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Green Supply Chain Management practice of RMG sector in Bangladesh

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Abstract
The core material of RMG firms has implemented green supply chain management to overcome the difficulties of integrating green supply chain management in the RMG sector of Bangladesh, according to this research. We looked at supply chain management and green supply chain management in the RMG sector in Bangladesh in this article. To determine the extent to which GSCM is used in Bangladesh's RMG industry and to assess the current level of acceptance of green supply chain operation in the RMG market. I chose these three companies for this article. Since they ensure growth, expansion, and income, ViyellaTex, Fakir Industry, and Sinha Group are socially and environmentally responsible. The dominant variables of supply chain efficiency, such as economic, environmental, and social, were identified using a system dynamics approach in the RMG field. For this analysis, we used SPSS, ANOVA, and co-relation of co-efficient. According to our results, Bangladesh has refused to raise the fine for environmental incidents. We discovered that a decrease in the frequency of environmental accidents has a negative relationship with green marketing mix using co-efficient of correlation analysis. So for maintaining green marketing mix we need to improve the decrease in consumption for hazardous/toxic materials. Finally, we can see that increased capacity utilization has a negative relationship with increased customer satisfaction, based on the assumptions. In the RMG market, sharing obligations with suppliers and motivating them to implement more environmentally friendly behaviors is extremely important in improving product quality and ensuring that it is properly preserved.

Keywords*: Green supply chain, RMG industry, supply chain adoption and performance, environmentally friendly*

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I. Introduction

In terms of foreign currency earnings RMG is the major field in Bangladesh. Next to china, Bangladesh is the second largest exporter of garments. It accounts for 80% of global export earnings. Global emissions and increased awareness are leading consumers to look for more eco friendly alternatives. Target customers are more health-conscious and consciously support greener lifestyles. Green supply chain management is often viewed as ecological supply chain management or the operation of the environmental supply chain. Environmental terms and conditions are applicable to regulations, products and services, rules and policies that inflict minimal environmental harm. Green supply chain management presents undeniably a new platform for Bangladesh Textile industry. In reality, green supply chain management's goal is to enhance the manufacturing system to make it more carbon efficient and avoid damaging environment where possible. Another successful trend was the effort of buyer codes of conduct (CoCs), which culminated in the voluntary introduction of cleaner production (CP) initiatives by selected RMG factories that benefit from an integrated strategy to increase profitability by allowing more productive use of inputs (such as electricity, water or chemicals) while sustaining or increasing output and reducing waste. So development of the RMG industry is to be maintained by strengthened green supply chain management (GSCM).

II. Literature Review

The RMG industry depends heavily on the imported raw materials. Green supply chain management (GSCM) seeks to reduce environmental harm caused by manufacturing operations, while converting environmental problems into supply chain management. In addition to poor use of information and communication technology (ICT) and inadequate port management, it restricts its ability to adapt rapidly to demand shifts, which are very significant in the fashion industry (Abdullah, 2008).

According to Lam and Postle (2006), we addressed the benefits and challenges of supply chains for fashion clothing in Bangladesh. They argued that the Bangladesh clothing industry is largely ignorant of the idea of supply chain management and industrial benchmark in Bangladesh for both the manufacturing and wholesale industries.

Saiful and Noorul (2013) analyzed the approach is in the global supply chain, spanning local boundaries provides intercontinental industry with a multiplicity of general obstructions: barriers, non-tariff obstructions, switching prices and commodity demand disparities, market discounts and company insights.Various steps of the supply chain have competing priorities and targets.

According to Flammer (2019), the eco-friendly behavior of businesses is closely tied to large rises in stock prices, whereas firms with an eco-harmful behavior risk declines in stock prices.

According to Ninlawan et al. [11] and Thooet al.[24], Green sourcing, green production, green delivery and green logistics are essential aspects of the GSCM activities needed by industrial industries in order to achieve improved sustainability.

Lee et al. [33] noted, That GSCM activities consist of organizational and operating approaches aimed at enhancing environmental protection, such as internal environmental management, renewable sourcing, consumer collaboration and ecodesign.

Environmental management system help comply with optional and compulsory environmental requirements and meet waste management goals by improved environmental preparation from raw material procurement through to finished pro-duct delivery (Darnall, 2006; Darnall and Edwards, 2006).

