

Sustainable Implementation of Green Supply Chain Management in the RMG Sector of Bangladesh: A Literature Review

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Abstract

The objective of this paper is to provide a recent and structured insight from the literature published during the last 5 years and analyzing scope for prospective research on sustainable green supply chain management in the Ready-Made Garments (RMG) sector of Bangladesh. The principal categorization of literature is done according to the geographic region and year of publication. A literature review is carried out by systematically collecting the existing literature over a period of 5 years (2016-2020) and organizing it based on attributes such as stages in supply chain, methodology and the sector under consideration. The study discloses that the policy setters of RMG should align their supply chain strategies and work collaboratively with all the supply chain partners. Having a standardized Supply Chain Management (SCM) procedure, exchanging information among the stages of the supply chain, adapting to transforming technologies, minimizing corruption, and cutting lead time etc. will play a vital role in sustaining its growth. The contemporary review focuses on recent research direction in the past 5 years only. Moreover, to ensure accurate data; papers from only good quality, peer-reviewed journals are considered in the study. Most of the previous reviews have either focused on particular concern related to sustainable supply chains or green supply chains. This review paper collectively takes into consideration of both factions that have a prime focus on the Ready-Made Garments (RMG) sector of Bangladesh.

Keywords

Green Supply chain, Sustainable Supply Chain, Ready Made Garments (RMG).

1. Introduction

Supply chain management is the management of the flow of goods and services and includes all processes that transform raw materials into final products. It involves the active streamlining of a business's supply-side activities to maximize customer value and gain a competitive advantage in the marketplace.

1.1 Tasks and Objectives of Supply Chain Management

SCM ensures cross-company, process-oriented planning and control of the entire value chain. Consumers force logistics to rethink, which is why high customer expectations and short product life cycles are taken into account. Furthermore, relationships with suppliers are considered in order to optimally design and control goods deliveries, cash flows and information flows (Supplier Relationship Management).

Functionalities within Supply Chain Management:

- Consumer Relationship Management: Consistent focus on end consumer demand to meet the increasing customer requirements and ensures a high degree of flexibility.
- Synchronization of supply and demand: Increasing the flexibility and development capability of the supply chain.
- Adaptability and demand-oriented production: Continuous cost reduction and resource optimization across all stages of the value chain.

There are six components of traditional supply chain management systems:

- Planning
- Sourcing
- Manufacturing
- Delivery and Logistics
- Returning
- Enabling

Planning: Enterprises need to plan and manage all resources required to meet customer demand for their product or service. They also need to design their supply chain and then determine which metrics to use in order to ensure the supply chain is efficient, effective, delivers value to customers, and meets enterprise goals.

Sourcing: Companies must choose suppliers to provide the goods and services needed to create their product. After suppliers are under contract, supply chain managers use a variety of processes to monitor and manage supplier relationships. Key processes include ordering, receiving, managing inventory, and authorizing supplier payments.

Manufacturing: Supply chain managers coordinate the activities required to accept raw materials, manufacture the product, test for quality, package for shipping, and schedule for delivery. Most enterprises measure quality, production output, and worker productivity to ensure the enterprise creates products that meet quality standards.

Delivery and Logistics: This involves coordinating customer orders, scheduling delivery, dispatching loads, invoicing customers, and receiving payments. It relies on a fleet of vehicles to ship products to customers. Many organizations outsource large parts of the delivery process to specialist organizations, particularly if the product requires special handling or is to be delivered to a consumer's home.

Returning: The supplier needs a responsive and flexible network to take back defective, excess, or unwanted products. If the produce is defective it needs to be reworked or scrapped. If the product is simply unwanted or excess it needs to be returned to the warehouse for sale.

Enabling: To operate efficiently, the supply chain requires a number of support processes to monitor information throughout the supply chain and assure compliance with all regulations. Enabling processes include finance, HR, IT, facilities, portfolio management, product design, sales, and quality assurance.

