

THE TRANSPORTATION LOGISTICS IN SUPPLY CHAIN MANAGEMENT AND RMG SECTOR IN BANGLADESH

Dissertation submitted in partial fulfillment of the degree
Masters in Procurement and Supply Management (MPSM)

Submitted to

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March 2018

Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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A. LETTER OF TRANSMITTAL

18th February 2018

To

Shanawez Hossain, Ph.D.
Assistant Professor & Director EDC
BRAC Institute of Governance and Development (BIGD)
BRAC University

Subject: Submission of dissertation paper on **“The transportation logistics in supply chain management and RMG sector in Bangladesh.”**

Dear Sir

It is my pleasure to submit the dissertation paper on “The transportation logistics in supply chain management and RMG sector in Bangladesh.” I think that this dissertation paper is essential for the fulfillment of my Masters in Procurement and Supply Chain Management degree. The term paper was a valuable experience for me. I found my work challenging and interesting.

I tried my level best to follow your guidelines. The whole experience of this report enables me to get an insight into the real-life solution of the software industry. I am happy to provide the necessary clarification of this report whenever it is needed.

Yours Sincerely



Hasibuzzaman Shohag
ID: 16182016
MPSM – 11

B. LETTER OF ENDORSEMENT

I, Shanawez Hossain, Research Fellow & Head, Urban, Climate Change and Environment (UCCE) Cluster, BRAC Institute of Governance and Development (BIGD) hereby certify that the dissertation work entitled as “**The transportation logistics in supply chain management and RMG sector in Bangladesh**” has been prepared by Hasibuzzaman Shohag, ID: 16182016, MPSM – 11 Batch, BRAC Institute of Governance and Development (BIGD) and submitted as a requirement for the partial fulfillment for the degree of Masters in Procurement and Supply Chain Management. To the best of my knowledge, the work mentioned above has been conducted by the student himself. Any opinion or suggestion made in this study is entirely that of the author of this dissertation paper. The report is an original work and prepared as a partial requirement of the degree Masters in Procurement and Supply Chain Management (MPSM).



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C. ACKNOWLEDGMENT

First of all, I would like to express my deepest gratitude to the almighty ALLAH without his blessings. I would never be able to complete this dissertation paper within the scheduled time. I also want to mention the support of some great-hearted people who have sincerely helped me to complete the task.

This dissertation concludes my MPSM degree studied with the Supply Chain Management program and Procurement at the BRAC Institute of Governance and Development (BIGD). It is my pleasure to conduct this research on “The transportation logistics in supply chain management and RMG sector in Bangladesh.”

I want to thank my supervisor Mr. Shanawez Hossain, Assistant Professor & Director EDC, BIGD, Brac University for his precious guideline. I am thankful and indebted to him for his whole-hearted supervision during the period. His suggestions and comments to make the term paper as a good one was a great source of inspiration for me. Secondly, I convey thanks to all who kept inquiring from time to time about the progress of my study. It was really a source of inspiration for me to complete the task within the schedule.

D. ABSTRACT

Transportation plays a vital role in Bangladesh's RMG sector. Transport operations determine the capability of product transportation. The advancement in technology and management foundations has increased mobile loads, delivery speed, service quality, operating costs, shortened delivery times, reduced facility usage, and saved energy. Transport plays a vital role in logistics operations. The robust system requires a clear logistics framework and appropriate transportation tools and technologies to link production processes. All companies' procurement/supply chain/logistics departments have been in operation for more than five years. 70% of companies handle transportation themselves, while 30% of companies are 3PL. 70% of respondents believe that logistics is a vital component in the development of RMG. Transportation logistics are limited to road transport. Most respondents did not know the width of roads for transportation and logistics, but 30% of the respondents believed that the current road width was sufficient for logistics transportation. Forty percent of respondents agree that 3PL can be used to maintain a proper supply chain for a plant, while 50% agree that the state government should monitor RMG growth and infrastructure development in the transportation logistics industry. It is not essential to develop and train 3PLs according to organizational strategy, as 60% of respondents are uncertain about this.

E. EXECUTIVE SUMMARY

Logistics management is a chain of activities that purchases raw materials, convert them into usable goods, and ultimately delivers them to customers via distribution systems. The readymade garments industry of Bangladesh tells us an impressive story of the country succeeds transition a major export-oriented economy. From the beginning of it is a journey in the late 1970s with relatively little investment, the industry flourished in 1980 and 1990, making it the largest industry in Bangladesh. This research aims to help logistics managers and transportation administrators determine and understand the essential perspectives of logistics and its distinct functions and the relationship between transportation and logistics. Considering major factors in RMG succeed, it found that transportation logistics is a significant fact in RMG operation, which can maintain and manage lead time. 70% of the surveyed participants think that (60% agree + 10% strongly agree) logistics transportation is a crucial fact for RMG development. In the development of logistics transportation, 60% of the surveyed participants agreed that road transportation is easy to develop in comparison to railway transportation and water route transportation development as per the respondent's opinion. 50% of the surveyed participants think that roads are not maintained correctly in national highways, but 30% of the respondents think that the current road width is enough for carrying logistics. 60% of respondents think that transportation is a non-core function of RMG. 40% of the respondents gave their consent regarding 3PL that it can use for maintaining proper supply chain in factories and 50% of respondents agreed that Gov. should monitor infrastructure development for RMG growth and Transportation Logistics industry. Political stability may not be favorable for smooth transportation in logistics RMG. Developing 3PL and train them as per organizational policy is not important because 60% of the respondents are not sure about it. 50% respondents think that the condition of 3PL vehicles need to be properly monitored.

CHAPTER – 1

INTRODUCTION

1. A. INTRODUCTION

Nowadays, Bangladesh has become an essential supplier of quality garments in the world. The fantastic growth of Bangladesh's clothing industry has changed dramatically. However, still, now proper supply chain procedure not yet established. As a result peak of customer satisfaction is not at an acceptable point. By manufacturing, procurement, and transportation, Supply chain management (SCM) divided into these main areas, which include decisions about which input elements to use, production quantities, inventory levels, dissemination network composition, and final product transportations. Logistics management is a component of SCM that focuses on how and when raw materials, intermediate products, and finished products transported from their origin to their destination. Therefore, it is safe to say that goods rarely consumed where they produce and transport services are an essential characteristic among all elements of the supply chain.

The purpose of this study is to identify how transportation in logistics (By Road) can be useful in the RMG sector in Bangladesh. It starts with introducing the expansion of logistics in RMG and transport-related sectors based on a historical review. Afterward, it reviews the interconnections of transportation, logistics & RMG. Finally, this article discusses and summarizes the potential development of logistics transportation in the RMG sector in Bangladesh.

1. B. STATEMENT OF THE PROBLEM

The role of transport in a logistics system is more complicated than transporting goods to owners. That complexity only enabled by high-quality management and properly handled transportation systems ensure that goods are sent to the appropriate place to meet customer requirements. It delivers effectiveness and builds a connection between producers and consumers. Hence, transportation is the foundation of the productivity of business logistics and extends more services to the logistics system. Besides, excellent transportation systems

that play a role in logistics activities can not only improve service quality but also improve competition between companies.

