rather than relying too much on cotton.

ADVANTAGES OF BANGLADESHI KNITWEAR SECTOR

- Knitwear is a near self-sufficient sector in all respect; currently BKMEA members are supplying 90% of the knit fabric requirements of the sector.
- Local yarn suppliers provide around 75% of the total requirement of the sector.
- More than 261 composite factories; besides the composite units many garments have their own dyeing and finishing units. A separate dyeing and finishing industry also has grown up over the time to support the sector.
- Bangladeshi Knitwear is exported to 93 countries of the world. But the EU and the USA are the major importer.
- Capacity is increasing at a good rate to cope with the future demand of this sector.
- Bangladesh provides labor forces unparallel in stitching capability and skill at our level.

CONTRIBUTION OF THE KNITWEAR IN BANGLADESH

The RMG sector of Bangladesh contributed a lot in terms of employment generation, involving women in the formal sector, increased substantial export earnings etc. One significant aspect of the RMG's contribution is in human development aspect. The sector has been contributing a lot in the following areas:

- Women empowerment
- Reduce Child Labor
- Gender equality
- Improved health & nutrition
- Reduced child marriage

KNITWEAR TO OVERTAKE WOVEN INDUSTRY:

Increase in the use of domestic inputs has initiated the growth of knitwear industry. On the contrary, due to inadequate quantity of woven cloth manufactured domestically, woven manufacturers have to depend on imports. Due to this, knitwear industry has overtaken the woven sector, their export figures for 2007/08 being more than that of the woven sector. Domestically manufactured inputs like yarn curtails the lead time and makes the products more appealing to the international buyers.

The overall garment and clothing industry in Bangladesh is going through unprecedented expansion, with a year-on-year 20% growth rate. Knitwear remains the highest contributor to the exports of the country. Along with all the available resources, weak dollar value, aggressive marketing, and supportive political environment also aid for the growth of the knitwear segment.

OVERVIEW OF KNITWEAR INDUSTRY IN INDIA

In India the knitwear industry after struggling for many years is according to many experts preparing to take off. The industry could become another lucrative outlet for the fashion industry of India. It is not surprising that the knitwear industry is gaining prominence in India as India has a history of a rich industry for textiles and fashion. Today there are over 30 knitwear companies of significance in India. These companies produce garments that meet international standards through their own work as well as through assistance provided by the International Wool Secretariat.

THE WOOL

The garment industry utilizes two types of wool for the most part. In India wool is imported from Australia or New Zealand to be used in the use of garments. Local wool is also used; however, this wool is much more coarse and unlikely to be used in garments. Australian or imported wool is used in the creation of shawls and garments while Indian wool is used for non-apparel items like carpets, upholstery, and blankets. The most common knitwear garment in India is the shawl. In India nearly 100 different

varieties of wool are produced and it is not uncommon for these varieties to be blended with imported wool. Merino is the most commonly used variety of wool that is produced locally in India. It is also of note that before any of the wool can be used it must first be prepared through different steps such as removing grease.

Not only are there different types of wool to be used in knitwear garments but a variety of colors are also available. Due to the fact that knitwear is produced in a variety of colors like other clothing styles there is opportunity for it to fade into and out of style. The most common knitted garments are shawls and scarves. In India it has also been considered to blend cotton and wool to make knitwear garments more affordable.

THE MARKET

Today there is a global market for hand knitwear products; however, most of this international market remains untapped by India. India is not currently a large exporter of knitwear garments; rather the country focuses on its domestic market. India has great potential to expand into the global knitwear market as its products are competitive particularly from a price standpoint. As time continues to progress India is continuing to learn to keep up with and compete with the international market. The domestic market for knitwear items is particularly strong in the local regions of Northern India due to the weather that is experienced there. Items are often purchased locally at markets or handmade at home while the international market relies on online purchases.

POSITION OF THE KNITWEAR INDUSTRY OF BANGLADESH WITHIN 2020

China remains to be the world's biggest exporter of knitwear in terms of both export volume and value, making up 50% of the world's knitted garments market. In terms of export volume, Bangladesh became the world's second largest knitwear exporter, surpassing Turkey, which exported 7.74 billion pieces in 2010. However, the sector grew with vengeance and the country currently exports over US$11 billion in textiles and garments, with a projected target of US$24 billion dollars by 2020.

FINDINGS

- The workers remain unsatisfied by the payment policy of the company where the incentives & bonuses are not paid properly which creates harassing situation inside and outside the industry.
- Exporters of Bangladesh also have limited access to current market intelligence and international trade information because, so far, foreign buying houses have been dominating the marketing part of the business.
- The seaport has serious problem with its management system for which corruption is occurring in every steps such as in container handling charge, shipment process of exporting goods where large amount of bribe is required, frequent stoppage at work by the service providers there, excess unionism of dock labor, direct involvement of powerful local politicians etc. which is hampering the economy of the country because it is considered as the economic lifeline.
- Lack of enough contribution by Government for garments management system, which results unfairness to them and they, start fighting for getting their legal rights, which falls under labor law of Bangladesh, & this creates a negative image to the countries who import from Bangladesh.
- Sometime political instability occurs which hampers the working process of the garment industries, which is recognized as a big problem.

RECOMMENDATION

- Minimize the dependency for raw materials on others & also the outsourcing of raw materials.
- The individuals should be highly trained on productivity level so that may not fall under low productivity.
- Every industry should have a developed infrastructure where all modern working facilities should be available so that the workers would get a sound working environment & properly concentrate on work.
- The workers should get their salaries and other incentives in time & the festival bonus that is their right so they will never create any harassing situation to the industry holders and stop working.
- Exporters should have wide knowledge about current market intelligence and international trade information to meet the importers expectation.
- The management of the seaport should have changes in their working system by removing all type of corruptions.
- The carrier charge of the containers in seaport must be less then other neighbor countries.
- Excess unionism of the workers in the seaport should be minimized by having negotiation with their union leaders.
- The port area should be kept free from the direct involvement of politicians and also collective bargaining agents.
- All type of political instability should be acute by taking strong initiatives by the ruling government otherwise it will be a chance for the rival countries and cause economic disaster to us.

CONCLUSION

The focus of this study was to give a bird's eye view of the comparative look of the knitwear manufacturing sector of Bangladesh. Based on the secondary data, documents as well as observational field survey the following remarks may be made.

- The knitwear sector is one the important foreign exchange earners of the country and safe depository of the vast pool of rural unskilled workers for easy, albeit low-paid, employment.
- Certain size groups of the knitwear sector are continually handicapped due to adequate fund for working capital. Resource availability to these units has also to be facilitated. The large firms have so far been the main beneficiary of institutional credit. Time has come to redirect funds towards the medium and smaller ones, which promise better return on investment. This assistance will roughly ensure the optimal utilization of the country's scarce capital. The medium and smaller firms warrant urgent assistance because of their rapid growths between the initial and milestone years. Besides, easy access of finance will encourage many hitherto employed personnel to venture to establish a firm of their own.
- It was evident that technical inefficiency in knitwear sector decreasing in Bangladesh. While this is true of most of the manufacturing industries, knitwear sector warrants extra consideration because of its contribution to the foreign exchange earnings and employment.
- A closer analysis of this growth pattern, performance, problems, and prospects of the knitwear sector is necessary if one has to evolve a policy regime that is beneficial for their optimal development. In this context, region specific planning can play a much better role than centralized one as much of the growth dynamics of knitwear sector is guided by local rather than global characteristics.

Fake Leather Industry

FAKE LEATHER INDUSTRY

LEATHER

“Leather is a durable and flexible material created by the tanning of animal rawhide and skin, often cattle hide. It can be produced through manufacturing processes ranging from cottage industry to heavy industry.”

FORMS

Several **TANNING PROCESSES** transform hides and skins into leather:

1. **Vegetable-tanned leather:**

Vegetable-tanned leather is tanned using tannin and other ingredients found in vegetable matter, such as tree bark prepared in bark mills, and other similar sources. It is supple and brown in color, with the exact shade depending on the mix of chemicals and the color of the skin. It is the only form of leather suitable for use in leather carving or stamping. Vegetable-tanned leather is not stable in water; it tends to discolor, so if left to soak and then dry it will shrink and become less supple, and harder. In hot water, it will shrink drastically and partly gelatinize, becoming rigid and eventually brittle. Boiled leather is an example of this, where the leather has been hardened by being immersed in hot water, or in boiled wax or similar substances. Historically, it was occasionally used as armor after hardening, and it has also been used for book binding.

2. **Chrome-tanned leather:**

it invented in 1858, is tanned using chromium sulfate and other salts of chromium. It is more supple and pliable than vegetable-tanned leather and does not discolor or lose shape as drastically in water as vegetable-tanned. It is also known as wet-blue for its color derived from the chromium. More esoteric colors are possible using chrome tanning.

3. Aldehyde-tanned leather:

It is tanned using glutaraldehyde or oxazolidine compounds. This is the leather that most tanners refer to as wet-white leather due to its pale cream or white color. It is the main type of "chrome-free" leather, often seen in automobiles and shoes for infants.

Formaldehyde tanning (being phased out due to its danger to workers and the sensitivity of many people to formaldehyde) is another method of aldehyde tanning. Brain-tanned leathers fall into this category and are exceptionally water absorbent.

Brain tanned leathers are made by a labor-intensive process which uses emulsified oils, often those of animal brains. They are known for their exceptional softness and their ability to be washed.

Chamois leather also falls into the category of aldehyde tanning and, like brain tanning, produces a highly water-absorbent leather. Chamois leather is made by using oils (traditionally cod oil) that oxidize easily to produce the aldehydes that tan the leather to make the fabric the color it is.

Rose tanned leather is a variation of vegetable oil tanning and brain tanning, where pure rose otto replaces the vegetable oil and emulsified oils. It has been called the most valuable leather on earth, but this is mostly due to the high cost of rose otto and its labor-intensive tanning process.

4. Synthetic-tanned leather:

It is tanned using aromatic polymers such as the Novolac or Neradol types (syntans, contraction for synthetic tannins). This leather is white in color and was invented when vegetable tannins were in short supply during the Second World War. Melamine and other amino-functional resins fall into this category as well, and they provide the filling that modern leathers often require. Urea-formaldehyde resins were also used in this tanning method until dissatisfaction about the formation of free formaldehyde was realized.

5. Alum-tawed leather:

It is transformed using aluminium salts mixed with a variety of binders and protein sources, such as flour and egg yolk. Alum-tawed leather is technically not tanned, as tannic acid is not used, and the resulting material will revert back to rawhide if soaked in water long enough to remove the alum salts. Very light shades of leather are possible using this process, but the resulting material is not as supple as vegetable-tanned leather.

6. Rawhide:

It is made by scraping the skin thin, soaking it in lime, and then stretching it while it dries. Like alum-tawing, rawhide is not technically "leather"[citation needed], but is usually lumped in with the other forms. Rawhide is stiffer and more brittle than other forms of leather; it's primarily found in uses such as drum heads and parchment where it does not need to flex significantly; it is also cut up into cords for use in lacing or stitching and for making many varieties of dog chews.

Leather—usually vegetable-tanned—can be oiled to improve its water resistance. This supplements the natural oils remaining in the leather itself, which can be washed out through repeated exposure to water. Frequent oiling of leather, with mink oil, neats foot oil, or a similar material keeps it supple and improves its lifespan dramatically.

Leather with the hair still attached is called ***hair-on***

TYPES OF LEATHER :

In general, leather is sold in four forms:

- Full-grain leather refers to hides that have not been sanded, buffed, or snuffed (as opposed to top-grain or corrected leather) to remove imperfections (or natural marks) on the surface of the hide. The grain remains allowing the fiber strength and durability. The grain also has breathability, resulting in less moisture from prolonged contact. Rather than wearing out, it will develop a patina over time. High quality leather furniture and footwear are often made from full-grain leather. Full-grain leathers are typically available in two finish types: aniline and semi-aniline.
- Top-grain leather (the most common type used in high-end leather products) is the second-highest quality. It has had the "split" layer separated away, making it thinner and more pliable than full-grain. Its surface has been sanded and a finish coat added to the surface which results in a colder, plastic feel with less breathability, and it will not develop a natural patina. It is typically less expensive and has greater resistance to stains than full-grain leather, so long as the finish remains unbroken.
- Corrected-grain leather is any leather that has had an artificial grain applied to its surface. The hides used to create corrected leather do not meet the standards for use in creating vegetable-tanned or aniline leather. The imperfections are corrected or sanded off, and an artificial grain impressed into the surface and dressed with stain or dyes. Most corrected-grain leather is used to make pigmented leather as the solid pigment helps hide the corrections or imperfections. Corrected grain leathers can mainly be bought as two finish types: semi-aniline and pigmented.
- Split leather is leather created from the fibrous part of the hide left once the top-grain of the rawhide has been separated from the hide. During the splitting operation, the top-grain and drop split are separated. The drop split can be

further split (thickness allowing) into a middle split and a flesh split. In very thick hides, the middle split can be separated into multiple layers until the thickness prevents further splitting. Split leather then has an artificial layer applied to the surface of the split and is embossed with a leather grain (bycast leather). Splits are also used to create suede. The strongest suedes are usually made from grain splits (that have the grain completely removed) or from the flesh split that has been shaved to the correct thickness. Suede is "fuzzy" on both sides. Manufacturers use a variety of techniques to make suede from full-grain. A reversed suede is a grained leather that has been designed into the leather article with the grain facing away from the visible surface. It is not considered to be a true form of suede.[2]

BACKGROUND OF THE LEATHER SECTOR

Leather sector is an **old manufacturing sub-sector in Bangladesh** with a long heritage of over five decades. This is an agro based bi-product industry integrated with locally available indigenous raw materials (hides and skins) having tremendous potentials foreign export development and sustained growth along a considerably long duration of time length.

Indian vegetable tanned crust was developed by the small leather industry of Indian-subcontinent over a hundred years ago to preserve the hide in the safest way to suit Indian conditions. The leather industry was dominated by vegetable tanned until mid 1960's. Incase of Bangladesh development of leather processing industry started in the late 1940s. The first tannery of the country, erstwhile East Bengal was set up by RP Saha at Narayanganj in the 1940s

It was later moved to **Hazaribagh area of** Dhaka, which turned into the prime mover of tannery units with the installation of a large number of tannery units in sub-sequent years. During the period before Partition of Bengal (1947), almost all the raw hides and skins available in the former East Bengal were exported to West Bengal, erstwhile West

Pakistan, Iran and Turkey. At that time it was mostly the non-Bengali tradesmen and traders controlling the tanning industry in East Pakistan and export of leather from the province. However, a few small tanning units, mostly cottage type, belonged to Bengali entrepreneurs, who used to process leather mainly for the domestic markets. Non-Bengali tanners processed wet-blue and sent them to erstwhile West Pakistan for further processing and finishing for producing different consumer goods. Till 1960, tanneries of erstwhile East Pakistan used to process raw hides and skins apply in gsalt and then drying them in the sun and the material thus developed were known as “Shaltu”.

In 1971, during the war of liberation the non-Bengali tanners of Bangladesh left the country abandoning about 30 tannery units owned by them. After the war, the new government of Bangladesh vested the management of these units with a newly formed Tannery Corporation, addressing an implied expectation to convert the units into finished leather manufacture units. Unfortunately, the corporation could not serve the purpose because of lack of experience and corrupt practices. Later, the government closed down the Tannery Corporation and handed over the management of most of these tanneries to **Bangladesh Chemical Industries Corporation (BCIC**) and three of them to Bangladesh Freedom Fighters Welfare Trust. Both the authorities had miserably failed to bring success in the tannery industry. The Government of Bangladesh imposed export duty on wet blue leather in 1977 to encourage the production of crust and finished leather. The export from leather sector was almost 100% in the form of wet blue, the chrome tanned and semi-processed leather until 1980-81.

During the period of 1980-81, reformation of major policies took place in this sector, which resulted in positive development of the sector. With the ban on **wet blue export from July,1990,** the leather industry of Bangladesh had entered into second phase of its development. During the mid-90s modern leather manufacturing units were set up, and herewith began anew era for leather industries in Bangladesh. Till the end of the last century, the leather sector maintained a very weak profile – with all the characteristic symptoms of industrial sickness and only a few firms ventured into

producing selected leather goods for export. In the leather footwear industry a few factories had been set up with mostly imported Italian machinery, but those factories could not bring any success to this sector. As a result, growth of this industry was always negligible. This trend in management of technology has further worsened the state of the industry, as it has neither encouraged the emergence of new entrepreneurs in this sector nor has it helped to raise foreign buyer's confidence to invest. Consequently, Bangladesh still remains very much a source of processed leather and to a very limited extent finished leather and leather goods in the international market.

INDUSTRY PROFILE

The leather industry in Bangladesh is well established and is an important foreign exchange earner. The industry is entirely in the private sector which has proved to be fully capable of handling it. Out of the total **207** tanneries of Bangladesh, **186** are located haphazardly in **Hazaribagh area in Dhaka where 84 per cent of the total supply of hides and skins are processed in a highly congested area of only 70 acres of land.**

The unplanned tanneries at Hazaribagh do not have supporting infrastructure facilities. No tannery in the area has effluent treatment facilities, posing a grave threat to environment. The industry, however, is in the process of shifting to Savar in consideration of the pollution it cast upon the Dhaka City and because of an acute lack of space for expansion and modernization.