Sustainability: A principle of resource consumption in which the preservation of essential properties, stability and the natural regenerative capacity of a system take top priority - is becoming a worldwide trend. The SSCM is guided by this approach. Driven by the demands of stakeholders such as the end consumer, the criteria of ecology, economy and society are derived. It is important for companies that strive to achieve the future-oriented mindset of the SSCM to pay equal attention to the three dimensions of sustainability. In contrast to conventional supply chain management, both the origin of the products and their use and disposal after sale are important.

Supply-chain sustainability is a business issue affecting an organization's supply chain or logistics network in terms of environmental, risk, and waste costs. There is a growing need for integrating environmentally sound choices into supply-chain management.

Green supply chain management (GSCM) is defined as the integration of environment thinking through the **supply chain**, including design, selection of raw materials, manufacturing processes, product delivery and product handling after its life cycle.

Bangladesh is home to a number of manufacturing sectors with the highest market shares mainly occupied by these sectors, such as, Ready Made Garments (RMG), manufacture of textiles, manufacture of non-metallic mineral products and the manufacture of food products. Among these sectors RMG sector earned the title as the highest market share (48.8%). According to the latest reports published by BGMEA, Bangladesh is now home to 4621 RMG factories

with RMG exports accounting for 84.2% of the country's total exports. In FY 2018-19, the value of RMG exports accumulated 34133.27 million US\$. The main apparel items which the country exports include shirts, trousers, jackets, sweaters and t-shirts. The figure below shows Bangladesh's RMG exports compared with other competitive countries.

Since entering into the 21st Century, Bangladeshi RMG and apparel industry have begun to face increasingly serious problems with offering high-quality, low-cost products within a short lead time; and to meet health, social, and environmental compliances in the face of increasingly stiff competition. Under this domestic and foreign competitive environment, the future survival and development of Bangladeshi RMG industry faces a large challenge.

The management sector of Bangladesh's garment factories is dealing with a challenging but promising issue of environmentalism which has come into attention due to certain treaties to fight climate change. This environmentalism has pressurized factories to come up with practices and procedures that will help make companies greener. In addition to financial factors, now companies also have prioritized environmental factors and keep a balance between the factors.

2. Literature Review

According to the literature review, it can be concluded that the most significant barrier is that there is low interest from customers, lack of customer support, and financial limitation due to short term little financial benefit to businesses, with the absence of government regulations also a commonly faced barrier in adopting green supply chain initiatives. For making the SCM effective it is critical for garment factories of Bangladesh to overcome these barriers. Only wage competitiveness cannot safeguard the sustainable business. So, for the sake of the sector, correct management of the supply chain is essential, Ready Made Garments have no substitute for making the SCM effective. It is also found that Knowledge Management Capability (KMC) can play a role in strengthening the supply chains of factories. KMC is an intuitive resource of a firm that can bring sustainable performance through Green Supply Chain Management (GSCM) practices. This development in Green Supply Chain Management necessitates time as it needs vital change in the methods company design, procure, manufacture, distribute, dispose, and recycle their products.

The purpose of a paper by Habib, and Bao (2019), is to find the impact of knowledge management capability (KMC) on green supply chain management (GSCM) practices which in turn has an impact on firm performance. The study indicates that the KMC has an important positive effect on internal and external GSCM practices adopted in the RMG Sector. This study makes it evident that KMC can bring sustainable performance through GSCM practices and the importance of GSCM in developing sustainability performance.

In the research by Tumpa et al. (2019), the views and barriers in implementing green supply chain managerial practices in the textile factories of Bangladesh are scrutinized. For this paper, a survey was carried out and its respondents were textile experts of operations and supply chain division. The survey was carried out to find out the barriers that companies have to face in implementing GSCM. It is found that financial limitations, absence of top management commitment, and difficulty in the supply chain are the most significant barriers for some of the practitioners, and so on are the usually recognized important barriers towards green supply chain implementation in the textile industry of Bangladesh.

