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The Significance of Green Technology in the Textile Industries of Bangladesh

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Abstract

With the recent trend of global climate change and its effect on the earth coupled with world-wide environment concerned buyers and consumers demand as well as the demand of time rather than current form of production which consumes a lot of natural resource. Textiles industry of Bangladesh is bound to going a green industry which has been observed the present trend. This study revealed the approaches to improve the overall environmental and working condition of textile industries in Bangladesh along with a certain target to achieve an internationally recognized standard and also attempt to discern the significances of green textiles industries by comparative analysis between green and non- green industries with the cost measurement of polo-shirt for same quantity. This study also disclosed that due to the FOB facility in the green textile industry, its production costs are less, although cost of clothing for both industries is the same and green textile industry can ensure environmental sustainability.

Keywords: Green Technology, Eco-friendly process, Green Features, Polo-shirt, Green Textiles

1. Introduction

Eco-friendly or green production involves activities such as reducing and recycling. The 'green technology' field incorporates a consistent group of energy production strategies and strategies in non-toxic clean products. This field has been able to bring innovation and change in daily life in the equivalent of 'Information Technology' explosion for the same two decades. In this initial stage, it is impossible to predict how 'green technology' can finally be surrounded. Green textile can directly change the environmental model of clothing industry which is related to environmental issues. As well as improving the industry with green textile industry, it helps to make the difference between green and non-green industry. This study achieved an internationally recognized standard aimed at improving the overall environment and working conditions of the textile industry of Bangladesh. In order to discern the importance of overall environment and working conditions of the textile industry of Bangladesh, this study took facilitation from a study which was collected from Textile Today Homepage [1]. All of industries in Bangladesh to enhance green features for retaining the LEED (U.S Green Building Council) certification and addressing them as a green textiles industries whereas these industries would be able to create a safety workplace as well as the cost of doing business [13]. This study also showed how a new industry can be converted to green by utilizing green technology. Above all, the improvement in the textile industry of Bangladesh will increase gradually if the product is produced in the environment friendly process [7].

2. Green technology in Brief

The term "technology" refers to the application of knowledge for practical purposes. The field of "green technology" encompasses a continuously evolving group of methods and materials, from techniques for generating energy to non-toxic cleaning products. It has been related to energy, green chemistry, green building and green nanotechnology [2].

The green technology on textile industries of Bangladesh

Huge water is required in textile dyeing industries, which are pumped out repeatedly from the ground or natural water sources resulting in depletion of ground water level by 2 to 3 meter per year. In the dyeing process textile industries generate the huge toxic effluent containing colors, sodium sulphate, sodium chloride, sodium hydroxide and traces of other salts. These are also generating waste water 'after dyeing' and 'after washing' of garments or fabrics. After dyeing the wastewater produced is called 'Dye Bath Water' and after washing the wastewater generated is called 'Wash Water'. Dye bath water contains higher solids in the range 4-5% whereas wash water contains only 0.5-1%. Based on the above mentioned facts, a technology is essential to introduce which can process such waste water and transform it into reusable water. Thus, the textile industries will get the advantage of using the same water in the dying process repeatedly; also the salt used for dyeing can be reused or sold in the market. Green Technology has been able to provide an environmentally friendly product through its production process as well as the greening of an industry [8].

The history of green technology on textile industries of Bangladesh

Before introducing green of textiles industries in Bangladesh there has been created some problems related to "Building Design and Construction, Water Efficiency, Energy and Atmosphere, Materials and Resources, Health & Safety and Compensation". Already, these problems have been associated with different textiles industries in Bangladesh that is mostly involved in Rana Plaza and Tazreen Fashions. The loss of 1,136 lives when Rana Plaza collapsed on 24 April 2013 sent shockwaves worldwide. A few months later a fatal fire at Tazreen Fashions was also occurred in which 112 died it was clear that the Bangladesh Ready Made Garment (RMG) sector had reached a crucial juncture. Business could not continue as usual for such recurrent disaster. Fundamental changes relating to safety, inspection and compliance had to be made if the lives of over four million workers were to be safeguarded and the confidence of global buyers retained [3].

