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Sustainable Performance of Green Garment Organizations in Bangladesh: Effect of Green Supply Chain Management

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Abstract: *This study aims to investigate how the three aspects of business sustainability performance—economic, environmental, and social performance—are impacted by the five components of green supply chain management (GSCM). Eco-design, green purchasing, green manufacturing, green marketing and internal environment management are the five areas of GSCM that this study addresses. Using cross-sectional survey data gathered from green ready-made garment (RMG) firms in Bangladesh, a research model was developed and tested by applying structural equation modeling. GSCM is positively related to three components of sustainable performance. The outcomes are critical in demonstrating the value of GSCM in enhancing the sustainable performance of green manufacturing businesses like RMG in Bangladesh.*

Keywords: *Green supply chain management, sustainable performance, green RMG organization, Bangladesh.*

Paper type: Research paper

Introduction:

The current trends of speedy industrialization and globalization have had negative effects on the environment, including global warming, air pollution, water pollution, chemical and toxic explosions, and soil erosion (Geng et al., 2017). In response to this, green supply chain management (GSCM), a rejoinder to growing environmental consciousness, has appeared to be an important pillar of the sustainability among academics, consumers, industries, NGOs, and the government (Saeed et al., 2018; Li & Huang, 2017). Environmental effects can be seen throughout the whole life cycle of a product. Because of this, GSCM has become a crucial model for businesses to achieve their goals of profit and market share by reducing their environmental risks and consequences and increasing their environmental efficacy (Habib, Bao & Ilmudeen, 2020). Particularly, researchers have discussed the advantages of GSCM in reducing the environmental impact and enhancing economic performance and organizational competitiveness (Green et al., 2012; Khan & Qianli, 2017).

While GSCM has received more attention in developed nations, developing as well as promising Asian countries like Bangladesh have attracted little interest in GSCM studies (Mitra & Datta, 2014; Zhang et al., 2022). Because of low price but higher quality garment products, Bangladesh

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is well-known among worldwide clothing retailers, wholesalers, and consumers (Rahman & Qi, 2016). The nation, a newly rising economy in South Asia,holds the second-largest exporter of textile and clothing goods globally (Munim et al., 2022). Currently, this sector has taken on the role of the nation's economic engine, quickly transforming it into an emerging developing country (Yadlapalli et al., 2018). This industry generates 11% of GDP and more than 4 million employments, 80-85% of which are held by women in Bangladesh (Uddin et al., 2022).According to the primary data issued by the Export Promotion Bureau (EPB), readymade garment (RMG) exports from Bangladesh climbed by 35.47% from exports of $31.456 billion to $42.613 billion in the last fiscal year 2021–22 (July–June) (EPB, 2022).

In line with such achievements, Bangladesh's textile sector has recognized the value of GSCM techniques for achieving the triple bottom line of sustainability as well. Recently few studies on GSCM in RMG industry show win-win outcomes of GSCM on the performances of RMG organizations and creating their competitive advantage (Razzak, 2022; Habib et al., 2022). The authors advocate further investigation into the relationship between GSCM and RMG organizational performance. Background factors for GSCM implementation in this particular industry of Bangladesh might include knowledge of environmental issues, organizational culture, the financial and social advantages of green practices and technical and financial know-how (Majumdar & Sinha, 2018 However, without inspiration, pressure, top management backing, and green infrastructure, practicing GSCM is difficult (Chu et al., 2017; Saeed et al., 2018). Bangladesh is blessed to have some of the best green ready-made garment (RMG) factories in the world. Bangladesh has more than 500 green or ecologically friendly RMG organizations (The Financial Express, January 26, 2020). 171 RMG manufacturers are presently functioning as the Leadership in Energy and Environmental Design (LEED) certified green factories, with the highest-rated ones receiving 53 platinum ratings from the United States Green Building Council (USGBC) (Hossain, 2022).As a result, this sector is an ideal candidate for exploring its GSCM position in a global appeal for employers to go green.

This study intends to examine the relationships between GSCM and sustainability performance of the green RMG organizations in Bangladesh. The triple bottom line notion is in line with Elkington's (1994) definition of sustainable performance, which takes these three factors economic, social and environmental outcomes into account. The wellbeing of stakeholders, employees, and customers is included in social performance. Furthermore, while economic performance is solely concerned with financial performance, environmental performance also includes actions made to prevent resource exploitation and minimize environmental harm. Economic problems (Zhu, Sarkis, & Lai, 2013), social problems (Paulraj, 2011), and environmental problems (Laosirihongthong, Adebanjo, & Tan, 2013) are currently faced by organizations and are harmful to the environment, the general public, and organizations as well.