ED, also known as 'environmental architecture,' refers to the degree to which businesses manufacture goods and/or production processes with limited effects on the natural environment (Zhu et al., 2008).It is a long-term plan for emissions reduction that takes into account product construction for quick disassembly, re-manufacture or recycling and includes multiple sustainability practices over the product life cycle, including environmentally sustainable disposal (Tukker et al., 2001) initiatives such as EMSs, ED, SR, and EEM can benefit as environmental impact changes are identified as reducing emission rates 2000).

Previous reports say organizational sustainable policies including staff engagement, top management cooperation and systematic implementation (Theyel, 2000).

Several researchers performed studies to establish Green Energy assessment scales (Green et al.2012; Zhu et al. 2008a; Wee and Quazi 2005).

Environmentally relevant policy laws and policies have been described as engines of environmentally sustainable activities being enforced. The effect of green regulations on the productivity of companies is not well defined partnership (Preuss 2002).

They addressed the benefits and challenges of supply chains for fashion clothing in Bangladesh. They argued that the Bangladeshi apparel industry is generally unaware of the SCM principle and the technological benchmark in Bangladesh for both the manufacturing and retail industries according to Lam and Postle (2006).

III. Research Design & Hypothesis

This research is designed as descriptive type which focuses on Green Supply Chain Management practice on RMG Sector of the selected companies.

At first we want to different garments company and collect information from the personnel, in preparing this report, we approach according to following procedure

Sources and collection of data

Viyellatex, Sinha group, Fakir Industries, Expert's opinion and comments observations of the officials, Face to face conversation with the employees of Garments. And there are some secondary sources like Relevant books, Newspaper, journals, Websites, Office circular and other published papers.In the sampling process we will interview selected companies. Like, employee interview, we can collect information from their existing database so that we are able to aware previous situation and lastly interview from Top tier, mid tier and entry level employees.

We are directly collect information form top level and mid level managers from ViyellaTex group, Sinha Group and Fakir Industry.

From probability sampling we will pick 52 employees from entry level through

$$\text{Sample size} = \frac{z^2 \times p\,(1-p)}{e^2} \Big/ 1 + \left(\frac{z^{2\times p(1-p)}}{e^2 N}\right)$$

Here, Z=1.44 P=.5e= .1 N=4560 n= 52 (sample size)

Data gathering taken place after preparing the structure for in-depth interview that will need for supportive information. Interview will take with two or three highly ranked respective officials off all division and others are from various departments, from different ranked. Their age limit was from 22 to 62. Our sample size will be 52

Data analysis

Before processing the data collected, the completed questionnaires were edited for completeness and consistency. Collected data was then captured and analyzed using SPSS. The data was analyzed using descriptive statistics where percentages, means and standard deviation were used. For easy understanding and interpretation hence drawing conclusion on findings, tables, graphs, and charts were used to determine GSCM practice adopted by Garment Industry in Bangladesh

IV. Analysis:

1. Decrease in consumption for toxic materials.

Ho (Null): Decrease in consumption for toxic materials in RMG sector of Bangladesh is satisfactory ($\mu<3$)
H1 (Alternative): Decrease in consumption for toxic materials in RMG sector of Bangladesh is not satisfactory ($\mu\geq3$)

Globalisationresultsin both pressure and driversfor all countries and enter-prisesin the world that are trying to improve their environmental performances.
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"Life cycle assessment (LCA) is used to forecast the impacts of different production alternatives of a product to able to choose the most environmentally friendly one. Today designers must compare several different products according to several categories, such as energy use, toxicity, acidification, CO2 emissions, ozone depletion, resource depletion and many others. By comparing different products, designers can make decisions about which environmental hazard to focus on in order to make the product more environmentally
friendly [26]. This causes the minimization of waste and hazardous by-products, air pollution, energy expenditure and other factors." (Eyuruk, 2018)

Interpretation:
We can consider mean value 3.1250 which is higher than the test value. So according to the procedure of hypothesis testing by one sample t-test null hypothesis is rejected.

