



Measuring the Status and Extent of Green Industrialization of RMG Sector based on Agro Ecological Climate of Bangladesh

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ABSTRACT

The purpose of this study was to determine the extent of green industrialization of Ready Made Garment (RMG) in Bangladesh. Two green of Narayanganj District were purposively considered for the study. Data were collected from a sample of randomly selected 263 RMG Workers and Supervisors out of 840 from the mentioned two (2) RMGs. Simple and direct questions with different scales were used to obtain information. The study was conducted during the time from 02 June 2019 to 30 August 2019. Eleven (11) selected characteristics of the RMG Workers and Supervisors were considered as the independent variables. Out of 11 top Leadership in Energy and Environmental Design (LEED) certified factories of the world, eight (8) factories are situated in Bangladesh. Findings revealed that overwhelming majority (84.41%) of the RMG Workers and Supervisors perceived low to medium green industrialization of RMGs in Bangladesh. The mean of green industrialization of green and non-green RMGs were 33.22 and 14.89 respectively as perceived by the workers and supervisors. The calculated value of t' (193.788) was significant at .001 levels which was clearly indicated that green industrialization of green RMGs was higher than non-green RMGs.

KEY WORDS: Climate Smart Agriculture, Agro Ecology, Green industry, LEED certified, RMG.

INTRODUCTION

The term of green industry comes from a concept green economy, a pathway towards sustainability that is followed by organizations such as the World Bank and United Nations Environment Programme (UNEP, Barbier, 2012). Strategies, policies, and programs give the rise of a green industry that focuses on the development of production. Green industry has been defined by United Nations Industrial Development Organization (UNIDO) as a pathway of sustainable growth by undertaking green public investments and implementing public policy initiatives that encourage environmentally responsible private investments (UNIDO, 2011). A

green industry does not put industrial production above and all at the expense of the natural environment and human health (Hall and Dickson, 2011). A green industry aims to build an industry that intertwines environmental and social consideration with economic considerations of the environmental manners. In a broader sense, a green industry is one that sustainably uses any inputs, where production process requires less use of water, energy, and materials, where solid waste is reused and recycled, any emission of harmful gases are reduced, and production process is free from harmful human toxins. A green industry takes an approach towards any form of growth by reducing its impact on the environment while taking into account of environmental criteria that may or may not directly relate to the development at hand, but to the ecosystem of the world at large. A green industry can help them to reduce costs, fight climate change, and rethink long-held business practices and open doors to a myriad of opportunities (Fineman and Clarke, 1996). The Green factory helps at different green factories said a green factory uses 40% less energy, 41% less water and emits 35% less carbon compared to a regular RMG factory. Green factories provide better working environment and ensures workers' safety, which boosts productivity of the RMG sectors in Bangladesh. Green building construction has been on a rising trajectory for the past decade, ushering in an era of environmental sustainability that is showing a positive indicator of sustainable development in Bangladesh. There are a number of green building rating systems around the world, but the most popular certification system in Bangladesh is granted by the US Green Building Council (USGBC) under the umbrella of Leadership in Energy and Environmental Design (LEED). According to USGBC Bangladesh has 551 registered buildings, of which a total of 64 buildings are LEED certified, as of February 2018. This includes different kinds of buildings and contains a mix of commercial and industrial buildings. Building a structured green industry will allow us to achieve the global SDGs in 2030 and allow our society to strive to live in harmony with the environment.

MATERIALS AND METHODS

This research work was conducted on purposively selected two readymade garments (RMG) in Narayanganj district. The RMG workers and supervisors the garments of the selected was which constituted the population of the study. Data were collected from the sample rather than whole population due to lack of time and fund. Sample size calculator developed by Creative Research

System (Yin, R. K. 1984) was used to determine the sample size. By setting the population number of 840 with 95% confidence level and confidence interval of 5, the sample size was determined as 263 which distributed proportionately among the two garments workers and supervisors. Separate list of the population of workers and supervisors of the two RMGs were collected from the authority of the garments. Sample respondents were selected randomly and proportionately from the population. Fourteen (14) workers and supervisors were selected for the reserve list those were interviewed in the cause of absence of any respondents listed in the main sample size of 263.

The Variables and their Measurement

Various characteristics of the RMG workers and supervisors were considered as the causal variables of the study. These were age, educational, family size, yearly salary, yearly savings, training exposure, cosmopolitaness, decision making ability, service length, knowledge on green industrialization and problem faced in garments.