Over 50 manufacturers are producing various leather items such as footwear, travel goods, suitcases, briefcases, fashion accessories, belts, wallets, hand bags, case holders etc. for overseas export. Most of the small tanneries are family owned and operated as cottage type industries. Many of them are established as proprietorship or partnership. The larger tanneries are basically public or private limited companies. Only a few tanneries have proper accounting practices and financial controls in place to define their profitability and financial condition. The principal raw materials for this industry are cowhides and goat skin. The annual domestic supply of hides and skins is around 200 million square feet, consisting of 63.98%Cowhides, 32.74% goat skin, 1.09% Sheep skin and 2.219% buffalo hides. Local Consumption of leather is around one fifth of the total out put and the rest 80% is exported in the form of Crust leather (75%), and finished leather (20%), Footwear and leather goods(5%).

Though there has been some appreciable improvement in animal husbandry and butcher's techniques in Bangladesh in recent times, it may take quite some time to

reach the international standard. The Black Bengal and other variants of goat skin from Bangladesh enjoy an excellent reputation for quality worldwide.

At present, the leather sector accounts for 3-4 per cent of total export earnings. According to Bangladesh Export Promotion Bureau (EPB), contribution of leather sector to total GDP was 0.32% in 2005.

At present leather and leather products are exported to about 53 countries of the world .The major importing countries are: **Italy, Brazil, Germany, Singapore, China and the USA.** EPB sources report that export earning from leather goods was US$ 287.78 million in2004-2005, out of which, about 80% are from leather and the rest is from finished leather goods.

Foreign investment to the industrial leather sector of Bangladesh has been very limited. Till March 2003, the total foreign investment in the industrial leather sector was $136.12 million, which is only 1.33 per cent of the total foreign direct investment into the country .This sector is also a major employer of semi-skilled workers, which is a vital step towardsalleviating unemployment. Information obtained from a number of credible sources exhibitsthat in total (accumulated) 741,000 people are employed directly or indirectly in leather andits sub-sectors. 200,000 people are involved in raw hide collection and supply and 50,000 are working in tanning industry. About 300,000 workers are associated with retailing of leather. Despite having a great potential for growth, the net results of development efforts undertaken for the leather export sector of Bangladesh have been far from impressive due to the poor quality of processing, illegal export to India, poor technological base, in adequate financing, low value addition, lack of marketing skill, incorrect planning and improper implementation.

LEATHER, LEATHER GOODS FOR DOMESTIC AND INTERNATIONAL MARKET

Bangladesh exports a considerable amount of processed leather, which is used as an intermediary product for producing different types of leather goods and footwear by the developed countries. Besides, Bangladesh manufactures a wide and varied range of leather goods and footwear for the export market albeit in a limited quantity.

For domestic market :

1 Ladies Shoes
2 Gents Shoes.
3 Sandals /Slippers
4 Belts
5 Travel Bags
6 Purse
7 Money Bags
8 Office Bags
9 Suitcase
10 Briefcases case
11 Gift Items
12 proceed leather.

For international market:

Processed Leather , Leather Jacket, Leather Blazer, Leather Skirt, Leather Trouser, Apron7 Purse, Money bags ,Belts, Briefcase ,Travel bags, Office bags, Suitcase 14 Ladies shoes, Gents shoes, Sandals /Slippers, Camera case, Racket cover, Card holder, Pen holder, Passport, Document case, Spectacle case ,Gift Items.etc

WHOLE SUPPLY CHAIN FOR LEATHER AND LEATHER GOOD.

- **raw hide and skin collector and supplier:**

The value chain process of this sector is initiated by raw hides and skins collectors and suppliers including a number of people locally termed as “Faria”, “ Bapari” and “ Arotdar ”. The Farias’ (local small traders) collect the hides and skins from the butcher or slaughterer and send them to “ Baparies” (small capital businessman) in different market for the initial treatment. After taking necessary care, Baparies send those to “ Arotdars” (district level hide wholesalers). The Arotdars add salt to the delivered skins and hides if needed while sorting these in their sheds.Later these products are sent to Posta area of Dhaka city from all over the country and from Posta it is supplied to different tanneries as per demand. The distribution channel for raw hide and skin collectors and suppliers is:

Raw Hide and Skin Collectors and Suppliers→ Tanneries.

- **Importers of Chemicals:**

One of the main obstacles for the development of leather industry in Bangladesh is the absence of chemical plants for producing chemical reagents needed for leather processing. More than 90% of the chemical substances used are imported from different countries. Tanneries collect these chemicals from the local merchants of chemicals or the local agents for the foreign chemical companies. Because of the lengthy import procedure, most of the local merchants and local agents cannot supply chemicals in time to the tanneries. Insufficient supply of chemicals leads to high price of chemicals in the local markets and thereby increases the production cost. Traditionally for these reasons, Bangladesh is not being able to gain the expected foothold in the international market. The distribution channel for importers of chemicals is:

♦ Importers of chemicals→ Local Merchant/Local Agent of chemicals

➢ **Leather Processing Units or Tanneries:**

Tannery transforms raw hides and skins into leather for manufactured articles like shoe-upper, bag, suitcase, belt, wallet and jacket. In tanneries raw hide is processed though performing Soaking, Fleshing, Liming, De-liming, Bating, Pickling, Chrome Tanning, Samming, Splitting, Skiving, Scudding, Drying, Staking and providing finishing touch where the leather is given the final surface treatment and look. Currently there are 207 tanneries in Bangladesh, 90% of them are in Hazaribagh of Dhaka, and the rest is all over the country. Some reputed tanneries of Bangladesh are Dhaka Leather, Apex Tannery, Lexco, Karim Leather, Samata Tannery and Bay Tannery.Tanneries of Bangladesh can be classified into three categories in terms of capacity to process raw hides and skins. They are:

• **Large Scale Units (**Census Sector)
• **Medium and Small Scale Units** (Simple Sector)
• **Cottage Unit** (Household Sector)

These tanneries generally produce wet blue, crust and finished leather. Most of them produce crust leather, only a few of them are producing finished leather. Around 80% of the produced leather (crust and finished) is exported to international market and the rest is consumed locally for the production of footwear, leather goods and garments. The large-scale units are capital intensive (small number of workers involved) and producing high quality finished leather. These have higher demand in the international market. Medium-scale units are producing comparatively low quality and exporting a lower quantity of products. Cottage units are entirely devoted to catering to the local market only. Due to the huge dependency on imported chemicals, these tanneries are facing problems in meeting deadlines of international contracts. The distribution channels used by these tanneries are:

♦Tanneries→ Export Agent
♦Tanneries→ Manufacturer of leather goods and footwear.

- **Wholesaler of Leather and Accessories (Bangshal):**

Wholesalers of leather in Bangshal are also a part of the value chain of leather sector. They buy inferior quality leathers from tanneries and sell them to local manufacturer of footwear and leather products. They also import all kind of chemicals and accessories for footwear and leather goods.

Factors like:
(i)the traffic jam of old Dhaka (causing wastage of working hours), and
(ii) inadequate space for leather processing in the Bangshal market region, are hindering the growth of business in the locality. The distribution channel for wholesalers is:
Wholesaler of Leather & Accessories→ Manufacturer of footwear & leather goods for domestic and international market

- **Industrial Footwear Manufacturers:**

Other than finished leather, some other raw materials as lining leather, artificial sole, insole-leather and adhesive are also used in producing footwear by the footwear manufacturing firms. Footwear manufacturing units imports considerable volume of raw materials from external sources.

They Export their products to Hong Kong, Italy, Germany, Thailand and European countries. Around 15-20footwear firms are operating business at present in Bangladesh. These footwear firms manufacture customized high quality sandals, shoes, slippers etc. as per needs and wants of international buyers. A major problem for these firms is the unavailability of the Last Machines locally. The dependency on imported last delays their manufacturing process resulting in inability to meet deadlines. In addition, due to scarcity of skilled designers, insufficient supply of quality leather, limited product line and product mix, etc international market of Bangladeshi footwear is not expanding to its full potential. Industrial footwear manufacturers are using three distribution channels and that is:

Industrial Footwear Manufacturer→International Market
Industrial Footwear Manufacturer→Export Agent→International Market
Industrial Footwear Manufacturer→Retailer→Domestic Market

- **Semi-industrial Footwear Manufacturers:**

Semi-industrial footwear units manufacturequality footwear for local market as well as for export market in a limited scale. Productioncapacity of these industries is smaller in comparison to industrial footwear manufacturers.These units are facing similar problems - as those of the industrial leather goods units -hindering growth of their business. Semi-industrial footwear units use two distributionchannels, they are:

Semi-industrial Footwear Manufacturer→Retailer→End User (Domestic Market)
Semi-industrial Footwear Manufacturer→Export Agent→International Market

- **Handmade Leather Goods/Crafts Manufacturers:**

There is a small number of handmade leather goods manufacturers in Bangladesh. They have a versatile product range such as money bags, passport case, card holder, waist belt, portfolio office bags, ladies bags, travel bags, jackets, blazer, skirt, trousers etc. to fulfill the demand of local market. They collect leathers, chemicals, and ornamental accessories from Bangshal wholesale market and sell their finished products to local retail shops, end users and sometimes to international buyers informally. Inadequate knowledge on modern leather technologies and marketing, unskilled workers and limited facilities for product diversification are some major problems that these manufacturers are facing. They use two distribution channels, and they are:

Handmade Leather Goods/Crafts Manufacturer→ Retailer→ End User (Domestic Market)
Handmade Leather Goods/Crafts Manufacturer→ International Market

MARKETING ANALYSIS OF LEATHER SECTOR

Global Market Scenario :

Leather and leather products are among the most widely traded and universally used commodities in the world. Formal trade in these products is recorded at over US$ 60 billion per year and it is estimated that the value of the informal trade is of similar amount to formal trade in many developing countries

The international market for leather and leather products is still far from the saturated point. Projections of demand & supply scenario of leather by industry analysts indicate that in the next decade the demand for raw materials and finished products will outweigh supply situation. About 18 billion square feet of leather is produced by the world leather industry in total per year. The number of people employed in the leather industry worldwide is estimated at well over 500,000

Today, the world leather market is growing with countries like Taiwan, South Korea, Hong Kong, Malaysia, Turkey and countries from South America being the major manufacturers and exporters. The European leather industry plays a key role in the global leather system notably for its leadership in innovation and market development. Trade of developing countries is not confined to export of raw materials. In fact, developing countries take 45% share of exports of leather manufactures.

Growth Potential of Leather Sector in Bangladesh

The leather industry with over Taka 160 billion annual export earnings is the country's third biggest foreign exchange earner after the RMG and the frozen food sectors. Leather industry is growing all over the world – both in market potentials and in installed capacity. For Bangladesh, export earning only from leather was US$ 207 million in 2001-2002 and it is expected to reach US$ 235 million in 2005-2006 as the demand for quality raw material for finished leather goods is increasing in developed countries.

SWOT ANALYSIS OF LEATHER INDUSTRY :

Strengths:

- Governments declared “Thrust sector”; highest priority is Footwear & Leather Goods
- The growth rate of Bangladesh’s livestock population have been steadily increasing
- Unique grain pattern and fiber structure of cattle, high quality and reputation of natural leather
- Adequate competitive workforces, availability of labor and low labor cost
- Comparative price advantage in international market
- The sector has favorable conditions for high value addition 90% when the largest RMG sector has value addition scope 40%
- Unbeatable price offer as basic raw materials are locally available and low overhead costs.

Weakness:

- Lack of access to latest technology and machinery facilities
- Insufficient services and supports from BIOs.
- Absence of entrepreneurial skill, rent seeking mentality.
- Poor linkage and coordination between/among SMEs and lead firms
- Absence of market information and promotion, inadequate marketing knowledge of local leather entrepreneurs
- Vulnerable SMEs; poor enterprise level cooperation
- Dependence on chemical/accessories import

- Skilled designers and facilities for product design and development are unavailable
- High rate of interest on term loan and working capital, and many limiting factors to have access to finance
- Footwear accessories (such as tapes, trims, buckles, linings, shoe-last, etc.) are not locally available
- Limited product development and market orientation
- Complicated rules and regulations which affect lead-time and acquisition of inputs

Opportunity :

- Huge untapped international market, <1% as well as domestic market
- Increasing global demand for value added, diversified products
- Scope of developing backward linkage business
- High tax on competitors by major leather products importers
- Labor intensive; employment opportunities
- Low wage workers convertible to skilled ones
- No duty on shoes, leather products made and exported from Bangladesh.
- Establishing by-product industry with solid and liquid waste through proper R&D.
- Local and Foreign Direct Investment opportunity in value added leather products sector
- Investment in the value added leather goods and footwear sector
- Government policies toward leather exporters; GSP, Cash Incentive; etc.

- Already big players like Young-one, Blue Ocean, Venturini, Tata invested in BD
- signaling many more to follow.
- Increasing International and Local demands for value added leather products.
- International Fashion and sourcing houses in BD for RMGs showing in leather product.

Threats :

- Absence of integrated policy; no long term policy regarding Common Facility Center (CFC), SME cluster development, Branding/promoting Bangladeshi leather products
- No dedicated skill development institute/ vocational training center for workers and supervisors
- Lack of backward linkage industry for chemicals/accessories and substandard quality of the products.
- Increasing import of low priced synthetic products
- Illegal export of raw hides/skins
- Smuggling and under invoicing of products
- Potential buyers stringent stands for compliances, and delay in building Common Effluent Treatment Plant (CETP) at leather village, Savar, Dhaka.
- Emergence of alternative sources like Myanmar.

SOME QUANTITATIVE INFORMATION

Leather Sector

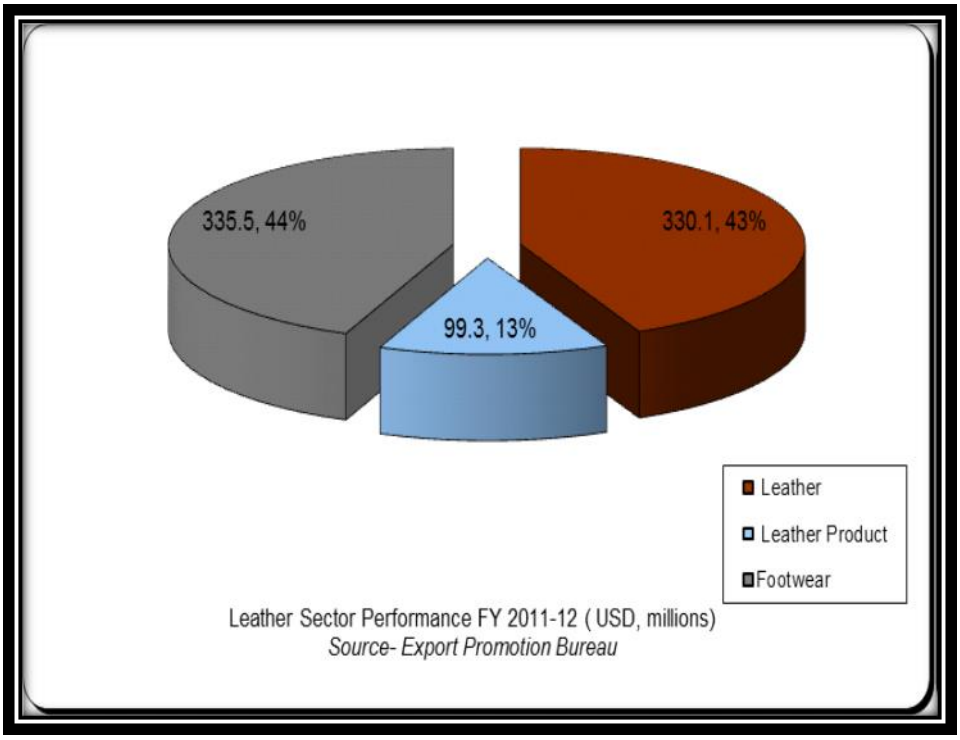
- Number of Tanneries : 220
- Number of leather products large firms : 110.
- Number of leather products MSMEs : 3500.
- Employment (direct & indirect) : 0.8 m.
- Major Clusters : Dhaka, Bhairab, Chittagong.
- Export revenue FY2011-12 : USD 765 million.
- Domestic Market : USD 350 million.
- Types of Products : Finished leather & leather products.
- Level of Technology : Low to Intermediate.

A VALUE CHAIN ANALYSIS FOR THE LEATHER SECTOR :

This is a 4th largest export earning and highly potential sector in Bangladesh as the 90% of the basic raw materials - high quality grain leathers are locally available that can certainly find a strong niche in the world market.

This sector is very much akin to RMG sector, the number one export earning sector in Bangladesh that earned over USD 20b with imported basic raw materials in 2011-12, and where value addition scope is 40%. As oppose Leather sector (where value addition scope is ~90%) in FY 2011-12, grew by 17.5 percent and earned $765 million in revenue, of which $434.8 million was derived from footwear and leather products, accounting for approximately 57 percent of the total revenue of the sector. export earnings in 2011-12 stood at USD 330.6m, 10.86% higher than that of previous year.

The sector evolved at this stage of its own without much care, due nurture and patronization.



Leather Sector Performance FY 2011-12 (USD, millions)
Source- Export Promotion Bureau

In the last ten years (2002-2012) among the major exporting sectors leather and leather products account for a significant growth (300%) particularly the leather products sub-sector (900%). Export of leather products jumped from $ 50 million to $ 435 million which is only 0.5% of the global market share so there is a huge room to explore the opportunity for the leather products sector of Bangladesh to increase the world market share.