Rejection Region:
Rejection HO if t> ±1.44
P value> .15

Findings from the One sample t-test:
Test statistics .680<1.44
P value .0482< .15
It is a single one tailed test and the null hypothesis is accepted because t value is less than 1.44 and P value is smaller than .15

2. **Green Purchasing: Eco Labeling Product**

Ho (Null): In Bangladesh the RMG sector is maintaining eco labeling products ($\mu<3$)
H1 (Alternative): In Bangladesh the RMG sector is not maintaining eco labeling products ($\mu\geq3$)

"Eco-labels are normally issued either by Government supported or private enterprises once it has been proved that the product of the applicant has met the criteria set by them for the label. The criteria for the use of eco-labels are mostly based on the cradle-to-grave approach, i.e. the life-cycle analysis of the product. The cradle-to-

grave approach for textiles and clothing is making the assessment of the impact on the environment of the product during its life-cycle: processing of raw materials, production, distribution, consumption (maintenance, i.e. washing, ironing, dry-cleaning) and finally disposal of the product. Admittedly there are big differences between various eco-labelling schemes, some of which are based on detailed analysis of the environmental impacts as again some other systems may analyze only certain stages of the life-cycle" (Ganesan, November 2007)

Interpretation:
We can consider mean value 3.2500 which is higher than the test value. So according to the procedure of hypothesis testing by one sample t-test null hypothesis is rejected.
Rejection Region:
Rejection HO if t> ±1.44
P value> .15
Findings from the One sample t-test:
Test statistics 1.856>1.44
P value .273> .15
It is a single one tailed test and the null hypothesis is rejected because t value is greater than 1.44 and P value is greater than .15

3. **Green Purchasing: Cooperation with suppliers for environmental objectives.**
Ho (Null): In RMG sector of Bangladesh the cooperation with suppliers for environmental objectives is satisfactory ($\mu<3$)
H1 (Alternative): In RMG sector of Bangladesh the cooperation with suppliers for environmental objectives is not satisfactory ($\mu\geq3$)

"Green supply chain management (GSCM) enhances a firm's competitiveness for sustainable growth. GSCM is especially important in the construction industry, a project-based business that often results in heavy environmental pollution. For the successful implementation of GSCM in the construction industry to occur, contractors should make the best use of suppliers' environmental capabilities based on shared understanding of the capabilities." (Eryuruk, 27 November, 2018)

Interpretation:
We can consider mean value 2.6562 which is lower than the test value. So according to the procedure of hypothesis testing by one sample t-test null hypothesis is accepted.
Rejection Region:
Rejection HO if t> ±1.44
P value> .15
Findings from the One sample t-test:
Test statistics -1.384<1.44
P value .0176< .15
It is a single one tailed test and the null hypothesis is accepted because t value is less than 1.44 and P value is smaller than .15

4. Green Marketing: Green image of Branding.
Ho (Null): Green image of branding for RMG sector in Bangladesh is moderate ($\mu<3$)
H1 (Alternative): Green image of branding for RMG sector in Bangladesh is not moderate ($\mu\geq3$)

"Eco friendly clothing is created from resources that are environmentally friendly and sustainable. Consideration is given to the product's total life span as well as its impact on the planet, in other words, the carbon footprint [1]. Eco friendly clothing is created from resources that are environmentally friendly and sustainable, and efficient management of obtaining green clothing requires to consider all stages, starting from designing for the environment, obtaining raw materials, producing garments, distributing them to the channels, stores and also considering their reverse logistics and waste." (Eryuruk, Greeninf of the Textile and Clothing Industry, November, 2018)

Interpretation:
Here the table illustrate that the mean value is higher than the test value. In the one sample T test table, we can consider mean value of 3.7812 which is higher than the test value. So according to the procedure of hypothesis testing by one sample test, the null hypothesis is rejected.

Rejection Region:
Rejection HO if t> ±1.44
P value> .15
Findings from the One sample t-test:
Test statistics 10.522>1.44
P value .1589> .15
It is a single one tailed test and the null hypothesis is rejected because t value is greater than 1.44 and P value is greater than .15

5.Supplier relationship: Sharing responsibilities with supplier encouraging them to adopt more environmental friendly behaviors.

Ho (Null): The authorities of RMG sector in Bangladesh are sharing responsibilities with supplier encouraging them to adopt more environmental friendly behaviors ($\mu<4$)
H1 (Alternative): The authorities of RMG sector in Bangladesh are not sharing responsibilities with supplier encouraging them to adopt more environmental friendly behaviors ($\mu\geq4$)

"Not too long ago, companies were reluctant to cave any work an outside supplier before there was a valid contract establishing terms of their working relationship. This has since changed with the recent emergence of value managed relationships and long term sourcing strategies. In the early 1980s with increasing international competitiveness, profit margins declined sharply." (Biren Prasad, 2014)

Interpretation:
Here the table illustrate that the mean value is lower than the test value. In the one sample T test table, we can consider mean value of 3.7812 which is lower than the test value. So according to the procedure of hypothesis testing by one sample test, the null hypothesis is accepted.