Academics, industrial professionals, businesspeople, and environmental policymakers did not pay much attention to the environment a few decades ago because they believed that the things, they produced did not have a significant impact (Malovics, Racz & Kraus, 2007). Environmental challenges are now viewed as severe issues on a global scale, necessitating much greater attention (Kraus, Rehman, & García, 2020). As a result, an important problem that organizations

face is related to their commitment to environmental conservation (Radhouane et al., 2018). Additionally, environmental concerns have recently compelled professionals to implement environmental measures (Chen et al., 2018; Rehman et al., 2021). This study approaches GSCM as organizational ecological measures deployed to determine the sustainable performance level and thereby, correspondingly constitute one of the green management techniques. The goal of GSCM is to integrate environmentally conscious practices into traditional supply chain management practices, adding environmentally conscious considerations to supply chain designing, procurement, processing, distribution, and value-added activities (Das et al., 2021). Traditional SCM is focused on emergent management as a comprehensive environmental strategy, while GSCM integrates environmental concern into this approach (Malviya and Kant, 2015).

As social value increases, GSCM works to ensure sustainability in terms of its effects on the environment and the economy (Sarkar et al. 2020). Despite the surge in research that has investigated GSCM in multiple dimensions recently, the vast use of the concept does complicate the construction of an integrated model, including the elements that define GSCM. A complete structure for GSCM dimensions has not yet been developed, according to several scholars in this field (Laosirihongthong et al., 2013; Ankaya and Sezen, 2019). As a result of these flaws, five GSCM dimensions—eco-design, green purchasing, green production, green marketing, and internal environmental management—are identified and tested for their effects on the three- dimensional sustainable performance in this research.

The lack of research focus on the GSCM for assessing the sustainability of green RMG businesses serves as the impetus for this study. This study aims to close this knowledge gap and has the following research objective: to investigate the connection between GSCM and organizational sustainability results (social, economic and environmental performance).The rest of the paper is organized as follows: the next section covers discussion of underlying theory and literature review, presenting the research framework and including the formulation of hypotheses. The following parts describe the methods and analysis followed by the results and findings. Finally, discussion and conclusion are presented with the managerial implications, limitations and future study directions at the end.

Underlying Theory

The consequences of GSCM may be explained using the stakeholder theory. Since the industrial revolution, businesses had largely prioritized only operations that could increase profits. Social responsibility, however, has grown in significance because of increased competitiveness, a damaged environment, and more attention to quality of life. The idea of the stakeholder has risen to the fore as social responsibility has become more significant. Any organization or individual that influences how a firm achieves its goals or is impacted by these goals is referred to as a stakeholder (Freeman, 1994). The author (Freeman, 1994) separated two categories of stakeholder groups including internal (owners, managers and employees) as well as external stakeholders (customers, suppliers, competitors, government, and society). Freeman commented that achieving shared objectives will be simpler the better the relationships between various societal groups are.

The stakeholder theory generally contends that companies should best manage and meet the demands and expectations of its stakeholders. Stakeholder groups, who are becoming more environmentally conscious, are interested in the company's stance on social and environmental issues as well as its financial performance. For instance, what a company does to combat environmental contamination matters to stakeholders. As a result, companies work to implement more proactive environmental policies like GSCM to improve interactions with their stakeholders and effectively meet their expectations (Rivera-Camino, 2007). Given that stakeholders are paying more attention to how a company is run, GSCM is an important instrument that could meet their needs (Longoni and Cagliano, 2018). The business's efforts to safeguard the environment may improve its relationships with clients, partners, employees, and the general public. As a result, effective stakeholder management can give the company a competitive edge in several areas (such as efficiency, reputation, and long-term relationships with clients and suppliers) (Endrikat et al., 2014; Çankaya and Sezen, 2019). The investigation between GSCM and sustainable performance meets such expectations.

Review of Literature

Green Supply Chain Management (GSCM)

GSCM encompasses reverse logistics, eco-friendliness in design, purchasing, production, and distribution (Srivastava, 2007). The concept of GSCM encompasses each part of the whole life cycle of a product, from getting the raw materials through the stages of design, production, and delivery to the consumers and its ultimate abandonment (Walker et al., 2008). There is no doubt that GSCM procedures are very extensive. Like the idea of SCM, the border of GSCM is determined by the researcher's objectives (Srivastava, 2007). Examining empirical studies on GSCM reveals that many writers have discussed more than ten GSCM dimensions (Çankaya and Sezen, 2019; Schmidt et al. 2017; Vanalle et al. 2017; Luthra, Garg, & Haleem, 2016; Choi and Hwang, 2015; Kung, Huang, & Cheng, 2012). Five dimensions are chosen to be a part of this survey considering the absence of a complete list of GSCM practices. The next sections give a brief explanation of these practices.