The leather products industry includes 3,500 SMEs and 100 lead firms controlling more than 90% of the export market. Most of the enterprises are located in Dhaka, followed by two big clusters at Bhairab & Chittagong. The sector generates direct and indirect employment for about 850,000 people, including a significant number of women, particularly in the footwear and leather goods industries.

Export Performances of leather and leather Products (leather footwear and leather goods) last 5 yrs in USD Millions. (Source EPB statistics, 2013.)

The value chain of manufacturing part consists of

1) Tannery,

2) Leather Footwear and

3) Leather Goods.

Other than these 3 sub-sectors in leather sector no new sub-sector is found emerging very soon, although a few big companies from Taiwan and China already invested in this sector, and a few factories started producing outsoles which is a very important and welcoming start of new integration in the footwear sub-sector. The backward linkage industries are almost empty, and open for investment.

1. **Tannery subsector:**

Out of total 220 tanneries in Bangladesh, 187 tanneries are located in Hazaribagh, Dhaka. The principal raw materials for this sector are cowhides and goatskins. 112-115 big units have facilities for processing wet blue leather only. The remaining 91-95 small, medium and large units having reasonable facilities produce crust and finished leather.

The annual domestic supply of hides and skins is around 220 million square feet, consisting of 63.98% cowhides, 32.74% goat skins, 1.09% sheep skin and 2.219% buffalo hides. While 50% of this is consumed locally and rest 50% is exported to 53 countries in the form of semi-finished leather (75%), finished leather (20%), and footwear, handbags, accessories, and other leather goods (5%).

The tanneries located in Hazaribagh can reportedly process 94% of the hides and skins available in Bangladesh. However, independent of this capacity, there are issues affecting the collection of hides and skins even before they reach the tanneries.

Modern Leather Industrial City - Savar

In 2003, the Government of Bangladesh announced that the tanneries located in Hazaribag will be shifted to a purpose-built and modern cluster in Savar, on the banks of the river Dhaleswari, 10 kilometres from Hazaribag. The key highlight of the Savar cluster was to be the Common Effluent Treatment Plant (CETP), conforming to international environmental standards. The Bangladesh Small and Cottage Industries Corporation (BSCIC) is the implementing agency for the project.

It will support 195 tanneries with an employment potential of 100,000 people. However, relocation and moving to designated modern tannery cite with existing outdated old machineries from the existing Hazaribagh cite is a big challenge, and a matter of big investments for the tannery owners. The sooner it takes place the better.

2. Leather Footwear subsector :

The footwear sub-sector of Bangladesh earned revenues in excess of USD 335.51 million in 2012-13. The EU is the biggest destination for footwear exports with a 60%. share, followed by Japan with 30%, and the rest of the world accounting for 10%. Bangladesh has >1% share of the world footwear market.

Meeting with representatives of the footwear sub-sector highlighted an optimistic sentiment about business. The businesses view their products as price and quality competitive. Footwear manufacturers in the country rate themselves as being able to respond quickly to buyer inquiries, possessing the ability to offer competitive prices, quality products, and prompt fulfillment of orders. The growth of this sector is very encouraging and shows off the underlying potentiality of the sector.

	2003-04	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**
Footwear (all)	**68.3**	**87.78**	**95.45**	**123.03**	**159.16**	**182.92**	**204.09**	**297.8**	**335.51**
Growth in %	**45.56**	**28.52**	**8.73**	**28.89**	**29.37**	**14.93**	**11.57**	**45.92**	**12.66**

However quite a few supply side weaknesses were also highlighted. Among the most important are the inability of the tanneries to supply required quantities and quality of leather and the weak track record of environmental standards, the lack of availability of high quality components and accessories, the shortage of lasting capacities, the lack of footwear design and development capacities, the nascent testing and analyses infrastructure, insufficient numbers of enterprises in the sub-sector, shortage of craftsmen and supervisory-level personnel, and last but not least, negative buyer perception on enterprise capabilities.

The footwear sub-sector has also been able to attract FDI from East Asian manufacturers (Taiwanese and Korean). One manufacturer is even planning to establish the world's largest footwear factory with a capacity of 30 million pairs per year in Chittagong. This kind of investment, when realized, can provide impetus to the development of footwear-oriented support services such as design and development, component and chemical manufacturing, as well as testing and analyses capacities. However, there will be an urgent need to augment human resource capacities and physical infrastructure issues.

Another positive feature emerging in the footwear sub-sector is the development of possible backward linkages.

3. Leather goods sub-sector

The leather goods sub-sector in Bangladesh earned export revenues of USD 99.39 million during 2011-12. This sub-sector displays diversity in enterprise dynamics that is unique, in that it encompasses very few enterprises that are highly sophisticated in product development and manufacturing processes, as well as those that are smaller and still trying to define their competitive competencies.

The sector is very promising, and the growth of this sector is very encouraging:

	2008-09	**2009-10**	**2010-11**	**2011-12**
Growth in %	**11.72**	**54.2**	**91.29**	**79.4**

The future is perceived very positive, with potential for more than 100% increase expected in 2012-13. Almost all manufacturers are EU-focused in their exports, and have been to fairs to show-case their products. They are offered preparatory design and technical assistances following their participation. This experience was seen as valuable in light of the fact that they need to develop core competencies at the enterprise-level

was a lesson learnt. Another lesson that came through to the participants was the need for product differentiation at the enterprise-level.

This sub-sector is keen on developing engagement with its peers in Asia (India, China, and Vietnam), and believes that technical assistance in craftsmanship may be more suitable if sourced from the region. The representatives of leather goods firms also expressed the need to organize fair(s) in Bangladesh regularly, and attracting buyers to visit in conjunction with the Chennai leather fair, in India. Japan.

One of the major constraints raised by this sub-sector was the lack of finished leather variations to match emerging trends in the EU market, due to the lack of innovation and up gradation by tanners in Bangladesh Another constraint seen was the lack of new entrepreneurs entering the business, to augment capacity and provide a critical mass that can attract more buyers to Bangladesh. The shortage of craftsmen and supervisory personnel is also another constraint to the development of this sub-sector.

The leather goods sub-sector is ideal for youth, women and micro entrepreneurs to start off in, based on the quantum of start-up costs and capital investments. It (the sub-sector) can also provide the opportunity to gain experience and transform to footwear or other artisanal sub-sectors. The corporate-gifts are seen as promising markets.

MAJOR INSTITUTIONS, ASSOCIATIONS, GOVERNMENT AND PRIVATE ENTITIES INVOLVED IN LEATHER SECTOR:

Leather being an important industry of Bangladesh economy involves a large number of association, institutions, government and private entities. Bangladesh Finished Leather goods and Footwear Exporters Association (BFLLFEA), Bangladesh Tanners Association (BTA), Leather goods and Footwear Manufactures' & Exporters Association of Bangladesh (LFMEAB), Bangladesh Hide and Skin Merchants Association, Bangladesh Chemical Importers Association, Bangladesh Leather manufacturers Association, Leather Technologist Society Bangladesh etc are among some of the major associations working for the total welfare of the personnel involved in the leather industry.

Bangladesh College of Leather Technology is the only leather institution in Bangladesh which is preparing leather technologists for leather, leather goods and footwear.

Leather Research Institutes, BCSIR and Bangladesh Livestock Research Institute are the two research institutes of this sector. Government bodies such as EPB, LSBPC, BSCIC, BSTI, Ministry of Industry, Ministry of Fisheries and Livestock and private entities like Design & Technology Centre for Product Development Project are concerned with the development of leather sector.

MAJOR CONSTRAINTS OF LEATHER SECTOR

Major constraints that are holding back leather and leather sub sectors to achieve the desired success are identified in this research after a number of rounds of screening, short-listing and prioritizing; they are:

- Lack of sufficient R&D facilities
- Inadequate marketing knowledge of leather entrepreneurs
- Lack of initiatives on promoting leather, leather goods and footwear by concerned agencies
- Absence of creativity, innovation and contemporary designing capability in local designers
- Delay in introducing integrated government policy for the development
- Absence of vertical integration (backward and forward linkages) in the leather sector
- Insufficient access to short-term finance for SMEs of all leather sub-sectors
- Unavailability of Last making machines in Bangladesh.

Retail Food Chain Industry

RETAIL FOOD CHAIN INDUSTRY IN BANGLADESH

CONCEPT OF FAST FOOD AND FAST FOOD RESTAURANTS

The primary characteristic of fast food is that it is ready made in nature and easy to eat. Fast foods are mostly designed for ready availability, use and consumption. According to Bender and Bender (1993) as a general term used for a limited menu of foods that lend themselves to production-line techniques; suppliers tend to specialize in products such as hamburgers, pizzas, chicken, or sandwiches.

The fast food products are distinguished from others in function of the following characteristics: being low priced, served quickly, usually eaten with the hands, easily packaged, and having a short shelf life (Price 1997). The major reasons of differences between fast food and other foods are (i) the standardized menu and consistent quality minimizes time need to be spent obtaining product information (Jekanowski, Binkley & Eales 2001) and (ii) usually consumers can combine meal-time with time engaged in other activities such as shopping, work, or traveling (Jekanowski, Binkley & Eales 1997).

Consuming fast foods has become a recent trend among upper society, teenagers and youth have also increased and the fast food has won the palate of those groups. These are also served as helpful purpose in official and private meeting, working people at lunch time and also Tiffin of students (Ahmed, Hossain, Malek & Begum 2008). Thus eating at fast food restaurants not only gives consumers to satisfy their hunger, need for convenience, pleasure, entertainment, time saving, social interaction and the mood transformation (Park 2004) but also consumers experience excitement, pleasure and a sense of personal well-being (Park 2004). Examples of the most prominent fast food items include burger, pizza, fried chicken, hamburger and sandwich (Islam & Ullah 2010).

Most of the local fast food restaurants are also serving several local, semi-local cuisines, i.e. singara, somucha, chicken/vegetable roll, meat bun, meat/vegetable patties, noodles, etc. along with tea, coffee, juices, and different beverages. Different other food items also can be included.

According to Akku Choudhury, Executive Director of Transcom Foods Limited. As he told, “fast food as the term for fastest life style of modern society, we have general idea that fast food means MacDonald or Italian Dishes, but it can be local dishes and menus even Biryani/ Chicken Curry can be regarded as fast food, if it is served quickly and saved time for taking” (Farhana 2011). Thus it can be concluded that fast food restaurants should be quick service provider with readymade food items. That’s why fast food restaurants are also known as Quick Service Restaurants (QSR‟s) and fast foods are often termed as Food Away From Home (FAFH) (Islam & Ullah 2010)

Fast Food Industry in Bangladesh

The fast food culture started in Bangladesh in the nineties and became very popular. Fast food affects a community in many aspects. It is mainly geared towards the younger end of the market and the employees of the fast paced corporate world. The preparation and service times are relatively quick in case of fast food. Fast food can be clearly distinguished from snack/confectionery items by its perishable nature. Being a part of the developing countries, Bangladesh has her fair share of this fast food action. Starting around 90’s, the fast food culture has taken the country by storm.

The first fast food shops started their businesses in the Bailly (a name of a road) road, beside the guide house auditorium. After that, the number of fast food shops started to grow exponentially. Local entrepreneurs were leaders in pioneering the fast food industry of Bangladesh. New brands like Swiss, Helvetia etc. were to name some Bangladeshi fast food shops. In early 2000.

Bangladesh saw the entry of the first international brand of fast food franchise come into the country. Pizza Hut and later KFC came into the Bangladeshi market having

franchise with Transcom Foods Limited. Transcom Foods Limited (TFL) started its journey in 2003 as a franchisee of Pizza Hut, the first International Chain Restaurant in Bangladesh, and went on to sign the contract to become the franchisee of Kentucky Fried Chicken (KFC) in the year 2006. Besides Pizza Hut and KFC some leading names in this industry are; Helvetia, Swiss, A&W, Western Grill, BFC, Chicken King, FFC, Shawrma House, Pizza Inn, Pizza and Shawrma, etc.

Both Pizza Hut and KFC are subsidiaries of the world's largest restaurant company International Restaurants. TFL has Hut opened 3 Pizza and 3 KFC outlets in Bangladesh in a span of five years. Pizza Hut, the first International Chain Restaurant in Bangladesh, opened its flagship restaurant in 2003 at Gulshan in Dhaka. Pizza Hut has over 12,000 outlets across 100 countries. Following its grand success in Dhaka, the Chittagong outlet was opened in September 2005. The third Pizza Hut restaurant was launched in Dhanmondi, Dhaka in January 2008. Kentucky Fried Chicken (KFC) stands for high-quality fast food in a popular array of complete meals to enrich the consumer's everyday life. TFL successfully launched the flagship KFC on South Avenue, Gulshan in September 2006. It has already won over the heart of the Dhaka crowd with its great tasting food, high standard of hygiene, cleanliness, terrific interior and of course excellent and affordable pricing. Following its enormous success in Gulshan, the second outlet was opened in Dhanmondi (a name of place at Dhaka) in November 2008, and yet another in Banani in December 2008.

It is estimated that there are 105 fast food outlets in the food court of the Dhaka's Bashundhara City Shopping Complex alone (Bhuiyan 2010). Thus now, fast food restaurants have become a multi billion taka industry. The fast food restaurant industry worth around Tk. 8.0 million of sales only in the capital in the country city everyday, which puts the gross revenue of these fast food retailers at Tk. 3.0 billion annually (Bhuiyan 2010). The size of the industry has become up to Tk. 1000 crore and its still growing (Farhana 2011). Even increase in the consumption of poultry farm chicken and potatoes also indicate the growing demand of fast food in Bangladesh (Bhuiyan 2010; Bouis and Scott 1996).

According to Akku Choudhury, Executive Director of Transcom Foods Limited, the number of customers and gross revenue increased so tremendously that he is planning to open 50 KFC and Pizza Hut outlets throughout the country by 2015. Even, Helvetia, another leading local fast food chain, is also planning to open around 30 outlets around the country's suburbs through franchises (Bhuiyan 2010).

Over the last ten years, information technology, rapid growth of corporate houses, private universities and hectic life-style has created the new culture that is fast food culture in Bangladesh (Farhana 2011). The quick serving characteristic of fast food made it popular to the busy urban people. Increased opportunity cost of women's time also increases the demand on fast food as those are found readymade (Pingali 2004). It is also evident that with growing level of income the eating pattern also becomes Westernized (Regmi & Dyck 2001)

Factors Related to Consumers' Preferences of Fast Food Products

When there was not enough time to prepare a 'traditional' meal, varieties of fast foods were chosen by girls and young women of African and South Asian decent in a study including a focus group discussion conducted in UK (Lawrence, J. M.et al.,2007). It indicated that all the communities in the study took time, price, health and availability into consideration when making food purchases. Many issues that affect the food choice of people who move to the UK are common within different ethnic groups. One study (Richards, 2009) considered only measurable attributes of fast food—nutritional profiles, vendor identity or the distance from a consumer's home. However, the study suggested that more detailed experimental analysis would be able to determine the effect of perceptual attributes on consumer demand as well. Specific qualities of taste, consumer self-esteem, there potation of each restaurant and other non-measurable may be relevant to a comprehensive treatment of an attribute-based fast food model.

Clark and Wood (1998) comment, on the basis of their evidence, that food quality and value appear to be the most significant restaurant attributes. Lewis (1981) considered five factors important: food quality, menu variety, price, atmosphere and convenience.

Food quality was found to be the most important attribute influencing customers' selection of a restaurant. Auty (1992) undertook a study of customers' perceptions of restaurants and the way that they select a particular eating place. Food type and quality were the most frequently cited variables, regardless of the occasion for dining out, but image and atmosphere or style were critical in the final choice between restaurants serving a similar quality and type of food.

Carey and Genevieve (1995) determined food quality to be the most important variable in restaurant choice. The five factors commonly included in respondents' rankings were:

(1) Range of food;

(2) Quality of food;

(3) Price of food;

(4) Atmosphere;

(5) Speed of service.

