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Sustainability assessment of the ready-made garments sector in Bangladesh: A simplified approach

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Abstract: The aim of this research is to assess the level of sustainable development by using a simple and handy assessment tool of the ready-made garments (RMG) sector in Bangladesh. A 30-item sustainability index developed earlier by this author and a modified version of a sustainability tool named Barometer of Sustainability are used to assess the level of sustainability. Data were gathered from the Tier 1 RMG factories in Bangladesh. Excluding incomplete responses, a total of 238 responses were considered for further analysis. The result revealed that overall sustainability level of the factories participate in this study is at "acceptable" level. Classifying the factories based on their product types does not show much difference than the overall sustainability measure. But while factories are segregated based on their sizes in terms of number of employees, the result shows a clear inverse relationship between sustainability level and RMG factory sizes. Making a sustainable business strategy and practicing that is urgent at this point for the factories of RMG industry. The result of this study could be used as evidence for further improvement and to compare the situation in other related industries.

Keywords: Sustainability, ready-made garments, Bangladesh

1. Introduction

The purpose of the traditional business is to drive economic growth and consumer satisfaction through innovation and investment (Welford, 2013). Sometimes such corporate philosophy is destructive towards environment and society as those two are not "business of businesses." Therefore an alternative philosophy should be considered by the business to save the world (Welford & Gouldson, 1993). Industrial sector needs to take corporate sustainability seriously as it is blamed for being the major source of environmental and social degradation. Corporations have to address this responsibility by assessing and reporting the social and environmental impact of their day to day activities (Azapagic 2003; Azapagic & Perdan 2000). It is also important for their own development as the recent studies suggest that a number of the companies regularly report progress in sustainable development has increased geometrically (Hubbard 2009; KPMG 2011; Lozano & Huisingh 2011; Schneider & Meins 2012). It is easy to measure the financial growth of business firms by numbers but it is quite difficult to assess the impact of that business on environment and society. This paper serves as an approach to assess the level of sustainability in the ready-made garments sector of Bangladesh.

Furthermore, government regulations, local and international laws are forcing business to leave unsustainable ways of production. Besides, competition in the industry is also driving businesses to be innovative where sustainability could give them a competitive advantage along with a lead in "green tag" trend (Gabel and Sinclair-Desgagne, 1999).

As being sustainable becomes a new trend all over the world, consumers are being conscious gradually about this issue. Boston Consulting Group (BCG) in their 2014 report states that sustainability is a new consumer value, especially among the luxury customers. To meet the demand of sustainability aware customers, business should focus on sustainability issues. Like food industry, where the concept is well established and widely accepted, brought organic food to meet conscious customers need and it has become a

mainstream activity of the industry (Ritch, 2014). Eco-labelling is a similar concept in the fashion industry. People tend to buy eco-labeled cloths as they feel the responsibility towards environment and society.

Measuring the level of sustainability of the existing business facilities is the first step of sustainable development of any industrial sector. To understand the sustainability practice in any industry, the degree of sustainability should be measured first. A proper measurement tool is needed to assess that. There are several existing method/scales to assess the level of sustainability but those are not accessible by all. The purpose of this paper is to introduce and use a simple assessment tool to assess the level of sustainability in the ready-made garments industry.

1.2 Background and Purpose of the Study

For last more than four decades ready-made garments (RMG) industry leading the economic development of Bangladesh. Support from different stakeholders, i.e., GATT (General Agreement on Tariffs and Trade), Bangladesh governments, factory owners and general employees, made the journey easier for this sector. Currently, RMG is contributing more than 80 percent of the total export earning of the country (Export Promotion Bureau, 2015). Ready-made garments industry helped the country to alleviate poverty significantly. Besides, it helped to improve life expectancy, literacy rate and per capita food intakes (World Bank, 2014).

Sadly, all these benefits of RMG come along with some social and environmental degradation. Some of the industries have been polluting water and air by not following environmental regulation of the country. Several accidents occurred in the last couple of years for not maintaining proper safety measures. The whole world was shaken by the recent accident in a factory named Rana Plaza, which causes more than 1100 peoples death. Employee unrest is another common occurrence in that sector and it ends up

in the strike, vandalism and so on. Yunus and Yamagata (2012) believe that not complying ILO's convention is a major reason for such incident. This sector also pays one of the lowest wage rates in the world (Salam & Mclean, 2014). Addressing above-mentioned issues are very important as this sector is proved to be indispensable for the economy of the country.