3. Methods

The study is mainly based on secondary data and merely on an interview with related personnel of the RMG sector of Bangladesh. The secondary data have been collected from different books, journals, BGMEA and BKMEA reports, newspapers, and publications on Bangladesh. Published and unpublished materials and papers available on the internet have also been reviewed for the purpose. Interviewees are chosen based on their management and professional experience role in the RMG industry, transportation companies engaged in the RMG sector, and third-party companies such as Buying House. They all have significant knowledge and experience in the implementation of green raw materials, green production, green transportation, and recovery procedures.

3.1 Literature Collection

As previously mentioned, the objective of this paper is to review the recent literature on sustainable green supply chains. To achieve this purpose, the current study focuses on academic peer-reviewed journals in sustainable and GSCM literature, interviews with related personnel of the RMG sector of Bangladesh. The literature search confined itself only to articles published in the English language. The management and science journal databases such as Science Direct, EBSCOHOST, and Google Scholar were explored using a structured keyword search to identify

relevant articles in the area. Further, additional relevant publications were obtained through references cited in the papers identified through the database search. This was followed to ensure that all the relevant papers have been included in the study and unintended omissions are avoided.

3.2 Screening of Relevant Literature

The keyword search across the databases and cross-referencing procedure to assemble all the literature on sustainable GSCM resulted in included research papers from journals, conference proceedings, and editorials. To remain within the scope of the study, certain delimiting conditions were established. To increase the reliability of the review process and to avoid repetition of works, publications from academic peer-reviewed quality journals were selected. The methodology of reading the abstracts was adopted to eliminate irrelevant papers from the selection. Papers dealing with issues that did not fall precisely into the category of sustainable green supply chain and therefore were removed from the purview of this study.

3.3 Category Selection

All the practical dimensions of sustainable GSCM were covered so that an exhaustive analysis and review of the existing body of knowledge can be performed. A structured classification scheme was developed to enable an effective categorization of existing literature. As the study includes publications from both the sustainability and green supply chain literature, the articles were categorized into two segments. The first segment contained publications from the green supply chain area, while the other one included sustainability literature that predominantly dealt with environmental sustainability. This classification intends to provide an idea of the literature composition from the two areas. A wide variety of contexts have been used in the previous works, depending on the themes of reviewing the literature. To comprehensively review the trends that have been followed by researchers while addressing the contexts of the supply chain, the present study takes into consideration all the activities that are involved in a typical supply chain.

4. Results and Analysis

4.1 Descriptive Analysis

This preliminary research process deals with the literature's formal aspects. The annual distribution of all 24 papers reviewed in this research is shown in the figure. To provide an idea of publication trends, the number of publications per annum was recorded. The figure shows that the number of publications has grown steadily over the past 05 years. The growing knowledge and interest among researchers and practitioners in sustainable green supply chains can easily be attributed to this. The papers were spread across a broad spectrum of publications on operations, management and technology. This shows the contribution of prominent and quality journals towards the existing body of knowledge in the area of sustainable GSCM.