The main problem of Transportation in Logistics is port congestion with lead time. Customer dissatisfaction due to not deliver the goods on time. In the overload time of shipment, they cannot maintain proper follow-up the schedule of the vessel of shipment. Consolidation of all orders cannot place in one warehouse due to lack of adequate place; Clearance docs is another main reason to delay shipment as some unethical incident occurs frequently.

Transportation systems enable goods and products to be transported, provide prompt and local effectiveness, and support added value under the principle of least payment. Transportation influences the outcome of logistics activities, production, and sales. Transportation costs can view as objective market limitations in a logistics system. The value of transportation varies from industry to industry. For smaller, lighter, and more valuable products, shipping costs account for only a small portion of sales and are not taken into account. For these more substantial, heavier, lower value products, transportation is of greater importance because it represents a considerable portion of sales and has a more significant impact on profits.

1. C. OBJECTIVE OF THE STUDY

The purpose of this study is to understand the current situation, especially a few significant factors in the present business process, as well as how to ensure on-time delivery through proper logistics system, reduce transport costs and expand productivity by mechanization and transportation planning business rules of RMG export from Bangladesh. The general objective is to establish how efficient transportation can have a significant contribution to the RMG sector in Bangladesh.

However, the study objectives are:

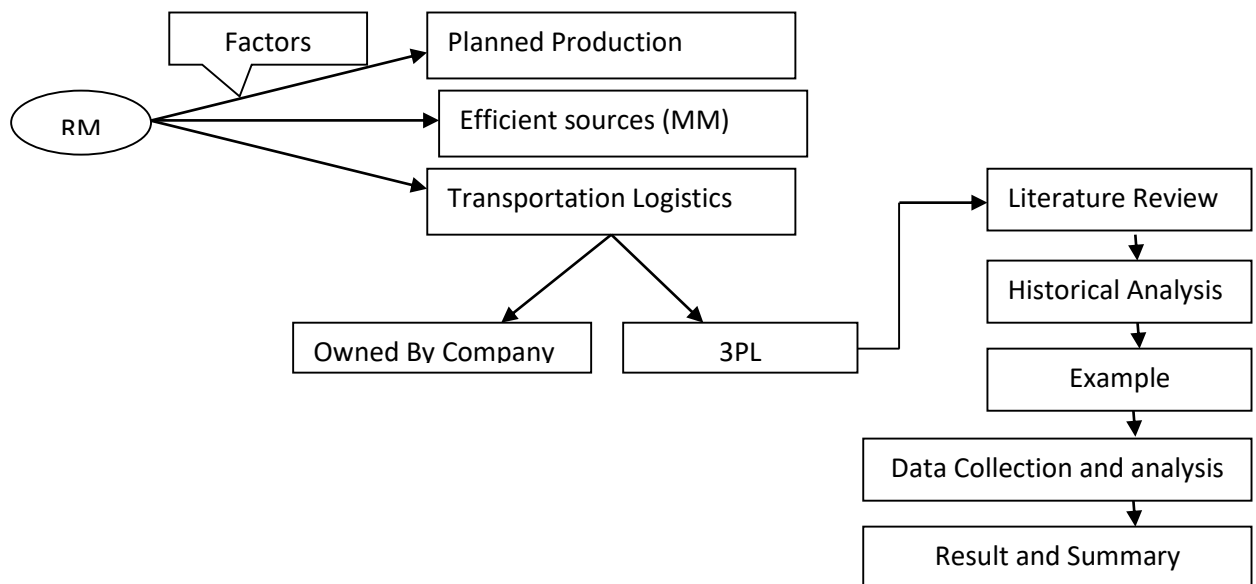
- 1) To analyze the relationship between transportation logistics in SCM and RMG.
- 2) Finding out the effective transportation logistics systems in RMG considering real-time obstacles
- 3) Best fit transportation logistics for maximum efficiency of RMG.

1. D. RESEARCH QUESTION

- a) How does transportation logistics work in RMG?
- b) What problems face an effective transportation logistics system?
- c) What are the solutions (with options) for these obstacles?

1. E. STRUCTURE OF THE REPORT

This report structured in such a chronological manner, which starts from the literature review towards historical data analysis and field experience than later on analysis with information collected from the field. This flow chart has drawn as below,



FC 01: Structure of the report

1. F. METHODOLOGY:

Data collected from primary and secondary sources like the interview, many journals, books, literature.

Data source: The primary and secondary data used to complete this study.

i. PRIMARY DATA

This study will have two parts of the analysis. In part, one SCM of a real company will consider seeing their situation and working structure. Afterward, in the second part, a

questioner will be conducted among ten companies to understand their SCM system, the problems they faced and, etc. Again, a real liaison office will consider reviewing the supply chain structure. For this, we have taken several interviews with Motiur Rahman and Ridwanul Haque of the Carrefour GS office.

ii. SECONDARY DATA

Secondary data collected from various journals, brochures, annual reports, newspapers, magazines, publications, books, and other forms of publications as well as websites.

1. G. LIMITATION OF THE REPORT:

Limitations that will take place while preparing this report include:

- The conservative attitude of the responder can squeeze the scope of the study.
- Many current data and documents may not be available, which may have made the study more informative. Therefore, the main limitation of the survey is the lack of information.
- It's mandatory to complete this study within a short period of time, which may not be sufficient to get all data that will assist in making this report successful.
- All publicly available information may not be accurate.
- Some desired information could not be collected due to the confidentiality of the business.