3. How does the LEED rating system certify the factory?

As per its certified USGBC, LEED is the most widely used third-party verification for green buildings, with around 1.85 million square feet being certified daily. LEED works for all buildings—from homes to corporate headquarters—at all phases of development. Projects pursuing LEED certification earn points across several areas that address sustainability issues. Based on the number of achieved points, a project receives one of four LEED rating levels called LEED v.4. The LEED v.4 four levels of certification are (1) Certified 40-49 points, (2) Silver: 50-59 points, (3) Gold: 60-79 points and (4) Platinum: 80 points and above. According to USGBC, so far, a total of 79,600 projects in 161 countries have received LEED certificates. To be LEED certified one building or factory is to meet The Minimum Program Requirements (MPRs). MRPs are the least amount characteristics or conditions that make a project appropriate to pursue LEED certification. These requirements are foundational to all LEED projects and define the types of buildings, spaces, and neighborhoods that the LEED rating system is designed to evaluate [1].

Fig.1. Green factories should be as green as its surrounding natural villages.

4. How to create a green textile industry from a running textile industry in Bangladesh?

Making the factories environmentally friendly or eco-friendly is becoming more and more important worldwide as day by day the planet is turning out to be more vulnerable for its inhabitants. Every year unhealthy environment is killing millions of people worldwide. Environmental risks now contribute to more than 100 of the world's most dangerous diseases and injuries, and kill 12.6 million people a year – nearly one in four or 23% of all deaths, according to a new World Health Organization (WHO) study. In this situation eco-friendly industry is must and already green factory concept be prompted. U.S. Green Building Council (USGBC) developed a certification process called Leadership in Energy and Environmental Design (LEED) to evaluate environmental performance of a building and encourage market transformation towards sustainable design [1]. Following the collapse of the Rana Plaza it was decided that 3,508 export-oriented RMG factories should undergo structural, fire and electrical safety inspections. Two initiatives representing international brands and retailers: the Bangladesh Accord on Fire and Building Safety and the Alliance for Bangladesh Worker Safety has carried out inspections of the factories which their member companies source from. As part of its RMG program supported by Canada, the Netherlands and UK, ILO supported the national initiative of the Government of Bangladesh to carry inspections of the factories not covered by Accord or Alliance. By 31 December 2015 the inspections had been concluded. In total three initiatives inspected 3,780 factories of which 1,549 were assessed through the national initiative. A total of 39 factories have been closed for posing an immediate danger to workers due to the unavailability of green features. Therefore, to convert non-green textile industry into a green textile industry, the following points should be filled [3].

Associated with ILO

Two initiatives representing international brands and retailers: the Bangladesh Accord on Fire and Building Safety and the Alliance for Bangladesh Worker Safety has carried out inspections of the factories which their member companies source from. As part of its RMG program supported by Canada, the Netherlands and UK, ILO supported the national initiative of the Government of Bangladesh to carry inspections of the factories not covered by Accord or Alliance. ILO is supported to create green textiles on the following points [3].

Strengthening the Labour inspectorate

It was clear that the labour inspectorate required a complete overhaul if it was to be effective. As a result, the Government of Bangladesh made a series of major commitments to rebuild the Department of Inspections of Factories and Establishments (DIFE). The inspection service was upgraded to a department in January 2014, high level leadership installed, positions for 392 new inspectors created and budget boosted from US$900,000 in 2013-14 to US$4.1 million in 2015-16. By May 2015, 199 new inspectors (51 female) had been recruited or appointed bringing the total to 284. Although the recruitment of inspectors is a positive development, both new and existing staff needs intensive capacity building. As part of its reform efforts DIFE has implemented a number of training program for its inspectors. These include a recently concluded 40-day foundational training course helping 160 labour inspectors gain the skills needed to boost working conditions and worker safety in Bangladesh [3].

Strengthening the fire service

Recognizing the vital role of the Fire Service and Civil Defense Department (FSCD), emphasis has been placed on enhancing its capacity to carry out inspections and respond to incidents. The Government of Bangladesh has boosted the strength of the FSCD with the number of fire service staff working as inspectors up from 55 to 265. A core of master trainers has been created within FSCD to build the skills of colleagues nationwide. Fire Service staff can now more effectively inspect factories, develop emergency action plans and carry out evacuation drills to ensure factory occupants evacuate buildings safely when the alarm sounds [3].