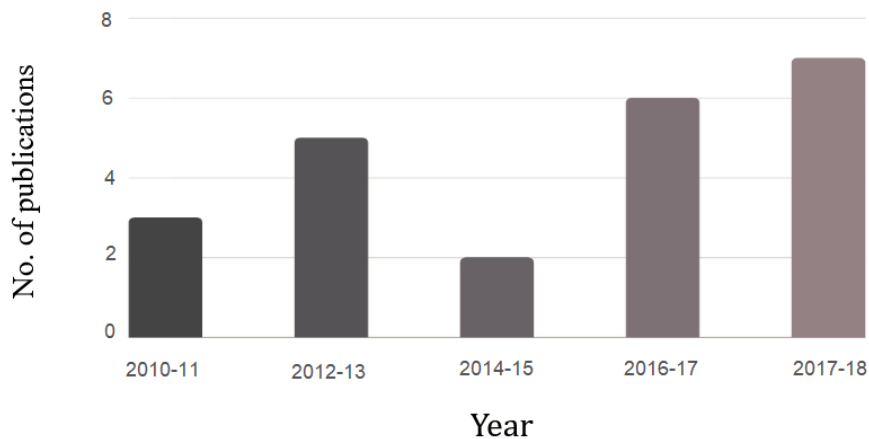


Figure 1. Yearly categorization

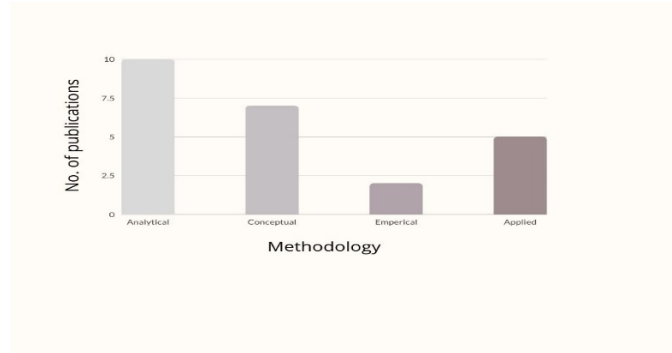


Figure 2. Methodological categorization

4.2 Classification Based on Industry Addressed

The articles were also categorized based on the industries addressed in the studies. A large number of papers have focused on the manufacturing sector (88 per cent), while the service sector has gained limited attention from researchers. This can be attributed to the fact that environmental damage has been largely caused by manufacturing enterprises, whereas services, because of inherent intangibility associated with them, have little or no environmental impact.

Prominent industry according to available literature were the electronics and electrical sector. E-waste recycling and reverse logistics have gained increased popularity to bring about environmental sustainability in this sector. Kannan et al. (2014) developed a framework to select green supplier selection for a Brazilian electronics company. Tseng and Chiu (2013) used a case study of Taiwanese printed circuit board manufacturers to demonstrate implementation of GSCM. Based on the survey of USA and Taiwan manufacturing plants in the electric and electronics industry, Lin and Sheu (2012) examined the influence of institutional theory on GSCM practices. In another study, Trappey et al. (2012) used the case of an electronic image projector to demonstrate that a product's carbon footprint can be reduced by adopting collaborative green product design and production planning. Wee et al. (2011) proposed a model that performed a life cycle cost and benefit analysis for green electronic products by including vendor-managed inventory strategy.

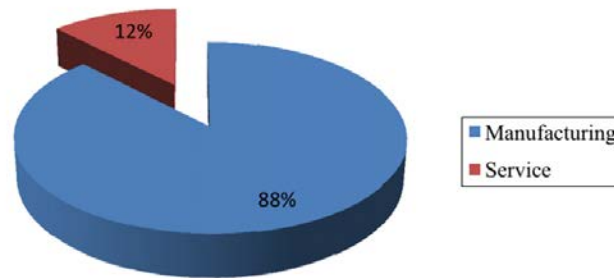


Figure 3. Sector wise distribution of production

4.3 Classification Based on Contexts of Problem

The classification of articles according to the activities involved in a supply chain practice is shown. A holistic approach for managing sustainable green supply chains has been used in 38 percent of the papers. Supply chain performance evaluation and measurement has gained substantial attention from researchers. Hervani et al. (2005) provided an overview of the various issues related to performance measurement of GSCM. Kainuma and Tawara (2016) proposed multiple attribute utility theory as one of the lean and green supply chain methods for assessing a supply chain performance, whereas Zhu and Sarkis (2017) studied the effects of institutional pressures on the performance of green supply chains.

Kim and Rhee (2012) research has found a number of relationships between the critical success factors and balanced scorecard performance of green supply chain management enterprises in Korea. De Giovanni and Vinzi (2012) investigated the relationships between environmental management and performance to determine the impact of environmental practices on firm's economic performance. Additionally, many studies have been conducted to evaluate

and measure sustainability performance (Tajbakhsh and Hassini, 2014; Varsei et al., 2014; Erol et al., 2011). Strategic and corporate planning for implementing sustainable green supply chains has been addressed in a number of articles. Wu et al. (2014) empirically has examined the links between supply chain and corporate environmental strategies and reported that alignment of both the strategies leads to improved firm performance. Youn et al. (2018) study has revealed that strategic supply chain partnership is vital for an effective environmental supply chain management.

