

Supply Chain Management of Textile Industry: A Case Study on Bangladesh

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Abstract— This study addresses a descriptive study on the current scenario of Textile industry in Bangladesh. This paper demonstrates above mentioned scenario in terms of supply chain management (SCM). The textile industry, an important segment in Bangladesh's manufacturing industry, play a critical role in its economic development. The textile sector fulfils almost cent percent domestic demand apart from the fulfilling the external demand of clothing and apparels to a large extent in Bangladesh. The Textile industry is a long chain including raw materials production, complement production, clothing production and so on. SCM concept is made possible as a conventional management tool for all manufactures are to strive to improve their product quality, to reduce their product and service cost and to shorten their product delivery and response time in a highly competitive market. This research developed based on the secondary data, including online databases, journals, review papers, etc. The effective SCM of textile industry include lower inventories, lower costs, higher productivity, greater productivity, greater agility shorter lead times, higher profits and greater customer loyalty. This paper encompasses the constraints of textile industry in Bangladesh, including ineffective communication, invisibility of SCM, long lead time, etc. which would unlock further research to develop this sector.

Keywords— Textile industry, Garments, Supply chain

1. Introduction

There is no restriction on technology transfer in the present world, the area of supply chain management becomes one of the key competitive fought nowadays between global companies and regions. New and latest technology gadgets are

used for this purpose. Supply Chain Management (SCM) is the coordinated set of techniques to plan and execute all steps in the global network used to acquire raw materials from vendors, transform them into finished goods, and deliver both goods and services to customers. It includes chain-wide information sharing, planning, resource synchronization and global performance measurements.

The textile industry is an important segment in Bangladesh's manufacturing industry playing a critical role in its economic development. The textile sector fulfils almost cent percent domestic demand apart from the fulfilling the external demand of our clothing and apparels to a large extent in Bangladesh. In 2010-11 from textile clothing and apparels export earning is over USD17.9 billion which is about 77% of total export earnings of this country and it contributes 13% of our total GDP which is expressed in figure 1. In a competitive world where there are flows of technology transfer, supply chain management is one of key factor in global manufacturing business. Bangladesh's textile industry can be divided into three main categories: public sector; handloom sector; and the organized private sector. The private sector is the fastest growing sector in the country. The handloom industry provides

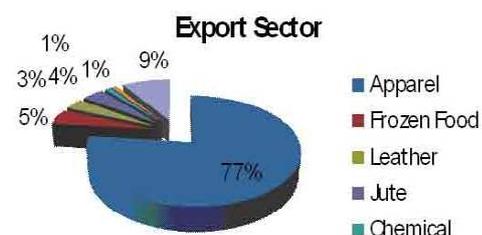


Figure 1: Export sector performance of Bangladesh [17]

employment for a large segment of the population of Bangladesh and supplies a large portion of the fabric required by the local market[10].

The supply chain includes suppliers, distributors, retailers and customers. The customers are the main focus of the chain since the primary purpose of the existence of any supply chain is to satisfy customer needs. SCM was initially related to the inventory management within a supply chain. In the course of time, the most considerable benefits to business with advance supply chain management capabilities will be radically improved customer responsiveness, developed customer service and satisfaction, increased flexibility for changing market conditions, improved customer retention and more effective marketing. A supply chain is the chain of the process which is included their facilities, functions and activities that are involved in producing and delivering a product from supplier(s) to customer(s). Supply Chain Management concept is made possible as a conventional management tool for all manufactures are to strive to improve their product quality, to reduce their product and service cost and to shorten their product delivery and response time in a highly competitive market [15].

2. Literature Review

Global Textile Industry Scenario: As business increasingly make use of outsourcing and pursue opportunities beyond their domestic markets, their supply chains are becoming global. For example, product design often uses inputs from around the world and products are sold globally. Some manufacturing operations or services may be outsourced to other countries for the low labor cost or material costs [1]. The current scenario of textile industry of different countries, including Pakistan, India, Vietnam, Taiwan, Thailand, China as well as Bangladesh, has been demonstrated in this section.