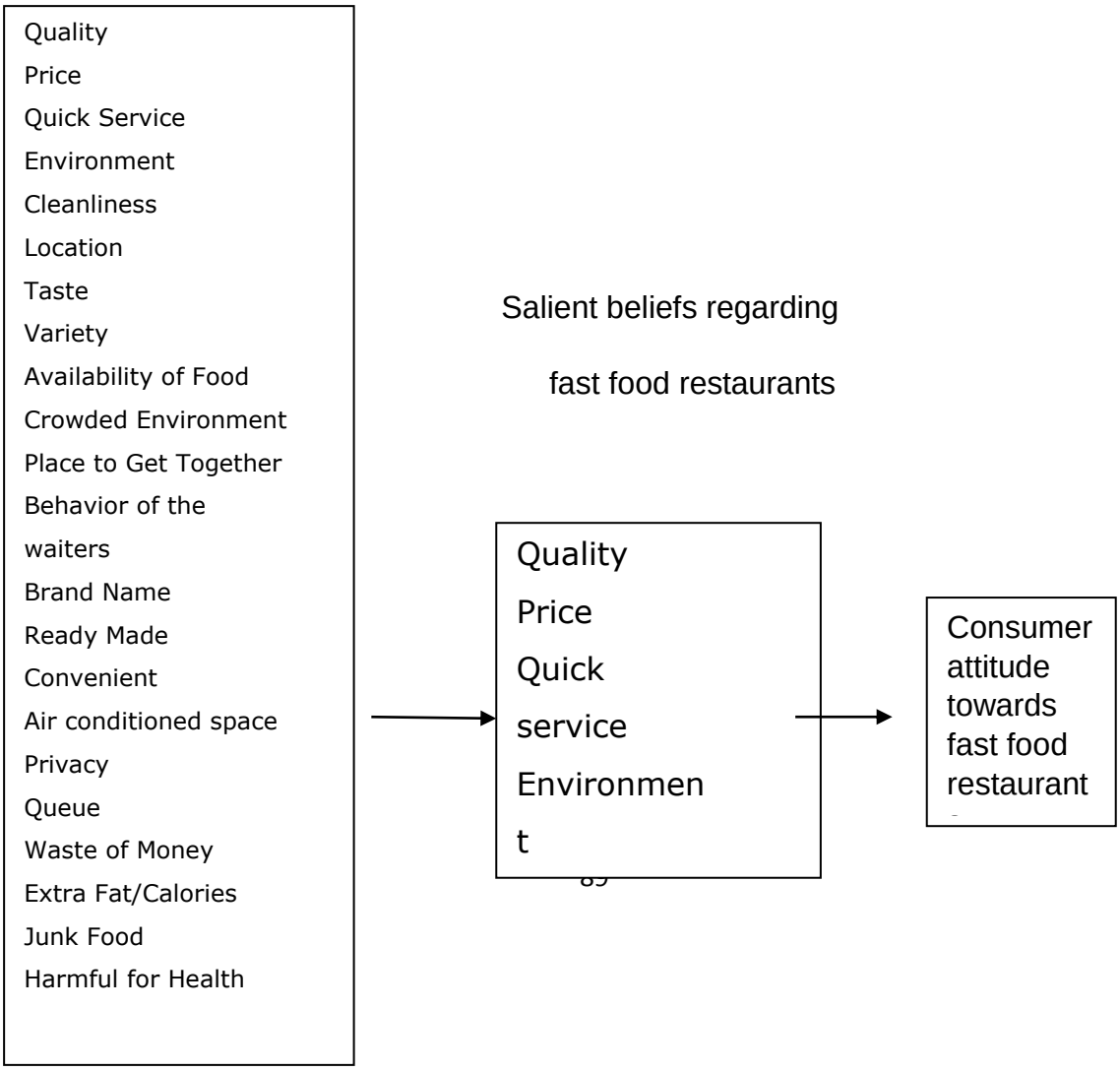
The quality of food and types of food were the key determinants of restaurant choice/customer loyalty in this study. In general, then, evidence from all these studies suggests that the more concrete factors play the most important role in the consumer's choice of a dining-out unit. Besides the factors related to the dining-out unit itself, those related to the customer's socio-cultural background are also influential in their dining-out behavior. For example, attitudes, social values, family influences, group influences, social class and cultural background are also important in determining choice.

During the past several decades, physical environment has become an important area in the study of hospitality and retail environment, with researchers beginning to study the influence of such physical environments of a restaurant or store environment on consumer behavior (Turley & Milliman, 2002). After concluding our initial exploratory study we were able to identify the Factors which might be related to consumers' preference of fast food products in case of Bangladesh such as,

i. Time factors (Delivery time, cue management etc.),
ii. Cost factors (Price of items etc.)
iii. Hygiene factors (Clean packaging, hygiene records etc.),
iv. Convenience factors (Location proximity, accessibility etc.)
v. Taste factors (Uniqueness, less variability of taste),
vi. Brand factors
vii. Group influence factors (Friends etc.)
viii. Nutrition factors,
ix. Shop environment factors(Personnel, decoration of shop etc.)

Which factors are more important for fast food restaurant?

Differences in Consumer Attitude towards Selective Fast Food Restaurants in Bangladesh: An Implication of Multiattribute Attitude Model. This research was conduct by Ayesha Tabassum and Tasnuva Rahman in Bangladesh.



Based on the Fishbein model, consumer attitudes are measured for each fast food restaurants. As mentioned below, the attitudes are calculated based on the belief strength and belief evaluation associated with each restaurant. The calculation process of attitude towards Pizza Hut, KFC, Helvetia, and Western Grill are given below along with the multiattribute attitude model.

The result of this study was that that consumers‟ attitude vary for the fast food restaurants in Bangladesh. In fact it is evident from the analysis that consumers‟ overall attitude towards Pizza Hut is the largest one and attitude towards Helvetia is the least one. Pizza Hut has received favorable attitude because consumers have the most favorable evaluation regarding quality and environment. KFC received the second highest favorable consumer attitude due to the favorable evaluation regarding price and quick service.

McDonald’s

Date of Incorporation: 1955

Franchising Since: 1955

Headquarters: Oak Brook, Illinois

BUSINESS DESCRIPTION:

McDonald’s develops, operates, franchises, and services a system of restaurants that prepare, assemble, package, and sell a limited menu of value-priced foods under the “McDonald's System.” McDonald's restaurants offer the public a high standard of quality and uniformity in food, service, and decor. McDonald's restaurants are located in freestanding buildings, storefronts, food courts, and other locations that are appropriate to McDonald's image.

McDonald's Corporation is the biggest fast-food chain restaurants in the world that it boasts more than 30,000 restaurants in 119 countries. More than 80% of McDonald's

restaurants worldwide are owned and operated by independent local men and women. With this unrivaled popularity, entrepreneurs who will franchise on McDonald's will most likely succeed in the business; meanwhile this is how to start McDonald's franchising. Unfortunately, McDonald's do not have any franchise in Bangladesh while many other internationally famous fast-food chains like KFC, Pizza Inn, Pizza Hut, A&W, Nandos, are already operating in Bangladesh through franchises. so why we choose McDonalds's.

Considering Mc Donald's huge demand for quality fast food and cheap price we are going to launch Mc Donald's in Bangladesh starting with Dhaka, the capital. McDonald's has a huge opportunity to increase its global market here in Bangladesh. Besides.

- Its positive global brand image will promote itself.
- Affordable meals targeting average income families which consist a great part of our population.
- Trend among Bangladeshi youth to eagerly grab international taste facilitating its market potential.
- Quick service so target working people without hampering their work schedule.
- It is already popular in Bangladesh by the mass broadcasting of Indian satellites' advertisements.

MAIN OBJECTIVES:

- To open McDonald's outlets in all the big cities in Bangladesh starting with Dhaka to Chittagong , Sylhet, Rajshahi, Barisal, Khulna, Rangpur.
- To increase McDonald's outlet number in each cities emphasizing on Dhaka due to its huge population and more developed market scenario.
- Let Bangladeshi people get the 'finger-licking' taste and high quality service of McDonald's.
- Make McDonald's one of the best, successful and popular fast-food choices in Bangladesh.

HOW TO REGISTER NEW BUSINESS FIRM IN BANGLADESH

A new business investor has to follow some standard procedures while starting a business in Bangladesh. It starts with registering the company name at the Office of the Registrar of Joint Stock Companies & Firms. The office is located at TCB Bhaban (6th Floor), 1, Kawran Bazar, Dhaka-1215. This Office accords registration of Companies, Associations and Partnership Firms under the Companies Act, other related acts, rules, orders and ensures lawful administration of them. Both private limited companies and the private limited companies has their own rules. The new entities should also obtain trade license from the city corporation where it is located. Depending on the type of the business it may also have to obtain license or certificate from BSTI, BRTA, etc.

Some companies may need to collect capital by IPOs. There are two stock exchanges in Bangladesh. They are the Dhaka Stock Exchange (DSE) and the Chittagong Stock Exchange (CSE). A company can register at DSE or CSE or both to collect capital.

PROCESS FOR REGISTRATION:-

General

- Search Entity Names
- Submission Status
- Fee Calculator

Pre-Registration Activities

- Apply for Name Clearance
- View/Edit Name Clearance Application
- Print Name Clearance Documents
- Apply for Time Extension
- View/Edit Time Extension Application
- Print Time Extension Document

Registration

- Apply for Registration
- View/Edit Registration Application
- Print Registration Documents
- Print Approved Registration Documents

Post-Registration Activities

- Submit entity information for create entity user
- Returns Filing
- View/Edit Submitted Returns
- Print Submitted Returns
- Apply for Certified Copies
- View/Edit Application for Certified Copies
- Print Application for Certified Copies
- Winding Up
- Edit Winding Up Submissions
- Print Submitted Winding Up
- General Application

Online User Access

- General Sign In
- Entity Sign In
- Create New User (General)
- Create New User (Entity)

Certain fees for registration

- **Name clearance fee -** BDT 600.00 per proposed name
- **Registration fee**

  Private companies having 1000000 authorised capitals have to pay

  1. Registration fee BDT 5,175.00

  2. Registration filing fee BDT 1,200.00

  Public companies having 1000000 authorised capitals have to pay

  1. Registration fee BDT 5,175.00

  2. Registration filing fee BDT 1,600.00

  For foreign company

  1. Registration fee BDT 1,000.00

  2. Registration filing fee BDT 0.00

  For partnership firm

  1. Registration fee BDT 0.00

  2. Registration filing fee BDT 110.00

- **Issuance of certified copies**

  1. Copying fee minimum BDT 100.00

  2. Copying fee BDT 5.00 per 100 words

  3. Preparing fee minimum BDT 100.00

  4. Preparing fee BDT 5.00 per 100 words

- **Winding up fee**
  1. Winding up fee BDT 200.00 per form Pre registration activity

START A FAST FOOD RESTAURANT

No matter how the economy changes, many people still enjoy eating out at fast food restaurants, because they are generally affordable. Opening your own fast food restaurant may be something you have always desired to do, but it can be an ambitious venture. To succeed, you need to keep a few things in mind.

Section 1.01

Section 1.02 Instructions

Step-1

Make sure you have enough **start-up funds** to launch your fast food restaurant or franchise and that you have enough money to sustain it for at least two years. Success isn't always instant and you will need enough income to stay afloat in the event your customer base doesn't grow as quickly as you would like. You also need to be able to pay for building rental fees, insurance, equipment, supplies, food, employee salaries, advertising and more. Since the likelihood is that you will need to take out a business loan, you must be capable of making monthly payments to the cost.

Step-2

Start getting things into **place.** Find out about zoning laws and health codes. Incorporate and get a business license. Write a good business plan that outlines the specifics of your long-term and short-term goals, your budget and other costs, your marketing strategies.

Step-3

Consider **buying into a franchise** of a fast food restaurant chain that has a proven success record. That way, you will be investing your money into a business that has a bigger chance of earning profits. It will be expensive, but it may also make it easier for you to get a loan.

Step-4

If you want to start an independent fast food restaurant of your own, decide what the concept will be, what **demographic** you want to attract and what you can do to make your establishment unique. Realize that you face stiff competition from more well-known, popular fast food businesses, so you need to come up with something that will make yours stand out from the crowd.

Step-5

Decide what **type of fast food** you want to serve at your restaurant. For example, do you want the focus to be Chinese food or Mexican food or burgers or pizza? Develop a menu that is easy to understand and come up with a competitive price for each item. You may want to design a menu with "combo" meals or special deals where consumers can buy a combination of items for less.

Step-6

Begin **interviewing employees.** If you don't want to manage the restaurant yourself, make sure you hire someone to do the job who has experience and who has had success in this area. While it would be preferable to hire other employees who have had some type of experience in the industry, it isn't always necessary if they are responsible, hard-working and willing to be trained. Let your employees know that you set high standards that they are expected to follow.

Step-7

Market your fast food restaurant. You can send out flyers, advertise in newspapers or in other media, have promotional events and more. The fast food industry is highly competitive, so you need to get the word out about your restaurant creatively and aggressively.

INVESTMENT TABLE FOR MC DONALD FRANCHISEE - Initial investment -

Name of Fee	Low	High
Initial Franchise Fee	$45,000 – Traditional	
	$22,500 - STO & STR	
	$0 - Satellite	$500 – Satellite
Real Estate and Building – 3 months' rent	Base Rent	
	$450 - Traditional	$310,500 - Traditional
	$750 - STO & STR	$41,100 - STO & STR
	$1,425 - Satellite	$47,450 – Satellite
	Percentage Rent	
	0% - Traditional	42.5% - Traditional
	4% - STO & STR	17.3% - STO & STR
	4.25% - Satellite	24.5% - Satellite
Signs, Seating, Equipment, and Décor	$707,700 - Traditional	$1,353,600 - Traditional
	$604,400 - STO & STR	$819,000 - STO & STR
	$50,000 - Satellite	$396,000 - Satellite
Opening Inventory	$6,000 - Traditional	$40,000 - Traditional
	$12,000 - STO & STR	$25,000 - STO & STR
	$9,000 - Satellite	$17,000 - Satellite
Miscellaneous Opening Expenses	$60,300	$61,600
Travel and Living Expenses while training	$3,000	$23,000
Additional Funds – 3 months	$182,000 - Traditional	$322,000 - Traditional
	$120,000 - STO & STR	$239,000 - STO & STR
	$91,000 - Satellite	$112,000 - Satellite
ESTIMATED TOTALS	$1,004,450 - Traditional	$2,155,700 - Traditional
	$822,950 - STO & STR	$1,231,200 - STO & STR
	$214,725 - Satellite	$657,500 - Satellite

Ongoing Fees:

Name of Fee	Amount
Service Fee	4% of Gross Sales
Rent	Varies
Advertising and Promotion	Not less than 4% Gross Sales
Audit/ Inspection Fee	Cost of Audit
Satellite Annual Fee	$500 to $2,500
Satellite Rent	Varies
STO Rent	Varies
BFL Rent	Varies
Relocation Contribution	$50,000
New POS Integration Fee	$1,000 integration fee (one-time fee); $200 annual integration fee
Restaurant File Maintenance (RFM) Fee	$150
R2 D2 Software Maintenance Fee	$125
New POS Software Fee	$1,600 license fee (one-time fee); $400 annual software maintenance fee
Next Gen Cashless Fee	$216 license fee (one-time fee); $154 annual maintenance fee
Help Desk Support Fee	$2,040
Microsoft Subscription License	$449
Restaurant System Management (RSM)	$250
Restaurant Integrated Data Movement (RIDM)	$75
e*Restaurant Fee	$54
Identity Management Fee	$75
Store Mail (email account) Fee	$79.80

WHICH SUPPLER USE FOR RAW MATERIAL

Most suppliers of fresh produce to the retail sector in Bangladesh are SMEs – for Agora they are accounting for a third of their current revenues - but many of them lack the capacity to grow as the retail sector expands. Therefore the project will pilot a model to deliver business development services (BDS) to the SMEs; this will enable Agora to meet increasing demand by strengthening existing trading relationships, rather than simply increasing the number of suppliers, and will also build capacity in the SME sector.

Established in 2001, Agora aims to expand from 5 outlets to 50 between 2011 and 2015. Five new stores were opened in August 2011. Thus the main commercial driver for this venture is the increased demand for high quality, safe and sustainably-sourced produce, as a result of Agora's expansion plans. 30% of revenue depends on supply of fresh produce (bakery goods, fish, fruit, vegetables, chicken and beef) from 51 SMEs. So developing long-term relationships with existing suppliers and increasing their capacity to produce a reliable and sustainable supply of fresh produce is critical to the expansion.

A further driver is the potential impacts Agora could have on the rest of the retail sector in Bangladesh, through best practice example and supplier capacity building. Many of Agora's suppliers are based in some of Bangladesh's poorest districts. Increased demand for fresh produce from Agora will gives them an opportunity to expand their business. The addition of business development services enables them to build their capacity to expand effectively. This will benefit the SME sector, their employees, and the small farmers who supply them. Good practice in ethical and sustainable buying will be included in the support services, so that producers in the supply chain benefit from stable and ethical procurement contracts with SMEs, driven by the growth in the retail sector.

In addition to the direct benefits to those in the Agora supply chain, there is potential for this initiative to encourage wider sector developments: good practice in ethical and

sustainable buying from producers; development of business development services for SMEs; and emergence of a sustainable and inclusive retail sector in Bangladesh.

In collaboration with BIF, Agora will build a capability model for fresh produce suppliers and assess the current capability of suppliers against this model. Agora will then build capacity where needed by supporting improved procurement of capital equipment; mechanized production processes and training in a range of business skills.

The business development services market to SMEs is underdeveloped in Bangladesh, particularly in addressing the needs of the retail sectors. This project is innovative because it will enable a better understanding of the needs of this sector and stimulate the market for these services.

FOOD SAFETY

Nowhere perhaps is that trust more important to us than in the food we buy for ourselves and our families. We trust that the food is safe, healthy and, increasingly, that it is not produced at the expense of other people or the environment. The growing importance of this to consumers everywhere is reflected in the response of corporations anxious to reassure consumers that their food is both natural and ethical. Images of green fields and smiling farmers abound.

FOOD SAFETY REGULATION IN BANGLADESH

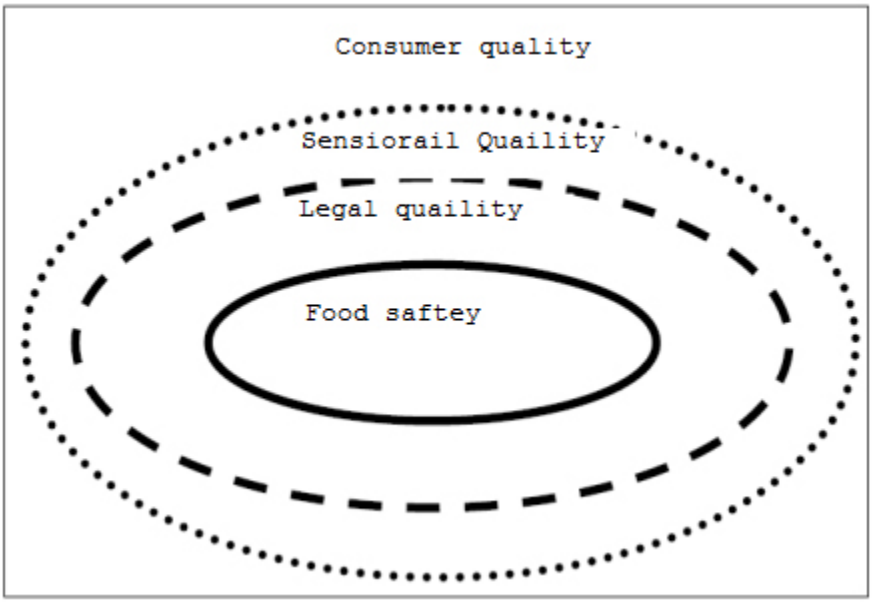
Food safety became last decades very important for both governments, producers of food products and consumers as well. Food safety is considering mainly three types of hazards:

(a) Microbiological hazards;

(b) Physical hazards and

(c) Chemical hazards.