Eco-design

Eco-design has been acknowledged as a powerful tool for promoting sustainable supply chain operations (Wilkerson 2005; Behrisch, Ramirez, and Giurco 2011). Most of the environmental effect is created by product features that are chosen during the design phase (Buyukozkan and Cifci 2012), hence pursuing GSCM requires design activity with a focus on sustainable development (Wilkerson 2005; Wong 2012). Chen and Chen (2014) suggest a way to assist designers in creating eco-products based on biomimetic notions, whereas Buchert et al. (2014) promote allocating design methods to different phases of the product creation process to produce more sustainable products. This study adopts the definition of eco-design provided by Johansson (2002), who defined it as actions taken during the product development stage with the goal of reducing a product's environmental impact throughout its entire life cycle, from the acquisition of raw materials through manufacturing, use, and finally disposal, without sacrificing other crucial product criteria like performance and cost.

Green Purchasing

Buying is the second aspect of GSCM that is looked at in this research. The value chain starts with the purchasing function. Its effectiveness will depend on how well the corporation integrates its environmental goals with its purchasing practices and environmental actions (Carter et al., 2000). As such, the green procurement task is a crucial part of GSCM. Integrating environmental issues and concerns into the purchase process is what is known as "green purchasing" (Rao and Holt, 2005). A company's ability to achieve its environmental objectives is significantly impacted by its choice of supplier. Nevertheless, it is not enough to get a proper supplier and its functioning only to improve ecological operation. After finding a right supplier or dealer, the whole supply process must be controlled by establishing a well-deliberated and mutual agreement with the provider. Furthermore, it is critical to determine if the dealer complies with the business' environmental criteria as well (Paulraj, 2011).

Green Manufacturing

Another important aspect of GSCM is eco-friendly production or manufacturing. Green production uses a production method that can minimize the quantity of resources and energy needed in the production process as well as any environmental harm (Gao et al., 2009). Green manufacturing tries to avoid or reduce pollution of the water, air and soil over time by enhancing industrial processes and products. Simply put, "green manufacturing" strives to make things that are beneficial to the environment using less resources (including materials, water, and energy,) and making minimum possible waste (Routroy, 2009).

Green Marketing

Singh and Pandey (2012) opine that green marketing satisfies consumer wants while having no detrimental influence on the environment. Simply, green marketing refers to the initiatives to create, charge, advertise, and distribute goods that are environmentally friendly. Promoting productin eco-friendly way is green marketing.

Internal Environmental Management

Internal environmental management, which ensures environmental protection through the development of a company's own environmental protection policies and environmental goals (Chan et al., 2012). Internal environmental management includes tasks including establishing an environmental management system, interdepartmental cooperation for environmental improvements, and top managers' support of eco-friendly systems (Zhu et al., 2005). The proposed research framework is presented in figure 1 below.