Moreover, there is a new trend in the fashion world called 'sustainable fashion,' which implies fashion accessories (here clothing) produced in a sustainable way. Sustainable fashion considers both social/ethical and environmental criteria of sustainable development, such as sweatshop-free fashion and green fashion (Fletcher, 2008).

Sustainability has become important for RMG sector from both local and international stakeholder's perspective. To grow sustainably RMG sector of Bangladesh should measure its performance time to time in this regard. An assessment method is offered here which could be easily used to assess the level of sustainability of the ready-made garments sector of Bangladesh.

As existing sustainable development measurement tools do not provide unidirectional assessment or "simple measurement of SD", an effort has been given to create a simple and easily useable assessment method for sustainable development in the ready-made garments sector of Bangladesh. Later, based on that method, level of sustainability in the ready-made garments sector of Bangladesh is assessed.

2. Literature Review

The term sustainable development literally means to be able to maintain progress and to be accepted over time. However, it was defined differently in different sectors to fit users' purposes. By early 1990s, more than seventy definitions of sustainable development were discovered by Holmberg and Sandbrook (1992). Since the definition and its measurement is somewhat ambiguous, companies define and measure sustainability at their convenient

way (BCG, 2009). As a result best practice of sustainability depends on few factors such as the type of product, organization structure, customer mindset and so on.

Sustainability is a major concern in many walks of life but there is yet to find any common standard to measure sustainability. Although it has become a new trend in the fashion industry, there is no set standard from any side. Sustainability assessment itself is complex as many quantitative and qualitative criteria need to consider while measuring or assessing sustainability, some of which are difficult to measure. Hence, since the beginning, it is a challenge for the researcher as well as the practitioner to find a reliable set of standard to measure sustainable development. Businesses vary in nature as they have diverse activities; besides, different countries have different business style and policies. Therefore it is difficult to get the same yardstick to measure the sustainability of all business (Goyal, Rahman & Kazmi 2013; Whitley, 1992). This fact inspires the author to find country and sector-specific scale and study to assess sustainability and to help the industry growing sustainability. Some researchers (like Salzmann et al., 2015) opine that country and sector-specific research in the area of SD could provide more accurate and reliable measure. This research looks into the ready-made garments sector of Bangladesh, which is one of the biggest suppliers of ready-made garments all over the world. Recently several accidents and negative reports made this sector's position vulnerable in the world market. To grow sustainably and to gain back customers trust a proper framework and assessment is needed for this sector.

John Elkington's (1998) TBL is believed to be the first framework of sustainability assessment of the business. He first influenced the business leaders to move their focus from only monetary measure of the development to the overall development by including social and environmental dimension along with economic dimension in the sustainable development assessment.

There are many other methods introduced to measure sustainable development in the corporate sector; among them, ecological footprint (Rees & Wackernagel, 1996) and the life cycle assessment (Rebitzer et al. 2004)

are two very popular methods. There is also criticism of using these methods; some believe that these methods only focus on the historical measure which is misleading in a current business situation. Furthermore, only environmental focus does not provide a complete assessment of sustainability (Barrett & Scott 2001; Fiala 2008; Kicherer et al. 2007; Moffatt 2000). Eco-efficiency is another measure which addresses some issues that are not considered in above-mentioned methods. WBCSD believes that eco-efficiency could be a good measure as it focuses on maximizing a company's economic value while minimizing the environmental impacts and use of natural resources (Lehni, 1998). This method also has drawbacks; it does not cover all the aspects needed to assess sustainability properly, especially variables of social dimension (Dyllick & Hockerts, 2002; Isaksson & Steimle, 2009). GRI (Global Reporting Initiative) is considered as one of the best of its kind (KPMG, 2011). Huge numbers of indicators added to address all three dimensions (economic, social and environmental) of sustainability. GRI indicators are widely used for sustainability assessment all over the world. But the numbers of indicators are too big to handle; moreover, there is no clear instruction to measure and combine the indicators for a specific industry ((Labuschagne, Brent & Van Erck, 2005; Lozano & Huisingh, 2011; Panayiotou, Aravossis & Moschou, 2009; Veleva & Ellenbecker, 2000). It also claimed to be insufficient as it lacks customer focus and process orientation (Isaksson 2004; Isaksson & Steimle, 2009).

3. Methods

To assess the level of sustainability a 30-item sustainability index is used. The index is developed by considering two widely accepted sustainability assessment methods, i.e., Dow Jones Sustainability Index (RobecoSAM, 2013) and Higg Index (SAC, 2015). The 30-item index is developed by this author but Index development process is beyond the scope of this paper. The index consists of questionnaire representing all three dimensions (economic, social and environmental dimension) and ten sub-dimensions of

sustainability. All the variables measured using a five-point Likert scale ranging from never true to always true.