Green industrialization of RMG

Green industrialization of RMG was the main focus of the study. According to U S Green Building Council (USGBC 2009) 9 (nine) factors affected to establish in green industry of RMG sectors. These factors are: i) building Construction materials that will emit less CO₂ emission (to use recycled brick, cement, and prefabricated steel to accomplish construction), ii) assure factory workers housing facilities, iii) assure schools for children's for workers, iv) nearby market for shopping for workers, v) assure bus or tempo stand for transportation between 500 square meters from factory building, vi) ensure enough sunlight and solar power utilization to reduce the cost of electricity, vii) reduce the use of underground water, need to encourage for rainwater reservoir and water-saving faucet ,viii) keep about 50% free space of total factory premises, ix) ensure enough trees in the factory ground and keep enough ventilation facilities to protect heat and ensure self anti fire instrument and training facilities.

Respondents were asked to indicate their degree of agreement against each of the items of step taken by the RMG authority before and after involvement in green industrialization along with a four-point scale as high, medium, low and not at all. Scores were assigned to these four alternative responses as 3, 2, 1, and 0 respectively for each item. The extent of green industrialization Impact of each item was measured by deducting the score against before

situation from after involving with green industrialization. Finally green industrialization as perceived by each respondent was measured by adding his/ her score against all the 15 items. Thus the possible score of green industrialization ranked from 0 to 45, where 0 indicated no green industrialization and 45 indicated highest green industrialization in RMG.

RESULT AND DISSCUSSION

Status of green industrialization on RMG sector in Bangladesh

A green industry aims to build an industry that intertwines environmental and social consideration with economic considerations of the environmental manners. In a broader sense, a green industry is one that sustainably uses any inputs, where production process requires less use of water, energy, and materials, where solid waste is reused and recycled, any emission of harmful gases are reduced, and production process is free from harmful human toxins. A green industry takes an approach towards any form of growth by reducing its impact on the environment while taking into account of environmental criteria that may or may not directly relate to the development at hand, but to the ecosystem of the world at large. A green industry can help them to reduce costs, fight climate change, and re-think long-held business practices and open doors to a myriad of opportunities. According to (UNIDO, 2011) two main approaches towards creating such industry are by retrofitting new technologies or starting from scratch. For example, greening an industry relates to an industry or a facility that has already been erected and is functional. This focuses the long term environment performances regardless of sector, size or location. This also includes any internal process that reduces the environmental impacts by using more efficient resources and most effective use of natural resources, renewable energy, by improving the health safety issues and reducing any overall risks. Additionally, creating green industries relates to a new industry or a facility that needs to be established focusing on zero environment pollution. A company should focus on adopting the cutting edge technologies while installing renewable energy and erecting the business in a way that green principles are embedded in the earlier stages of planning. The number of environment-friendly, “green” RMG factories is on the rise in Bangladesh, revolutionizing the country’s apparel industry and slowly uplifting its onward reputation in the world. Since 2011, a total of 67 Bangladeshi RMG factories have received Leadership in Energy and Environmental Design (LEED) certification from the

US Green Building Council (USGBC), one of the top green building rating systems in the world, according to Bangladesh Garment Manufacturers and Exporters Association (BGMEA) data. Out of the 67 factories, 13 have been rated as platinum, 20 as gold and five as silver. At least 222 more factories have been registered with the USGBC for the LEED certification. Industry insiders told that the number of green factories are increasing. Global retailers are looking for eco-friendly apparel manufacturers since consumers around the world are growing concerned about how the production of their clothes affect the environment. This is improving the global image of Bangladeshi RMG industries which has taken several hits in recent years due to a lack of workers safety in factories, which has led to fatal incidents building collapse of Rana Plaza and fire incidents of the RMG sector. Bangladesh has several top-rated eco-friendly factories which are rebuilding our image and drawing the attention of renowned global brands and retailers.

According to the USGBC standard the world LEED platinum certified company, hence Bangladeshi factories ranked 1st, 2nd and 3rd in the world. Remi Holding limited of Bangladesh ranked first in the world and obtained a score of 97 out of 110. The Tarasima Apparels ltd of Bangladesh ranked 2nd in the world and obtained a score of 93 out of 110 Plummy Fashions limited of Bangladesh ranked third in the world and obtained a score of 92 out of 110. The green industry has positive effects on establishing environmental management system, occupational health, workplace safety, efficient use of chemicals, and results in increased productivity and cost savings.

Out of 11 top LEED certified factories of the world, each (8) factories are situated in Bangladesh as shown in Table 1.