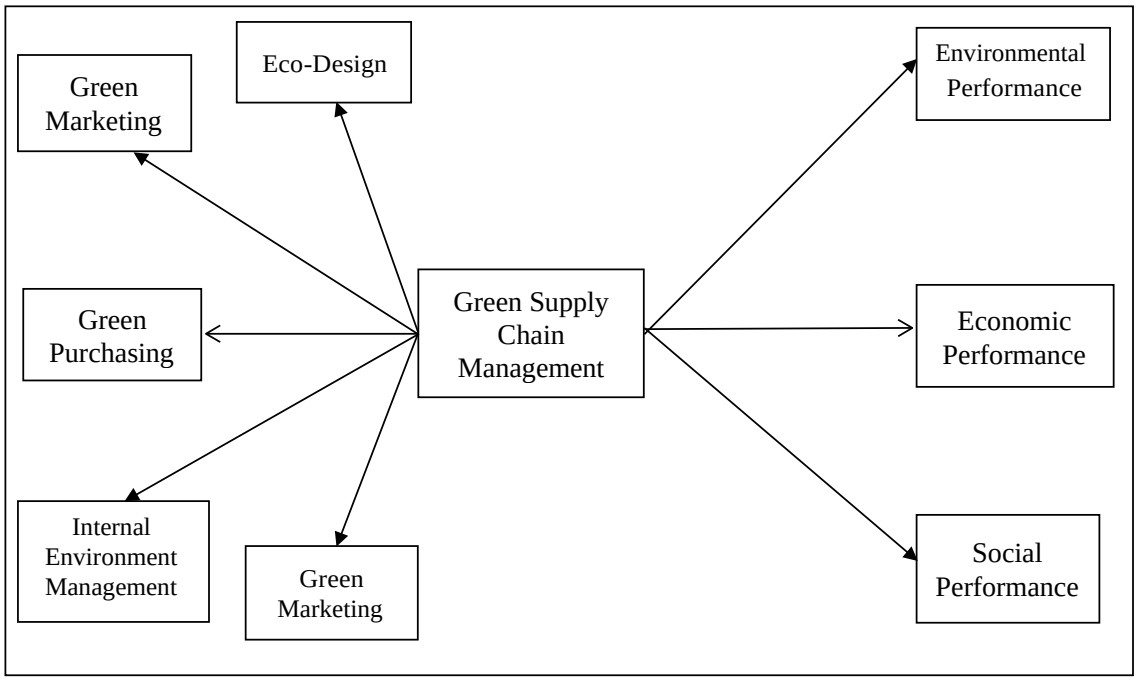

Figure 1: Proposed Research Framework

Hypotheses Development

GSCM and Environmental Performance

The focus of GSCM is on how organizational actions affect the environment. To better understand the core environmental challenges and develop practical solutions, the organization must pinpoint the causes of environmental difficulties that fall under the scope of GSCM (such as procurement, production, distribution and the product). Businesses release wastes into the environment while producing goods and services to meet demand and damage the environment (Azapagic, 2003).Environmental performance indicates how an organization can reduce use of dangerous substances, resource waste, pollution and environmental mishaps. Every attempt is made as part of GSCM processes to lessen the negative effects that a company's goods or services have on the environment. By lowering the consumption of hazardous chemicals and liquid/solid waste, reducing the frequency of environmental accidents, and improving community health, these efforts have a favorable impact on the development of environmental performance (Eltayeb et al., 2011). In a case study related to the green systems used by small and medium-sized businesses, Lee (2009) finds that these measures resulted in the lowest possible levels of material and water consumption as well as trash output. In a similar vein, green practices, according to Azevedo et al. (2011), help to improve environmental performance by lowering company waste. In summary, research indicates that green practices, such as lowering waste output and energy and material use, have a favorable influence on environmental performance (Zhu and Sarkis,

2004; Zhu and Sarkis, 2007; Kung et al., 2012; Famiyeh et al., 2018). The following hypotheses are put forth in this research based on the previous studies:

Hypothesis 1a: Eco-design and environmental performance are positively related.

Hypothesis 1b: Green purchasing and environmental performance are positively related.

Hypothesis1c: Green manufacturing and environmental performance are positively related.

Hypothesis1d. Green marketing and environmental performance are positively related.

Hypothesis1e. Internal environmental management and environmental performance are positively related.

GSCM and Economic Performance

The manufacturing facility's capacity to cut costs connected to materials purchases, energy use, waste discharge and treatment and penalties for ecological calamities will determine its economic performance (Zhu et al., 2008). Whether becoming green costs businesses money is one of the most contentious GSCM topics (Hart and Ahuja, 1996). There are various viewpoints on this issue. According to the initial assessment, GSCM will incur certain expenses. For instance, green purchasing, according to Min and Galle (2001), enhances a company's costs, which has a detrimental impact on the organization's financial performance. Bowen et al. (2001) find that environmental practices have no impact on a company's immediate profitability or sales results.According to the second point of view, GSCM will have a favorable impact on the company's financial performance. First, by lowering waste and energy expenses, firms can directly profit from economic advantages. Second, by enhancing customer reliability and corporate green reputation, organizations can reap economic rewards in more subtle ways (Schmidt et al., 2017).GSCM literature also supports that it has a favorable impact on economic performance as well (Carter et al., 2000; Rao and Holt, 2005; Zhu and Sarkis, 2004; Tang et al., 2012). Therefore, following hypotheses are made.

Hypothesis 2a: Eco-design and economic performance are positively related.

Hypothesis 2b: Green purchasing and economic performance are positively related.

Hypothesis 2c: Green manufacturing and economic performance are positively related.

Hypothesis 2d: Green marketing and economic performance are positively related.

Hypothesis 2e: Internal environmental management and economic performance are positively related.

GSCM and Social Performance

Due to recent worldwide movements and changes, firms all over the world are now expected to carry out community-approved activities as part of their social responsibility efforts. As a result, it is now clear how important social sustainability is to maintaining business sustainability. The available studies looked at how GSCM affected both environmental performance and economic

performance. However, social performance was often ignored while discussing GSCM-related issues (Rajeev et al., 2017). Managing a supply chain must take social issues into account equally to promote corporate social responsibility. By reducing environmental harm, green supply chain strategies will help businesses project a more favorable image to stakeholders, society, consumers, employees, and the government. For the satisfaction and loyalty of both customers and employees, this great reputation is crucial (Hoffman, 2001). According to Testa and Iraldo (2010) and Xie and Breen (2012), GSCM can increase stakeholder interactions, brand perception, and employee motivation. In conclusion, effective environmental practices may improve businesses' interactions with all stakeholders. Therefore, the study hypothesizes that:

Hypothesis 3a: Eco-design and social performance are positively related.

Hypothesis 3b. Green purchasing and social performance are positively related.