A modified version of a simple tool named the Sustainability Barometer (Prescott-Allen, 2001) is used to assess the level of sustainability of that sector. Although the author (Prescott-Allen) used this tool to assess national sustainability in a number of countries using two dimensions, social and environmental, the tool has been modified here to be compatible to check sustainability using all three dimension of this research.

The modified version of this tool has two graphs instead of one; one containing social and economic dimension and the other has socio-economic measure along the X axis and environmental dimension along the Y axis.

Each of the graphs has two dimensions along two axes; it helps to measure two dimensions separately instead of calculating merely a mean value. The dimension with the lowest value overrides the others which imply that none of the dimensions are less important for measuring sustainable development in the ready-made garments sector. Furthermore, different colors band scale gives a clear idea of the condition of sustainability of the sector.

Standards are adopted unchanged, i.e., below 20 percent bad, 21- 40 percent poor, 41-60 percent medium, 61-80 percent OK and above 80 percent good (Prescott-Allen, 2001). Same standards are followed for both the graphs and lowest standard of the two axes would be considered. Purpose of considering lowest one is to emphasize development in all three areas simultaneously.

Table 1: Color Bands of the Assessment Scale

Percent	Color	Title	Explanation	Origin
0-20%	Red	Bad	Performance is unacceptable	
21-40%	Purple	Poor	Performance is poor or undesirable	
41-60%	Yellow	Medium	Neutral Performance	Prescott-Allen, 2001, pp.09
61-80%	Blue	Fair	Performance is acceptable. But still below the desirable level.	
81-100%	Green	Good	Performance is desirable. Objectives of sustainability are fully met.	