Enhancing occupational health and safety

Building a culture of Occupational Safety and Health and the skills to implement it is a major challenge for the RMG sector. Efforts are therefore underway supported by ILO to reinforce the capacity of workers, supervisors and managers in the sector to improve the safety of their workplaces. Through training and education and the support of broad awareness campaigns and materials, workers and employers will benefit from improved safety practices and be better able to fulfill the objectives of the National Action Plan on Fire and Building Safety [3].

Establishment of an Employment Injury Social Protection

ILO actively promotes policies and provides assistance to countries to help extend adequate levels of social protection to all members of society. Workers will receive payment in case of injury. Employers will benefit from low-cost and no-fault accident compensation insurance for workers. Such a scheme would also make the Bangladesh industry more attractive to international brands and retailers who would no longer fear being dragged into compensation issues [3].

Enhancing workers' rights
A process is ongoing to set up a dispute settlement and mediation system with the Department of Labour to help address anti-union discrimination and terminations [3].

Associated with LEED
A non-green textile industry will have been filled the following demand to be a green textile industry in Bangladesh which have been associated with LEED. Points are offered in eight categories for adopting specified building practices, materials or products [13].

ID—Innovation and Design
Includes such innovative measures as design methods, regional credits, and exemplary performance Innovations that would integrate best practices of everyone on the team [13]

LL—Location and Linkages
Placement of homes in socially and environmentally responsible ways in relation to the larger community [13]

SS—Sustainable Sites
Uses the entire property to minimize project's impact on the site [13].

WE—Water Efficiency
Water conservation practices, indoor and outdoor, that are built into the home [13].

EA—Energy and Atmosphere
Optimization of energy efficiency in well insulated, tight building envelope with efficient heating and cooling systems [13]

MR—Materials and Resources
Reduction of material waste during construction and selection of green products [13].

IEQ—Indoor Air Quality
Improvement of indoor air quality by reducing air pollution with Energy Star appliances, installation methods and ventilation measures [13].

AE—Awareness and Education
Create a homeowner's manual covering the operation and maintenance of the green features of the home [13].

5. Criteria of a green industry
To be certified as green an industry must be purely compliant and all the elements used in the industry have to be tested by the United States Green Building Council (USGBC). Projects pursuing LEED certification earn points across several areas that address sustainability issues. Based on the number of points achieved, a project then receives one of four LEED rating levels: Certified, Sliver, Gold and Platinum. LEED projects earn points across nine basic areas that address key aspects of green buildings [11]. An LEED certificate requires factories to meet its nine requirements where each chunk has separate points. 7 points are base points and rests of 2 points are bonus points. 7 base points are given in figure-2[1].

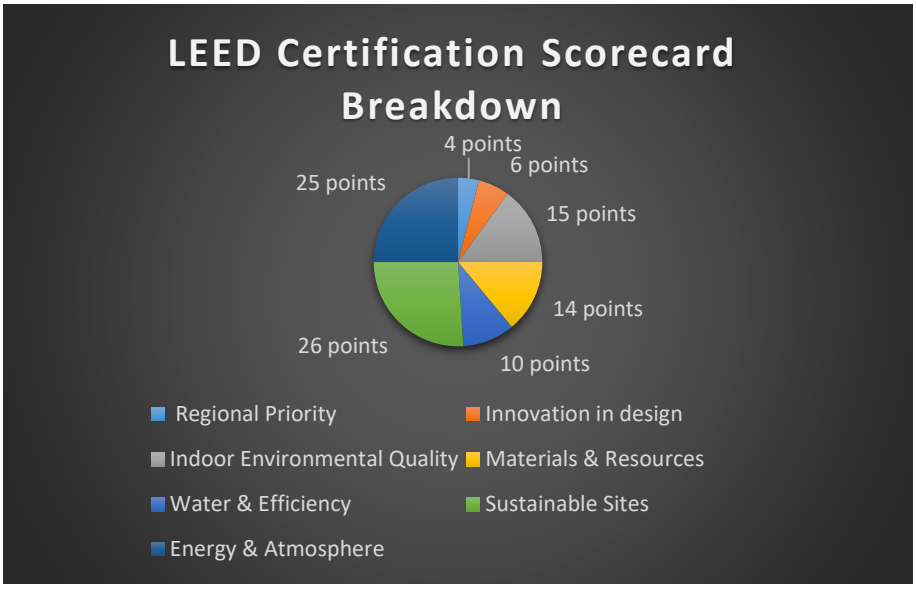

Fig. 2. LEED Certification Scorecard Breakdown.