Hypothesis 3c. Green manufacturing and social performance are positively related.

Hypothesis 3d. Green marketing and social performance are positively related.

Hypothesis 3e. Internal environmental management and social performance are positively related.

Methodology

Sample

The hypotheses were tested on LEED certified RMG organizations in the context of Bangladesh. With the assistance of the HR managers, the questionnaires were distributed to the participants. Participants had to be full-time management level employees and have been with the present company for at least a year to be included in the sample. The researchers had communicated to 60 organizations under different category of LEED certified organizations such as platinum, silver and gold. Among these 60 organizations 28 agreed to participate in the research process. Based on the communication with the organizations the researchers sent 560 questionnaires equally to all participated organizations. Respondents of the current research were the different categories of managers such as, purchase, production, designer, marketing and factory managers. Data collection process took 30 days and the researchers had received 315 questionnaires all together.23 participants were removed who did not fulfill the criteria and finally 292 responses were found usable for data analysis with a response rate of 52.14%. In the context of RMG industry Rubel et al. (2020) had a response rate of 29%.

87% of individuals who responded to the survey were men, while 13% were women. The respondents' ages ranged from 30 to 55, with the majority (65%) being between the ages of 41 and 45. The mainstream of the responders (84%) were identified as Muslims. 79% of respondents, or more than three-quarters, were married. In terms of education, 34% of respondents had a Master's degree, followed by 51% who had an MBA; 8% had a Bachelor's degree; and 17% had a Master's in a different field. Nearly half (46.8%) of the respondents (in terms of experience) had six to ten years of line management experience. It was found that respondents had over 12 years of experience on average in the sector (SD = 3.86).

Measures

All replies were scored on a 5-point Likert scale, with 1 being (not at all) response and 5 being to a very great extent response. A 25-item scale that was modified from a previously accepted scale was used in the study to measure GSCM. Green purchasing, green manufacturing and green marketing were measured by 5 items for each and adapted from the scale of Cankaya and Sezen, (2018). Other two dimensions such as eco design and internal environment management were measured by 5 items adapted from the work of Younis (2016) and Zaid, Jaaron and Bon (2018) respectively. Sustainable performance, the dependent variable of the current research, was measured by three dimensions such as environmental, economic and social performance. All three dimensions were measured by 5 items for each and adapted from the work of Malik et al. (2021). For all the variables alpha value ranged from 0.802 to 0.903 considered satisfactory and acceptable.

Data Analysis

For evaluating both measurement and structural model, this study uses the Smart PLS 3.2.7 version as it does not require normally distributed survey data (Chin et al., 2003). The present studyis grounded in a second order GSCM model. The current investigation used PLS-SEM for data interpretation and analysis, and it has research references (Rubel et al., 2021; Anwar et al., 2020;Yong et al., 2019; Pham et al., 2019).

Results

Second-order reflective GSCM

In this study, GSCM was hypothesized to be a second-order reflective construct that was evaluated using Wetzels et al's (2009) repetitive indication method. GSCM was immediately evaluated as a second-order factor by the indicators of all first-order five dimensions. According to Hull and (1999), if there is a correlation between every item in every construct and every construct in the first order, all first order dimensions reflect the second-order construct. Following this conception, the findings reveal that all first order GSCM dimensions' items had positive correlations and were all statistically significant at $p < 0.01$. Moreover, there was a substantial correlation among all five dimensions of GSCM practices at $p < 0.01$. According to Hair et al. (2017) both average variances extracted (AVE) and the composite reliability (CR) of second order construct should be significant, here GSCM in this study (see Table 1).

Table 1: Hierarchical

Green Supply Chain Management (AVE= 0.571, CR= 0.838)				
Eco-Design	**Green Manufacturing**	**Green Purchasing**	**Int. Environment Management**	**Green Marketing**
$R^2 = 0.801$	$R^2 = 0.715$	$R^2 = 0.741$	$R^2 = 0.692$	$R^2 = 0.512$
$\beta = 0.831$	$\beta = 0.827$	$\beta = 0.842$	$\beta = 0.791$	$\beta = 0.623$
$P < 0.01$	$P < 0.01$	$P < 0.01$	$P < 0.01$	$P < 0.01$

Measurement model

Latent variable analyses were carried out using the partial least squares (PLS) method. The measures of loadings, AVE, and CR were evaluated to determine the measurement model's convergent validity. The reliability evaluation of each indication measures factor loading that has recommended value either 0.6 (Chin et al., 2003) or above 0.708 (Hair et al., 2017). Moreover, an AVE that has a proposed value of 0.5 or more indicates sufficient differences among the hypothesized factors (Hair et al., 2010). Finally, CR assesses internal consistency and the level of latent variable explanation provided by the observed variables (Hair et al., 2017). Acceptable CR values for exploratory investigations are between 0.6 and 0.7, and for more advanced study, values between 0.7 and 0.9. (Nunnally & Bernstein, 1994).This study assumes all loading values must be ≥ 0.6, AVE must be ≥ 0.5, and CR must be ≥ 0.7. As shown in Table 2, all these values were revealed to be higher than the recommended values.