2.1 Pakistan

Pakistani textile industry was not and never prepared for this scenario. Despite of having latest computerized manufacturing machines; there is no production and inventory planning systems available. Talking of the human factor, majority of the industrial planning is done by illiterate and less educated persons holding the position of manager, mainly due to presumed cost saving reasons by executives. Even in the available educational

institutions related to industry and textile, less emphasis is given to SCM issue on practical grounds.

This arising fashion situation in western markets created frequently changing short run orders. This has lot of impact and burden on plannings. If there are not any qualified and well educated managers and no proper planning systems (ERP systems), the result will be high cost of operation and late deliveries.

The stake of warehousing is also at alarming level. Not talking of quality deterioration, these warehouses are also a sink of resources. Inventory level planning is also an issue here.

The available roads infrastructure is a major element of SCM. Pakistani government has spent a lot of money in improving this infrastructure and is continuously upgrading the roads and highways which is a better sign for the SCM of textile value chain. Railway logistic infrastructure is not so better in this regard with lot of delays in operation and transportation.

The situation of maritime is also alarming. With few and old flag ship carriers; majority of the export is dependent on foreign ships. The stake of operational capabilities at harbors is quite poor with containers lying for days and days before they are transported to concerned ships. The available terminals have less capacity and infrastructure to cope with the incoming containers and result is the lying of containers in port for days on trucks. Again increasing the customer response time and increasing costs. Until now, Pakistan has no deep sea container terminal to handle large vessels. International Shipping companies are frequently changing their vessels to bigger-size vessels, which could accommodate large volumes of containers. Unfortunately these bigger vessels could not serve current Pakistani ports. This increases the maritime cost and time.

With all of the above factors, Pakistani textile industry is losing its competitiveness in international market. The buyers are getting a response of low service quality thus reducing their confidence to do business with Pakistani industry. In this stage Pakistani industry could neither meet the lead time demand of highly profitable textile and fashion products nor could meet the low price expectation of western markets.

Under these circumstances, the western buyers hesitate to have its high value product manufactured and share market risk with Pakistani manufacturers and exporters.

Despite of having state of the art machineries and access to capital, Pakistani textile industry is compelled to constantly manufacture and export raw, non seasonal and low value textile products where high capital is required to manufacture at extremely less margins. As a result, this process reduces overall competitiveness in the region.

Supply Chain Management should be the key focus to enhance competitiveness of existing Pakistani textile industry and can help [9].

2.2 Thailand

The Supply Chain Management concept starts to be widely introduced and promoted in many educational journals, conferences, and workshops in order to set common standard and best practices. The Thai government also realizes the importance of Supply Chain Management concept, which is evidenced in the Information and Communication Technology (ICT) Policy of Thailand 2002-2007 under the 6th national strategic plan. It is also indicated that textile and clothing business is one of the industrial target we need to emphasise. They are raw material sourcing, information management, production and inventory, performance measurement and organization structure and responsibility. Long sourcing lead time is occurred in every case and it is a major issue destroying competitiveness advantage for all textile industry. From our observation, we founded that more 50% of total order lead time was spending for sourcing materials. There are many types such as fabric, accessories, packaging and labels. Those materials have to be authorized by their customer before production process can start. The reasons are that suppliers are pointed by their agencies and supplier evaluation or improvements have not properly implemented. In addition to these, suppliers have not integrated since the product development process [8].

2.3 India

India Textile Industry is one of the leading textile industries in the world. Through was predominantly unorganized industry even a few

years back, but the scenario started changing after the economic liberalization of Indian economy in 1991. The opening up of economy gave the much-needed thrust to the Indian textile industry, which has now successfully become one of the largest in the world. The Indian textile industry needs efficient supply chain management. One area that needs more emphasis for global competitiveness of the entire supply chain is the interface between textiles and clothing. A shift is taking place from the traditional textile supply chain to garment supply chain. The author discusses the changing trends in the textile supply chain in India and the need for an interface between textile and clothing for efficient supply chain management in textile industry.

It is interesting to observe that while modern technology is accelerating the trend towards slicing of the value chain' and fragmentation of manufacturing as well as services, modern management practices are goading the business towards integration of the value chain and development of a holistic perspective, that spans from the retail customers at the teeth-end to the primary raw material manufacturer at the tail-end. And the best way to reconcile these seemingly divergent trends is to view them in an 'enabler-executor' framework. Technology advances have enabled fragmentation and delocalization of different stages in the value chain. And precisely this trend have strengthened the need to look at the complete value chain in a holistic manner. In other words, the stronger the enabler (technology development), the stronger would be the need to 'bind them all together', so as to draw upon the synergistic benefits [7].

