

**The Critical Role of Sustainability on Environment to Enhance the Sale of Green Clothing;  
A Case Study of a Leading Textile Industry of Pakistan**

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**Abstract**

Customers in developed countries are becoming more environmentally conscious, and they are demanding stronger environmental criteria before entering into contracts with suppliers in developing countries. Adults to the extent of 30% of the American citizenry (63 million publics) have drifted to adopt healthy and sustainable lifestyle by using organic products through obtaining organic fiber utilized in the clothing industry. This research gets the purpose to raise an enquiry in theoretic and empiric fashion, how sustainable environment can be acquired as a result of increase in sale of green clothing product by taking a lead from a leading textile industry. An exploratory sequential research design was followed in which quantitative research design follows the exploratory type to probe the relationship of sustainability with rise in sale of green products in the textile firms of Pakistan. The study interviewed 10 experienced persons from the top ten textile firms of Pakistan. A quantitative sample of 125 respondents was finalized on overall basis. The research findings exposed that there will always be a focus on profit maximization at the expense of environmental concerns unless regulatory bodies provide support and advice for installing and maintaining green technologies. GSCM has a significant and positive impact on environment and

export performance, therefore, the results of the study show that implementation of GSCM practices has a tremendous impact on the environmental performance and export performance.

**Key words:** Green supply chain management (GSCM), sustainability, Sustainability impact, Organic cotton based green clothing, Environment friendly products

### **Introduction**

Pakistan's textile industry is a large employer of Labor and a significant source of foreign exchange earnings. Pakistan has attracted a huge number of foreign investors due to the cheap cost of Labor and the low cost of commodities available in the country.

Despite the fact that Pakistan is passing through the phase of worst economic turmoil of its economic history associated with low GDP growth, decreasing exports and ever rising external debt, growth in exports of textile products can support the shocking economy. But this growth will not be sustainable in the long run if the industry's producers do not adopt environmentally friendly practices. Customers in developed countries are becoming more environmentally conscious, and they are demanding stronger environmental criteria before entering into contracts with suppliers in developing countries. Buyers that wish to ensure long- term sourcing practices are even ready to pay more and relocate their manufacturing facilities from low-cost countries to countries with higher production costs in order to achieve this. Pakistani textile enterprises are now in a precarious situation as a result of a lack of sustainable practices in their supply chain (Mumtaz, 2018). Adults of the American citizenry in the advanced world (63 million publics) have drifted to adopt healthy and sustainable lifestyle to the extent of 30% (Gam et al., 2010). Along with consumption on health and sustainable lifestyle, growth in sales of organic products has been recorded. Out of organic products, Organic cotton has taken the lead, it is the most extensively obtainable organic fiber

utilized in the clothing industry. Production of organic fiber certifies with organic agricultural standards (Gam et al., 2010).

The 2030 Agenda set by the UN on sustainable development, with currently held Paris Agreement laid to signify conscious human behavior (Rahman & Reynolds, 2019). Similar to other manufacturing as well as service industries, the textile industry for its green clothing product followed to adopt eco-consumerism that brought a shift in business operations towards sustainability within the boundary of ethical conduct (Joy et al., 2012).

The doctrine of conscious behavior towards environment led towards a paradigm towards sustainable and conscious consumer behavior. This aspect of conscious human behavior towards environment is called 'eco-consumerism' (EC) that is being adopted by contemporary industries and sectors. It has been highlighted that Pakistan's textile sector serves to contribute to country's economy, raising its GDP by 25%. APTMA in Pakistan represents 396 textile mills of which 315 belong to spinning, 44 to weaving, and 37 combined units making it the biggest association across the country. The spinning mills undertake texturing, yarns' mercerizing, and dyeing; weaving mills are known for air-jet looms in sizeable numbers, while the combined mills include from spinning to final textile products underneath one roof. The country undertakes clothing exports above 50% initiated by member mills of APTMA.

The textile industry has experienced a great structural change across the globe. A substantial increase in textile production has been recorded while mostly Asian countries are in the constant pursuit of low production costs. The growing textile production amid the year 1979 to 1990 remained 143%, while the Far East showed the high export growth to 430% during 1979-1990 (Lim, 2003). It is projected that China is likely to surpass all the textile manufacturing of the world in the prospective years (Niinimäki, & Hassi, 2011).