Table 2: Output of the Measurement Model

Constructs and Items	Items	Loading
Eco-Design (AVE = 0.689; CR = 0.912)		
My organization designs items with a lower use of resources or energy	Eco-D 1	0.915
My organization designs items that promote material recovery, reuse, and recycling	Eco-D 2	0.790
My organization makes sure the packing for the goods is reusable	Eco-D 3	0.880
My organization utilizes life cycle analysis to evaluate the environmental impact	Eco-D 4	0.827
My organization designs products to reduce the use of dangerous chemicals	Eco-D 5	0.817
Economic Performance (AVE = 0.705; CR = 0.878)		
My organization tries to reduce cost of buying materials	Eco. P 1	0.859
My organization tries to reduce cost in energy uses	Eco. P 2	0.867
My organization tries to reduce in water treatment	Eco. P 3	0.910
My organization tries to reduce cost in waste release	Eco. P 4	0.831
My organization tries to reduce cost in environmental disaster	Eco. P 5	0.914
Environmental Performance (AVE = 0.710; CR = 0.917)		
My company takes steps to better comply with environmental standards	Env. P 1	0.921
My company makes efforts to reduce airborne pollutants	Env. P 2	0.899
My company takes steps to reduce the use of hazardous materials	Env. P 3	0.862
My company makes efforts to cut down on energy use	Env. P 4	0.831
My company takes steps to reduce its use of materials	Env. P 5	0.871
Green Purchase (AVE = 0.654; CR = 0.886)		
Purchasing items from supplier include environmental requirements	GP 1	0.840
Collaborating with suppliers to achieve environmental goals	GP 2	0.897

Choosing suppliers based on environmental considerations	GP3	0.819
PreferingISO-14000 accredited suppliers	GP4	0.831
Conducting environmental audit for suppliers' internal management	GP5	0.785
Green Manufacturing (AVE = 0.767; CR = 0.913)		
Noise pollution from the manufacturing process is minimum	GM 1	0.804
Having substitution of hazardous and polluting components and materials	GM 2	0.746
Controlling emissions and discharges and filters	GM 3	0.884
Planning and managing production with a focus on minimizing wastes	GM4	0.905
Processing design aimed to cut operational consumption of energy and natural resources	GM5	0.878
Green Marketing (AVE = 0.767; CR = 0.908)		
Providing frequent voluntary information customers and institutions regarding environmental management	GMAR 1	0.885
Partnership with environmental organizations and sponsorship of environmental events	GMAR 2	0.834
Environmental slogans are used in marketing	GMAR 3	0.901
Regular post of the environmental issues on the website	GMAR 4	0.912
Material packages have labels for easy retrieval	GMAR 5	0.921
Internal Environmental Management (AVE = 0.789; CR = 0.911)		
Commitment of top-level management to GSCM is high	IEM 1	0.878
The support of mid-level managers for GSCM is available	IEM 2	0.934
Existence of cross-functional cooperation to protect the environment	IEM 3	0.881
Environmental issues are combined with the internal functioning	IEM 4	0.927
Environmental reports are produced for internal evaluation	IEM 5	0.871
Social Performance (AVE = 0.789; CR = 0.878)		
My organization takes steps to increase stakeholder wellbeing generally	SP 1	0.907
My company works to increase community health and safety	SP 2	0.881
My company takes actions to lessen hazards to the public and environmental impacts	SP 3	0.879
My business takes steps to ensure the workers' occupational health and safety	SP 4	0.907
My business acts to better protect the rights and claims of the people in the community it serves	SP 5	0.919

Heterotrait-Monotrait (HTMT) ratio was used to examine the discriminant validity of the data. The HTMT ratio was recommended because it produced more significant and accurate results compared to the results of Fornell-Larcker standard. Henseler et al. (2015) advocated two distinct

cut-off values for the HTMT ratio, such as 0.85 and 0.90, that Franke and Sarstedt (2019)revised-later. Table 3 below demonstrates that the discriminant validity of the present constructs have beenestablished since the HTMT values were within the limit of -1 to +1.