However, most of the chemical hazards have long term health problems for the consumers of food products. Chemical products or contaminants can be of different nature e.g. residues of pesticides or other phyto-products applied during the production of crops, fruits and vegetables, antibiotics applied in the animal production, environmental contaminants such as heavy metals or dioxins. In this group the allergens are considered as well. This are mostly natural food components e.g. proteins, which are provoking an allergic reaction with sensitive persons (Meulenaer, 2006). Problems with food safety can be very divers in Bangladesh. However, food safety must be differentiated from food quality. Food safety is the basic requirement for a food product. Consumers may not become ill from eating a food product. Food quality on the other hand, is also important as food safety. Some secondary issues are playing roles in food quality like (Figure 1).



LEGAL QUALITY ASPECTS

This demand comprises the composition of food, nutritive values and other relevant properties, as for example composition of bread, composition of chocolate, nutritive value of milk etc. This can impose differences in the same type of a food product placed on the market by different suppliers or in different countries. Some names of products are protected and can only be applied if the composition or the region of production is respected e.g. chocolate (max. 5% of other plant fats as cacao butter), e.g. champagne (sparkling wine from a specific region in France). The application of genetically modified organisms for producing foodstuffs must be seen as a legally organized quality aspect (Meulenaer, 2006).

SENSORIAL QUALITY ASPECTS

In food taste, odour, visual quality, texture etc are important because food is associated with a nice feeling; consumers are judging food products severe when buying them. Discolorations, abnormal proportions, abnormal visual aspect etc have influence on consumer behavior (Meulenaer 2006).

COMMERCIAL QUALITY ASPECTS

Customers can have more demands regarding food products e.g. packaging design, labeling etc which known as extra quality demands. On the other hand the consumer can play an important role in contributing towards food safety by respecting refrigerating temperatures during storage, respecting shelf-life, preventing cross contamination during preparation of the food and provided no undercooking of raw meat, fish, vegetables, etc. However, this review focuses on (i) the present rules and regulation of handling food industry (ii) some recent potential chemical hazard arises in food chain and (iii) some perception that should establish in Bangladesh to supply safe food to the end consumer.

PRESENT STATUS OF RULES AND REGULATION RELATED TO FOOD SAFETY IN BANGLADESH

FOOD safety has become an important topic in Bangladesh as consumers of the country have become victim due to serious adulteration in food.

It has been reported in the media how certain “rogue” restaurants are using dead chicken meat and sweets mixed with substances that pose health hazard.

Bangladesh cannot ignore as this is a matter of life and death.

We have to maintain certain standards so that consumers are satisfied with what they consumed in terms of their quality, standard and hygiene.

Even the government republic of Bangladesh has to provide all necessary support to maintain the safety of foods. The constitution of Bangladesh also gives importance to food safety. Article 15 of the Bangladesh Constitution states “it is a fundamental responsibility of the state to secure provision of the basic necessities of life including food” (GB, 1972). Article 18 of the constitution states “State shall raise the level of nutrition and improve public health as its primary duties (GB, 1972)”. Both the Articles imply food safety requirements for consumers and the State must be ensured through enactment of appropriate laws.

There are several laws in Bangladesh for maintaining health and safety standards.

We like to give a short statement of those rules and laws so that the related official legal documents for health and safety in the past, present and future, can be better understood. All information, related there to, was gathered from a seminar of global forum for food safety regulators held in Bangkok in 2004 organized by the FAO/WHO (FAO/ WHO, 2004).

(a) The Bangladesh Pure Food Ordinance, 1959: This is an ordinance to provide better control of the manufacture and sale of food for human consumption. Now, this ordinance is under revision as 'The Bangladesh Pure Food (Amendment) Act'. Under this act, it has been proposed to constitute a National Food Safety Council, headed by the Ministry of Health and Family Welfare as well as to establish food courts.

(b) The Bangladesh Pure Food Rules, 1967: In this Rule, there are generic standards for 107 food products. Now this 'Rules' is under revision.

(c) The Food Grain Supply (Prevention of Prejudicial activity) Ordinance, 1956 (Ord. xxvi of 1979): This ordinance provides special measures for prevention of prejudicial activity relating to the storage, movement, transshipment, supply and distribution of food grains. It provides basis for the protection of false statement or information.

(d) The Radiation Protection Act, 1987: Under this Act, the Institute of Food and Radiation Biology (IFRB) of Bangladesh Atomic Energy Commission is primarily involved in food irradiation research and development in the country.

(e) The Iodine Deficiency Disorders (IDD) Prevention Act, 1989: The Government has enacted "The Iodine Deficiency Disorders Prevention Act, 1989 for universal salt iodination and banned non-iodised salt from market, aimed at virtual elimination of IDD from the country.

(f) The Essential Commodity Act, 1990: The purpose of administering this act is to stabilise, maintain or increase supply of essential commodities including foodstuffs. The mandate of Essential Commodity Act also includes broad spectrum of activities like storage, transport, distribution, disposal, acquisition, use or consumption of any essential commodity.

(g) Fish and Fish product (Inspection and Quality Control) Rules, 1997: Under this section of the Fish and Fish products (Inspection and Control) Ordinance 1983 (Ord xx of 1983) and in conjunction with fish and fish products Inspection and Quality Rules 1989, and other related provisions made there under, the government has made the Rules: Fish and Fish product (Inspection and Quality Control) Rules, 1997. These Rules are basically meant to develop quality improvement to promote export trade. The quality control of fish and fish products in the country has earned reputation among the importing countries.

(h) Other Laws and Regulations: In addition, a number of other Laws and Regulations exist in the country to ensure the safe and quality food viz.,

- The Animal Slaughter (Restriction) and Meat Control (Amendment) Ordinance, 1983 (it is under revision);
- The Pesticide Ordinance, 1971 & the Pesticides Rules, 1985;
- Destructive Insects and Pests Rules (Plant Quarantine), 1966, amended up to 1989;
- Agricultural Products Market Act, 1950 (revised in 1985);
- Fish Protection and Conservation Act, 1950 (amended in 1995);
- Marine Fisheries Ordinance 1983 and Rules, 1983; Procurement Specifications, Ministry of Food, Rice Mill Control Order etc.

(i) The Bangladesh Standards and Testing Institution Ordinance, 1985: This ordinance relates to establishment of an institution for standardisation, testing, metrology, quality control, grading and marking of goods. Within the framework of this ordinance, the government has established the Bangladesh Standards and Testing Institution (BSTI). One import task of this organisation is to certify the quality of commodities, materials, whether for local consumption or for export and import. The Ordinance has been amended as The Bangladesh Standards and Tasting Institution (Amendment) act, 2003.

It is known from the website (http://www.bsti.gov.bd/about.html) of the Bangladesh Standards & Testing Institution that it is a body made corporate under the law entitled, “The Bangladesh Standards and Testing Institution Ordinance, No. XXXVII of 1985”. Since its establishment, it is the sole body to look after the quality of the products in Bangladesh.

However, there are many functions presented at the website of the institute. Among them the most important one to certify the quality of commodities, materials, produces, products and other things including food materials, whether for local consumption, or for export or import. But the real situation is another story. Recently, Bangladesh Television (BTV) channels screened a documentary on how bread was being made under very unhealthy environment and how Rapid Action Battalion (RAB) and mobile court identified the factory and took necessary action. Though BSTI authority concerned regarding the case, but always BSTI authority clam that they do not have enough manpower to carry out the job to control food safety in the industry. So what’s the result? The country has all rules and regulations but not have enough manpower to implement them. However, the BSTI website makes mention of consumers protection (during the period of a license in operation) activates including actions being taken such as: (a)surprise inspections of the licensee’s factory are being carried out periodically by qualified inspecting officers of the institution and random samples are being taken and tested at the BSTI Laboratory, (b) products bearing the standard mark are collected by the surveillance team of the institution directly from the open market and tested in the BSTI Laboratory. However, representatives from the Consumers Association of Bangladesh (CAB) and the respective chamber of commerce and industries help the surveillance team in performing its function.

Dairy Industry

DAIRY INDUSTRY OF BANGLADESH

INTRODUCTION

Dairy industry is one of the best suited sectors for the generation of employment and thus ameliorating poverty in rural areas of Bangladesh providing jobs to the whole family, ie men, women & children alike. It is a most profitable occupation too as no part of the bovine is wasted live or dead. Support to the dairy industry lacks appropriate focus in our PRSP strategy primarily due to aggressive lobbying by importers of subsidized milk powder on the one hand and skewed price structure of locally marketed liquid milk by Bangladesh Milk Producers Cooperative Union Limited (BMPCUL) Milk Vita holding a commanding market share due to undeserved financial support from the Government. BMPCUL trade name is Milk Vita.

This study was undertaken to get an understanding of the slow growth or stagnation of the dairy industry. In the course of the study we have identified several factors that may be contributing to this scenario. We also propose some policy changes to boost the growth of the industry:

1) Incorrectly targeted subsidies: Subsidies to the dairy industry whether from the government or NGO's have targeted the processing side of the equation and that too to a particular organization. The actual producers of milk received very little by way of subsidies. Subsidies to BMPCUL (Milk Vita) have prevented other processors from effectively competing in the market creating significant barrier to entry and preventing growth in other areas of the industry as well.

2) Single area focus: Baghabari area has traditionally produced milk and milk products. With BMPCUL investing heavily in the area over time, productivity has improved significantly. However the area is already saturated and for the industry to expand, new areas will have to be targeted for development. With BMPCUL receiving large subsidies,

it becomes cost prohibitive for private companies to take on dairy development work in new areas.

3) Lack of research: While genetics have been improved by creating local/imported hybrids, there is further potential to improve the genetics by setting up a breeding program to fine tune the bovine characteristics to suit our climate and available feed.

4) Lack of credit: The lack of credit to farmers has also discouraged milk production. Investing in a cow is a major investment for most small farmers and without proper access to credit farmers are not encouraged to invest.

CURRENT INDUSTRY SCENARIO

The importance of bovine livestock to our economy cannot be over stated. Even though the sub-sector contributes only 3% to the GDP, it provides full and part time employment to about 20% of our rural population and accounts for 18% of our agricultural export earnings1. While the focus of this paper is dairy, meat is also an important contributor to our protein needs. Furthermore the trade and export of leather products, bones and offal also have a significant contribution to our economy. Draft power is still a significant source of power for cultivation saving imported energy cost.

The consumption of milk and milk products in Bangladesh is very low even when compared to neighboring countries2. The average daily consumption is 42ml per day/person against a recommended allowance of 250ml/day. Bangladesh would currently need to import or produce five times its current production if it is to meet the WHO recommended daily requirement. Thus there is a huge requirement.

Milk imports in Bangladesh has increased from 2.2 billion takas in 1996 to about 8 billion takas today. The EU has gradually removed subsidies on its milk products. In addition the devaluation of the taka has also negatively impacted our balance of payments for dairy products. In the retail market the price of powdered milk has more than doubled in the past decade.

All this should point to a strengthening of our local production base. In fact local production has increased. However after a sudden jump in the early 90's, milk production has registered a very gradual growth. The double digit growth between 1991 and 1996 has tapered off to an average growth rate of 1.3% between 1996 and 2004.

THE NATURE OF THE INDUSTRY

Traditionally the industry has been dominated by the Ghosh community who collected milk from farms and processed them into Ghee, curds, sweets and other products. Liquid milk only had informal supply structure and in fact constituted a small portion of the total market. However with the development of the collective model of BMPCUL, the market for milk began to expand and surplus milk made its way to the cities as a processed package product.

The average Bangladeshi dairy farm has 3.5 heads of cattle. Dairy is still considered a "secondary" profession even for farmers with 5-10 heads of cattle. Part of the reason may be that most dairy farmers also have another source of income. Another reason for this may be that milking and tending the cows has traditionally been the "womens job" and is therefore given less importance than farming the fields even in households whose major source of income is dairy.

Baghabari area in present day Sirajganj district was a traditional milk producing area. A large community of Ghosh's collected the milk and supplied chaana, ghee, curds and sweets to sweet sellers across the country. In 1965, the then East Pakistan government created the Eastern Milk Producers Co-operative Union Limited (EMPCUL). This was renamed to Bangladesh Milk Producers Cooperative Union Limited (BMPCUL). BMPCUL is popularly known as Milk Vita the brand name of its product. Milk Vita organized farmers in the Baghabari area into cooperatives and started collecting milk in the area. It set up a pasteurization plant. Among its other products are butter and ghee. Milk Vita achieved significant success in increasing the milk production in Baghabari area by providing training and extension services. However its impact and success outside the area has been limited.

In other areas farmers still operate on an individual basis selling milk mostly to sweet manufacturers. Milk prices are also high in most other parts of the country limiting access to common people. The high price of milk has relegated liquid milk to luxury food item status thus reducing its demand. In addition there are no preservation and storage systems for milk in other areas. Thus besides local demand, there isn't a significant surplus that can be used to export milk to urban areas.

Milk Vita enjoyed a virtual monopoly for two decades before new entrants such as BRAC dairy and PRAN entered the market. All the private companies also focused their efforts in the Baghabari area as milk production has not taken off in other areas. Milk Vita by far dominates the industry.

MILK PRICES

Milk price in Bangladesh is the highest in the region. In addition the quality of the milk is also poor. Farmgate prices are currently around 22 takas per litre[3]. Retail prices in Dhaka average about Taka 35 per litre of milk. Until 2005 the price of imported powdered milk was significantly lower than the price of local milk in Dhaka. Moreover the ability to preserve imported milk has led to ever increasing imports. With the gradual withdrawal of milk subsidies especially by EU countries, the price of local milk has once again become competitive.

To keep the price competitive the industry has to grow to keep up with demand. As incomes rise consumption of milk can be expected to rise. Without growth in the industry imports will increase as will the price of local milk. Thus there is no alternative to increasing consumption without increasing local production of milk.

GOVERNMENT ASSISTANCE TO THE INDUSTRY

The Bangladesh government has set up quite a few agencies to cater to the needs of the livestock industry. First there is the Ministry of Fisheries and Livestock which is responsible for the overall direction of the industry. In addition there is the Department of Livestock Services (DLS). This department is responsible for providing extension services to farmers. A third body is the Bangladesh Livestock Research Institute (BLRI) which is responsible for conducting research on genetics and feed.

(a) Direct Subsidies to Farmers

In 1993 a subsidy was introduced by the government to increase cattle population. A total of 5 crore per year was allocated and the subsidy amount was Taka 6000 per head of cattle for up to 5 cows. In subsequent years the subsidy was reduced and finally eliminated in 1996. The subsidy was again reinstated in 2002 though it was reduced to Taka 3000-5000 per head depending on the number of cattle. The subsidy was discontinued soon after.

(b) Indirect Subsidies through BMPCUL

BMPCUL has also received subsidies from the government in the form of low interest loans, grants, project funds coming out of the revenue budget. Over the years Milk Vita has received over 100 crores in direct and indirect subsidies from the government, and foreign governments and donor agencies. In addition as a collective it is also subject to a more favorable tax structure in its milk collection efforts. Most of the infrastructure investments in Milk Vita were made through special low interest loans or direct grants from the Government and Donor Agencies. Much of the government loans have also been converted to equity over the years.

Populations	**146 Million**
Cattle Population	**23.5 Million**
Buffalo Population	**1.21 Million**
Per Capita Bovine Animal	**0.18**
Indigenous Zebu Cows	**90 %**
Average Milk Production per Cows	**1.5 kg/day**
Total Milk Production	**2.95 Million M. T.**
Total Buffalo Milk Production	**0.022 Million M. T.**
Milk Requirement per Capita	**250 g/day**
Milk Available per Capita	**54.6 g/day (22.4 %)**
Milk Deficit per Capita	**195.4 g/day (78.6 %)**

MARKET FAILURES AND GOVERNMENT FAILURES IN DAIRY PRODUCTION AND MARKETING

Market failure is “the failure of a more or less idealized system of price-market institutions to sustain ‘desirable’ activities or to stop ‘undesirable activities’ (Bator, 1958). On the other hand, (Arrow, 1971) gives market failure a wider meaning “the failure of markets to exist”. Thus, market failure is the inability of private enterprise to provide goods and services efficiently in the public interest. Similarly, government failure means that government has failed to accomplish its economic purposes in the public interest. When government fails to define or protect public and private property, economic players may try to take that property. Sometimes, government fails in its roles, such as antitrust or consumer protection, to promote efficient market competition. This often happens as an accidental result of poor legal or administrative process.