**Table 1. Listed Companies in Textile Sector**

Sub-sector	APTMA membership <sup>⓪</sup>	Listed at PSX <sup>⓪⓪</sup>	Market capitalization (Rs. Billion)
Spinning	315	73	39.7
Weaving	44	11	2.4
Composite	37	57	220.9
Leather and Tanneries	–	5	17.1
Total	396	146	280.1

Source: APTMA and Pakistan Stock Exchange.

The textile industry undertakes designing, production and distribution of yarn, cloth and clothing. The export earnings of Pakistan have more than sixty percent share contributed by the textile industry. It offers a contribution roughly measured as 8.5% of the country' GDP. Besides, the sector is the employee base of 45% workers of the entire labor force and 38% of the manufacturing workers of Pakistan. Pakistan has the privilege of cotton producer and ranks at 4th of the listed countries in the world and carries the 3<sup>rd</sup> major spinning potential in Asia, following China & India. The expansion in the textile industry is regulated by the low use of man-made fibers in Pakistan. The use of ratio of artificial fiber to cotton in Pakistan is 20:80, comparing the international average of 60:40. Correction of fiber-mix ratio may bring qualitative improvement.

## **Review of literature**

Rajput & Datta, (2020) established that sustainability is one of the most significant obstacles to buying and supply management. A growing number of rules and standards, such as ISO14001 and ISO26000, pressure corporations to consider sustainability when making buying choices. Increasing consumer knowledge and expectations, rivals that embrace sustainability, or the personal dedication of senior management are all factors that contribute to sustainable buying and supply management. Critical observers often see sustainability projects as nothing more than greenwashing since some corporations embrace sustainability for their strategic benefit and to distinguish themselves in the market. For profit-oriented businesses, these constraints imply that profits can no longer be made by sacrificing environmental sustainability and the interests of the public. In today's world, firms can only rely on the long-term viability of their suppliers as a result of widespread outsourcing. Purchasing and supply managers play a pivotal role in developing sustainable supply chains. For example, there is a need to rethink current sourcing methods and rules.

## **Sustainability & Green distribution**

Products must be made available to the market on time, and their quality and capabilities must also be communicated to the market. It is necessary to have a well-thought-out distribution and marketing strategy. Distribution and marketing of environmentally friendly products must be one to minimize their influence on the environment to meet environmental concerns. Sustainable packaging, shipping, and logistics may all help with green distribution. According to researchers, practicing green packaging includes the use of ecologically friendly packaging materials as well as the downsizing of packaging. Because of this, collaboration with suppliers is required to standardize packaging, promote returnable packaging.

### **Sustainability & Green marketing**

According to Ikram, (2022) sustaining biological balance and putting a strong emphasis on environmental preservation is essential for achieving sustainable commercial success. The concept of "green marketing" was developed as a means of addressing these challenges and concerns. A component of this is the company's commitment to environmentally friendly products and operations. Instead, green marketing is any marketing activity a business does to lessen or eliminate the detrimental environmental effect of a product or service. This is an excellent approach to talking about consumer rights and the environment with your consumers.

### **Green technology in textile industries**

Consumers are becoming more health-conscious due to environmental deterioration and increasing public awareness. Consumers nowadays are more concerned about their health and the environment than they were in the past. Two examples of environmentally friendly industrial activities include reducing consumption and recycling (Niinimäki and Hassi, 2011). Other ecologically friendly products and services may be found in the green system business, providing energy generation solutions and non-toxic, clean items. With the potential for innovation and change in everyday life, there are no adverse environmental impacts from this technology's use." Currently, there is no information on how the technology referred to above is regulated and protected. When one considers the green textile and apparel industry, it is evident that there has been a dearth of study into this subject.

## **Green clothing**

Green clothing refers to manufacturing from natural materials and eco-processing that is recyclable and ecofriendly (Ikram, 2022). In apparel industry, two considerations are featured to apply; at the first stage, natural and organic sources from grown plants are utilized without using pesticides or else herbicides making a garment “organic” (Ikram, 2022).