Rejection Region:
Rejection HO if t> ±1.44
P value> .15
Findings from the One sample t-test:
Test statistics -1.269<1.44
P value .0214< .15
It is a single one tailed test and the null hypothesis is accepted because t value is less than 1.44 and P value is smaller than .15

5.Economic performance: Increase in fee for waste discharge

Ho (Null): The Bangladesh Government need to increase in fee for waste discharge in RMG sector ($\mu<3$)
H1 (Alternative): The Bangladesh Government need not to increase in fee for waste discharge in RMG sector ($\mu\geq3$)

"For the first time in more than a decade, waste discharge fees and annual fees paid for by industry and local government will be increased to fund improved environmental protection in B.C., as well as to provide better service. Effective April 1, 2018, the following fees under the Environmental Management Act (EMA) will increase, for the first time since 2006: Waste discharge permit application and amendment fees, and annual fees for air, effluent, refuse and storage permits." (Environmental Management Act: Waste discharge fee increases will strengthen environmental protection, March 28, 2018)
Interpretation:
Here the table illustrate that the mean value is higher than the test value. In the one sample T test table, we can consider mean value of 4.1250 which is higher than the test value. So according to the procedure of hypothesis testing by one sample test, the null hypothesis is rejected.

Rejection Region:
Rejection HO if t> ±1.44
P value> .15
Findings from the One sample t-test:
Test statistics 6.313>1.44
P value .5010> .15

It is a single one tailed test and the null hypothesis is rejected because t value is greater than 1.44 and P value is greater than .15

7. **Economic performance: Increase in fine for environmental accidents**
Ho (Null): The Bangladesh Government need to increase in fee for environmental accidents in RMG sector ($\mu<4$)
H1 (Alternative): The Bangladesh Government need not to increase in fee for environmental accidents in RMG sector ($\mu\geq4$)

Environmental managers and committees should continue to monitor, evaluate and look for ways to improve operations so as to reduce the risk of incurring an environmental fine or penalty. In particular, companies should focus capital expenditures in areas that minimize releases to air or water. Areas of continuous improvement should include: developing tools and processes to ensure timely reporting of environmental incidents, tracking air and water emissions, and waste management (including management of designated substances). Where possible, insurance brokers and risk managers should examine the use of environmental insurance as a backstop to a company's environmental management system." (Environmental Fines & Penalties, March, 2019)

Interpretation:
Here the table illustrate that the mean value is lower than the test value. In the one sample T test table, we can consider mean value of 3.9375 which is lower than the test value. So according to the procedure of hypothesis testing by one sample test, the null hypothesis is accepted
Rejection Region:
Rejection HO if t> ±1.44
P value> .15
Findings from the One sample t-test:
Test statistics -.442<1.44
P value .0439< .15
It is a single one tailed test and the null hypothesis is accepted because t value is less than 1.44 and P value is smaller than .15

8. **Design product for environmentally friendly objectives**
Ho (Null): In Bangladesh there is a practice to design for environmentally friendly objectives ($\mu<4$)
H1 (Alternative): In Bangladesh there is no practice to design for environmentally friendly objectives ($\mu\geq4$)

"One of the largest polluters in the world is the textile industry. At least 8,000 chemicals are used to manufacture raw materials into our clothing and linens. Seven of the top fifteen pesticides used in non-organic cotton growing methods are considered ascarcinogens. According to the World Health Organization, 20,000 deaths occur annually in developing countries from the poisons in pesticides that are used in crops. Growing cotton alone uses about one-quarter of the world's insecticides" (Eryuruk S. H., 2018)

Interpretation:
Here the table illustrate that the mean value is lower than the test value. In the one sample T test table, we can consider mean value of 2.6562 which is lower than the test value. So according to the procedure of hypothesis testing by one sample test, the null hypothesis is accepted
Rejection Region:
Rejection HO if t> ±1.44
P value> .15
Findings from the One sample t-test:
Test statistics -6.294>1.44
P value .224> .15
It is a single one tailed test and the null hypothesis is rejected because t value is greater than 1.44 and P value is greater than .15.