Design and development of products significantly impact the performance of a sustainable green supply chain initiative. Green supply chain management and green innovation have strategic interconnection in the context of new product development (Seman et al., 2012). Green product design maximizes product reusability and minimizes waste. Kristianto and Helo (2012) studied the implications of product architecture modularity on the green supply chain's operational economy. For an effective sustainable supply chain, Büyüközkan and Berkol (2011) proposed a decision framework using quality function deployment, analytic network process and zero-one goal programming to identify design requirements. Green supplier selection has started being considered as an area of interest among researchers. Kannan et al. (2017) developed a framework for green supplier selection in significance of suppliers by addressing their participation in implementing GSCM.

Walker and Brammer (2016) studied the relationship between sustainable procurement and e-procurement and reported that e-procurement and communication with suppliers helps in environmental aspects of sustainable procurement. Universitat Autònoma de Barcelona to describe its strategy and procedures followed for spreading green purchasing practices throughout its administration and supply chain. Some review articles have also been published in the context of green supplier management (Tate et al., 2018; Igarashi et al., 2016).

Reverse logistics and closed-loop supply chains have emerged as critical to attainment of sustainable green practices. Mishra et al. (2017) proposed a multi-agent architecture to handle recycling and reverse logistics issues, thereby efficiently managing firms' green supply chain systems. Similarly, a framework for end-of-life computer recycling operations was developed by Rahman and Subramanian (2012). Faccio et al. (2014) addressed an innovative sustainable closed-loop supply chain problem using reprocessing of end-of-life products and disposal of unusable parts from manufacturers as the elements to attain sustainability. Wee et al. (2018) proposed a model considering vendor-managed inventory strategy for green electronic products.

Very limited attention has been paid to inventory management in sustainable green supply chains. Moreover, articles dealing with human resource issues are also limited in number. With the emergence of information technology and systems, the implementation and monitoring of green practices has become simpler. Researchers have started focusing on the use of IT to achieve sustainability in operations. Kandananond (2016) introduced different aspects of enterprise resource planning implementation for a successful green supply chain system. Supplier relations and collaboration have proved to be crucial for an efficient green supply chain (Rota et al., 2018; Tseng and Chiu, 2018; Barari et al., 2017; Foerstl et al., 2018; Youn et al., 2018; Walker and Brammer, 2016).

5. Conclusions and Recommendations

This paper attempts to present a state-of-the-art comprehensive literature review of publications in sustainable GSCM. The objective of the present research work is to highlight the trends and opportunities in research addressing sustainable GSCM. A total of 24 papers, both from sustainability and green supply chain literature, published over a span of 10 years (2010-2019) are chosen, shortlisted, categorized, and analyzed to identify potential directions and research opportunities in the field of sustainable GSCM. In both the compilation and content analysis of the literature, a formal and fit-for-purpose systematic review procedure is followed such that the rigor of the process is preserved. In order to explain the potential research opportunities for researchers/scholars interested in expanding research in this field, the research questions from the literature are identified and thoroughly addressed. A descriptive review of the papers reports that the number of publications on sustainable GSCM has grown steadily over the past decade. Increased knowledge and concern among businesses and different stakeholders for environmental protection and sustainability can be attributed to this trend. However, scant attention has been given to the published literature to the use of multi-criteria optimization as a technique. While many analytical studies have been carried out, it is possible to use more advanced statistical methods and analyses in the future.

Most of the recent studies have focused primarily on the manufacturing sector, and only little attention is paid to the service sector. Greener services research is at a nascent stage and requires urgent focus. Reports were categorized on the basis of a suggested framework explaining the various practices and contexts involved in sustainable green supply

chains. For the successful introduction of green practices, reverse logistics, recycling, and waste management are now deemed critical. However, few issues give sufficient scope for further studies in the field, based on an exhaustive review of literature.