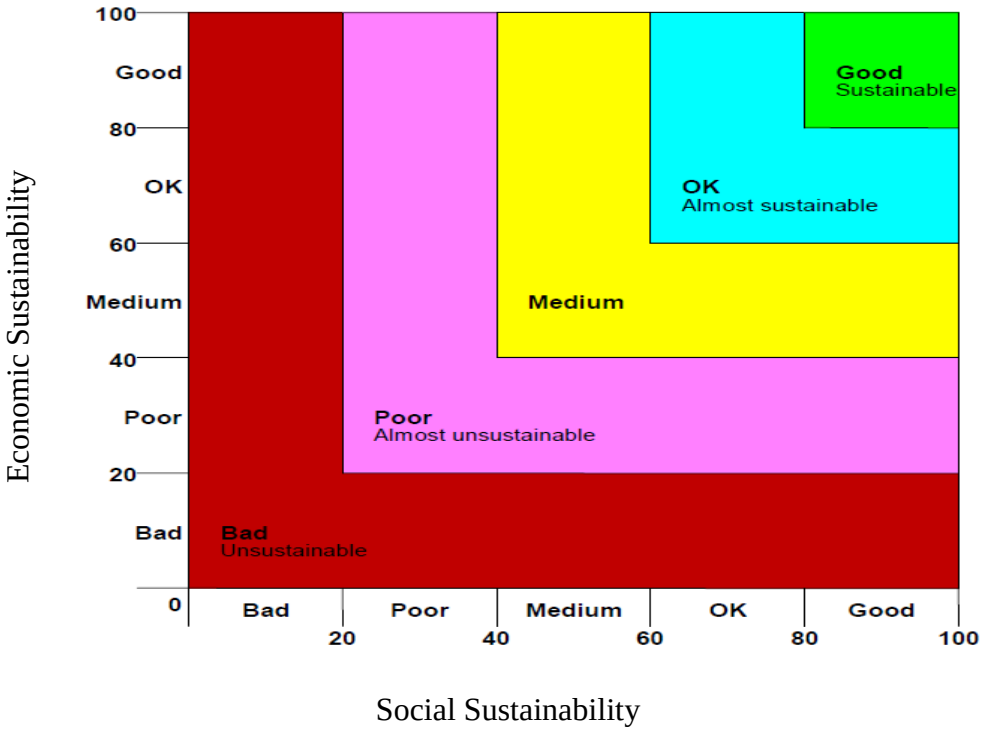


Figure 1(a): Modified version of Barometer of Sustainability 1

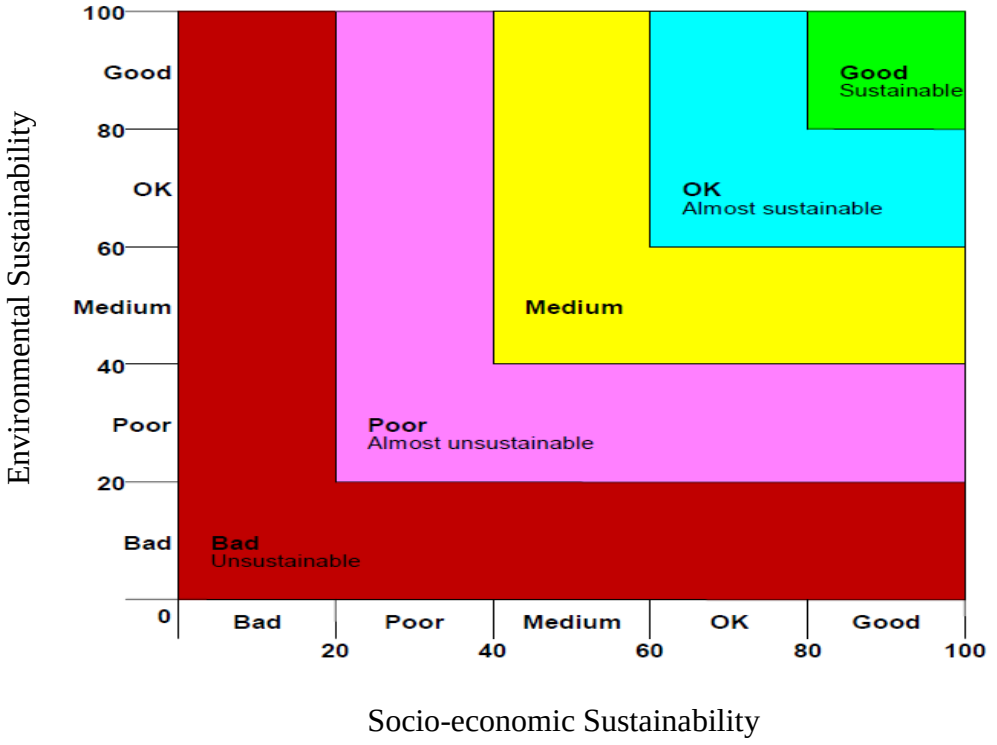


Figure 1(b): Modified version of Barometer of Sustainability 2

3.1 Data Collection

The population of this study is RMG exporter factories of Bangladesh. To avoid uncertainty, supplier list of two big brands are followed. Data is collected from the two major divisions of the country, Dhaka, and Chittagong; as the majority of the garments factories are located there. Convenient sampling technique is used as access to some factories is restricted for security reason.

Primary data has been collected from the RMG factories of Bangladesh. Questionnaires are distributed both physically and electronically using Survey Monkey. Target respondents are Human Resource Manager, Production Manager, Procurement Manager, Factory Manager and so on of RMG factories. Researcher physically visited many factories to observe the condition and collect data. The questionnaire contains two parts, demographic data on the first part and sustainability questionnaire on the second part. Removing incomplete responses total 238 responses considered for further analysis.

4. Data Analysis and Research Result

Total of 238 completed questionnaires found from different types RMG factories of major cities in Bangladesh. Although the questionnaire includes five demographic questions, the majority of the respondents were reluctant to answer two of them (location of the factory and position of the respondent). Following two tables provide demographic characteristics of the respondents and the factories.

Table 2: Demographic Characteristics of respondents

Variable		Frequency	Percent
Age	20-30	28	11.8
	31-40	117	49.2
	More than 40	93	39.1

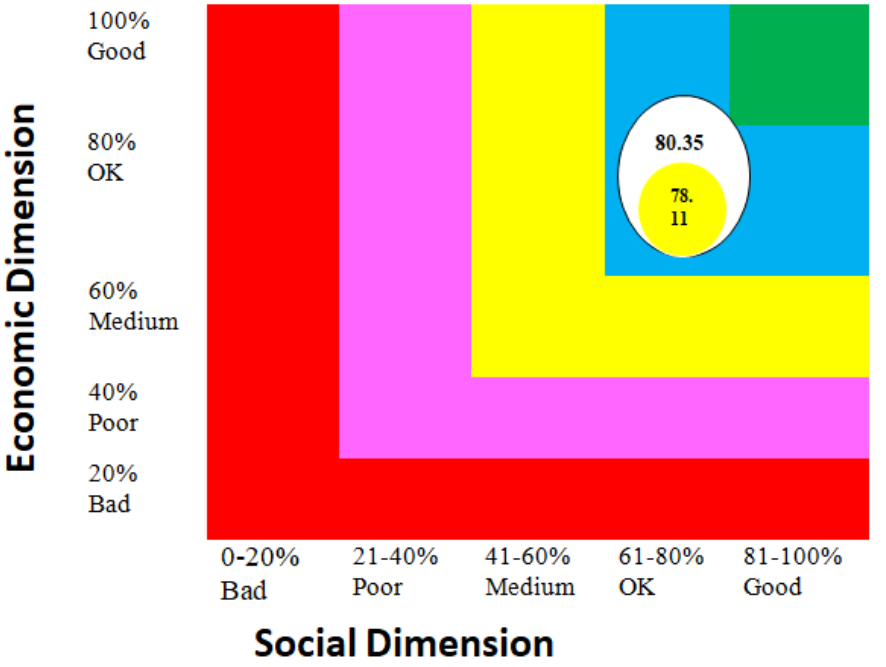
Table 3: Demographic Characteristics of factories