Table 3: Heterotrait-Monotrait (HTMT) ratio

	Eco-D	**Eco-P**	**Env- P**	**GP**	**GM**	**GMAR**	**IEM**	**SP**
Eco-D								
Eco-P	0.721							
Env- P	0.613	0.591						
GP	0.667	0.624	0.602					
GM	0.689	0.658	0.621	0.564				
GMAR	0.645	0.646	0.499	0.702	0.612			
IEM	0.639	0.700	0.587	0.721	0.598	0.543		
SP	0.710	0.634	0.612	0.598	0.712	0.534	0.809	
Mean	3.65	3.71	3.82	3.90	3.95	3.68	3.74	
S.D	0.69	0.71	0.79	0.89	0.91	0.59	0.70	

Structural model

A summary of the findings from the developed hypotheses is shown in Tables 4. The structural model of the study is depicted in Figure 2 and indicates substantial relationships between the variables, as expected. The Cohen (1988) recommended ranges for translating R2 values are 0.02-0.12 weak, 0.13-0.25 moderate, and 0.26 and above substantial. All current R2values are found considerable such as, environmental performance (R2 = 0.321; Q2 = 0.289), economic performance (R2 = 0.412; Q2 = 0.301), and social performance (R2 = 0.435; Q2 = 0.309). Q2 value for environmental performance, economic performance and social performance are realized higher than 0, suggesting satisfactory predictive relevance. The direct effect from GSCMto environmental performance ($\beta = 0.221$, $p < 0.01$), GSCM to economic performance ($\beta = 0.359$,$p < 0.01$) and GSCM to social performance ($\beta = 0.307$, $p < 0.01$), are found significant. Thus, alldirect hypotheses are being supported.

Table 4: Result of the structural model (Hypotheses Analysis)

Hypotheses	**Std. Beta**	**Std. Error**	**t-Value**	**P Value**	f^2	**Decision**
Green Supply Chain Management > Environmental performance	0.221	0.041	3.031**	0	0.22	S
Green Supply Chain Management >Economic performance	0.359	0.049	4.75**	0	0.94	S
Green Supply Chain Management >Social performance	0.307	0.051	4.21**	0	0.49	S

**p < 0.01, *p < 0.05, (analyzed the direct relationship based on one-tailed)

Discussion and Conclusion

The current study contributes to the advancement of the GSCM system by exploring if GSCM dimensions and corporate sustainability performances are connected. The GSCM with its five components has impacts on the three sustainability performance elements (economic, social and environment). Managers would be able to pinpoint the best GSCM procedures to bolster the performance areas that require strong acknowledgement of the impact of the GSCM on the overall sustainable performances. This study made the case that the stakeholder theory would improve how well GSCM techniques operate in terms of sustainability. Most studies in this area have found a link between GSCM and business sustainability performance. As an example, Schmidt et al. (2017) discovered a favorable correlation between GSCM procedures and market and financial performance.

Environmental strategies were found to be positively correlated with both economic performance and environmental performance by Chan (2005). However, it was also noted in the literature that investments for green initiatives have increased cost load for the organizations and have a negative impact on their financial operations (Green et al., 2012; Esfahbodi et al., 2017). Moreover, it appears that in terms of influencing societal performance, particularly economic performance, GSCM was less successful than anticipated (Cankaya and Sezen, 2019). This might be because the early phases of GSCM frequently demand investment (Simpson et al., 2007), which might have a detrimental effect on the prices of enterprises that are just beginning to adopt green practices. However, the present findings show that green RMG organizations in Bangladesh are enjoying benefits from GSCM in terms of all three dimensions of sustainable performances. Because of this, it is possible to state that Bangladeshi green RMG enterprises have reached a suitable degree of position locally and globally in terms of using green management techniques.