1. Information Problems

The most important input to production now is knowledge, rather than capital andlabor as in an industrial society, or land, as in an agricultural society. Information is not the same as knowledge. Information is the medium in which knowledge is processed, stored, and communicated. Knowledge is the content (Chichilnisky, 1999). Information technology is the most obvious manifestation of this change, but the real change is in human knowledge, its creation and distribution, and the corresponding changes in the organization of society. Knowledge has always been the force driving change in the world economy.

2. **Lack of Disease/Parasites Control (Externalities)**

Externalities are costs or benefits, which individual decision-makers impose or bestow upon others by their actions but for which they suffer no penalty and/or receive no reward. In consequence, decision-makers exclude consideration of these externalities when arriving at decisions. The existence of externalities in cattle disease control means that the independent actions of individual farmers undertaking control will not except by great coincidence, correspond to what would be considered socially desirable.

3. Shortage of Quality Breeds (Incomplete Market)

The main problem of dairy development lies in its very low production and low productivity. Breeding is the major technological improvement process in the dairyindustry. A cross-breeding program for cattle was introduced in the country in 1976 with a view to improving the milk production efficiency of indigenous cows. The program serves with a network of 847 artificial insemination centres (LivestockDirectory, 1992-93). The results obtained, so far, on the organized farms and research institutes, is quite encouraging. However, no systematic study has been conducted in the country to objectively evaluate the economic performance of the cross-breed cows under field conditions.

4. Shortage of Cattle Feed (Incomplete Market)

The dairy cow requires five major classes of nutrients: energy, protein, minerals, vitamins, and water. All five are essential for normal health and productive purposes. A pregnant cow needs additional energy for building the tissues of the fetus developing in her uterus. And, finally, a lactating cow requires still more energy to manufacture the milk, which is being secreted by her mammary glands each day. Lactating cows react immediately to a reduction in the amount or quality of feed by a drop in milk production, and if the reduced ration lasts as long as a week or two, it will be difficult or impossible to bring the herd back up to the previous level of production.

5. Lack of Research and Training (Public Goods)

Livestock, in spite of its importance, has been a neglected area of agricultural research in Bangladesh. No visible improvements can be made because of the absence of a sense of urgency and low investment in research. Scientific research studies relating to economic aspects of dairying and the dairy industry are not adequately available. Moreover, due to a lack of effectiveness in its research and extension services, it has not yet been demonstrated that livestock farming, and particularly dairy farming, can be transformed into an attractive and profitable business.

6. Lack of National Milk Grid and Processing Plants (Public Goods)

A milk grid is a system under government for moving milk from the remote rural milk sheds to urban milk consuming demand centres. This has helped producers get a good price and simultaneously in developing a regular market for their milk. Therefore, milk production is geared to meet fresh daily requirements of the population. However, there is no national milk grid. The development of a milk grid would help to increase milk production, and current losses in milk would be reduced. Attention should be given to their establishment.

7. Inefficient Marketing

“Marketing makes the exchange process more meaningful to the parties involved in the exchange. One party gains in term of needs and wants satisfaction and the other gains profit by promoting satisfaction (Kotler, p.22)”. The goal of any marketing program is to move the product from the producer to the consumers in an economical and orderly manner, which satisfies the customers and provides a reasonable profit to the producer and processor. Therefore, with a proper perspective, marketing as an approach can provide a meaningful direction to the dairy development effort. Given that 97% of milk is produced in rural areas while the profitable market for it exists largely in the urban areas, most of the daily production of milk of the farms is brought to different markets of the urban area for sale. Due to the dearth of marketing facilities, the dairy farm owners are compelled to sell the bulk of their milk to the tea stalls at a cheaper price. Marketing channels for livestock products are also very poor, particularly for perishable products of animal origin. This severely restricts production and results in unmarketable surpluses in some areas and shortages in main consumption areas.

Animal, Aqua & Cattle Feed Plants

ANIMAL, AQUA & CATTLE FEED PLANTS

AN INTRODUCTION TO AQUAFEEDS

FLOATING AND SINKING AQUAFEED

Culture of aquatic animals especially fish culture has undergone a dramatic worldwide growth in the last few years. The aquaculture industry is the fastest growing food production industry in the world and approximately 50% of all fish consumed by humans is from aquaculture (Thorarinsdottir et. al., 2011). Nutrition plays a vital role in improving animal productivity. Understanding about the nutritional requirements and production of fish feed is essential to the development and sustainability of aquaculture as the industry has matured.

Prepared or artificial diets may be either complete or supplemental.

Complete diets supply all the ingredients, protein (18-50%), lipid (10-25%), carbohydrate (15-20%), ash (< 8.5%), phosphorus (< 1.5%), water (< 10%), and trace amounts of vitamins, and minerals necessary for the optimal growth and health of the fish (Craig and Helfrich, 2002).

Nutritionally complete feeds should be used when fish are reared in high density indoor systems or confined in cages and cannot forage freely on natural foods or natural foods are absent or where natural foods only make a small contribution to nutrition. When substantial amounts of natural productivity are available, supplemental feeds (incomplete, partial) don’t need to contain all essential nutrients and are intended only to help fortify the natural foods with extra protein, carbohydrate and lipid in the culture systems.

Feeds can be farm-made single component feeds like rice bran or mastered oil cake to commercial feeds.

Kitchen wastes may also be considered as one of the types of farm-made feeds produced economically for a small scale culture venture. Farm-made or on-farm feeds

consist of one or more artificial and/or natural ingredients, produced for a particular farming activity and not for any commercial purpose.

Mixtures of ingredients subjected to some form of processing (simple mixing, grinding and cooking) done on-farm or in small processing plants are generally regarded as farm-made feeds and are often used in small-scale semi-intensive aquaculture practices.

Commercial feeds are formulated and manufactured from a homogenous mixer of several ingredients, in various proportions that ensure precise quality targets in terms of size and texture, stability and nutritional composition at a highly competitive price. Commercial complete feeds are used usually in intensive and semi-intensive practices.

Some feeds are formulated with antibiotics for treatment of Vibriosis, and other bacterial infections are sometimes called medicated feeds.

A. FEED TYPES:

Feeds can be produced either by steam processing, producing compacted, pressure-pelleted (sinking) feeds; or by extrusion, which produces expanded floating or buoyant feeds.

Floating feeds

In general floating feeds offer numerous advantages over their sinking counterparts. Raw materials are propelled by screws along the barrel of the extruder machine to cook the materials at 120-175ºC for about 30 seconds.

The homogenous cooked mixture is forced through a die at high pressure. The material expands because of the pressure difference.

Floating feeds are more digestible as a result of cooking process and the heat and pressure deactivate destructive enzymes as well. Increased starch gelatinization helps the feed to be more stable in water by disintegrating less quickly that gives enough time to the fish to take the meal completely. Moreover, the farmer can directly observe the

feeding intensity of his fish and adjust feeding rates accordingly determining whether feeding rates are too low or too high is important in maximizing fish growth and feed use efficiency. Another side effect is that farmers can visually monitor the health condition of the reared fish as they come to the surface to take feed.

In contrast, floating feed can be detrimental with respect to consumption by competitors and some fish species.

Sinking feeds

Sinking feeds are solid feed pellets that submerged during application. Bottom feeder shrimp, for example, prefer sinking pellets (density greater than that of water, 1 g/cm3) and will not accept a floating feed (Craig and Helfrich, 2002).

The farmer cannot always estimate feeding rates properly in relation to the biomass present in his pond and feeding whether too low or too high than the actual requirement. It cause lower weight gain in a particular age and enlarge the culture period when feeding rate is low. In the other hand, overfeeding causes subsequent loss of feed supplied as well as deteriorating water quality that may results in a number of problems.

B. FEED INGREDIENTS:

Animal origin fish feed ingredients are obtained from different mollusks, silkworm, poultry, cattle and fish mainly. These feed ingredients are applied by targeting carnivorous culture species. Some ingredients like fish viscera, cattle viscera are applied directly into the culture water body and some are applied after some sort of preliminary processing. Animal origin feed ingredients contains more protein in comparison to those ingredients of plant origin. Most of the animal origin fish feed ingredients are considered as protein supplements (i.e. contains more than 20% protein).

Wide ranges of ingredients are used in preparation of aquafeeds.

They include aquatic and terrestrial plants (Duckweeds, Azolla, Water Hyacinth, etc.), Aquatic animals (Snails, Clams, etc.) and terrestrial-based live feeds (Silkworm Larvae, Maggots, etc.), Plant or grain processing products and byproducts (De-Oiled Cakes and Meals, Beans, Grains and Brans) and Animal-processing by-products (Meat and Bone Meal, Bone Meal, Blood Meal, Feather Meal, etc.).

There are more than 35 low price raw materials found locally in Bangladesh can be used in the preparation of supplementary feed of fish and shrimp (Ali and Hoq, 2010).

01. Fish meal

Bangla name: Fish meal or machher gura

English name: Fish meal

Source: Various types of fishes especially those are considered trash.

Used part: Almost all parts of the fish body.

Physical properties: Powder like but the particles are not fine, some minute bones may present and usually of light brownish or yellowish color.

Chemical properties: Highest grade fish meal (Grade-A1) contains- Moisture 13.75%; Protein 59.61%, Lipid 11.22%, Fiber 2.17%, Ash 22.78%, NFE 4.34%; and Gross energy 4754 Kcal/kg (FRI, 1989).

Availability: 3 grades of fish meal are available in Bangladesh. Fish meal is produced from different fish feed industries of the country. These industries are located in Chittagong, Cox's Bazar, Khulna, Bogra, Mymensingh etc. districts.

Application: mainly used for high-valued culture species. Applied in both polyculture and monoculture farming, but magnitude and extend of application is much higher in monoculture than polyculture especially in Tilapia culture (monosex and GIFT), Thai-Koi culture, Pangas culture etc.

02. Bone meal

Bangla name: Bone meal or Harer gura

English name: Bone meal

Source: processed from bones of different animals.

Used part: Different bones of the body.

Physical properties: Powder like, reddish or brownish in color.

Chemical properties: Moisture 7.49%; Protein 17.5%, Lipid 5.19%, Fiber 3.53%, Ash 65.73%, NFE 8.05%; and Gross energy 1988 Kcal/kg (FRI, 1989).

Availability: Commonly available throughout Bangladesh. Major sources are Chittagong, Khulna, Dhaka and some other districts of the country.

Application: Applied by mixing with other ingredients.

03. Oyster shell meal

Bangla name: Jhinuk churna

English name: Oyster shell meal

Source: Oyster, mussel etc.

Used part: Shell of the animal.

Physical properties: Powder form and grayish in color.

Chemical properties: Moisture 83.4%; Protein 14.1%, Lipid 0.4%, Fiber 0%, Ash 0%, and Carbohydrate 0% (Das, 1997).

Availability: Commonly available throughout Bangladesh. Major sources are Chittagong, Khulna, Dhaka and some other districts of the country.

Application: Applied by mixing with other ingredients.

04. Poultry viscera:

Bangla name: Has-murgir nari vuri

English name: Poultry viscera

Source: Different poultry birds

Used part: Alimentary canal with blood

Physical properties: Irregular shaped because of differences in the shape of different parts of alimentary canal. Color is whitish but often reddish due to blood association.

Chemical properties: Moisture 81.47%; Protein 51.6%, Lipid 21.14%, Fiber 1.69%, Ash 12.53%, NFE 13.04%; and Gross energy 5566 Kcal/kg (FRI, 1989).

Availability: Commonly available; may be obtained from household kitchen or local slaughter houses.

Application: Applied directly into the pond and target fish species are African magur and Thai pangas.

05. Fish viscera:

Bangla name: Macher nari-vuri

English name: Fish viscera

Source: Different fishes, specially those of larger in size.

Used part: Alimentary canal, air bladder etc.

Physical properties: Reddish colored due to presence of fish blood.

Chemical properties: Moisture 81.47%; Protein 51.6%, Lipid 21.14%, Fiber 1.69%, Ash 12.53%, NFE 13.04%; and Gross energy 5566 Kcal/kg (FRI, 1989).

Availability: Commonly available in any local fish markets of the country.

Application: Applied directly into the pond and target fish species are African magur and Thai pangas.

Table 1: Ingredients used commonly as sources of protein, carbohydrate and fat.

Nutrient	Ingredients used
Protein	Fish meal, Dry fish, Soybean meal, Meat and bone meal, Rape seed cake, Mustered oil cake, Soy protein concentrate, Blood meal, Krill meal, Maize gluten.
Carbohydrate	Rice polish, Maize, Flours, Wheat meal, Extruded gelatinized starch.
Fat	Fish oil, Vegetable oil, Crude oil, Full fat soybean.

A wide variety of additives are used that would have positive effects on growth and feed conversion without causing bacterial resistance to fully utilize valuable raw materials in feed pellets.

C. FEED PRODUCTION:

Production of feed includes two major steps as feed formulation and processing or preparation.

Formulation:

Feed formulation is the process of quantifying the proportion of ingredients to be put together, to form a single uniform mixture or pellet that will provide all the nutritional requirements of the target fish. It is a central operation in feed production, ensuring that feed ingredients are economically used for optimum growth of reared species. It requires a good expertise in fish biology and nutrition along with a deep knowledge about feed ingredients and their roles. Most large-scale fish farmers depend on commercial feed mills for their feeds, to obviate the need to do their own formulations or feed preparation. It is therefore essential that formulations are accurate, to ensure that cultured fish are not adversely affected. Feed formulation is a science and an art at a

time, requiring knowledge of feed and fish in view of economic aspects when using formulae.

Feed formulation can be done in two major steps as,

1. Ingredient selection and restrictions and
2. Identification of nutritional specifications.

Processing:

Grinding
⬇
Mixing
⬇
Conditioning
⬇
Pelleting
⬇
Drying
⬇
Packaging

D. FEED CHARACTERISTICS:

Flavor and taste

Flavor and taste of feed is especially important in the case of bottom feeding animals. Smell can be detected by the specific anatomical receptors in fish, but flavor has to be dissolved in water for the fish to locate it. Some fish have receptors in their mouths, or on the head or lips. Some even have taste receptors on their skin. These receptors carry messages to the brain and tell the fish to swim towards the food. Some kinds of food can strongly stimulate fish to feed by their flavor.

Color and Buoyancy

Some fish that are used to feeding on floating feed may not take to sinking feed that has sunk to the bottom. Similarly, bottom feeders rarely come to the top of the aquarium to eat food. A majority of the fish species in the tropical variety are however not very picky when it comes to the buoyancy of food.

Sound

A fish can “hear” sounds through the vibrations that take place in water. By picking up these vibrations in water, fish become aware of the feeding frenzies that cause many fish to conglomerate when the feeding begins. Also, there are fish that are so used to a routine in their feeding that they start grouping when they hear sounds that normally precede feeding.

Sizes of pellets

Feeds are produced in a variety of sizes on the basis of the die diameter and the cutter blade action. The pellet size ranges from fine powder for small fries or fingerlings to 1/2 inch or larger pellets.

The pellet size must be limited to about 20-30% of the diameter of mouth opening of the fish species concerned.

In case of feeding too small pellets than the appropriate size, more energy have to be used by the cultured animal during searching and eating more pellets that results in inefficient feeding. On the other hand, pellets that are too large will depress feeding and may cause choking in severe cases.

E. Maintaining feed quality:

A variety of factors govern the quality and wholesomeness of aqua feeds. Feeding stuffs origin, processing, handling and storage, as well as many other factors related to the market, can affect at different levels both quality and safety of feed. Feed quality can be

ensured initially by using good quality ingredients. Purchase of raw materials must conform adequate quality, traceability, environmental sustainability and safety standards.

Feed manufactured in the factory is usually of desired quality, but that level of quality may have been fall by the time it reaches a farmer's pond finally. Commercial fish feed is usually purchased by large farms as bulk feed in truckloads and stored in outside bins.

Finished feeds undergo deteriorative changes during storage which not only lower their nutritive value below minimum specifications but also affect their palatability and appearance.

Feeds should be stored in dry, well ventilated warehouses out of direct sunlight with a minimum temperature change to reduce micro-climatic variations and containment for control of pests.

All feed should be used within two months of manufacture and inspected regularly. During long storage there may arise growth of mound, degradation of vitamin potency and fat rancidity. Unnecessary handling damage the feed bags and creates dusts that are not usually consumed by fish and wasted. Pests (i.e. mice, rats, roaches) must be controlled strictly in the storage, to avoid contamination. Proper storage is a simple, but an important part to keep the products at a high quality.

Nutritionists, industry, farmers, and overall the government authorities have to pay attention to animal feedstuff production processes, thereby acknowledging that animal feed safety is an essential prerequisite for human food safety.

Background: (An Adivasi woman showing harvested fish from her rice-fish-plot)

Adivasis are found far from the main stream development in Bangladesh. Unfortunately efforts neither on the proven aquaculture technology for ponds and rice fields nor the suitable approach like FFS (Farmers Field School) are taken for livelihood improvement of the more vulnerable Adivasi peoples. Therefore, the present study evaluated the performances of the FFS based poor adivasi households for fish culture in ponds and rice fields and studied their livelihood aspects in Northwest and Northern Bangladesh.

STRATEGY FOR USING THE MULTIPLE OWNED/LEASED PONDS AND RICE PLOTS:

Three different types of strategies or agreements (for a period of 1-3 years) between owner and operator were found to use the multiple owned or leased ponds and rice plots. Among the different strategies, maximum benefit was found for the resource poor Adivasis to use the leased rice fish plots.