Present Scenario in Bangladesh

A total of 32 garments factories received LEED certificate while 150 more are expected to get it. The industries vision is $50 billion exports by 2021. Greening approach can help the industry achieve the target [10]. Here is the list of green textile factories which have been capable to earn LEED certification points [12].

Table 1. Top Nine LEED certified Industries of Bangladesh [12]

Name of Industry	Points Earned
Remi Holdings Ltd	97
Plummy Fashion Ltd	92
Vintage Denim Studio Ltd	90
SQ Celslus 2	85
Genesis Washing Ltd	83
Genesis Fashions Ltd	81
SQ ColBlanc Ltd	81
SQ Birichina Ltd	81
Envoy Textiles Ltd	80

- Vintage Denim Studio was the first factory, which got LEED Platinum certificate in 2012.
- Remi Holdings is developed as a top green garments factory in Bangladesh
- Envoy Textiles is the first denim-producing green factory in the world
- Plummy Fashion achieves first Rank as a green knitwear

The above mentioned green textile industries have achieved more capacity than non-green in terms of export of their products [10].

Environmental scenario of non-green textile industries in Bangladesh

Bangladesh's textile industry can be divided into three main categories: public sector, handloom sector, and the organized private sector, the private sector is the fastest growing sector in the country as shown in Table -2. Most of these industrial units are located along the banks of the rivers, which provide transportation for incoming raw materials and outgoing finished products. Unfortunately, as a consequence, industrial units drain effluents directly into the rivers without any consideration of the environment [4].

Textiles are one of the most problematic industries for the water sector. A complex mixture of hazardous chemicals, both organic and inorganic, is discharged into the water bodies from all these industries, usually without treatment. The highest number of industrial locations in the country is in the North Central (NC) region, which comprises just under half of the total sector. About 33 per cent of the industries in the NC region are textiles, finished garments and tanneries, of which Dhaka district accounts for almost half and Narayanganj about 32 per cent. The most polluting industrial units listed in 1986 included 298 textile mills, which rose to 365 units in the recent statistics of DoE. Around 50% of these are small-scale industries and their contributions to environmental pollution are summarized in the Table 2 in terms of wastewater (m3) and biological oxygen demand (BOD load, kg/day) discharged into the inland surface water discharged per day [5].

Table 2. Estimated wastewater loads from textile industries in Bangladesh [5]

Industry	Public (number)	Private (number)	Wastewater discharges (m^3/day)	Pollution Load (BOD kg/day)
Textiles	**20**	**482**	**40,000**	**26,000**

Industries and factories at Tongi near Dhaka regularly dump solid waste and effluent in the nearby River Turag, Buriganga and Shitalakhya polluting the water. Color of water of the Turag is dark and has a strong odour. The number of factories polluting Turag is at least 20. The industrial units include mostly the textile mills, dyeing mills, pharmaceutical plants etc. Savar, which is the largest industrial belt near Dhaka in Bangladesh, has more than 85 local and foreign industries in the old and new EPZ zones where most of them are textile and dyeing