5.1 Logistics

Transportation is the most vital element of a supply chain. As it is the main source of various gaseous emissions and particulate matter, it poses a serious threat to the environment. There have been very few studies focusing on transport-related problems, such as choosing the mode and model of vehicles and fuels used. Mathematical models can be used to integrate environmental impact optimization along with costs, time, and profit optimization objectives. Moreover, facilities like warehouses and ports also have an impact on environmental sustainability. Research is still in its infancy in this field of logistics. Using operations analysis tools, fleet management, layout decisions, and other problems can be tackled effectively.

5.2 Reverse logistics

Although problems such as reverse logistics and closed-loop supply chains have been discussed extensively in the past, their importance as a means of enforcing. There has not been much consideration of sustainable green supply chain practices; thus, it provides potential for further analysis. Network architecture is one of the most important research fields in the Reverse Logistics segment. Not only has it impacted environmental protection, but it also affects the profitability of businesses. It is possible to research and link location decisions related to reverse supply chain processes with storage and transportation problems. Therefore, it is possible to derive the most value from recycled goods and make them environmentally friendly. In addition to this, waste management also contributes to the achievement of greener practices. Waste disposal and recycling issues can further be investigated in greater detail.

5.3 Performance assessment

Researchers have proposed several frameworks and techniques, both qualitative and quantitative, to assess the performance of sustainable supply chains in the past few years. While measuring the efficiency of the green supply chain has also been studied in a few papers, the emphasis has been on assessing its overall performance. However, in order to gain a better understanding, efficiency needs to be measured in terms of individual green supply chain operations, such as green logistics, green manufacturing, green procurement, etc. In addition, to put robustness into sustainable green output assessment, some more quantitative approaches can be introduced. Lastly, certain studies have evaluated green supply chain performances based on a specific sector only. Studies can be carried out to measure the performance effectiveness of other industries also.

5.4 Human Resource Management

The main factors involved in a supply chain are human resources. A supply chain's success or failure to achieve green goals is primarily determined by the motivational levels of the actors involved in it. Work should concentrate on behavioral aspects of the supply chain, such as teamwork, communication, and encouragement of members.

5.5 Production

The environmental effect a product has depends on the manner in which it is made. By measuring its carbon footprint, this can be calculated by (Dekker et al., 2012). Issues such as greener architecture, procurement, and development can be analyzed individually by researchers in greater detail. Although a few studies have attempted to bring lean manufacturing and sustainable green practices together, further work should be done in this direction.

5.6 Supplier Selection and Relations

There has been extensive research on green partner selection because of growing worldwide environmental awareness. Studies should consider both contemporary environmental issues and traditional economic factors for developing a greener supply chain. There has been a limited focus on supplier relationship management and, hence, should also be studied as a key factor to attain environmental sustainability.

5.7 Technology Analysis and Implementation

For the implementation of green supply chain operations, the use of information technology and information systems provides sufficient space for study. Big data analytics and data mining can be used to analyze existing activities in terms of their environmental effects, which will further contribute to the reduction of supply chain related inefficiencies and bottlenecks. In addition, better decisions that lead to the adoption of sustainable green practices can

benefit from the use of decision support systems. A significant role in sustainable GSCM will be played by new technologies and players.