≈CHAPTER – 02≈

LITERATURE REVIEW

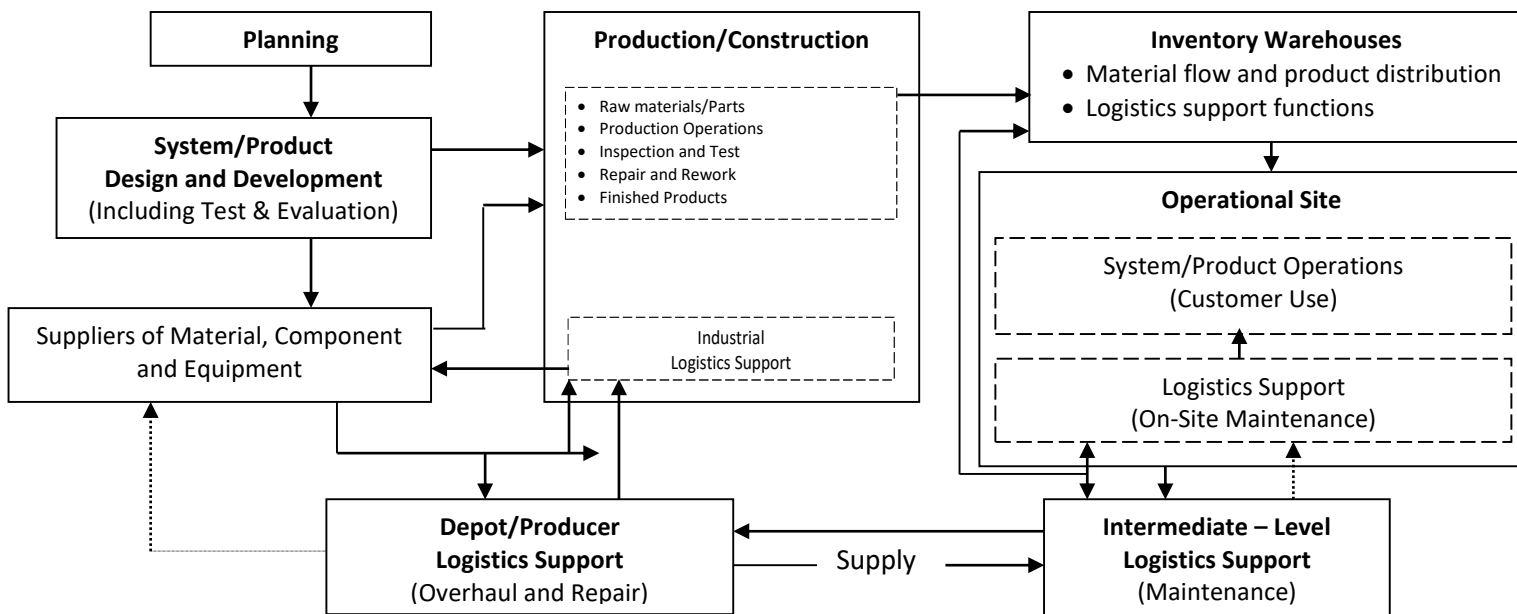
2. A. DEFINITION OF LOGISTICS

According to the Society of LogisticEngineers (SOLE, 1974), Logistics is the art and science of engineering, technical activities&management related to the maintenance and supply of resources to support customer requirements, product design, goals, planning and operations.

As stated to the Council of Logistics Management, Logistics includes integrated planning, control, implementation andchecking of complete product flows (including necessary information flows), internal and network-wide material, industrial, and trading companies throughout the product life cycle in order to comply customer requirements.

The process provides that the correct product arrives in the proper place at the appropriate time and in the proper quantity to meet customer needs, according tothe Institute of Logistics and Transport.

2. B. ELEMENTS OF LOGISTICS



FC 02: Elements of Logistics

Source: Benjamin S. Blanchard. "Logistics Engineering and Management." 6th ed. Prentice-Hall, 2004. P11

2. C. DIFFERENT FORMS OF LOGISTICS OPERATION

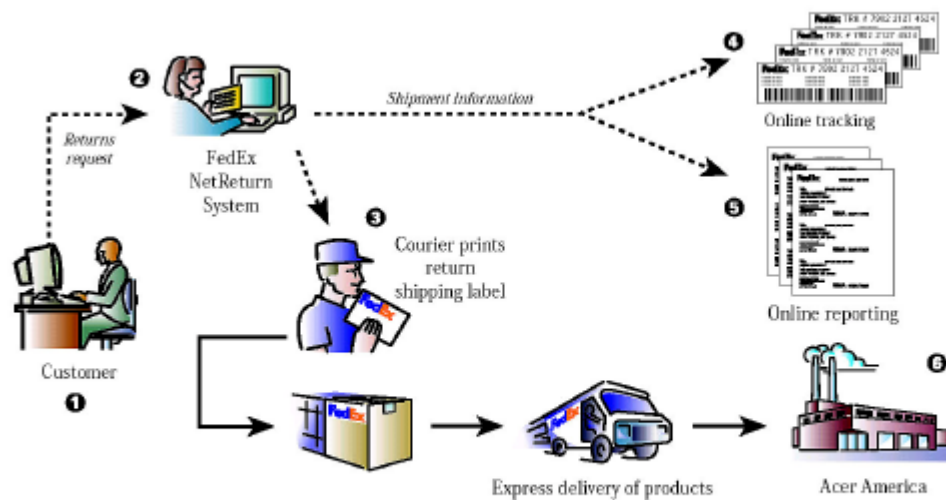
i. SUPPLY CHAIN MANAGEMENT

Supply Chain Management (SCM) is operating a manufacturing system in a broad sense, and this application of SCM can provide this industry to meet the needs of the brand-new business surroundings. (Ross, 1998) defines SCM as a 'continually emerged management ideology that combines the combined dynamic skills and resources of business efficiency with the supply chain of firms within and outside firms, as well as developing innovative solutions for a highly competitive, customer-rich supply system and Of the customer focuses on the integration of market products and data flows to form distinct, distinct sources of value."

ii. REVERSE LOGISTICS

The concept of reverse logistics is the process of planning, implementing and controlling adequate, the profitable flow of raw materials, finished products, inventory and related information from consumption to production (Rogers & Tibben-Lembke, 1998).

Two significant reasons for the rise of reverse logistics are market globalization and environmental protection policies. The success of reverse logistics can help companies increase service levels and reduce production process costs. Nonetheless, the system requires expertise in logistics management and specific facilities. Therefore, third-party logistics services provide another option for reverse logistics systems for small businesses (Bempong, 2019).



FC 03. Third-party reverse logistics

(source: <http://www.fedex.com/us/solutions/downloads/acer.pdf>)

iii. MARITIME LOGISTICS

The shipping/maritimelogsitics industry plays a vital role in global freight, which providesreasonable and vast carrying scope to consumers. The marine transportation industry can divide into three majorclassifications:

- (1)Liner shipping logistics: This business based on the same ships, routes, prices, and regular voyages.
- (2) Automatedshipping logistics: The primary purpose of industrial transportation is to ensure the supply of raw materials.
- (3)Stray shipping logistics: This transportation characterized by irregular transportation prices, unstable transportation routes, and schedules. It usually carries special cargo such as dry bulk and crude oil. (Tseng, Yue & Taylor, 2005).

iv. AIR FREIGHT LOGISTICS

It provides speed delivery, guarantee, convenience, and frequent access to usual destinations, but disadvantages are higher shipping costs.(Reynolds-Feighan, 2001) said, "When the value of the weight of the goods per unit is comparatively high, and delivery speed is a crucial factor, choose air logistics."The characteristics are as follows: (1) Airplanes and airportsdisconnected.

So, the industry needs to prepare the aircraft for operation; (2) it can speed up the transportation at distant destinations; (3) the air transportation is not affected by the terrain.

v. LAND LOGISTICS

Land logistics is an essential link in logistics movements, which boosts the air and sea transport services from airports and seaports. The high level of accessibility of inland areas is the most positive feature of land logistics. Rail transportation, road freight, and pipeline transportation are the main modes of transportation for land logistics.

The overuse of land transportation also brings many issues, such as traffic congestion, pollution, and traffic accidents. In order to improve the reliability and capability of land transport, a revolution in transport policy and management, such as price, will be required in the future.