industries. The industries of Savar generate a large amount of effluent every day which are being directly discharged into the surrounding land, agricultural fields, irrigation channels and surface water and finally enter into the river. The water samples from point sources, upstream areas and deep tube wells were collected and analyzed for Na, K, Mg, Ca, Fe, Cu, Cd, Cr, Pb, pH, Temperatures, DO, BOD, COD, Total hardness, Total alkalinity, EC, Chloride, TDS, TSS. Descriptive analysis identified the effluent status for textile and dyeing industries compared to the national standard for drinking, fishing, and irrigation water. Most of the parameters were highly intolerable at the point source to discharge points [5]. The industrial effluents are usually discharged into Dhalai Beel which then entered into the Bansal River without any treatment. Therefore, the highly concentrated heavy metals become harmful to fish and microorganism of the Dhalai Beel. For this a large number of villages in Savar are now being threatened from the environmental point. The deadly poisonous toxic industrial effluent seriously affected the fish population and the farmers are also losing their crops, fruits and vegetables because the surrounding lands have become unsuitable for cultivation. Although the level of few selected heavy metals in the water/soil of Bangladesh have found in few literature, one information exists on the concentration of trace and natural radioactive elements [6]. Many industrial units are increasingly polluting Narayanganj, the industrial and river-port town near the capital city. People there feel that the condition in and around the town is gradually becoming intolerable. Other than the town, there are industrial units at Fatulla, Panchabatee, Kachpur, Rupashi, Tarabo, Hotabo, Sonargaon, Araihazar, Rupganj and Gopaldee. Moreover, there are dyeing/printing factories, textile mills along the Dhaka- Chittagong highway. Many of these industrial units drain out effluents directly into the river Shitalakkhya. Others drain out effluents into nearby crop fields, irrigation canals and water bodies. The Bangladesh Center for Advanced Studies (BCAS), analyzed that EC of Shitalakhya River cross the limit and it was 110 mg/l- during 1980 but aggressive industrialization and improper agricultural activities, it rises up to 1440 mg/l during 1998 and TDS rises from 216 to 446 mg/l. A number of textile and leather industries discharge their industrial effluents into a nearby small water body, the results showed that levels of COD, TSS and DO in the water exceeded standard limits. It also showed that the total chromium concentration in sediments and wastewaters near the discharge points of the local tannery and textile industries is very high. The concentrations of zinc, lead, and cadmium were also found to be higher than the national standards [14]. Water in the irrigation canals of the DND (Dhaka-Narayanganj-Demra) and the Narayanganj- Narsingdi Agrani Irrigation Projects have become polluted. Solid wastes from the industrial units are dumped into adjacent areas including roadside ditches, drains, and crop fields, even adjacent to residential areas making lives of people horrible and crop cultivation impossible [14].

6. Methodology

The green technology in the field of textile industries may be enhanced by improving the overall environmental and working condition of textile industries in Bangladesh along with a certain target to achieve an internationally recognized standard. This study included green properties of textile industry in Bangladesh. Firstly, this study selected non-green industries, which are classified as symbols for green certification and fresh non-green industries. Then this study attempted to discern the significances of green textiles industries in terms of both economic and environmental benefits by comparative analysis between green and non- green industries with the cost measurement of polo-shirt for same quantity. This study also observed FOB facility in the green textile industry by analysis production costs. The law and demand given by both LEED and ILO have been considered in this study [7].

7. Results and Discussions

Through this study, the opportunities to convert textile industry into green textile industry in two phases have been created. In the first phase, the new textile industry has been converted into green textile industry and secondly waiting industries for green certification by Lead has been transformed into a complete green textile industry. Compared with the cost of producing a garment of non-green textile industry, compared to the green textile industry, it is expected that due to the FOB facility in the green textile industry, its production costs are less. Cost of clothing for both industries is the same. Due to the low FOB production, the cost of production of the Green Textile Industry is low [7].

Costing sheet for polo shirt both in Non-green factory and green factory

The cost of turning the textile industry into a green textile industry is higher than that of the non-green textile industry but its cost of production is much lower than the non-green textile industry. The importance of Green Textile Industry and Non-Green Industry is highlighted through this paper, which can be easily understood through the following listings. In the context of Bangladesh, the cost of making a Polo T-shirt in the Green Textile Industry and the same amount of expenditure on producing the same polo t-shirt in the non-green textile industry is highlighted here [7].

Costing sheet for polo shirt Non-green factory

Here is costing measurement of polo-shirt for Niagara Non-Green Textile industry [7].

Table 3: Costing sheet with style and buyer

Buyer **Payper**

Style	Skipper
Item	Mens polo
M/List	
Fabrications	100% Ctn S/L 200 gsm
Weight/m^2	210 g
Order QTY	46400 pcs
Size Range	S-5XL
Colour	Average Colour

Fig 3: Polo-shirt

Table 4: Consumption

Length	Sleeve	Chest	GSM	Wastage	KG'S/Doz	KG'S for cal	CAD
75	21	56	210 g	1.1	3.53	3.53	3.70
			210 g	1.14	0.00	0.00	0.00