Table 1 Top 11 LEED Certified factories of the world

Sl. No.	Obtained points out of 110	Factory Name	Country Name
1	97	Remi Holding Ltd.	Bangladesh
2	93	Tarasima Apparels Ltd.	Bangladesh
3	92	Plummy Fashion Ltd.	Bangladesh
4	90	Confidential	Ireland
5	90	AR Jeans	Bangladesh
6	90	Vintage Denim Studio Ltd	Bangladesh
7	88	Green Textile Ltd (unit#3)	Bangladesh
8	87	Columbia Washing	Bangladesh
9	86	Echotex Ltd	Bangladesh
10	86	Bottega Veneta Atelier	Italy
11	86	Method Products PBC	United States

Source: The Daily Star dated 18th July, 2018

Green factories have taken Bangladesh's RMG sector to a new height in terms of environment-friendly manufacturing and compliance issues. Aiming to cut back on carbon emission, the green factories in Bangladesh have been set up with eco-friendly technology and are using water-saving technology, harvesting rain water, and using solar panels and servo motor for power generation. Setting up a green factory costs more than that for a regular one, but in the long run, the payback is more than worth it. The Green factory helps at different green factories. A green factory uses 40% less energy, 41% less water and emits 35% less carbon compared to a regular RMG factory (USGBC 2009). Green manufacturers may face difficulties in competing with the regular manufacturers in terms of prices, but eventually global buyers pay more for green products as green manufacturers' care about both their workers and the environment. Green factories provide better working environment and ensures workers' safety, which boosts productivity of the RMG sectors in Bangladesh. Green building construction has been on a rising trajectory for the past decade, ushering in an era of environmental sustainability that

is showing a positive indicator of sustainable development in Bangladesh. There are a number of green building rating systems around the world, but the most popular certification system in Bangladesh is granted by the US Green Building Council (USGBC) under the umbrella of Leadership in Energy and Environmental Design (LEED). Currently, Bangladesh has 551 registered buildings, of which a total of 64 buildings are LEED certified, as of February 2018, according to USGBC figures. This includes different kinds of buildings and contains a mix of commercial and industrial buildings. It is interesting in this statistic is that the highest amount of green buildings is registered in the industrial manufacturing sector – with a hopping of 495 registered buildings (89.94 percent of all LEED registered buildings). A LEED certified building then is following the basic indicators of environmental sustainability with lower resource consumption following a systematic waste management system and utilizing resources in the most efficient manner. Industries might as well try to emulate the principles of a green industry (GI) by following the green building (GB) standards as the definitions of a GI and the goals of GB rating criteria match each other.

Extent of green industrialization of RMGs in Bangladesh as perceived by the workers and supervisors

The score of green industrialization of RMGs in Bangladesh as perceived by the workers and supervisors ranged from 5 to 33 against the possible score of 0-45 with an average of 21.33 and a standard deviation of 5.094. On the basis of perceived green industrialization score, the respondents were classified into three categories as shown in Table 2.

Table 2 Distribution of the RMG workers and supervisors according to their perceived green industrialization

Categories	RMG workers (n=263)		Mean	SD
	Number	Percent		
Low green industrialization (<Mean–Sd. i.e., 15)	37	14.07	21.33	5.094
Medium green industrialization (Mean±Sd. i.e., 16-26)	185	70.34		
High green industrialization (>Mean+Sd. i.e., 27)	41	15.59		

Data presented in Table 2 show that majority (70.34 percent) of the respondents perceived as medium green industrialization of RMGs while only 15.59 percent perceived as high green industrialization of RMGs and the rest 14.07% perceived as low green industrialization of RMGs in Bangladesh. Findings also revealed that the overwhelming majority (89.41%) of the workers and supervisors of the RMGs perceived low to medium green industrialization in RMGs in Bangladesh. The green industrialization of Bangladesh improves the day by day through consultation of green as well as environmental exports (BKMEA 2016). So the green industry had Medium green industrialization of RMG sector of Bangladesh. Therefore, it may be concluded that there is scope to further improve of the issue in Bangladesh.

CONCLUSION

The green industry has positive effects on establishing environmental management system, occupational health, workplace safety, efficient use of chemicals, and results in increased productivity and cost savings. Out of 11 top LEED certified factories of the world, 08 (eight) factories are situated in Bangladesh. The score of green industrialization of RMGs in Bangladesh as perceived by the workers and supervisors ranged from 5 to 33 against the possible score of 0-45 with an average of 21.33 and a standard deviation of 5.094. On the basis of perceived green industrialization score, the respondents were classified into three categories. Findings also revealed that overwhelming majority (89.41%) of the workers and supervisors of the RMGs perceived low to medium green industrialization in RMGs in Bangladesh.

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