In this study, our focus is on Land logistics, especially in the road transportation sector. Because according to LGED total length of paved road is about to be 21,000 km consisting of 3,000 km of national and 1,800 km of regional highways and 16,200 km of Feeder-A and B roads which is ready for use in Bangladesh, whereas railways only 2835 KM and waterways are only 8,433 km is navigable.

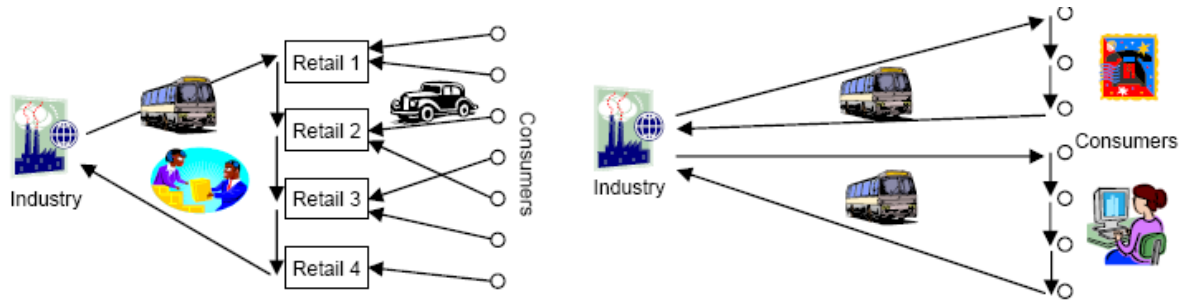
vi. EXPRESS DELIVERY

As the interest for time efficiency and decentralized management production continues to grow, lower inventory costs have led to the Just-In-Time (JIT) delivery principle, which involves the correct distribution of materials at the appropriate time and place during the production process (Tseng, Yue & Taylor, 2005). Door-to-door service, efficiency, traceability, Just-In-Time (JIT), and growing various delivery demands are the characteristics of this delivery.

vii. E-COMMERCE

E-commerce is the prospect of corporate style. It brings many benefits to companies and consumers, such as expands the market area internationally, using digital technology to

replace traditional paper products, thereby improving the capability of the industry, e-commerce will affect transportation systems as a result of increased trips, and it may decline the number of warehouses and inventory costs. Therefore the price can be reduced (Karthikeyan, 2017). Figure 04 and Figure 05 showed the variation of traditional trade transport and e-commerce.



FC 04: Traditional business transport pattern FC 05: e-commerce transport pattern

viii. FINDINGS

Considering the current situation of Bangladesh, improving land logistics will be a vital point for RMG operation improvement. In many parts of Bangladesh, thousands of manufacturing units are running and directly related to export. As Bangladesh has only one major seaport, many factories in the south part are depending on road transport for getting their materials in and deliver their goods for shipment at CTG. Why road transportation is focused, because

- 1) Possible short time maintenance or repair
- 2) Less investment rather water and rail
- 3) Multipurpose use (Like if we can establish a 24 hours shuttle road service from Dhaka to CTG, we can also use this way as emergency service)
- 4) South part has of Bangladesh fewer waterways, and waterway maintenance is expensive than road maintenance)

Most of the factories use third party logistics support because of,

- a) Non-core function
- b) Schedule confirmation
- c) Reduce overhead cost
- d) Limited use of resources

2. C. LITERATURE REVIEW OF THIRD-PARTY LOGISTICS

i. DEFINITION OF LOGISTICS OUTSOURCING

According to (Aertsen, 1993; Bowersox, 1990; Lieb, 1992; Sink & Langley., 1996) the terms such as "logistics outsourcing," "third-party logistics," "logistics alliance," "contract logistics and allocation" used reciprocally to describe the outsourcing of some or all of the logistics activities (Aertsen, 1993; Bowersox, 1990; Lieb, 1992; Sink & Langley., 1996).

- ✓ (Murphy & Poist, 1998) stated that, 3PLs are often associated with providing not just segregated transport or storage functions, but also multiple bundled services (Leahy, Murphy and Poist, 1995).
- ✓ The term "fourth-party logistics" (4PL) is more advanced contractual arrangements, defined as supply chain service providers, relatively than operational services, participate in supply chain coordination of multiple asset-based participants for its customers. (Van Hoek and Chong, 2001)

ii. COMPONENTS OF LOGISTICS OUTSOURCING

The logistics outsourcing system consists of inventory management, transportation, storage and material packaging, handling, information processing, demand forecasting, production planning, procurement, facility location, customer service, and other activities.

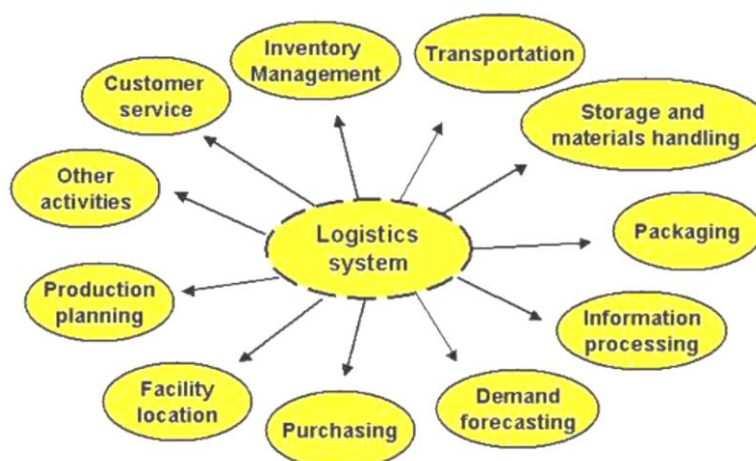


Fig 01: Logistics System

iii. BENEFITS AND RISKS OF OUTSOURCING

Various benefits and risks associated with 3PL divided into strategic, financial, and operational. The most commonly mentioned risks are related to the loss of control of the logistics function and the loss of internal capabilities and client contacts (Ellram, 1990). However, in general, shippers adopt a hybrid approach in logistics and order management internally (Wilding, 2004). According to reports (van Damme, 1996), 3PL users have increased their flexibility in changing market (investment) and demand (quantity flexibility), but the lack of receptivity to consumer needs is also considered an outsourcing issue.

iv. FINDINGS FROM LOGISTICS OUTSOURCING

The review revealed that 3PL research is empirical descriptive and often lacks a theoretical basis. It identified specific knowledge gaps and made recommendations for future research. It advised that the focus should be on more theory-driven, standardized, and qualitative research and believes that the implementation of the necessity of 4PL services (Selviaridis & Spring, 2007).