In each phase of production, the clothing manufacturing process has the potential to impact on environment. For instance, traditionally grown cotton, holds the most common clothing fibers, that depends on mostly water and pesticide crops. At the production stage in the factory, waste carries diverse toxics elements that is landfilled. Internationally, the textile industry has brought efficiency in supply chains to fix environmental issues; as a backfire, effect of increased efficiency, product prices dropped, enhanced consumption and built a commercial environment that attracted consumers to fulfill their unsustainable needs with ever-changing fashion trends with short usage cycle of clothes (Niinimäki and Hassi, 2011). Comparing the year 2000, a rise in sale of clothes to the extent of 60% was recorded. In addition, the manufacturing figures became doubled in the time frame (Throne-Holst, Stø, & Strandbakken, 2007).

## **Research Gap**

The environmental effect of products is reduced and the potential for damage is minimized as a result of green supply chain management and sustainable environment, the textile sector in Pakistan plays an important part in enhancing the country’s economy. Although there have been several studies conducted in Pakistan on the cement industry (Ali et al., 2020), the manufacturing sector (Akhtar, 2019), and the car industry (Mumtaz et al., 2018), the textile business, especially the green supply chain, has received less attention. The major emphasis of this research is on the impact of the GSCM on environmental and export performance in Pakistan’s textile sector.

### **Objectives of the study**

To study the impact and critical role of sustainability on environment to enhance the sale revenue of green clothing in textile industry of Pakistan.

### **Research Methodology**

It describes the research method and methodology used in the project and the population, sampling strategy, unit of analysis, and data collection technique used throughout the project's execution. To conduct this inquiry, a sensible strategy was decided upon. The present study uses a qualitative and quantitative research design which is considered the most effective method as the study intends to explore and understand the impact of sustainability on sale of green clothing in textile firms in Pakistan. Thematic analysis was used for the current study to analyze the data acquired through semi-structured interviews. A qualitative technique is best suited for research that seeks to investigate novel phenomena and theories, and new concepts. Therefore, we have applied a qualitative approach to explore those factors which contribute to creating a difference between male and female employees. We conducted interviews because in interviews, we are able to better comprehend, explain, and examine our study subjects' thoughts and actions. This study is of exploratory type because it aims to probe the relationship of sustainability and rise in sale of green products in the textile firms operating within the premises of Pakistan. The sample size for the study was chosen from among the textile organizations easily accessible to the researcher. For the second requirement, participants must have at least one to three years of professional work experience. There are 423 textile mills in the country.



## Results and Discussion

By applying Panel Least Square (PLS) test on regression estimates, it can be deduced that a company enhances its value and effectiveness on the basis of its size. Large sized companies have high sales exceeding Rs. 900 million comparing the total assets above Rs. 500 million. Sales revenue gets further boost as a result of the enhancing investment size in total assets, however the negative sign attributed to certain parameters linked to the combined variable of the larger category associated of the company and value assigned to its total assets. For the listed companies, it was observed that sales revenues from textile companies were found significant compared with less revenues of leather industry. The deflation in Pakistani currency caused negative effects on the sales of export companies.

**Table 2 Demographic Analysis**

<b>Sr. No.</b>	<b>Name of the Textile Firms</b>	<b>Location</b>
1	Farooq Spinning Mills Private Limited	Faisalabad
2	Salman Group Pvt Ltd	Faisalabad
3	Baraka Textile	Karachi
4	Abid Textile	Karachi
5	Koh-I-Noor Mills	Islamabad
6	Nishat Linen	Islamabad
7	Ideas by Gul Ahmed	Islamabad
8	Alpha Trading Company	Lahore
9	Sarena Textile Industries	Lahore
10	Moon Textile Industries Pvt Ltd	Faisalabad

Primary data was collected through questionnaire served to a sample of 125 respondents from the selected 10 textile units. Since there exists no compact data of users of green clothing, a probability technique of sampling finds no application, this leaves the space to apply a purposive sampling out of a suite of non-probability sampling methods. Before delivering the questionnaire to the target respondents from the textile managers and non-managers whether they are well conversant with the use of green clothing and sustainable environment. On having their answer, the questionnaire was distributed among them. A sample of 125 respondents were finalized on overall basis around 5% out of the population of 2500 textile sector employees. By conducting Face to Face in-depth interviews, is to explore new dimensions of purchasing green product i.e. green clothing, a selection of 5-6 experts is considered suffice to go for data collection. The study followed exploratory sequential research design in which quantitative research design follows the qualitative research design (Berman, 2017).