References

- Tanvir, S., & Muqaddim, N. (2013). Supply Chain Management Offering the New Paradigm for Bangladesh Garment Industry, *Journal of Economics and Sustainable Development*, 4, (20), page no. ISSN: 2222-1700 (Paper) ISSN: 2222-2855.
- Shahriar, M., F., Pathik, B., B., & Habib, M., M., (2014). A Research Framework of Supply Chain Management in Ready Made Garments Industry of Bangladesh. *International Journal of Business and Economics Research*. 3, (6), 38-44. doi:10.11648/j.ijber.s.2014030601.16.
- Asgari, B., & Hoque, M., A., (2014). A system dynamics approach to supply chain performance analysis of the ready-made-garment industry in Bangladesh. *Ritsumeikan Journal of Asia Pacific*
- Islam, M., S., (2012). Supply Chain Management on Apparel Order Process: A Case Study in Bangladesh Garment Industry. *Asian Journal of Business and Management Sciences*, 2(8), 62-72.
- Hossan, C., G., Sarker, M., A., R., & Afroze R. (2012). Recent Unrest in the RMG Sector of Bangladesh: Is this an Outcome of Poor Labour Practices? *International Journal of Business & Management*, 7, 206-218.
- [Nuruzzaman, A. H. & Azad, R., (2010). Is Bangladeshi RMG Sector Fit in the Global Apparel Business? Analyses the Supply Chain Management. *The South East Asian Journal of Management*, 4(1),
- Chopra, S., Meindl, P., & D.V. Kalra, D.V. (2013). *Supply Chain Management-Strategy, Planning and Operation*, Pearson, India, 4th Edition, pp-7-8. ISBN:978-81-317-3071-3
- Nuruzzaman, A.H. (2010). Lead time management in the garment sector of Bangladesh: An avenue for survival and growth. *European Journal of Scientific Research*, 33, 617
- N. Md., "Developing Export of RMG products in Bangladesh: Analyzing the Lead time, Management. *Trends*, Vol.4, No.1, P- 1.
- M.S. Islam., —Supply Chain Management on Apparel Order Process: A Case Study in Bangladesh Garment Industry, *Asian Journal of Business and Management Sciences*, Vol. 2, No. 8, pp. 62-72, 2012.
- World Bank. (2010). End of MFA Quotas: Key Issues and Strategic Options for Bangladesh Ready-made Garment Industry. *Bangladesh Development Series Paper No. 2*, PREM Unit. Washington D.C.
- Mohammad Ali and Dr. Md Mamun Habib; *Supply Chain Management of Textile Industry: A Case Study on Bangladesh*; *International Journal of Supply Chain Management*; Vol. 1, No. 2, September 2012; ISSN:2050-7399 (Online)
- Leonie Barrie, *The daily star*, Bangladesh: The catalyst for change in the supply chain. Access on January 20, 2015
- Basher, M.A. (2010). Compliance in the RMG sector: What has been done so far, and what more needs to be done? Dhaka. Bangladesh.
- Duangpun Kritchanchai, and Thananya Wasusri, *Implementing Supply Chain Management in Thailand Textile Industry*, *International Journal of Information Systems for Logistics and Management*.

- Mohammad Ali, Dr. Md Mamun Habib, The material requirements planning system for readymade garments and inventory control, *Journal of Applied Management and Investments*, Volume 1, Number 2, 2012.
- Habib, Md. Mamun, —Supply Chain Management(SCM): Theory and Evolution|| Dr. Md. Mamun Habib(Editor), —Supply Chain Management – Applications and Simulations||, InTech Open Access, Croatia.
- Abbasi, M. and Nilsson, F., “Themes and challenges in making supply chains environmentally sustainable”, *Supply Chain Management: An International Journal*, Vol. 17 No. 5, pp. 517-530, (2012).
- Ahi, P. and Searcy, C. , “A comparative literature analysis of definitions for green and sustainable supply chain management”, *Journal of Cleaner Production*, Vol. 52, pp. 329-341.
- Ashby, A., Leat, M. and Hudson-Smith, M., “Making connections: a review of supply chain management and sustainability literature”, *Supply Chain Management: An International Journal*, Vol. 17 No. 5, pp. 497-516, (2012).
- Carter, C.R. and Easton, P.L., “Sustainable supply chain management: evolution and future directions”, *International Journal of Physical Distribution & Logistics Management*, Vol. 41 No. 1, pp. 46-62, (2011).
- Gimenez, C. and Tachizawa, E.M., “Extending sustainability to suppliers: a systematic literature review”, *Supply Chain Management: An International Journal*, Vol. 17 No. 5, pp. 531-543, (2012).
- Hervani, A.A., Helms, M.M. and Sarkis, J. , “Performance measurement for green supply chain management”, *Benchmarking: An International Journal*, Vol. 12 No. 4, pp. 330-353, (2011).
- Seuring, S., “A review of modeling approaches for sustainable supply chain management”, *Decision Support Systems*, Vol. 54 No. 4, pp. 1513-1520, (2013).