2. D. CRITICAL ANALYSIS OF DIFFERENT MODE OF LOGISTICS

I. HIGHER ROAD TRANSPORT COST

The worst situation in BD was in 2013, in the face of political turmoil disrupting domestic and international supply chain management, trucking freight rates have increased five-fold over regular prices in the past three weeks in December 2013 (Ovi, 2013). In this newspaper article also stated that On the first Friday of December compared to the freight rate in the third week of November, the fare for trucks traveling from Dhaka to Chittagong was increased from 20,000 takas to 125,000 takas. Commonly, a lorry charges Tk12,000 to Tk 20,000 on the Dhaka-Chittagong route; the fare had gone through the roof because of blockades & hartals. The freight rate on the route had risen to Tk1,25,000 as per Bangladesh Truck and Covered Van Owners' Association.

II. DEVELOPED CONTAINER TERMINALS

The container terminal is a multimodal transport hub in the international supply chain, which plays a vital role in containerization, and it is an intermediary pool group that changes the

mode of transportation. CPA and IWTA located on Buriganga River with capacity 160,000 TEU jointly owned by Dhaka ICT or Pangaon Port and Summit Alliance Terminal with capacity 100,000 TEU located southwest of Dhaka city on the same river which is owned by Summit-Alliance Group.

III. IMPORTANCE OF LOGISTICS SECURITY IN GLOBAL SUPPLY CHAIN

Logistics security is becoming increasingly important in Bangladesh, and the disruption of the logistics chain can have a devastating impact on society and the economy and, therefore, critical to the development of the region. So, in this area, national and regional coordination of different public and private initiatives are essential.

2. E. RMG SECTOR OVERVIEW IN BANGLADESH

Bangladesh's economy was the other rapidly growing economy in 2016 (December) as per IMF, with a 7.11% GDP growth rate, compared with a 6.12% growth rate in 2015. GDP is 28.1%, with the RMG sector contributing the most. Since 2004, Bangladesh's average GDP growth rate has been 6.5%, thanks in large part to its garment exports.

| Period | USD (million) | YonY Growth (%) |
|--------|---------------|-----------------|
| 2007 | 9,350.33 | 4.67 |
| 2008 | 11,878.92 | 27.04 |
| 2009 | 11,890.49 | 0.10 |
| 2010 | 14,854.60 | 24.93 |
| 2011 | 19,214.47 | 29.35 |
| 2012 | 19,788.14 | 2.99 |
| 2013 | 23,500.98 | 18.76 |
| 2014 | 24,583.96 | 4.61 |
| 2015 | 26,602.70 | 8.21 |
| 2016 | 28,668.29 | 7.76 |

All in all, the RMG space is growing, and despite a slowdown in the past three years, the government and other stakeholders can take some steps to strengthen it. More investment in any sector will help to reach expected growth continued with healthy and positive reforms. In the upcoming days, more investment behind human capital in this area will be vital. To gain more value, companies must invest in human resources. If it were not for a complete RMG division, some of it would have to transform into a world-class leading performing division.

At the same time, appropriate infrastructure should be established nationwide, with particular emphasis on the livelihoods of RMG factories and their surrounding workers.

2. F. TRANSPORTATION LOGISTICS IN RMG

Many factors affect a successful operation in the RMG sector. Like standard productivity, quality resources supply, effective use of resources, maintaining lead time, etc. Transportation logistics is part of lead time management. Transportation used in delivering finished products, moving raw materials, carrying different accessories, etc. No doubt, without maintaining proper transportation, lead time cannot be managed. Considering end to end situation goods cannot be a move without transportation.

(“Insight Success Business Magazine,” n.d.) describes, without a perfect transportation system, logistics cannot fully utilize its advantages. A good logistics activity transportation system can improve service quality, reduce operating costs, and improve logistics efficiency. Improvement of the transport system requires the joint efforts of the public and private sectors.

2. G. LITERATURE REVIEW OF LEAD TIME

i. THE CONCEPT OF LEAD-TIME

The lead time is the span between the beginning and the end of the process. During the delivery, all necessary activities will perform to meet the needs of the consumer and ultimately bring the product into the hands of the consumer (Elsmar, 2013). For Bangladesh RMG, we learned from interviewees and experts that the delivery time did not mention in the order confirmation. Instead, it implies two dates, such as Order issuance/confirmation date and Ship date. The time interval between these two dates considered to lead time in Bangladesh's RMG business. Chopra (p.317, 2010) and Christopher (p.157, 1998) have incorporated shipping time into the delivery time formula, but Bangladesh RMG did not take this into account. European and American merchants, not Bangladeshi garment manufacturers, considered and addressed this factor.

ii. PURPOSE

The purpose is to analyze the status of lead time management of Bangladesh RMG exports in the current business process. Therefore, the specific goal of the study was to focus on reducing lead times related to business processes and supply chain management. However, the objectives are as follows:

- 1) To analyze the lead time order in the management process, and
- 2) To develop a new business process to minimize the lead time.

iii. REVIEW THE LITERATURE

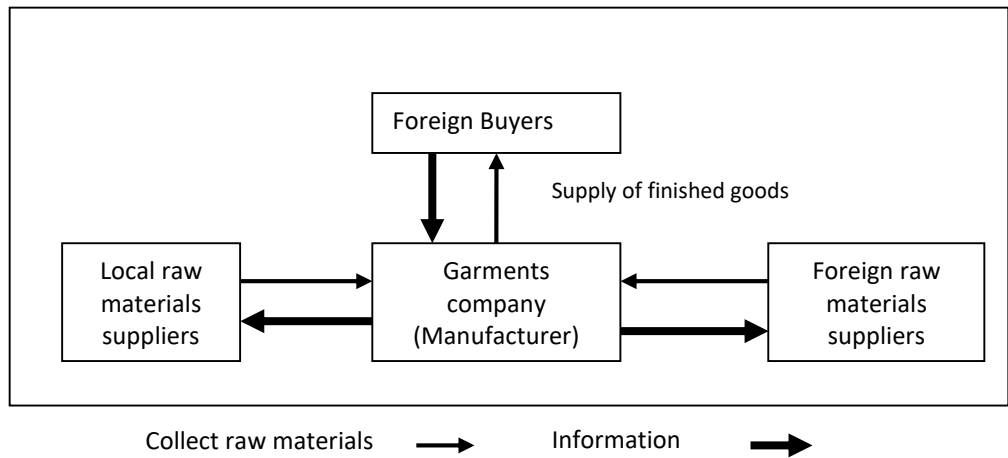
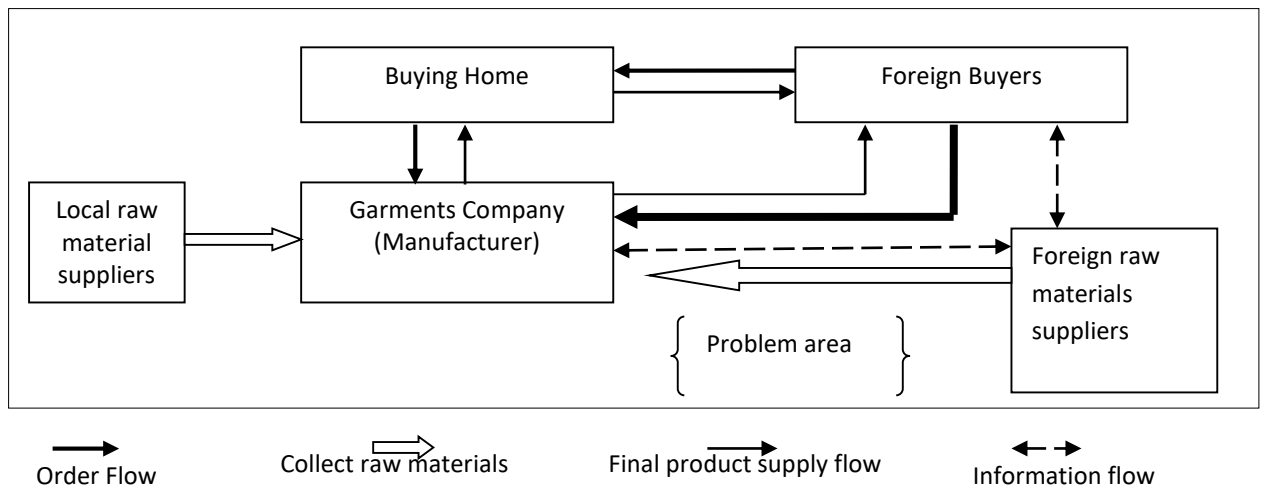
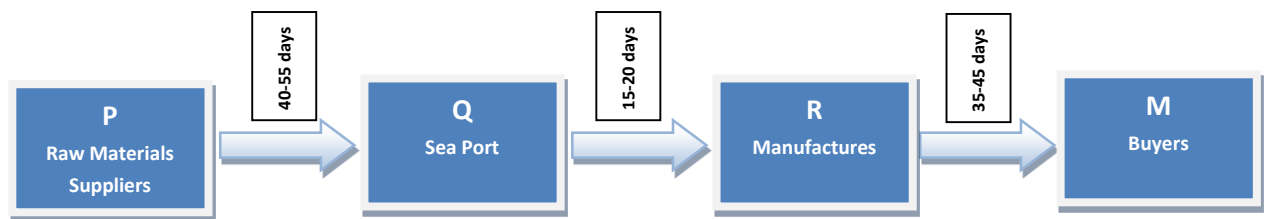