Table 5: Fabric Price Calculation

Observation point	Yarn	Knit	Dye	AOP	Net Cost	Wastage%	Price	Price for cal
Solid Body Fabric (s/j)	$2.95	0.19	1.15	0.00	4.79	15%	5.51	$5.51/Kg
AOP Bottom Fabric	$0.00	0.00	0.00	0.00	0.00	0%	0.00	$0.00/Kg

Table 6: Garment Price Calculation

COLOURED	Consumption	Price	TOTAL
Fabric for Polo-Shirt	3.70	$5.51	**$20.38**
Long Pant Fabric	0.00	$0.00	$0.00
Pocket Bag Fabric	0.00	$0.00	$0.00
Neck Tape	0.00	$5.51	$0.00
Neck rip for 0 neck	0.00	$6.33	$0.00
Collar $ cuff	0.85	$6.50	$5.53
TTL	**4.55kg/dz**	**$5.69**	
Accessories			$3.35
Pigment dye	0.00	$0.00	$0.00
Printing cost			$0.00
Chest Print			$0.00
Commercial Cost			$0.50
CM per dzn			$7.00
FOB			**$36.76**

Test & inspection charge			$0.00
Freight			$0.00
Price/Dz			$36.76
Commission			$0.00
Per Dzn			**$36.76**
Price per PCS			**$3.06**

Costing sheet for polo shirt Green factory

Here is costing measurement of polo-shirt for Niagara Green Textile industry [7].

Table 7: Costing sheet with style and buyer

Buyer	**Payper**
Style	Skipper
Item	Mens polo
M/List	
Fabrications	100% Ctn S/L 200 gsm
Weight/m^2	210 g
Order QTY	46400 pcs
Size Range	S-5XL
Colour	Average Colour

Fig 4: Polo-shirt

Table 8: Consumption

Length	**Sleeve**	**Chest**	**GSM**	**Wastage**	**KG'S/Doz**	**KG'S for cal**	**CAD**
75	21	56	210 g	1.1	3.53	3.53	3.60
			210 g	1.14	0.00	0.00	0.00

Table 9: Fabric Price Calculation

Observation point	**Yarn**	**Knit**	**Dye**	**AOP**	**Net Cost**	**Wastage%**	**Price**	**Price for cal**
Solid Body Fabric (s/j)	$2.95	0.19	1.15	0.00	4.89	10%	5.38	$5.38/Kg
AOP Bottom Fabric	$0.00	0.00	0.00	0.00	0.00	0%	0.00	$0.00/Kg

Table 10: Garment Price Calculation

COLOURED	**Consumption**	**Price**	**TOTAL**
Fabric for Polo-Shirt	3.70	$5.51	**$19.36**
Long Pant Fabric	0.00	$0.00	$0.00
Pocket Bag Fabric	0.00	$0.00	$0.00
Neck Tape	0.00	$5.51	$0.00
Neck rip for 0 neck	0.00	$6.33	$0.00
Collar $ cuff	0.85	$6.50	$5.53
TTL	**4.55kg/dz**	**$5.69**	
Accessories			$3.35
Pigment dye	0.00	$0.00	$0.00
Printing cost			$0.00

Chest Print			$0.00
Commercial Cost			$0.50
CM per dzn			$7.00
FOB			**$35.24**
Test & inspection charge			$0.00
Freight			$0.00
Price/Dz			$36.76
Commission			$0.00
Per Dzn			**$35.24**
Price per PCS			**$2.94**

This study is able to find out the consecutive way of future potentiality of green textile industries related to environment. Garment price calculation with the exception of both the Green Textile Industry and the Non-Green Textile Industry, it seems that the cost of a polo shirt is relatively less in the green textile industry. The green textile industry's FOB is lower than the non-green textile industry, and this is largely due to the low cost of the green textile industry. Where FOB of green textiles is **$35.24** and FOB of non-green textiles is $**36.76.** Fabric for polo-shirt cost vary between green and non- textile factory. Through the above discussion, it seems that the importance of Green Textile Industry in Bangladesh and its sustainable development is now demanding time [7].

Environmental Sustainability

Environmental sustainability is innovative ways to minimize the impact of industrial operations on the environment through green technologies.