Variable		Frequency	Percent
Product Type	Knit	56	23.5
	Woven	87	36.6
	Knit and woven	79	33.2
	Others	16	6.7
Number of employees	Below 1000	20	8.4
	1000-3000	64	26.9
	3000-5000	83	34.9
	More than 5000	71	29.8

Overall assessment of sustainability has been conducted considering mean of each dimension. To maintain the continuity of the adopted scale, assessment results are shown in a circle which resembles an egg. The yolk of the egg represents the economic sustainability and white substance supporting yolk is represented social sustainability. On the second graph, socio-economic sustainability placed on the yolk and environment is surrounding that just as nature. The result shows that assessed sustainability is at the "acceptable" level for all three dimensions.

Table Error! No text of specified style in document.**: Overall sustainability measure**

Economic Average	Social Average	Environmental Average
78.11	80.35	78.41


Economic Dimension
100%
Good
80%
OK
60%
Medium
40%
Poor
20%
Bad
80.35
78.
11
0-20%
Bad
21-40%
Poor
41-60%
Medium
61-80%
OK
81-100%
Good
Social Dimension

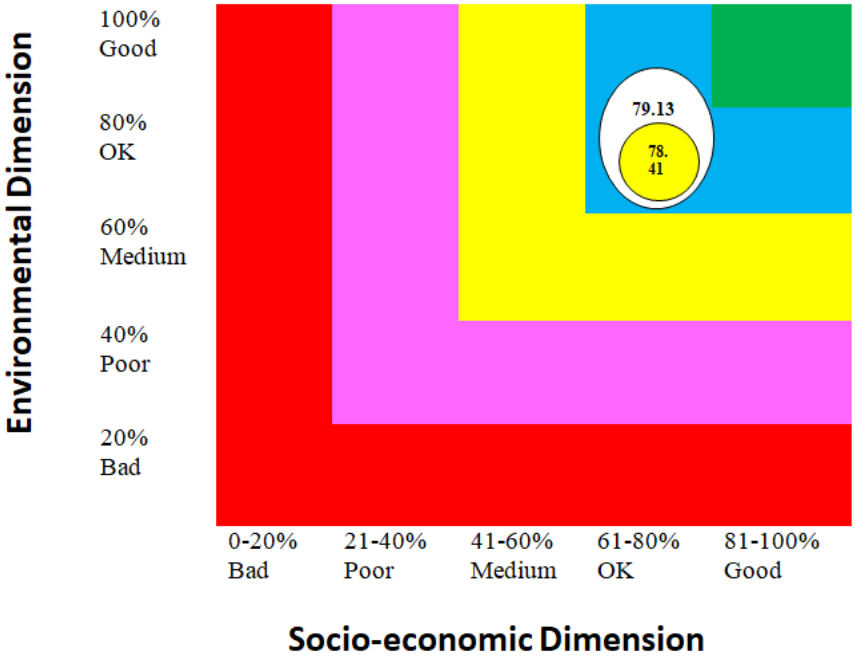


Figure 2: Overall Level of Sustainability

Collected data are classified into four categories based on their product types: knitting, woven, knitting and woven and others. First three types do not show much variation in their sustainability result and aligned with overall sustainability at the acceptable level. However, the category named "others" jump to the next level of sustainability called "desired" or "good". This "others" category includes products like linen, sweaters, terry towels and so on (Ahmed, 2014).