9. **Decrease in Scrap rate**
Ho (Null): There is an impact in RMG sector in Bangladesh to decrease in Scrap rate is adequate ($\mu<3$)
H1 (Alternative): There is an impact in RMG sector in Bangladesh to decrease in Scrap rate is not adequate ($\mu\geq3$)

"The quantity of leftovers per annum is immense. Even according to our optimistic scenario, the world would create 40 billion square meters of leftover textile per year, almost enough to cover the entire republic of Estonia with waste. According to the mean prediction, the leftovers would amount to 80 billion square meters, and according the pessimist scenario the waste would cover North Korea and its 120 billion square meters." (HOW MUCH DOES GARMENT INDUSTRY ACTUALLY WASTE, 2016)

Interpretation:
We can consider mean value 3.9688 which is higher than the test value. So according to the procedure of hypothesis testing by one sample t-test null hypothesis is rejected.
Rejection Region:
Rejection HO if t> ±1.44
P value> .15
Findings from the One sample t-test:
Test statistics 31>1.44
P value .1622> .15
It is a single one tailed test and the null hypothesis is rejected because t value is greater than 1.44 and P value is greater than .15

10. **Increase in product quality**
Ho (Null): In RMG sector of Bangladesh need to increase in product quality ($\mu<3$)
H1 (Alternative): RMG sector of Bangladesh need not to increase in product quality ($\mu\geq3$)

"Environmental issues have been considered to be a natural extension of quality problems because poor product and process quality inevitably lead to environmental problems (Lai, Wu & Wong, 2013). Customer quality integration improves quality capabilities by collaborating with customers on product design and quality improvement, and learning from customers (Kuei, Madu & Lin, 2008; Huo, Zhao & Lai, 2014). Customer quality integration can help a manufacturer to use less hazardous materials and optimize production processes, facilitating the implementation of green purchasing (Klassen & Vachon, 2003; Vachon & Klassen, 2007)." (Zhang, 2017)

Interpretation:
From the above table, the mean value is higher than the test value. In the One sample T test table, we can consider mean value of 3.8438 which is higher than the test value. So according to the procedure of hypothesis testing by one sample test, the null hypothesis is rejected.
Rejection Region:
Rejection HO if t> ±1.44
P value> .15
Findings from the One sample t-test:
Test statistics 12.938>1.44
P value .3175> .15
It is a single one tailed test and the null hypothesis is rejected because t value is greater than 1.44 and P value is greater than .15.

6.2 Regression and Co-relation co-efficient:

1. *Increase in fee for waste for waste treatment,*
   Increase in fee for waste discharge
Increase in fine for environmental accidents
   Decrease in scrap rate
   Establishment of a transport system for the recycling of used and defective end-of life products.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.695[a]	.484	.407	.79411

a. Predictors: (Constant), Decrease in scrap rate, increase in fine for environmental accidents, increase in fee for waste treatment, increase in fee for waste discharge

Interpretation:

R squared means co-efficient of determination. R^2 is a statistical measure in a regression model that determines the proportion of variance in the dependent variable that can be explained by independent variable. So basically R^2 tells how well the data fit in the regression model. From the above table the observed co-efficient of determination (R^2) is larger than 0. They are exists a positive relationship between the dependent variable and independent variable. Here the R^2= .484 which is considered weak relationships.

The R squared (.484) shows 48.4% of variance of the dependent variable (Establishment of a transport system for the recycling of used and defective end-of life products) is explained by the independent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.224	3.299		1.583	.125
	increase in fee for waste treatment	.314	.262	.197	-1.198	.241
	increase in fee for waste discharge	.225	.170	.220	-1.324	.197
	increase in fine for environmental accidents	-.610	.203	-.473	-3.010	.006
	Decrease in scrap rate	.332	.882	.057	.377	.709

a. Dependent Variable: Establishment of a transport system for the recycling of used and defective end-of-life products

Interpretation:

Using the values from the given Coefficients table the regression model for establishment of a transport system for the recycling of used and defective end-of-life products becomes the following:

Establishment of a transport system for the recycling of used and defective end-of-life products (Y) =5.224+.314 (increase in fee for waste treatment) + .225 (increase in fee for waste discharge) -.610 (increase in fine for environmental accidents) + .332 (Decrease in scrap rate). The table above shows that the value of standardized beta coefficient of increase in fee for waste treatment, increase in fee waste discharge and decrease in scrap rate are positive, which means these three factors have significant effect on establishment of a transport system for the recycling of used and defective end-of-life products. But standardized beta co-efficient of increase in fine for environmental accidents has an negative effect on establishment of a transport system for the recycling of used and defective end-of-life products.