Green factories:

- reduce harmful emission
- resource efficient
- energy efficient
- recycle by products
- better waste management

BGMEA is implementing a program in cooperating with IFC that aims to enhance the long term competitiveness and environmental sustainability of the textile wet processing sector in Bangladesh, by supporting factories is specific geographic clusters. It will reduce their waste footprint through-[9]

- Enhancement of water resource management
- Adoption of low cost cleaner products practices.

Economic Benefits

This study got the following economic benefits if non green industry is converted into green industry.

- The renowned brands place high importance on the factory environment and working conditions
- The western consumers also prefer buying products manufactured in factories sensitive to the environment.
- Increase productivity and create brand image
- Though setting up a green factory, it can ensure 30 to 40 percent higher investment than a traditional one; it saves money in the long run for reducing the cost of utility services such as power and water.
- Adoption of eco-friendly or green technology initially requires big investments but such initiative could help increase the competitiveness. Buyers usually offer 10 to 15 percent higher prices for eco-friendly products [7].

Challenge

Despite the significant economic contribution of the textiles industries in Bangladesh, it has brought in a range of environmental problems mostly pollution of water resources of the country. The main challenge for the textile industry today is to modify production method, so they are more eco-friendly at a competitive price by using safer dyes and chemical and reducing cost of efficient treatment or using disposal system. Thus its change to textile productions processes affect type and volume of effluent. The lack of a National Effluent Quality Standards (NEQS) and adequate up to date environmental rules and regulations and also lack of lands and utility services through economic across [9].

Future potentiality

Increasing the number of green industries will enhance competitiveness of the Bangladeshi products in the global market. If the government allows us the duty-free import of equipment's for setting up export oriented green factories, investors would be encouraged to establish more eco-friendly factories. If the government provides lands and utility services through economic zones, it would help in increase the number of green factories across the country [7].

Possible results associated with ILO and LEED

By comparing cost of production of a garment of non-green textile industry with green textile industry, it is expected that due to the FOB facility in the green textile industry, its production costs are less. Although, costs of clothing for both industries are same. It is expected that due to the FOB facility in the green textile industry, its production costs are less. Cost of clothing for both industries is the same. Due to the low FOB production, the cost of production of the Green Textile Industry is low. The possible results, associated with ILO and LEED shown in Table 11 and Table 12.

Table 11: Possible result associated with ILO

Observation Point	Non-green factory (Value)	Green factory (Value)
Strengthening the labour inspectorate	Medium	Good
Strengthening the fire service	Fair	Good
Enhancing occupational health and safety	Medium	Good
Establishment of an Employment Injury Social Protection	Fair	Good
Enhancing workers' rights	Fair	Good

Table 12: Possible result associated with LEED

Observation Point	Non-green factory (Value)	Green factory (Value)
Sustainable Sites	Fair	Good
Water Efficiency	Fair	Good
Energy and Atmosphere	Fair	Good
Materials and Resources	Fair	Good
Environmental aspects	Fair	Good
Production cost	Higher	Lower

Therefore, the role of the Green Textile Industry is significant to increase the export of garments in Bangladesh [7].

8. Conclusion

However, this study has been successfully identified the rating value of both ILO and LEED between green textile industry and non-green textile industry. Both ILO and LEED rating value of green textile industries are higher than non-green industries. The importance of green textile industry is highlighted by comparing the cost of production of green and non-green textile industry by this study. This study also shows how a new industry can be converted to green. Environmental scenario of both green and non-green textile factory has been observed in different industrial zone of Dhaka in Bangladesh. The major conclusions may be summarized as follows [7]:

- Though setting up a green factory, it can ensure 30 to 40 percent higher investment than a traditional one; it saves money in the long run for reducing the cost of utility services such as power and water.
- Adoption of eco-friendly or green technology initially requires big investments but such initiative could help increase the competitiveness. Buyers usually offer 10 to 15 percent higher prices for eco-friendly products.
- Green factories ensure: reduction harmful emission, better waste management, efficient energy efficient and recycle waste by products
- By comparing cost of production of a garment of non-green textile industry with green textile industry, it is expected that due to the FOB facility in the green textile industry, its production costs are less. Although Cost of clothing for both industries are the same.
- The main challenge for the textile industry today is to modify production method, so they are more eco-friendly at a competitive price by using safer dyes and chemical and reducing cost of efficient treatment or using disposal system.

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