Table 5: Assessment of sustainability based on product type

	Economic Average	Social Average	Environmental Average
Knit	78.54	81.21	78.18
Woven	78.12	79.42	78.62
Knit and Woven	76.87	79.87	77.52
Others	82.66	84.90	82.50

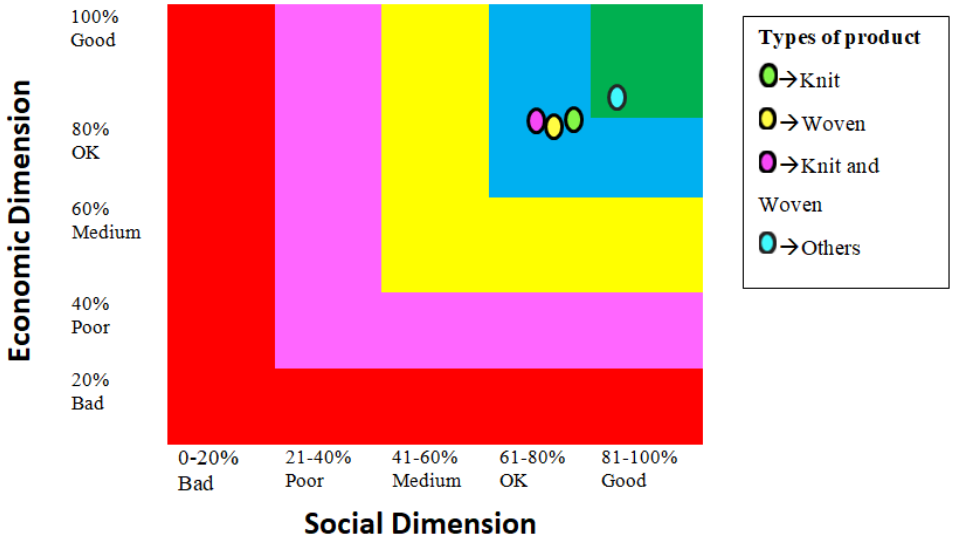


Figure 3(a): Sustainability Measure Based on Types of Product 1

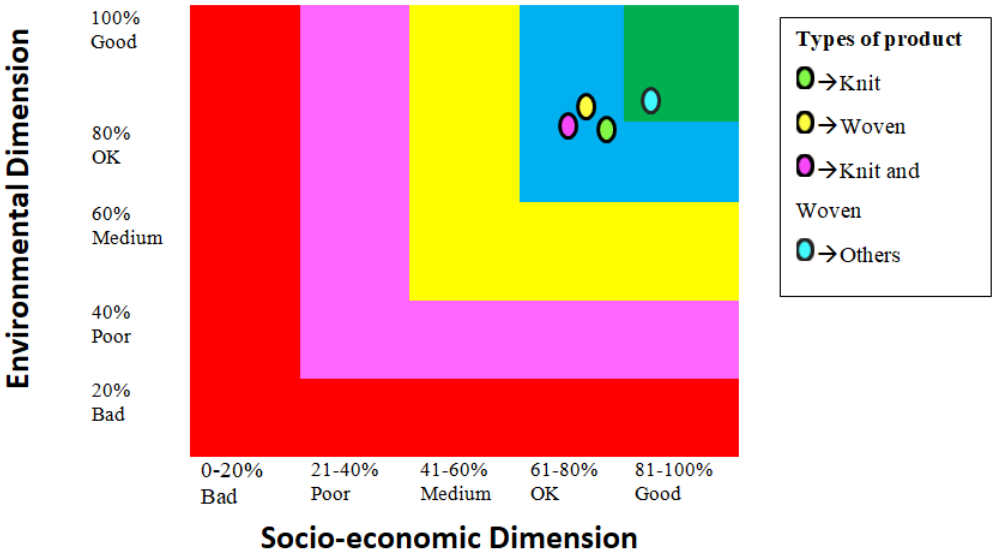


Figure 3(b): Sustainability Measure Based on Types of Product 2

On the contrary, while collected data are classified into four categories based on the size of the factories (considering the number of employees), it shows a clear trend of sustainability. The result reveals that increase in the size of factories reduces the level of sustainability. This trend is clearly visible in all three dimensions of sustainability. The first category of factories (in descending order) is the ones consist of employee more than 5000; it shows the lowest level of sustainability in all three areas. Percentage of sustainability achieved for this category in economic, social and environmental dimensions are 73.86, 76.32 and 73.10. Factories having 1000 or fewer employees are the last category of this classification; this category shows the highest level of sustainability. Percentage achieved for dimensions are 84.95, 88.61 and 86.22. While factories are classified into categories based on their size, two of the categories reached "desired" level and other

two are at "acceptable" level. Figure 4a and 4b show the observed trend in the level of sustainability.