2. *Decrease in frequency for environment accidents*
Reduction of air emission
Reduction of effluent waste
Decrease in consumption for hazardous/toxic materials
Green marketing mix

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.717[a]	.514	.442	.62193

a. Predictors: (Constant), Decrease in frequency for environment accidents, Reduction of air emission, Reduction of effluent waste, Decrease in consumption for hazardous/toxic materials

Interpretation:

R squared means co-efficient of determination. R^2 is a statistical measure in a regression model that determines the proportion of variance in the dependent variable that can be explained by independent variable. So basically R^2 tells how well the data fit in the regression model. From the above table the observed co-efficient of determination (R^2) is larger than 0. They are exists a positive relationship between the dependent variable and independent variable. Here the R^2= .514 which is considered moderate effect relationship

The R squared (.514) shows 51.4% of variance of the dependent variable (Green marketing mix) is explained by the independent variable.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.486	.624		.779	.443
	Reduction of air emission	.187	.189	.158	.990	.331
	Reduction of effluent waste	1.444	.511	.865	2.829	.009
	Decrease in consumption for hazardous/toxic materials	.540	.245	.674	-2.202	.036
	Decrease in frequency for environment accidents	-.152	.079	-.304	-1.924	.065

a. Dependent Variable: Green marketing mix

Interpretation:

Using the values from the given Coefficients table the regression model for establishment of a transport system for the recycling of used and defective end-of-life products becomes the following:

Green marketing mix (Y) = .486 + .187 (Reduction of air emission) +1.444 (Reduction of effluent waste) + .540 (Decrease in consumption for hazardous/toxic materials)-.152 (Decrease in frequency for environment accidents). The table above shows that the value of standardized beta co-efficient of Reduction of air emission, Reduction of effluent waste, decrease in consumption for hazardous/toxic materials are positive, which means these factors have significant effect on green marketing mix. But standardized beta co-efficient of decrease in frequency for environment accidents negative which means decrease in frequency for environment accidents has an negative effect on green marketing mix.

3. Cooperating with suppliers to address consumer environmental issues at the end of the product life cycle
Establishment of a transport system for the recycling of used and defective end-of-life products
Community campaigns related to the environment
Providing project specification for vendors that include environmental requirements for items "purchased"
Collaborate with suppliers to manage reverse flows of materials and packaging.
Decrease in consumption for hazardous/toxic materials

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.947[a]	.897	.877	.36417

a. Predictors: (Constant), Cooperating with suppliers to address consumer environmental issues at the end of the product life cycle., Establishment of a transport system for the recycling of used and defective end-of-life products, Community campaigns related to the environment, Providing project specification for vendors that include environmental requirements for items "purchased", Collaborate with suppliers to manage reverse flows of materials and packaging

Interpretation:

R squared means co-efficient of determination. R^2 is a statistical measure in a regression model that determines the proportion of variance in the dependent variable that can be explained by independent variable. So basically R^2 tells how well the data fit in the regression model. From the above table the observed co-efficient of determination (R^2) is larger than 0. They are exists a positive relationship between the dependent variable and independent variable. Here the R^2= .897 which is considered strong relationship.

The R squared (.897) shows 89.7% of variance of the dependent variable (Decrease in consumption for hazardous/toxic materials) is explained by the independent variable.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.333	.916		-2.546	.017

Community campaigns related to the environment	.847	.216	.342	3.915	.001
Collaborate with suppliers to manage reverse flows of materials and packaging	-1.918	.237	-1.385	-8.088	.000
Providing project specification for vendors that include environmental requirements for items "purchased"	1.389	.113	1.347	12.296	.000
Establishment of a transport system for the recycling of used and defective end-of-life products	-.095	.127	-.094	-.749	.461
Cooperating with suppliers to address consumer environmental issues at the end of the product life cycle.	1.334	.135	1.592	9.858	.000

a. Dependent Variable: Decrease in consumption for hazardous/toxic materials

Interpretation:

Using the values from the given Coefficients table the regression model for establishment of a transport system for the recycling of used and defective end-of-life products becomes the following:

Decrease in consumption for hazardous/toxic materials (Y)= 2.333+ .847 (Community campaigns related to the environment) -1.918 (Collaborate with suppliers to manage reverse flows of materials and packaging) +1.389 (Providing project specification for vendors that include environmental requirements for items "purchased") -.095 (Establishment of a transport system for the recycling of used and defective end-of-life products) + 1.334 (Cooperating with suppliers to address consumer environmental issues at the end of the product life cycle). The table shows that the value of standardized beta of co-efficient of Community campaigns related to the environment, Providing project specification for vendors that include environmental requirements for items "purchased", Cooperating with suppliers to address consumer environmental issues at the end of the product life cycle are positive, which means these three factors have significant impact on decrease in consumption for hazardous/toxic materials. But standardized beta co-efficient of Collaborate with suppliers to manage reverse flows of materials and packaging, establishment of a transport system for the recycling of used and defective end-of-life products are negative, which means it has a negative impact on decrease in consumption for hazardous/toxic materials.