Fig 05: Business structure in Bangladesh RMG industries



FC 06: Business Structure & Raw material collection Process

iv. PROCEDURE OF ORDER



FC07: Basic Supply chain of Bangladeshi RMG Industries

v. FOR BANGLADESH GARMENTS (IN GENERAL):

Asgari& Hoque, 2013) mentioned the delivery time of Bangladeshi garments, the delivery time is the sum of imported fabric time, manufacturing time, fabric inspection / other processing, garment manufacturing (such as cutting, sewing, washing, finishing, and packing). Carry out a final inspection of the garment and send it to Chittagong Seaport (woven garments) during the buffer time.

Lead time= 25+28+7+20+5+5= 90 days

Lead time = manufacturing time of fabrics+ manufacturing time of garments (knit garments)

vi. CRITIQUE VIEW OF POINT

- ✓ The analysis found that fabric manufacturing time, shipping time, unloading time, and shipping time were all included in the order lead time.
- ✓ Insufficient transportation facility (Road condition, schedule unavailability, lack of vehicles maintenance, etc.) cause unusual deal between points of pickup and delivery
- ✓ Import dependency accounts for 50% or more of the trouble of prolonged delivery time, which is the primary factor causing long delivery time in the RMG industry.
- ✓ For long lead times, sample approval is one of the other factors.

vii. SUMMARY

- ✓ Customers are focusing on low price product having good quality within the minimum time in the competitive market. Therefore, lead time has become the main point of survival of this business.

- ✓ As fabrics are mainly imported from China, Indonesia, and India, lead times are getting longer. The main reason for the extended delivery time is the average total time for fabrics is 50-65 days imported from abroad.
- ✓ Delivery time can be short when the RMG department ensures the availability of fabrics by developing a backward link industry in the local market, especially in the oven industry, and by buyers establishing their consumer textile factories.

viii. FINDINGS

The review found that several essential topics have not been adequately reflecting in the transportation choice literature: environmental and energy use issues, supply chain security & integration, emerging information technologies, and international growth. This review also found that simulations, case studies, and interview methods are underrepresented, while normative modeling studies rarely represent in this study.

Nevertheless, transportation is more than an incurred cost, as transportation and distribution can be instrumental in achieving a competing advantage (Reimann, 1989). The performance of the transportation company may affect the effectiveness of the company's entire logistics function.

It follows that the process of selecting an appropriate transport carrier is vital to the firm's success, which are industry challenges, transportation capacity shortage, economies of scale & scope, international growth, security concerns, and environmental & energy issues.

2. I. STATE OF CONTINUING

Till now, it has been discussed all focus points in terms of literature like logistics, operation, RMG sector, etc. We found that maintaining lead time is a significant focus point for successful RMG operation. To maintain that lead time, we need to focus on transport with other factors. Transportation logistics act as a jack point in lead-time components. It also considers that in Bangladesh, we need to focus on road infrastructure development based on cost-effectiveness, multipurpose use, etc. Afterward, we will consider some real cases of transportation logistics companies and field surveys to ensure ways to make transportation logistics more effective in the garment industry.

≈CHAPTER-03 ≈

HISTORY OF LOGISTICS & CARREFOUR BANGLADESH

3. A. HISTORY OF LOGISTICS

Before the 1950s, the logistics industry was sluggish, and production is the central part of the managers involved, and during this period, industrial logistics was an "essential demon." During the 1950s and 1960s, it was a trend to apply new administrative concepts to business. Drucker (2001) believes that logistics is a dark continent of the economy. He believes that the logistics process after the production of products is the most likely area of development for American companies and the most neglected area. Lewis's study of the role of air transport in logistics (cited in Chang, 1998) in 1956 is an application of the "total cost concept," which states the concept of trade-offs between inventory and transportation. Since the 1970s, logistics applications and research have been increasing. Logistics is the basic element of business activities and maintaining competitiveness, but it is expensive and uneconomical to run and manage a large company. Therefore, the International Industry Alliance can save working costs, and the cooperation with TPL can focus on the field of logistics.

Impact of Transportation on Logistics Activities Transportation plays a link between several steps that transform resources into useful products in the name of the end consumer. It is a plan for all these functions and sub-functions in the mobile commodity system to minimize costs and provide customers with maximum services to form the concept of enterprise logistics (Fair et al., 1981). Once established, the system must effectively manage.

Generally, these steps related to independent companies in producing, store, transport, wholesale, and retail, but, production/manufacturing factories, warehousing services, and merchandising agents were all engaged in transportation. Production or manufacturing plants need to assemble materials, components, and consumables in the plant and factory inventory, whether or not they are stored, moved, and moved (Haniefuddin, Shamshuddin & Baba, 2013).