Table 6: Assessment of sustainability based on factory size

	Economic Average	Social Average	Environmental Average
Below 1000	84.95	88.61	86.22
1000-3000	82.65	81.77	82.33
3000-5000	76.60	80.73	78.05
Above 5000	73.86	76.32	73.10

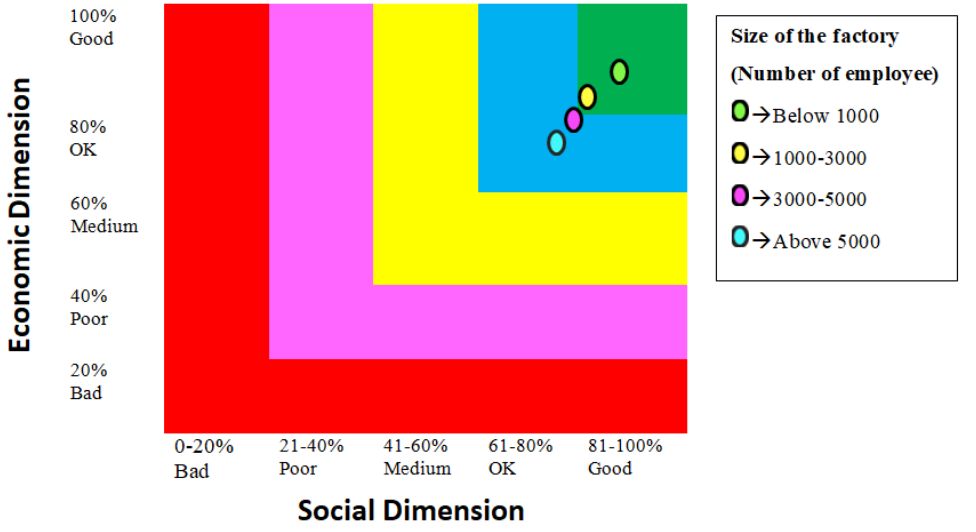


Figure 4(a): Sustainability measure based on factory size 1

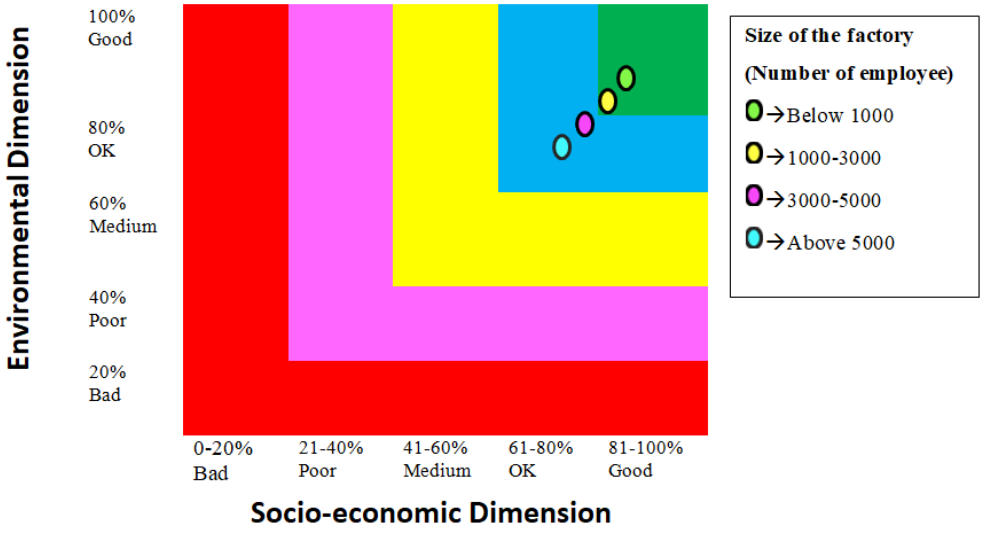


Figure 4(b): Sustainability measure based on factory size 2

This tendency shows an inverse relationship between the size of the factories and level of sustainability. Correlation analysis also supports this claim; table 7 provides the result of the correlation between factory size and level of sustainability for all three dimensions. Factory size shows a significant inverse relationship with all three dimensions of sustainability.

Table 7: Correlation between factory size and three dimensions of sustainability.

	Number of employees	Econ	Env	Social
Number of employees	1			
Econ	-.364**	1		
Env	-.338**	.635**	1	
Social	-.217**	.610**	.494**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Econ= Economic dimension mean.
Env = Environmental dimension mean.
Social = Social dimension mean.