4. Cooperating with suppliers to address consumer environmental issues at the end of the product life cycle
Sharing responsibilities with supplier encouraging them to adopt more environmental friendly behaviors
Improved capacity utilization
Green and eco design products
Increase in product quality

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.735[a]	.540	.472	.26797

a. Predictors: (Constant), Cooperating with suppliers to address consumer environmental issues at the end of the product life cycle., Sharing responsibilities with supplier encouraging them to adopt more environmental friendly behaviors, Green and eco design products, Improved capacity utilization

Interpretation:

R squared means co-efficient of determination. R^2 is a statistical measure in a regression model that determines the proportion of variance in the dependent variable that can be explained by independent variable. So basically R^2 tells how well the data fit in the regression model. From the above table the observed co-efficient of determination (R^2) is larger than 0. They are exists a positive relationship between the dependent variable and independent variable. Here the R^2= .54 which is considered Moderate effect relationship.

The R squared (.54) shows 54% of variance of the dependent variable (Increase in product quality) is explained by the independent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.515	.283		12.433	.000
	Green and eco design products	1.74689	.082	.001	-.005	.996
	Improved capacity utilization	-.276	.120	-.570	-2.292	.030
	Sharing responsibilities with supplier encouraging them to adopt more environmental friendly behaviors	.283	.053	.749	5.303	.000
	Cooperating with suppliers to address consumer environmental issues at the end of the product life cycle.	.093	.072	.313	1.289	.208

a. Dependent Variable: Increase in product quality

Interpretation:

Using the values from the given Coefficients table the regression model for establishment of a transport system for the recycling of used and defective end-of-life products becomes the following:

Increase in product quality (Y) = 3.515 + 1.74689 (Green and eco design products) -.276 (Improved capacity utilization) + .283(Sharing responsibilities with supplier encouraging them to adopt more environmental friendly behaviors) + .093 (Cooperating with suppliers to address consumer environmental issues at the end of the product life cycle). The table shows that the value of standardized beta co-efficient of Green and eco design products, Sharing responsibilities with supplier encouraging them to adopt more environmental friendly behaviors, Cooperating with suppliers to address consumer environmental issues at the end of the product life cycle are positive, which means these factors have significant impact on increase in product quality. But standardized beta co-efficient of Improved capacity utilization is negative, which means it has a negative impact on Improved capacity utilization.

5. Community campaigns related to the environment
Eco labeling products
Design product for environmentally friendly objectives
Green oriented organizational involvement
Green marketing mix
Cooperation with suppliers for environmental objectives
Improvement in an enterprise's environmental situation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.963[a]	.927	.910	.23817

a. Predictors: (Constant), Community campaigns related to the environment, Eco labeling products, Design product for environmentally friendly objectives, Green oriented organizational involvement, Green marketing mix, Cooperation with suppliers for environmental objectives

Interpretation:

R squared means co-efficient of determination. R^2 is a statistical measure in a regression model that determines the proportion of variance in the dependent variable that can be explained by independent variable. So basically R^2 tells how well the data fit in the regression model. From the above table the observed co-efficient of determination (R^2) is larger than 0. They are exists a positive relationship between the dependent variable and independent variable. Here the R^2= .927 which is considered Strong effect relationship.
The R squared (.927) shows 92.7% of variance of the dependent variable (Increase in product quality) is explained by the independent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	29.809	2.076		14.357	.000
	Green marketing mix	-.007	.203	-.057	-4.964	.000
	Cooperation with suppliers for environmental objectives	1.292	.149	2.289	8.698	.000
	Green oriented organizational involvement	-.006	.185	-.003	-.032	.974
	Eco labeling products	.630	.085	.606	-7.415	.000
	Design product for environmentally friendly objectives	.025	.114	.038	.219	.829
	Community campaigns related to the environment	6.216	.396	3.292	-15.697	.000

a. Dependent Variable: Improvement in an enterprise's environmental situation

Interpretation:

Using the values from the given Coefficients table the regression model for establishment of a transport system for the recycling of used and defective end-of-life products becomes the following:

Improvement in an enterprise's environmental situation (Y) = 29.809-.007 (Green marketing mix) + 1.292 (Cooperation with suppliers for environmental objectives) -.006(Green oriented organizational involvement) +.630(Eco labeling products) + .025 (Design product for environmentally friendly objectives) + 6.216 (Community campaigns related to the environment). The table shows that the value of standardized beta co-efficient of cooperation with suppliers for environmental objectives, eco labeling products, design product forenvironmentally friendly objectives, community campaigns related to the environment are positive, which means these factors have significant impact on Improvement in an enterprise's environmental situation.But standardized beta co-efficient of Green marketing mix, green oriented organizational involvement are negative, which means these factors has an negative impact on Improvement in an enterprise's environmental situation.

V. Findings:

- In RMG sector of Bangladesh only Establishment of a transport system for the recycling of used and defective end-of life products is not satisfied the four factors: increase in fee for waste treatment, increase in fee for waste discharge, increase in fine for environmental accidents, decrease in scrap rate. But the significance of relationship is very important to maintain the Green Supply Chain in the RMG sector of Bangladesh. If we can make more analysis we found that RMG sector of Bangladesh is not agree with increase in fine for environmental accidents.

- Our result shows that green marketing mix has a moderate relationship with Decrease in frequency for environment accidents, reduction of air emission, reduction of effluent waste, and decrease in consumption for hazardous/toxic materials. To maintain the green marketing mix the main threat factor is decrease in consumption for hazardous/toxic materials. In Bangladesh the RMG sector is moderately following Decrease in frequency for environment accidents, reduction of air emission, reduction of effluent waste. But they are not following decrease in consumption for hazardous/toxic materials. And lastly from co-efficient of correlation analysis we found that decrease in frequency for environment accidents has a negative relationship with green marketing mix. So for maintaining green marketing mix we need to improve the decrease in consumption for hazardous/toxic materials.

- The RMG sector in Bangladesh is trying to decrease in consumption for hazardous/toxic materials by following the factors cooperating with suppliers to address consumer environmental issues at the end of the product life cycle, Establishment of a transport system for the recycling of used and defective end-of-life products, community campaigns related to the environment, providing project specification for vendors that include environmental requirements for items "purchased", collaborate with suppliers to manage reverse flows of materials and packaging. And all these factors have a strong relationship with decrease in consumption for hazardous/toxic materials. From the multiple comparisons analysis, we have found that for decrease in consumption for hazardous/toxic materials is not maintaining the following two factors collaborate with suppliers to manage reverse flows of materials and packaging and providing project specification for vendors that include environmental requirements for items "purchased". From the ANOVAs, for decreasing in

consumption for hazardous/toxic materials, establishment of a transport system for the recycling of used and defective end-of-life products and collaborate with suppliers to manage reverse flows of materials and packaging are not significantly followed. From the co-efficient of correlation analysis, we found that collaborate with suppliers to manage reverse flows of materials and packaging, establishment of a transport system for the recycling of used and defective end-of-life products have a negative relationship with decrease in consumption for hazardous/toxic materials. So finally we need to improve collaborate with suppliers to manage reverse flows of materials and packaging and establishment of a transport system for the recycling of used and defective end-of-life products.

- To increase product quality the factors cooperating with suppliers to address consumer environmental issues at the end of the product life cycle, sharing responsibilities with supplier encouraging them to adopt more environmental friendly behaviors, improved capacity utilization and green and eco design products have a moderate relationship. From multiple comparisons analysis, we can say that co-operating with suppliers to address consumer environmental issues at the end of the product life cycle is not properly maintained to increase in product quality. From ANOVA, we can say that co-operating with suppliers to address consumer environmental issues at the end of the product life cycle, improved capacity utilization and green and eco design products these three factors are not significantly maintained in our country. From co-efficient of correlation analysis, we can found that among the above three negative factors improved capacity utilization has a negative relationship with increase in product quality.

Firstly, we need to improve the capacity utilization and then we need to think green and eco design products, co-operating with suppliers to address consumer environmental issues at the end of the product life cycle. Sharing responsibilities with supplier encouraging them to adopt more environmental friendly behaviors is very highly significant in RMG sector In increase in product quality and it is properly maintained

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