Labor sharing	**Input sharing**	**Benefit/output sharing**	
Multiple owned ponds (One operator is selected only from the owners)	Operator will contribute 100% labor	Operator will provide 100% input cost	Operator will minus his total input cost from total production/income.Remaining production/income will be distributed equally among the owners
Multiple owned rice-fish plots	Owners will share equally	Owners will share equally	Owners will share equally
Leased rice-fish plots	Lease holder will provide all the labor	Lease holder will bear all the input cost	Production/income from rice will be distributed equally between land owner and lease holder.Lease holder will get the 100% of fish production/income.

FISH CULTURE TECHNIQUE:

Only polyculture of 2 to 9 species in Ponds and both monoculture and polyculture of 2 to 7 species in the rice field were found in the study area.

Performances of the households in the major technical issues to the use of ponds and rice fields:

Adivasi households were found well capable to demonstrate their minimum performances in maximum technical issues related to fish culture in ponds and rice fields.

Technical issues	Pirganj, Rangpur		Panchbibi, Joypurhat	
	Pond (%)	Rice-Fish (%)	Pond (%)	Rice-fish (%)
Pond preparation/ ditch excavation	7.14	81.82	6.25	90
Fish stocking	78.57	100	100	85
Supplementary feeding	54.55	31.82	50	58.82
Fertilization	90.91	45.45	87.5	47.06
Post stocking lime and ash application	-	-	25	-
Vegetable production on dyke	14.29	13.64	18.75	15

Vegetable production at the side of rice-field

Sampling of the cultured fishes in the rice-fish plot

FISH PRODUCTION AND ECONOMICS:

Mean fish production in ponds and rice fields varied from 1196.71 ±805.01 kgha-1 (Pirganj) to 1246.38± 1249.14 kgha-1 (Panchbibi) and 283.12±384.63 kgha-1 (Panchbibi) 296.68±404.03 kgha-1 (Pirganj) respectively.

In case of multi owned ponds, the number of owner/share varied from 2 to 3 and the profit per share was found to decrease with the increase in share. Single owned rice fields were found better than that of the multiple owned or leased in terms of production and profit. Leased rice fields were found better than that of the multiple owned.

FRESHWATER AND ESTUARINE FISHES OF BANGLADESH

General parameter to differentiate freshwater from estuarine habitat is the salinity level of water. Freshwater contains less than 0.5 ppt (Parts Per Thousand) salinity whereas estuarine water contains moderate salinity (generally 14-17 ppt). We can easily define freshwater and estuarine fish species in such ways that “fishes live in freshwater habitats are called freshwater fish and fishes live in estuarine habitat are called estuarine fishes.”

Rahman (1989) described 260 species of freshwater indigenous fish but recent data have shown that this number is above 265.

Freshwater and estuarine fishes with their habitat are mentioned below:-

Gang tengraScientific name	**English/Group name**	**Habitat**
Acanthocobitis botia	Mottled loach	F
Acanthocobitis zonalternans	Loach	F
Acanthopagrus latus	Yellowfin seabream	E,M,TR
Barilius barila	Barred baril	F
Barilius barna	Barna baril	F
Chelonodon potoca	Milkspotted puffer	M, E
Chitala chitala	Humped featherback	F
Gagata cenia	Indian gagata	F
Gagata gagata	Gangetic gagata	F

Gagata youssoufi	Gang tengra	
Hara hara	Kosi hara	F
Harpodon nehereus	Bombay-duck	M, E
Hemibagrus menoda	Menoda catfish	F
Ichthyocampus carce	Freshwater pipefish	E,TR
Ilisha megaloptera	Bigeye ilisha	E, F
Johnius coitor	Coitor croaker	E, TR
Labeo angra	Angra labeo	F
Trypauchen vagina	Burrowing goby	E, M
Wallago attu	Freshwater shark	F
Xenentodon cancila	Freshwater gar	F
Zenarchopterus ectuntio	Ectuntio halfbeak	F, E

N.B. F=Freshwater; E=Estuarine; M=Marine; TR=Tidal river

Danio devario (Hamilton, 1822)

Danio rerio (Hamilton, 1822)

Erethistes hara (Hamilton-Buchanan, 1822)
[Hara hara (Hamilton, 1822)]

Esomus danricus (Hamilton, 1822)

WOMEN'S EMPOWERMENT AND THEIR ROLE IN FISHERIES DEVELOPMENT IN BANGLADESH

DRY FISH SORTING

Empowerment of women means the involvement of women to exercise power and capital. After the liberation war of Bangladesh empowerment process of women is began but truly the progress of the women's empowerment is not satisfactory to the peaceful development of the country. The freedom of self-fulfillment and self-development as well as equal access to democratic and community resources, opportunities and powers of women should be ensured.

Development means the action or process of developing something. According to Mahatma Gandhi, recognition of human potentials is development. Bangladesh is a developing country of 150 million people of which about 50% are women. According to BBS (Bangladesh Bureau of statistics, 2002) 40 percent women work in rural areas and 20 percent in urban areas. 15 percent laborer and 13 percent unpaid family workers.

ROLE OF WOMEN IN FISHERIES DEVELOPMENT IN BANGLADESH

Women in Bangladesh are often excluded from fishing, and from the institutions that manage fisheries. Including women in community-based management institutions is crucial for improving their livelihoods. Fish are a fundamental source of food for poor rural people. About 80 percent of rural households in Bangladesh catch fish for food or to sell, and people receive about 63 percent of their animal protein from fish. Fishing has traditionally been men's work, but women and children have increasingly become involved in fishing activities. Women are gradually participating in all sorts of fisheries activities including planning to implementation, pond excavating to fish sell, prawn or

shrimp PL collection to processing for exporting and even net making to fish drying. In rural Bangladesh near about 30 percent of women's are some how involved in fish culture. In fishermen family all family members are involved in fisheries activity. To increase the participation rate and the skill of women, NGO's are provided different types of training and loan facility. The following fisheries sectors have a high potential and easy access to the women. Already many women take part in these sectors successfully and make difference to the society as well as country.

Fish feed preparation

Fish Feed application

1. FISH CULTURE:

In pond management and fish culture technique women participation is quite satisfactory. GO's and NGO's initiations helped to increase women's participation in fish culture and other fisheries activities. The women proved their efficiency by taking part in nursery management of fishes in different NGO assisted projects. Cent percent women were involved in Jamuna boropit fish culture projects accomplished by Grameen fish foundation which was one of the renowned successes in women's empowerment.

2. CAGE CULTURE:

Cage culture is an advanced technology that opens the door of opportunity to involve much more women in fish culture. Cage culture provides an opportunity of fish production to all categories of people whether they have water body or not. It's also enhanced the community based fisheries management system.

3. PL COLLECTION:

According the data of Fisheries Resources Survey System there are about 4,43,024 shrimp fry collectors and 1,441 fish spawn or fish fry collectors are in Bangladesh. Many of the fry collectors are women or children. This fry collection work provides part-time job opportunity to the poor households.

4. FISH PROCESSING PLANTS:

A large number of female employees are working in different fish processing plants of Khulna and Cox's Bazar regions. Moreover, their involvement is increasing day by day.

Beheading of shrimp

5. COMMUNITY BASED FISHERIES MANAGEMENT ORGANIZATION OR JALMAHAL BASED EFFORT:

Female members of fishermen families in beels, haors, baors and floodplain areas are taking part in making nets, fishing traps, traditional fish drying and even marketing marketing of fishes. Community based fisheries management (CBFM) projects of NGO, Bachte Shekha, attained success in beel management, where female's participation was prominent.

Rice-fish farming

Production of prawn with carp in polyculture pond, Rajshahi

Harvested carp and prawn

Polyculture of prawn with carps makes the ecological balance of the pond water, preventing the formation of massive algae blooms (Cohen et al. 1983) and at the same time increase the total production. Prawn polyculture with carps in ponds is a recent practice in northern region.

POND MANAGEMENT, STOCKING AND PRODUCTION:

Aquatic weeds were removed manually. Predatory fish and unwanted species were removed through repeated netting. All the ponds were fertilized with cow dung (2000 kg/ha), urea (50 kg/ha) and TSP (50 kg/ha) as a basal dose after 7 days of liming (250 kg/ha). Bamboo sticks, bamboo and plum leaves were also used in ponds for shelter of prawn. The initial weight of prawn (Macrobrachium rosenbergii), silver carp (Hypophthalmicthys molitrix) and catla (Catla catla) were 2g, 60 g and 50 g respectively. Stocking density of prawn, silver carp and catla were 15000, 3000 and 2000 individuals/ha respectively.

Removal effort of aquatic vegetation

Application of fertilizer

Stocking of PL of prawn at evening

Prawn were fed twice daily at the rate of 10% body weight at the first two months and it was reduced to 4% at the 3rd month and 2% at the last three months. Two types of supplementary feed were used such as: Rice bran 100% and Rice bran 20%, Fishmeal 30%, Oil cake 50%. Feeds were applied into the ponds twice daily. In each month 10% of the stocked prawn as well as fishes were caught from each pond with the help of a seine net for the study of growth performance of fishes.

Temperature varied from 21.84 to 22.07º C. Ling 1969 recommended that a temperature ranging from 22 to 32º C is suitable for prawn culture. In the present study the temperature was lower than reported by Ling (1969) particularly during the winter months. Water transparency varied from 24.50 to 30.37 cm. Boyd (1982) reported a transparency between 25 to 40 cm as appropriate for fish culture. The mean pH in the ponds was 7.51 to 7.54. Hossain et al. (2000) found the pH range varied from 6.8 to 8.1, which fall within the suitable range reported for farming of M. rosenbergii. The mean values of Dissolved oxygen varied from 2.83 to 3.35 mg/l. Wahab et al. (1995) recorded DO ranging from 2.2 to 7.1 mg/l in fish culture pond. Ammonia-nitrogen value ranged from 0.0183 to 0.0274 mg/l. The present findings more or less agreed with BAFRU (1990) reporting NH3-N of <0.025 mg/l as safe for fish. The mean value of alkalinity varied from 95.00 to 137.25 mg/l respectively. This findings strongly agreed with Boyd (1998) who reported natural fertility of pond water increases with increase the total alkalinity up to at least 150 mg/l.

Ball shaped supplementary feed of prawn

Operation of feeding tray

The production of prawn varied from 797.91 to 1088.84 kg/ha. Mazid et al. (1989) reported the production of prawn of 265 to 790.60 kg/ha. The production of silver carp and catla varied from 1414.22±72.12 to 1542.37±41.10 kg/ha and 426.44±55.45 to 597.09±29.93 kg/ha, respectively. The total production of prawn and fish in the present study which ranged from 2638.58 to 3228.31 kg/ha/6 months. The results of this findings indicated that production of prawn, silver carp and catla were higher in Rice bran 20%, fishmeal 30%, oilcake 50% than that of Rice bran 100%.

Weighing of harvested prawn

TRENDS IN ANIMAL POPULATION AND PRODUCTION

According to FAO (1994), the three countries have the following number of animals (table 6):

Table 6. Animal populations in Bangladesh, India and Viet Nam.

Animals	Bangladesh	India	Viet Nam
Cattle	23 923 000	192 700 000*	3 320 000
Buffaloes	866 000	78 555 000*	2 956 000
Pigs	N/A	10 587 000**	14 861 000
Sheep	989 000	44 608 000*	N/A
Goats	25 967 000	117 547 000*	300 000**
Chickens	109 000 000	435 000 000**	83 000 000**
Ducks	14 000 000	N/A	30 000 000**

Note:* = unofficial, ** = FAO estimate.
Source:FAO (1994).

BANGLADESH

The number of cattle, goats and chickens in Bangladesh are 24 million, 26 million and 109 million, respectively. While these are important animals, it is noted that there are fewer buffaloes, pigs and ducks than the natural conditions of the country would suggest. For example, although natural conditions in Bangladesh would be expected to favour buffaloes, there are less than 1 million in the whole country. This may well be associated with the small size of the farms, the limited amount of common land available for grazing and the large size of the buffalos compared to cattle (unpublished surveys conducted by the Dutch sponsored Noakhali Land Reclamation Project).

Cattle numbers rose from 14.6 million in 1940 to 23.0 million in 1965 (Jackson, 1980) and again to 24.0 million in 1993, indicating a ceiling of approximately 23-25 million cattle. In contrast to the foregoing, there has been a dramatic increase in the number of goats - from 7.7 to 26.0 million -, probably reflecting the large increase in the share of landless people who can afford to invest in or enter into share-cropping arrangements for goat-raising, but not cattle. The number of chickens has increased from 51.0 to 109.0 million and ducks from 6.2 to 14.0 million. While modern poultry production is gaining ground in Bangladesh and an interesting model is emerging for poultry production as a tool in human development (section 5.1), the main explanation for increases in these figures is probably the increased number of households and their accompanying cohort of animals, following the general human population increase from 73.7 million in 1975 to 122.2 million in 1993.

In recent years, however, large poultry farms have sprung up in the country and exotic poultry breeds are used both in Government and NGO-led poverty eradication programmes (discussed in section 5.1.). During the same years, efforts were being made to encourage domestic milk production and herds of crossbred cows can be seen in the country, although according to FAO (1994) these attempts are not yet reflected in increased national milk production.

INDIA

Most of the traditionally domesticated animals can be found in India. Although the country has ducks, their statistics are not included in the FAO (1994) Production Yearbook.

Cattle play an important role as working animals, but the trend is declining (Kelley et al., 1991). According to their calculations, there has been a 3% increase in the number of male cattle from 1966 to 1987, compared to a 22% increase in females. With regard to buffaloes, the increases are 14% and 57%respectively for males and females. These figures reveal the increasing importance of large ruminants for milk production in India, compared to work, and in the context of cattle and buffaloes, the increasing contribution of buffaloes to milk production. In 1975, total cattle and buffalo milk production in India was 15.5 million tonnes, of which 44 percent came from buffaloes (FAO, 1977). In 1993, the total production was estimated according to FAO (1994) to be 60.9 million tonnes, of which 50 percent came from buffaloes.

India has thus seen a dramatic increase in total milk production, which is mainly due to the increase in production of buffalo milk. Egg production has expanded rapidly in India. In 1975, 85 thousand tonnes were produced (FAO, 1977), and this figure had expanded to 1.5 million tonnes in 1993 (FAO, 1994).

While developments in the dairy sector have followed a cooperative marketing model, based on the famous Anand pattern favouring small producers (Kurien, 1993), there has been expanded egg production in the commercial sector, dominated by large producers.

Compared to Viet Nam, the number of pigs recorded in India in 1993 - 10.6 million -is noteworthy. Pig-raising farmers may well be of interest to IFAD as a target group, in that they are generally low-cast hindus, harijans, tribals or religious minorities.

The number of goats has grown from 69.0 million in 1975 to 117.5 million in 1993, while the sheep population in 1993 (44.6 million) records only a marginal increase from the 40.0 million recorded in 1975.

FINDINGS & SUGGESTIONS

- The aquaculture industry is the fastest growing food production industry in the world and approximately 50% of all fish consumed by humans is from aquaculture.
- The farmer cannot always estimate feeding rates properly in relation to the biomass present in his pond and feeding whether too low or too high than the actual requirement. It cause lower weight gain in a particular age and enlarge the culture period when feeding rate is low. In the other hand, overfeeding causes subsequent loss of feed supplied as well as deteriorating water quality that may results in a number of problems.
- Wide ranges of ingredients are used in preparation of aqua feeds. They include aquatic and terrestrial plants (Duckweeds, Azolla, Water Hyacinth, etc.)
- There are more than 35 low price raw materials found locally in Bangladesh can be used in the preparation of supplementary feed of fish and shrimp (Ali and Hoq, 2010).
- Commercial fish feed is usually purchased by large farms as bulk feed in truckloads and stored in outside bins.
- Feeds should be stored in dry, well ventilated warehouses out of direct sunlight with a minimum temperature change to reduce micro-climatic variations and containment for control of pests. (i.e. mice, rats, roaches)
- All feed should be used within two months of manufacture and inspected regularly.
- Adivasis are found far from the main stream development in Bangladesh.
- Single owned rice fields were found better than that of the multiple owned or leased in terms of production and profit.
- Leased rice fields were found better than that of the multiple owned.

- Women in Bangladesh are often excluded from fishing, and from the institutions that manage fisheries. Including women in community-based management institutions is crucial for improving their livelihoods. Fish are a fundamental source of food for poor rural people. About 80 percent of rural households in Bangladesh catch fish for food or to sell, and people receive about 63 percent of their animal protein from fish. Fishing has traditionally been men's work, but women and children have increasingly become involved in fishing activities.
- In rural Bangladesh near about 30 percent of women's are some how involved in fish culture.
- According the data of Fisheries Resources Survey System there are about 4,43,024 shrimp fry collectors and 1,441 fish spawn or fish fry collectors are in Bangladesh. Many of the fry collectors are women or children. This fry collection work provides part-time job opportunity to the poor households.
- The total production of prawn and fish in the present study which ranged from 2638.58 to 3228.31 kg/ha/6 months. The results of this findings indicated that production of prawn, silver carp and catla were higher in Rice bran 20%, fishmeal 30%, oilcake 50% than that of Rice bran 100%.
- The number of cattle, goats and chickens in Bangladesh are 24 million, 26 million and 109 million, respectively.

SUGGESTION:

- Bangladesh whether condition they required more buffalos but in Bangladesh currently 1 million buffalos are there so which is less than the actual requirement so suggestion is that we can export buffalos from India because in India compare to Bangladesh and Vietnam buffalos are more.
- Another suggestion is that fishes are required 16kg per year but they are producing only 14 kg per year so we can start business of fish farming in Bangladesh.
- Compared to India land area is less & also less availability of proper developed techniques in Bangladesh so, it is better to do business being in India through exporting.