5. DISCUSSION AND CONCLUSION

This study assesses the level of sustainability of the RMG factories in Bangladesh based on a modified version of the assessment method named sustainability barometer (Prescott-Allen, 2001). This measurement is done from three different perspectives; firstly, by taking the overall mean, secondly, by considering types of product produced in the factories and finally, by considering factory size in terms of the number of employees.

Assessment result shows that overall level of sustainability of the sample factories is slightly below 80 percent, which is labelled as "acceptable". Both the graphs on this measurement scale provide the similar result which shows the consistency in their sustainability practices in all three dimensions. Later RMG factories are divided into categories based on their product types. All three common categories of RMG products (knitting, woven, knitting and woven) producers show a result similar to and consistent with the overall level of sustainability. Only "others" category (it includes products like linen, terry towel and so on) provides a better result and lift itself to the "desirable" level.

Sample RMG factories are also divided into several categories based on their relative size (in terms of the number of employees) to check whether factory size has any effect on the level of sustainability. This time a clear trend is visible which shows an inverse relationship between factory size and level of sustainability. It implies that relatively smaller factories have better sustainability practice. This result is contradictory to the result of Bansal (2005)'s study. In her study, Bansal showed a positive relationship between firm size and corporate sustainable development. However, firm size was one of her control variable and the study conducted by taking the sample from forestry, mining and oil and gas industry of Canada. Moreover, firm size was calculated by taking the natural log of the assets in that study which shows a positive relationship with corporate sustainability whereas an independent variable "organizational slack", which is very similar in nature, shows a negative relationship.

The similar effort given by Gallo and Christensen (2011); they also hypothesized positive relationship of sustainability with the size of the firm. But their hypothesis was not supported by their analysis.

Relationship of factory size and remediation financing and efforts are also tested in the ready-made garments sector of Bangladesh by a joint study team of ILO (International Labor Organization) and IFC (International Finance Corporation). Although this study also suggests a negative relationship between factory size and sustainability effort (which considers only safety concerns), it provides important information to explain the opposite phenomenon observed in this study. Based on its analysis the report suggests that sustainability effort given by the factory depends on international buyers request and relationship with factory (IFC & ILO, 2016). Some brands are very keen to maintain sustainable supply chain because of its reputation in international market. Most of the small-sized tier 1 factories depend on one or two international brands because of their production capacity which is not same for the larger factories. This dependency on the limited number of brands made small factories concerned about their reputation towards buyers.

5.1 Limitations of the Study

As usual, this study suffers from several limitations which need to be mentioned to understand the result properly.

Data collection was the major issue of this research. Some of the questions asked are considered as confidential for the companies. Many factories denied to response the questionnaire as they couldn't trust an independent researcher. Sometimes employees were not courageous enough to provide data as they fear to lose the job for disclosing some information which they should not. Moreover, some respondents had difficulties to answer the questions as they did not have enough knowledge on those areas. Lack of proper training to the responsible employees is visible in some factories.

Choosing types of factories is also a limitation to interpret the result of this study. There are several types of factories in RMG sector of Bangladesh; some are the direct supplier to the brands (Tier 1), some others are simply "sub-contractor." In such situation, it is hard to generalize as these organizations have different compliance and management style. The focus of this study is only Tier 1 factories, half of the total RMG factories in Bangladesh. Sometimes serious complains regarding environmental and human resource malpractice in sub-contract factories is heard. Separate researches might be needed to identify issues and ways to solve them in such factories.

5.2 Future Research

To address the issues mentioned above, further research should be conducted. Research with the collaboration of government and international buyers could help to remove the data collection barrier. There are some ongoing projects for specific purposes; more effort should be given to assess the sustainability of all types of RMG factories. Separate studies should be

conducted in the sub-contract factories to find the causes of the unsustainable way of production and upgrade the working condition there.
Furthermore, some non-RMG industries are also in need of such research to figure out the issues and to find the way out. Tannery, shoe, plastic and similar industries should test the application of this assessment method in their respective industry.

5.3 Conclusion

The main focus of this study is to assess the level of sustainability in the ready-made garments sector in Bangladesh. The result of this study shows that sustainability level of Tier 1 RMG factories in Bangladesh is satisfactory. As this study did not consider other types of factory, assessment should be conducted in those areas. Developed assessment method in this study could be used as a base for similar scales in other industries. Proper use of this assessment tool could help RMG factories in Bangladesh to overcome the difficulties they face in regard to sustainability. Proper sustainability practice in Bangladesh RMG industry would benefit both internal and external stakeholder of this sector.

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