2.4 Taiwan

In order to strengthen the emergency response ability for global market changing, several representative proprietors in textile industry have been selected by The Ministry of Economic Affairs. Through E-counseling and collaboration, operation headquarters, and an overall global arrangement, enterprises will enhance the efficiency of textile global logistics and overall competitiveness. Many companies in the textile industry in Taiwan have moved a part of their activities, which are non core values or low-profit, to other countries due to cost, profit, and environmental considerations. Those that remain in

Taiwan are high value-added R&D design activities, the manufacturing of the functional product, and marketing brands. Nevertheless, it is also because of the development of new global logistics management models that crisis was turned into opportunity [11].

2.5 Vietnam

Vietnam's textile industry has increased significantly since normalizing relationships with the United States in the 1990's. Vietnam was granted most favoured nation status (MFN) in December 2001, which led to a dramatic reduction in import tariffs in the US market. Vietnam's induction to the World Trade Organization (WTO) in 2007 and the Vietnamese government's strong support of the textile and garment sector, have provided strong incentives to attract foreign investors. The textile industry is now the second biggest exporter in Vietnam and is expected to become the biggest in near future. However, the financial crisis has had a severe affect on Vietnam's textile industry, which has suffered from a slump in demand from key export markets in the US, Europe and Japan [6].

2.6 China

The competitiveness of China resulted in a shift in the textile production. Especially producers located in developed countries struggle to compete in the global textile industry and gradually are put out of business. Long before China opened its market, other developing countries presented similar competitiveness and threatened producers in developed markets. These producers and governments of developed countries feared losing the market for the textile volumes produced domestically. China's position in the textile industry is extremely strong and undoubtedly leads the global production. A study presented by the end of 2009 claims that, even under the negative effects of the global financial crisis, China is still the most competitive location in the world for the textile industry (China's competitiveness index for this industry was evaluated at 102.8 in 2009).

During the financial crisis, while the overall decrease in Chinese exports amounted around 15%, the textile industry felt only partially the downturn effects. Textile export amounts decreased by a relatively low 7% in 2009 and it took very little time of to show significant signs of recovery. In the

first 10 months of 2010, China exported more than US\$ 62 billion dollars in textile, a rise of 29% comparatively to the same period in 2009. In this same period, exports of clothes also grew, totaling more than US\$ 100, presenting an increase of nearly 20% compared to 2009. Chinese prevailing competitiveness in the textile industry is also supported by public investments and industry internal organization in China. There are cities, like Changshu City (Jiangsu province) and Dongguan City (Guangdong), which concentrate a high number of textile enterprises (2300 and 6500 textile companies respectively). Companies in these cities are co-ordinately moving to improve the industry competitiveness. In Changshu, for example, more than 50% of all integrated production textile machines meet international standards. It is an important movement, given China's accession into WTO. In addition, these textile industrial centres help to attract new companies and investors due to the existing appropriated infrastructure and business momentum [16].

2.7 Bangladesh

The textile industry has played an important role in Bangladesh's economy for a long time. Currently, the textile industry in Bangladesh accounts for 45 percent of all industrial employment and contributes 5 percent to the total national income. The industry employs nearly 4 million people, mostly women. A huge 78 percent of the country's export earnings come from textiles and apparel, according to the latest figures available. Bangladesh exports its apparel products worth nearly \$5 billion per year to the United States, European Union (EU), Canada and other countries of the world. It is the sixth largest apparel supplier to the United States and EU countries. Major products exported from Bangladesh include polyester filament fabrics, man-made filament mixed fabrics, PV fabrics, viscose filament fabrics and man-made spun yarns. Major garments exported include knitted and woven shirts and blouses, trousers, skirts, shorts, jackets, sweaters and sportswear, among other fashion apparel.

The textile groups can be divided into two categories. Firstly, a large and medium size textile group consists of four business units in the chain:

- Yarning
- Fabrication

- Dyeing and
- Garment

Finished goods from each unit are supplied to both within group and external customers. The business unit model can be shown in Fig.1 below. Lastly a small garment industry outsource goods for the final product for customer instead of producing them in-house and it is supplied by the external supplier.