## **Discussion**

The research relies on a thorough examination of GSCM's effects on environmental sustainability and export competitiveness. According to the research findings, environmental and export performance are significantly influenced by the use of green supply chain management in the Pakistani textile sector. Instead of relying on null hypotheses, the data show that the variables that are reliant on each other have a significant link. The study found that GSCM was critical to improving environmental and export performance.

The findings highlight the connections between crucial GSCM hurdles for Pakistani clothing SMEs. The two primary driving impediments to the deployment of GSCM in apparel SMEs are CGD and a lack of SRA. Cost-effective technology is scarce for treating effluent water from small garment businesses following the dyeing and finishing process. A liquid-free wastewater treatment

system would be prohibitively expensive for most small and medium-sized businesses.

There will always be a focus on profit maximization at the expense of environmental concerns unless regulatory bodies provide support and advice for installing and maintaining green technologies. GSCM processes are challenging to implement because of a lack of strong legislation, according to a study. According to research, regulatory pressure may be beneficial to green logistics management. CGD and SRA are crucial in adopting green practices by small and medium-sized enterprises in the garment industry.

Extraction of secondary data was made from the annual reports issued by SBL time to time in different years. The results refuted the old notion about cotton crop in Pakistan that textile exports of Pakistan depend upon size of cotton crop. The empirical analysis does not provide support to this opinion. As a matter of fact, adjustment of the size and price of crop is at the hands of textile manufacturers during production and setting price policies. The textile manufacturers may import cotton when deemed feasible. Table 4 illustrates the results based on the estimated equations.

**Table 4. Determining sales revenue (million rupees).**

Sample: 2010–2021; Periods included: 14; cross-sections included: 248

Total observations: 2066

Explanatory Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	T	B	T	B	T	B	T	B	T
Constant	-3147.725	-10.054***	-2770.284	-8.168***	-1553.028	-2.176**	-2871.108	-8.194***	-1467.983	-2.039**
Dummy Variable	911.755	3.685***	891.152	3.60***	913.963	3.705***	913.963	3.705***	919.585	3.727***
Spinning			-594.553	-2.862***	-1836.316	-2.728***	-518.236	-	-1839.309	-2.733***
Weaving					-1334.617	-1.735*	-16.538	-0.038	-1335.251	-1.737**
Combined					-1318.080	-1.925*			-1318.482	-1.926***
Leather							1318.080	1.925		
GSPP	-816.623	-6.529***	-809.848	-6.483***	-810.709	-6.491***	-810.709	-6.491***	-859.795	-6.291***
Total	2.361	3.643***	2.391	3.697***	2.425	3.753***	2.425	3.753***	2.428	3.757***
Total Dummy	-1.750	-2.697***	-1.783	-2.752***	-1.816	-2.807***	-1.816	-2.807***	-1.818	-2.810***
Adjusted R Square	0.712		0.7122		0.7127		0.7126		0.7126	
F-Statistics	1017.836***		852.87***		641.202***		641.202***		570.030***	

Source: Secondary data analysis

Each construct including Increase in Sale of Green Product, Environment Friendly, cost efficiency, consciousness, and Sustainability Impact reflected the Cronbach alpha values between 0.73% to 0.87% that reflect internal consistency and illustrates utilization of the data set with sufficient reliability. SI has significant correlation (.527) with consciousness, ISGP (.474), EF (.403), with CE (0.400).