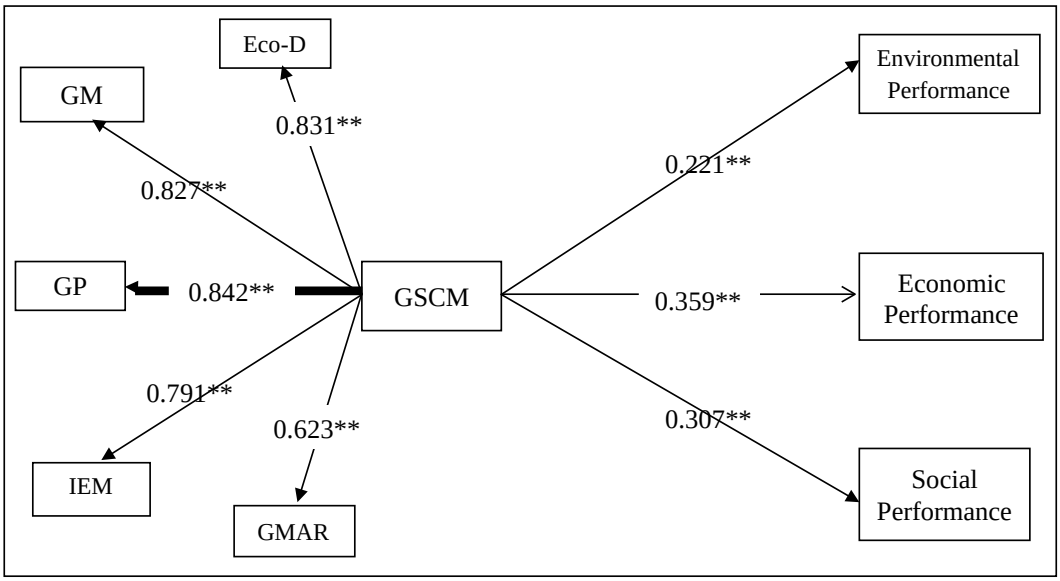

Figure 2: Output of the Structural Model

Note (s):**Eco-D**= Eco-Design, **GM**= Green Manufacturing, **GP**= Green Purchasing, **IEM**= Internal Environmental Management and **GMAR**= Green Marketing.

It is crucial to investigate how GSCM might affect other non-green organizations in their attempts to strike a balance between environmental protection and financial concerns. Environmentally conscious actions often do not result in immediate economic benefits, but have a long-run return, according to Bowen et al. (2001). It may be said that the GSCM phenomena in green RMG organizations could bring benefits because of their green images that are already known locally and globally. The findings of this study should be supplemented by research findings on GSCM and its impact on other non-green RMG organizations and green and non -green organizations of other industries in Bangladesh.

Implications of the Study

Managerial

This study offers useful recommendations for policymakers and manufacturing practitioners. In emerging nations like Bangladesh, most producers prioritize enhancing their financial status and minimizing financial risks. Hart (1995) asserted that companies that focus on short-term profitability cannot, by ignoring the environment, achieve long-term prosperity. In situations where economic goals conflict with societal benefits and profit maximization, a win-win solution is possible if GSCM is implemented. Managers will also be able to learn more from this study about the relative advantages of GSCM. A GSCM strategy's formula is not an easy thing to understand. This is because while some cost items may increase due to green practices (such as investment costs, operational costs, training costs, and procurement costs), other cost issues might decline. As a result, managers must accurately complete a cost-benefit analysis. The results of social and environmental performance may be immediately impacted by GSCM. It will take time for the economic impact to materialize. In any case, environmentally conscious RMG companies need to build stronger relationships with their suppliers and encourage them to adopt green practices. They should make greater investments in green education and determine the needs and gaps in this field to better collaborate with customers, suppliers, and partners in the distribution channel on environmental concerns. To lower the costs involved with adopting green initiatives and generate significant financial improvements, RMG enterprises need to be encouraged more about recycling procedures. RMG should simultaneously invest in green marketing to reposition itself and establish connections with various societal groups, particularly target consumers. Businesses with environmentally responsible operations would get more benefits if they communicate their standpoints credibly.

Theoretical

The current study followed stakeholder theory to justify the relation between GSCM and sustainable performance of green RMG organizations in Bangladesh. Three main perspectives make up stakeholder theory: (1) a theoretical framework that argues that managers must give emphasis to the different stakeholders and not only act as the representatives of the business's stockholders; (2) an explanation of stakeholders with their respective interests in the concerned

business; and (3) a practical tool for probing the connection between stakeholder management and firm results (Tseng et al., 2022). According to stakeholder theory, businesses increasingly adopt sustainability practices in response to demands from various stakeholder groups (such as investors, employees, customers, communities, and governments) to get support from them for demonstrating exceptional sustainability performance (Gong et al., 2019). The present findings provided the evidence that GSCM positively influences sustainable performance of the green RMG firms. This could support the green concerns of all stakeholders from supplier, manufacturer, customers, owners and overall community to be considered in the whole supply chain activities of a manufacturing organization. This study findings further facilitated the notion that stakeholders favor the green image of the business operations.

Limitations and Future Study Directions

The researchers have made efforts to obtain the reliable and valid results that were described in the previous sections during the study's design phase. But there are a few issues with the study that need to be addressed in this section. The purpose of this study was to examine how GSCM practices are used in manufacturing firms. Other business types, such as wholesalers and retailers in the same industry or others, can be reflected in the model. Moreover, using a cross-sectional survey, this inquiry was conducted. The study's cross-sectional design makes it impossible to support a causal conclusion. However, only legitimate, informed, and truthful respondents completed the questionnaires. A suitable sample size, along with trustworthy statistical checks, confirmed the validity and reliability of the data collected. There are fewer empirical studies being done on GSCM, despite the fact that there are more studies being conducted in Bangladesh on environmental issues. Because the direct correlation between GSCM characteristics and sustainable performance was not previously examined in the context of green RMG firms, this study solely examined the fundamental relationship between the two concepts. Future research may examine both the mediating and the moderator effects to learn more about how GSCM affects sustainable performance.

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