The overall objective of the supply chain management is to reduce the lead time and cost of the product. The elements of the Supply Chain Management includes informational sharing of demand, efficient planning and management of logistics, transportation of raw materials, availability of better infrastructure of roads and railways, availability of proper warehouses to store goods, inventory planning and controlling for optimized solutions, availability of enhanced maritime physical infrastructure, highly efficient planning and controlling of ports and shipments. These all elements contribute to lower the lead time of the value chain and also the associated cost.

Textile industry is a long chain including raw materials production, complement production, clothing production and so on. So it really makes sense to apply supply chain management to Textile Industry. Supply Chain Management in Textile Industry is not only a new concept, but also the weakness. However, it is the edge tool for textile industry to enhance its competence. What's more, it is the important stage for our textile industry to advance and upgrade its position in global industry chain. Outsourcing is one the major trends in business for reducing cost and allows business to concentrate on the core business. Organizations outsource when they decide to buy the products they had been making in house.

Outsource Cotton

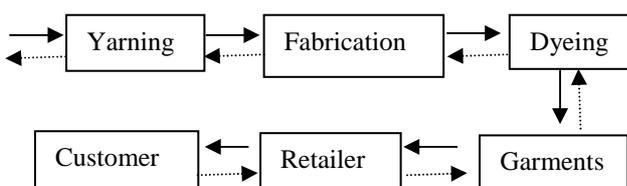


Figure 2: A typical Textile Supply Chain [1]

Outsource Yarn

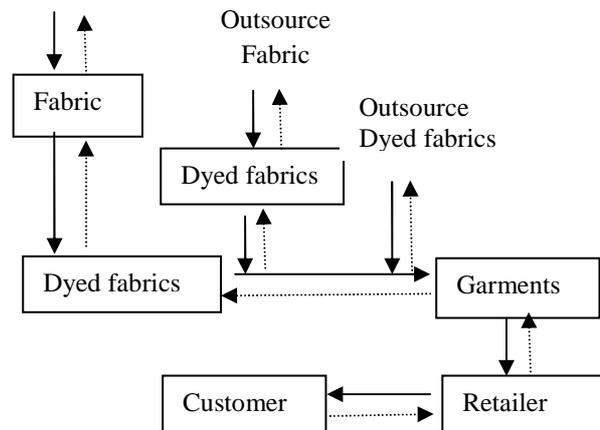


Figure 3: Modified Textile Supply Chain

3. Methodology

The analysis of this research is based on secondary data, including online databases, digital libraries, books, journals, conference papers, etc. Extensive SCM of textile industry research papers of academicians and practitioners are evolved from renowned international journals, namely PROQUEST, EMERALD, EBSCO, IEEE, ACM, JSTOR, Science Direct, etc. The application of SCM on textile industry was developed based on the analysis of literature.

4. Discussion

According to review of current picture of textile industry in different countries, it is visible to us that textile sector has significant role to improve our economical growth in Bangladesh. Delivering the finished products on time from suppliers to customer would be possible through the proper application of supply chain management. In order to improve the business operations in terms of some factors including fluctuation of inventories, inventory stockouts, late deliveries, quality problem, etc., SCM is essential for manufacturing industries. Successful supply chain management requires effective communication, supply chain visibility, event management capability and performance metrics. It also requires coordination of activities and information sharing among supply chain partners at three decision levels, namely strategic, planning, operating levels [15]. This

research developed modified supply chain model for textile industry in Bangladesh by adopting outsourcing to reduce the cost and concentrated on core business.

5. Conclusion

This paper represents the current scenario of Textile Industry in Bangladesh as well as global. The contemporary picture of textile industry of Asian countries, like India, Pakistan, Taiwan, Thailand, China and Vietnam were identified in this study. The researchers would come up a model based on the analysis of previous studies. This model enhance the lower inventories, higher productivity, lower cost, shorter lead time, higher profits, greater customer loyalty etc. in the Textile industry by adopting supply chain management. This research would create further pathways to accomplish substantial research on other manufacturing industries based on local and international perspectives.

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