## **Conclusion**

This study resorts to analyze the critical role of sustainability on environment to enhance its impact on the sale of green clothing in the leading textile industry of Pakistan. For this purpose, green supply chain management practices (GSCMP) were taken into account because Green supply chain management (GSCM) was found significantly correlated with environmental sustainability. Moreover, green supply chain management is involved in getting successful and sustainable environment. Consequently, the textile industry's environmental impact and export potential might be significantly enhanced by adopting green techniques including, green purchasing, green distribution and warehousing, green transportation with usage of biofuels and green manufacturing processes. Furthermore, organizations' export performance can be improved by focusing on ecologically friendly practices. The results provided by this study to a great extent throws light on the significance of environmentally friendly green produce to get increased sale by adhering to (environment friendly, cost efficiency, consumer consciousness) to get sustainability impact on environment. By taking up these strategies, textile sector of Pakistan may get sustainable produce and sale of green clothing with visible sustainability impact on environment and generate income. Results lead to conclude that ISGP has a significant and positive impact on environment, therefore, the results of the study show that implementation of GSCM practices has a tremendous impact on the environmental performance.

## **Suggestions**

Green supply chain management may assist organizations in dealing with external challenges, but it can also aid in empowering the company's performance level. Companies should see GSCM as the most significant strategic instrument that may increase export criteria and eco-design criteria for goods to global and international markets.

## References

- Bloch, P., Toft, U., Reinbach, H. C., Clausen, L. T., Mikkelsen, B. E., Poulsen, K., & Jensen, B. B. (2014). Revitalizing the setting approach—supersettings for sustainable impact in community health promotion. *International Journal of Behavioral Nutrition and Physical Activity*, 11(1), 1-15.
- Cherian, J., & Jacob, J. (2012). Green marketing: A study of consumers' attitude towards environment friendly products.
- Gam, H.J., Cao, H., Farr, C. and Kang, M. (2010), “Quest for the eco-apparel market: a study of mothers' willingness to purchase organic cotton clothing for their children”, *International Journal of Consumer Studies*, Vol. 34 No. 6, pp. 648-656.
- Hashim, M., Nazam, M., Zia-ur-Rehman, M., Abrar, M., Baig, S. A., Nazim, M., & Hussain, Z. (2021). Modeling Supply Chain Sustainability-Related Risks and Vulnerability: Insights from the Textile Sector of Pakistan. *Autex Research Journal*, 22(1), 123–134. <https://doi.org/10.2478/aut-2021-0008>.
- Ikram, M. (2022). Transition toward green economy: Technological Innovation's role in the fashion industry. *Current Opinion in Green and Sustainable Chemistry*, 100657.
- Joy, A., Sherry, J. F., Venkatesh, A., Wang, J., & Chan, R. (2012). Fast fashion, sustainability, and the ethical appeal of luxury brands. *Fashion Theory*, 16(3), 273–295. <https://doi.org/10.2752/175174112x133407497071>
- Kim, H. S., & Damhorst, M. L. (1998). Environmental concern and apparel consumption. *Clothing and Textiles Research Journal*, 16, 126–133

- Lin, S. H. (2009). Exploratory evaluation of potential and current consumers of organic cotton in Hawaii. *Asia Pacific Journal of Marketing and Logistics*, 21(4), 489-506.
- Lim, M., 2003. The development pattern of the global textile industry and trade: part I: evidence from textile exports of the EC, the Far East, and emerging textile exporting countries in the 1980s. *Journal of the Textile Institute* 94 (1), 32e52
- Levonen, N. (2022). Using persuasive technology to foster sustainable clothing purchase behavior.
- Niinimäki, K., & Hassi, L. (2011). Emerging design strategies in sustainable production and consumption of textiles and clothing. *Journal of cleaner production*, 19(16), 1876-1883.
- Rahman, I., & Reynolds, D. (2019). The influence of values and attitudes on green consumer behavior: A conceptual model of green hotel patronage. *International Journal of Hospitality & Tourism Administration*, 20(1), 47–74. <https://doi.org/10.1080/15256480.2017.1359729>
- Throne-Holst, H., Stø, E., & Strandbakken, P. (2007). The role of consumption and consumers in zero emission strategies. *Journal of cleaner production*, 15(13-14), 1328-1336.