Dyeing & Printing Industry

PEST ANALYSIS FOR DYEING AND PRINTING INDUSTRY OF BANGLADESH

A PEST Analysis can help us to know about the external environment situation of a particular industry of a country. The below analysis is the PEST analysis for the Dyeing and Printing industry of Bangladesh.

POLITICAL ANALYSIS:

Among various features of our political situation, most noticeable and important conditions may be identified as follows –

- Absence of democratic political culture
- Absence the rule of law
- Absence of strong civil society
- Absence of strong political leadership
- Confrontational politics
- Corruption and terrorism
- Negativity/Double standard despite of many drawbacks, our government has taken some positive initiatives in favor of foreign investors. There are no distinctions between foreign and domestic private investors regarding investment incentives or export and import policies. Incentives for investors include - 100% ownership in most sectors, tax holidays, reduced import duties on capital machinery and spares, 100% duty-free imports and tax exemptions.
- Government policies for Foreign Investments: The stated policy of the government of Bangladesh (BDG) is to pursue foreign investment actively, and it has enacted a number of policies to this end. There are no distinctions between foreign and domestic private investors regarding investment incentives or export and import policies. Incentives for investors include: 100% ownership in most sectors; tax holidays; reduced import duties on capital machinery and spares; duty-free imports for 100% exporters; and tax exemptions.

ECONOMIC ANALYSIS:

The economy of Bangladesh RMG environment constituted by that of a developing country. Its per capita income in 2010 was est. US$1,500 (adjusted by purchasing power parity) significantly lower than India, Pakistan, both which are also lower than the world average of $10,497.According to the gradation by the International Monetary Fund, Bangladesh ranked as the 48th largest economy in the world in 2010, with a gross domestic product of US$224.889 billion. The economy has grown at the rate of 6-7% p.a. over the past few years. More than half of the GDP belongs to the service sector; nearly half of Bangladeshis are employed in the agriculture sector, with RMG, fish, vegetables, leather and leather goods, ceramics, rice as other important produce. The inflation rate in Bangladesh was last reported at 10.2 percent in May of 2011. The Deposit interest rate (%) in Bangladesh was reported at 9.65 in 2008, according to the World Bank. Bangladesh is considered as a developing economy because of the GDP growth above 5% during the last few years. Microcredit has been a major driver of economic development in Bangladesh.

BANGLADESH CORPORATE TAX RATES

The standard rate of corporate tax in Bangladesh is 27.5% in 2008 - 2009 tax years. This is the standard corporate tax rate applicable to publicly traded companies in Bangladesh, a list including tax rates for other corporations are as follows:

- Publicly Traded Company 27.5%
- Non-publicly Traded Company 37.5%
- Bank, Insurance & Financial Company 45%
- Mobile Phone Operator Company 45%

If any publicly traded company declares more than 20% dividend, 10% rebate on total tax is allowed.

SOCIAL

Companies are facing the challenges of adapting effectively to the changing environment in the context of globalization and in particular in the export sector in Bangladesh. Although Consumer Rights Movement, enforcement of government regulations and a structured view regarding the economic importance of Social responsibility are not yet so widespread in the corporate world in Bangladesh, companies have gradually attaching more importance to Social responsibility in the local market as well. They are increasingly aware that Social responsibility can be of direct economic value. Companies can contribute to social and environmental objectives, through integrating Social responsibility as a strategic investment into their core business strategy, management instruments and operations. This is an investment, not a cost, much like quality management. So, business organizations can thereby have an inclusive financial, commercial and social approach, leading to a long ter m strategy minimizing risks linked to uncertainty.

TECHNOLOGICAL

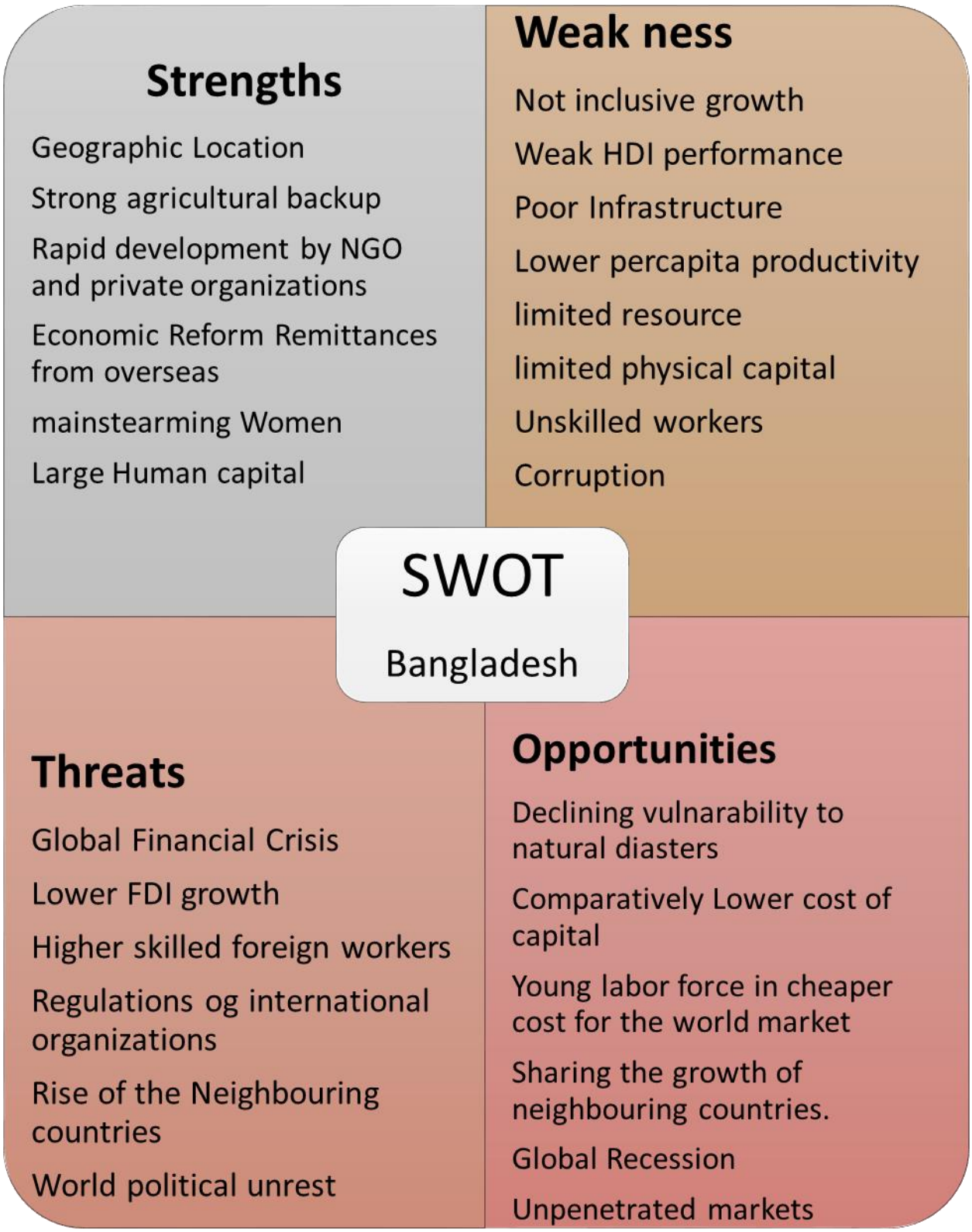
The need for faster technological development is increasingly felt in Bangladesh. Development plans of Bangladesh have emphasized science and technological research to develop technologies through adoption of imported technology as well as development of indigenous technologies. As the country is heavily dependent on imported technologies, proper planning is required for its effective transfer through acquisition, assimilation and adoption. A National Science and Technology Policy has been formulated and adopted by the Government. It has laid down the directions for S and T activities and research, institutional and manpower development. Dissemination and documentation facilities. The National Council for Science and Technology (NCST) determines S and T policies, reviews the activities of different institutions and provides direction towards S and T research and activities.

MCKINSEY REPORT (2011): BANGLADESH AS NEXT HOT SPOT, NEXT CHINA

Currently Bangladesh is now second largest ready-made garments (RMG) manufacturer after China, by the next five years Bangladesh will become the largest ready-made garments (RMG) manufacturer. Bangladesh was the sixth largest exporter of apparel in the world after China,

In 2006 Bangladesh's share in the world apparel exports was 2.8%. The US was the largest single market with US$3.23 billion in exports, a 30% share in 2007. Today, the US remains the largest market for Bangladesh's woven garments taking US$2.42 billion, a 47% share of Bangladesh's total woven exports. The European Union remains the largest regional destination - Bangladesh exported US$5.36 billion in apparel; 50% of their total apparel exports. The EU took a 61% share of Bangladeshi knitwear with US$3.36 billion exports.

According to a 2011 report by controversial and powerful international consulting giant McKinsey & Company 80 percent of American and European clothing companies planned to move their outsourcing from China, where wages had risen, and were considering Bangladesh as the "next hot spot" making it the "next China". **China Price**, the hallmark of China’s incredibly cheap, ubiquitous manufacturers, much "dreaded by competitors.


Strengths
Geographic Location
Strong agricultural backup
Rapid development by NGO and private organizations
Economic Reform Remittances from overseas
mainstearming Women
Large Human capital
Weak ness
Not inclusive growth
Weak HDI performance
Poor Infrastructure
Lower percapita productivity
limited resource
limited physical capital
Unskilled workers
Corruption
SWOT
Bangladesh
Threats
Global Financial Crisis
Lower FDI growth
Higher skilled foreign workers
Regulations og international organizations
Rise of the Neighbouring countries
World political unrest
Opportunities
Declining vulnarability to natural diasters
Comparatively Lower cost of capital
Young labor force in cheaper cost for the world market
Sharing the growth of neighbouring countries.
Global Recession
Unpenetrated markets

DYEING PROCESS:

Color may be introduced into manufactured articles, for example textiles and plastics, or into a range of color application media, for example paints and printing inks, for a variety of reasons but most commonly the ultimate purpose is to enhance the appearance and attractiveness of a product and improve its market appeal.

Dyeing is an ancient art which predates written records. It was practised during the Bronze age in Europe. Primitive dyeing techniques included sticking plants to fabric or rubbing crushed pigments into cloth. The methods became more sophisticated with time and techniques using natural dyes from crushed fruits, berries and other plants, which were boiled into the fabric and gave light and **water fastness** (resistance), were developed. Some of the well known ancient dyes include madder, a red dye made from the roots of the Rubia tinctorum, blue indigo from the leaves of Indigofera tinctoria, yellow from the stigmas of the saffron plant, and dogwood, an extract of pulp of the dogwood tree. The first use of the blue dye, woad, beloved by the Ancient Britons, may have originated in Palestine where it was found growing wild. The most famous and highly prized color through the ages was Tyrian purple, noted in the Bible, a dye obtained from the spiny dye-murex shellfish. The Phoenicians prepared it until the seventh century, when Arab conquerors destroyed their dyeing installations in the Levant. A bright red called cochineal was obtained from an insect native to Mexico. All these produced high-quality dark colors. Until the mid-19th century all dyestuffs were made from natural materials, mainly vegetable and animal matter.

APPLICATION OF DYE:

Dyeing can be carried out at any of the following stages in the textile manufacturing stage:

1. The fibers can be dyed before they are spun. Fiber dyeing provides a deep penetration of the dye into the fiber, giving even color and excellent **color-fastness.**

2. The yarn can be dyed after spinning but before the product is woven or otherwise fabricated. This is called package dyeing.
3. Before the fabric is finished, it can be dyed in lengths (piece dyeing).This process allows manufacturers the opportunity to produce fabrics in their natural colours, and then dye them to order.
4. In cross-dyeing, fabrics of two or more fibers can be dyed so that each fiber accepts a **different dyestuff** and becomes a different color, through the use of appropriate dyestuffs for each fiber.
5. It is essential for the correct identification of the fibre or other fabric to be made before dyeing commences.

Natural Fibers:

These include two main types:

1. Protein fibres of animal origin, such as wool and silk
2. **Cellulosic fibers** of plant origin, such as cotton, flax and jute

Man-made Fibers:

These include three main types:

1. Synthetic polymers, such as polyester, nylon and acrylic
2. Regenerated cellulose, such as viscose and lyocell
3. Cellulose acetates, such as diacetate and triacetate

Dyeing can take place at various stages of textile production, for example, on fibres, yarns, fabrics and garments.

In all **dyeing processes** the first step is to impregnate the textile material with dye solution. An important requirement is the movement of the dye into the structure of the fibre. In addition, the ability of certain types of dye to interact with the polymer material that makes up the fibre determines whether or not that type of dye is suitable for a particular fibre.

STAGES OF DYEING

Fiber Stage

- added to fibers before yarn spinning—slightly irregular color (heathered or mottled)
- *mass pigmentation (solution-dyed)*—adding colored pigments or dyes to spinning solution before fiber is formed stock or fiber dyeing is expensive.

Yarn Stage

can be done with

- yarn in skeins— *skein dyeing*
- yarns wrapped on cones or packages— *package dyeing*
- yarn wound on beams— *beam dyeing*

yarn-dyed fabrics more expensive to produce—

- larger inventories of yarn needed
- threading loom

considered to be better quality fabrics

Piece Dyeing

when bolt or roll of fabric dyed

- usually produces solid-color fabrics
- generally costs less to dye
- color decisions can be delayed

Cross Dyeing

piece dyeing of fabrics (sometimes yarns) made of different generic fibers

- each fiber type bonds with a different dye class

Union Dyeing

another type of piece dyeing that uses dyes suited to each fiber type, mixed to produce same

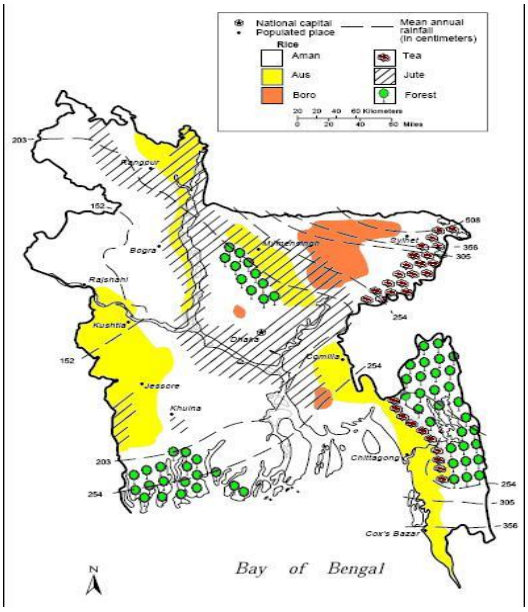
Product Stage

after fabric is cut & sewn into finished product

- great care must be taken in handling materials & dyeing to produce level, uniform color

- button, thread, trim may be different color because of differences in dye absorption
- important due to quick response to retail & consumer demands

Jute Producing in India



Jute is a rain-fed crop with little need for fertilizer or pesticides, in contrast to cotton's heavy requirements. Production is concentrated in India, mainly Bengal, and mostly in Bangladesh, . The jute fiber comes from the stem and ribbon (outer skin) of the jute plant. The fibers are first extracted by retting. The retting process consists of bundling jute stems together and immersing them in slow running water. There are two types of retting: stem and ribbon. After the retting process, stripping begins; women and children usually do this job. In the stripping process, non-fibrous matter is scraped off, then the workers dig in and grab the fibers from within the jute stem. India, Pakistan, and China are the large buyers of local jute while the United Kingdom, Spain, Côte d'Ivoire, Germany and Brazil also import raw jute from Bangladesh. Bangladesh is the world's largest producer of jute.

Top ten jute producers — 2011		
Country	**Production (Tonnes)**	
Bangladesh	1,523,320	
India	1,237,270	
People's Republic of China	43,500	
Myanmar	30,000	
Uzbekistan	18,930	
Nepal	14,418	
Vietnam	14,000	
Zimbabwe	2,298	
Egypt	2,200	
Thailand	2,184	
World	2,861,996	

Average of last 3 years (2007/08-2009/10):

1. Average land area under jute cultivation : 4, 64,000 ha
2. Average Yield : 2.32 ton/ha
3. a) Average production of Jute : 1.08 m ton (60 lakh bales)

   b) Carry over (opening stock) : 0.03m ton (1.67 lakh bales)

4. Number of farm families	:	3.5- 4 million
5. Average internal consumption of jute	:	0.6 m ton (33.3 lakh bales)
6. a) Average export of raw jute	:	0.4m ton (22.5 lakh bales)
b) Value	:	US$ 140 million
7. Number of Jute Mills (BJMA)	:	96 (closed 19, lay off 5)
8. Number of Jute Mills (BJSA)	:	67 (closed 3)
9. Number of Jute Mills (BJMC)	:	24 (closed 4)
10. Total number of Jute Mills	:	187 (closed 31)
11. Number of workers employed in Jute Mills (Approx)	:	1, 50,000
12. Average production of jute goods (BJMC, BJMA, BJSA)	:	5, 925, 00 MT
a) Sacking	:	180600 MT
b) Hessian	:	40490 MT
c) CBC	:	11130 MT
d) Yarn & Twine	:	327970 MT
13. Average internal consumption of jute goods	:	1, 00,000 MT
14. Average export of jute goods	:	4, 87,000 MT
15. Average export value of jute goods	:	US$ 471 million
16. Total average export earning from jute & jute goods	:	US$ 611 million

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