According to (Haniefuddin, Shamshuddin & Baba, 2013), the storage service between the factory and the sales outlets involves separate transportation. Commercial organizations

complete the delivery chain to consumers. Warehousing and storage can be considered based on production processes and product distribution services. With the closure of many single-user warehouses and the expansion of merged facilities and distribution centers, the number and location of facilities have changed significantly.

3. B.OVERVIEW OF CARREFOUR GS BANGLADESH LIAISON OFFICE

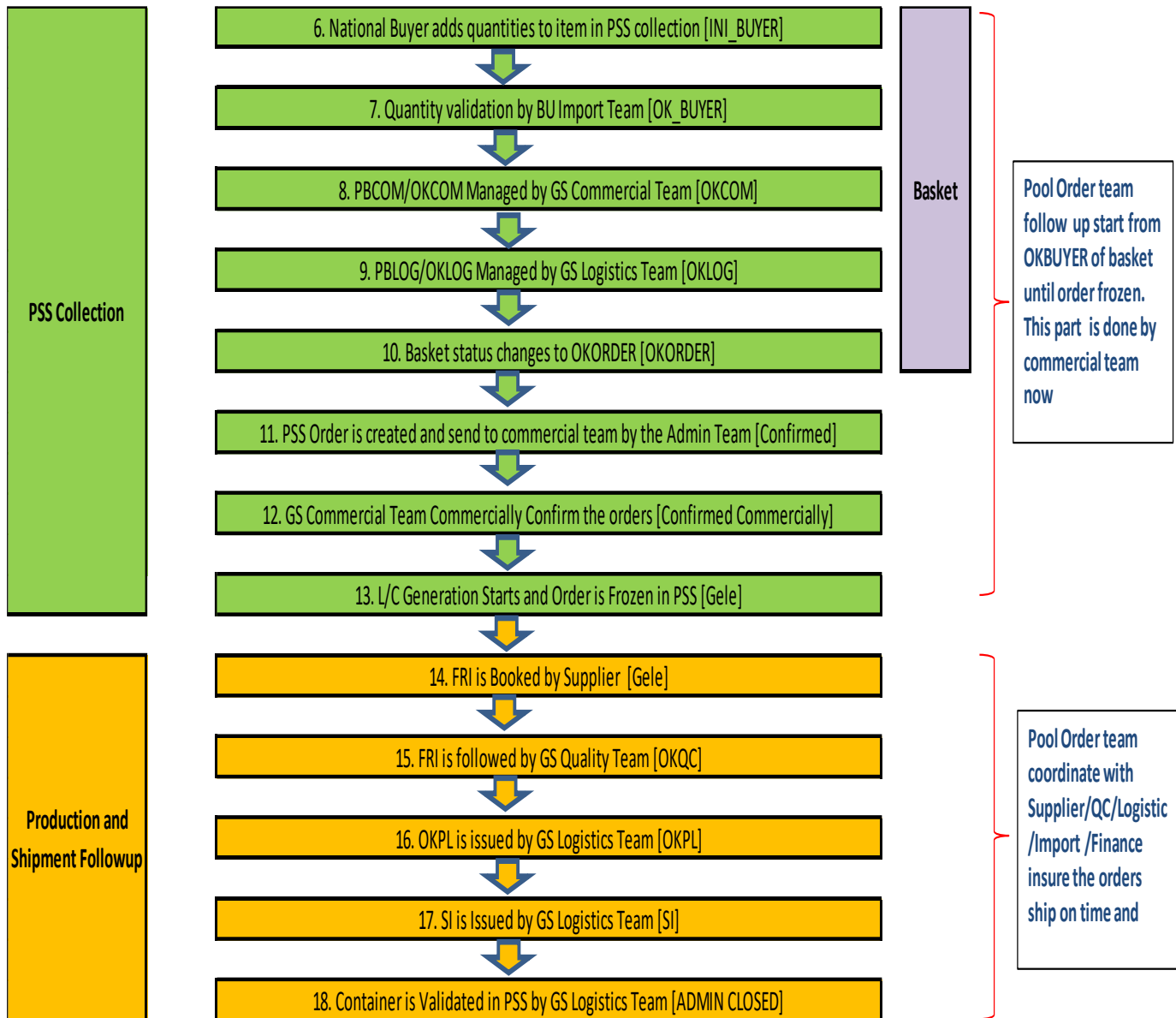
The Carrefour Group is Europe's leading retailer and the world's second-largest retailer, with more than 380,000 employees, and Carrefour is a partner for daily life as a multi-local, multi-format, and multi-channel retailer. Every day, it welcomes more than 13 million customers worldwide and offers them a wide range of products and services at reasonable prices. The company has more than 11,500 stores in more than 30 countries and had total revenue of 104.4 billion euros in 2015 ("Carrefour," n.d.).

I. SUPPLY CHAIN ACTIVITIES OF CARREFOUR



FC 08 : Business Structure & Raw material collection Process

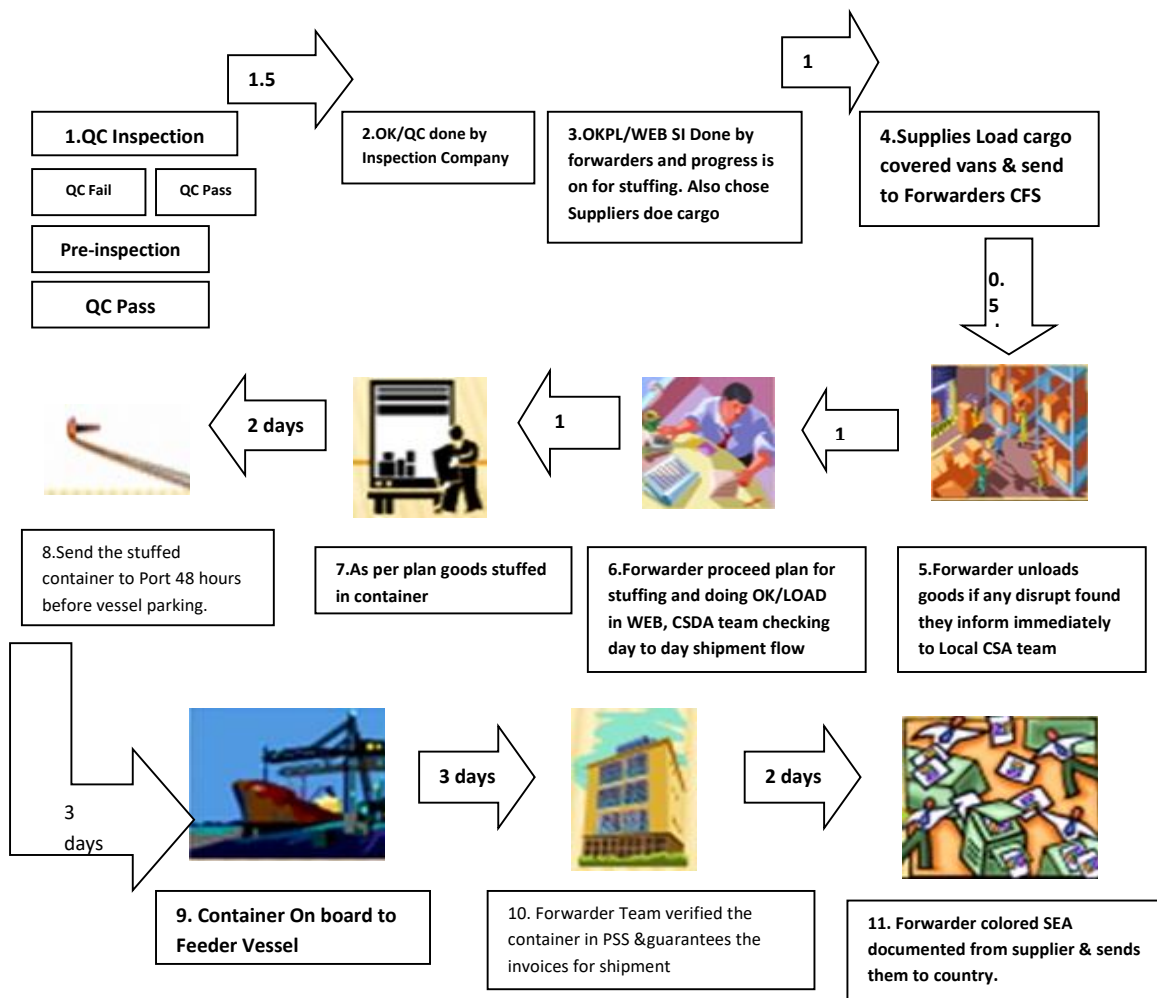
II. ORDER PROCEDURE AND SHIPMENT FOLLOW UP:



FC 09: Business Structure & Raw material collection Process

iii. CARGO MOVEMENT FLOW CHART

As any of the goods carried by cargos, so in a standard procedure is followed for movement. Based on this movement, notification sent to individual clients or part. That type of flow chart is given below,



FC 10 : Business Structure & Raw material collection Process

IV. CURRENT PRACTICE IN CARREFOUR

For production, they distribute their order among 37 suppliers according to their capacity and production planning. But most of the fabric of that order is imported fabric from China so that they can't maintain delivery time. Although in Bangladesh, there are the highest numbers of lead time almost 120 days.

For that imported fabric, the supplier wants 135 days to complete production and meet the FRI date. So, that some buyer cancel these orders and wants to transfer to Srilanka for production. So Lead time now a day is alarming for Bangladesh in the RMG sector.

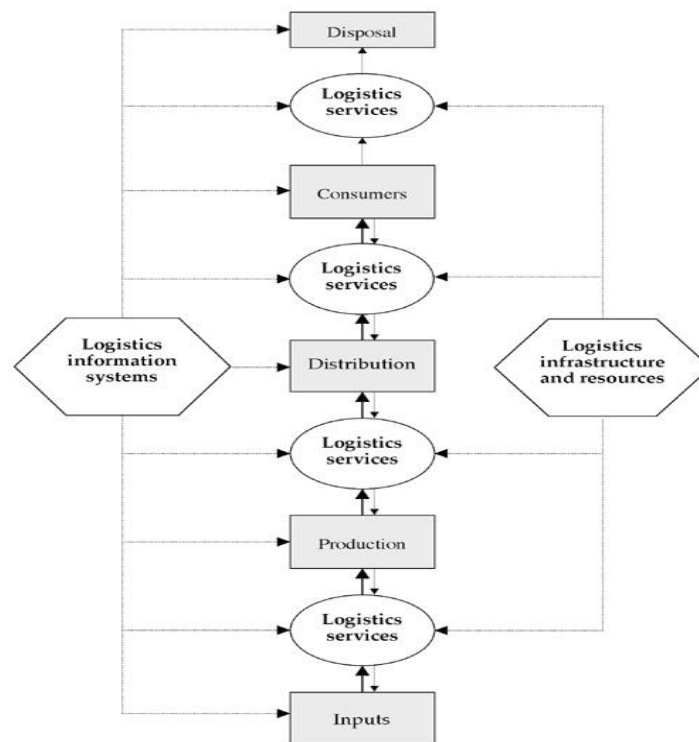
Carrefour is a multinational buying house, and they are using 3 PL for the smooth operation of logistics. MGH logistics LTD coordinates the procedure of shipment, and they always follow up on the documents of goods and suppliers. Whenever they face any difficulties, they let Carrefour know about that issue. The now main problem is that sometimes they miss ETD and ETA of specific Order. They set priority basis shipment so that on-time shipment sometimes missed.

They are using the software PSS which is linked with the Carrefour website and author. For some unavoidable circumstances, their given schedule of Vessel doesn't connect to Mother Vessel. Therefore the import team can't identify the vessel schedule and order, which supposed to be delivered at that time.

The main problem is that the time of shipment is the end of every week as Friday men that in a month there are only four days for shipment so that there is huge congestion in warehousing. However, goods sometimes lose their reliability. As well as MGH calls the goods and takes over from 37 Supplier and tool over to Dhaka ICD for shipment. So this is a massive problem to consolidate the goods for shipment.

V. CARREFOUR COMPONENTS OF LOGISTICS SYSTEM:

1. Demand Forecasting
2. Production planning.
3. Purchasing
4. Storage and materials handling
5. Packaging
6. Information processing
7. Facility Location
8. Customer Service



FC11: Business Structure & Raw material collection Process

3. C. STATE OF CONTINUATION:

Till now, we analyzed a real-time company operating as 3PL for many factories. We saw their framework for working in supply. Later on, in the next chapter, we will consider ten companies as a user of freight service for their opinion regarding effective transportation impact on RMG.

CHAPTER – 04

DATA ANALYSIS & RESULTS

4.1 Introduction

This chapter combines data analysis with findings from survey responses. Sort, review, and edit completed questionnaires before processing responses to ensure completeness and consistency. The data is then encoded so that responses can divide into various categories. Descriptive statistics for analyzing quantitative data. Data analysis has performed in SPSS 26, and the output explained in frequency and percentage.

4.2 General information of the surveyed companies

In this study, 10 participants of different designations from 10 companies gave their responses by interviews and with a structured questionnaire.

Table 01: Companies took part in this study

| SL | Name of Company | Position of Employee |
|----|----------------------------------|---------------------------------|
| 1 | Ha Meem Group | Assistant General Manager (AGM) |
| 2 | Beximco Ltd | Executive - Admin |
| 3 | Square fashion | Manager - Admin |
| 4 | Opex Sinha Group | Merchandiser |
| 5 | Fakir Group | Sr. Merchandiser |
| 6 | DBL Group | Sr. Manager - Admin |
| 7 | Epyllion Group | Executive - Logistics |
| 8 | Standard Group | Merchandiser |
| 9 | Asian Apparels Ltd. | Merchandiser |
| 10 | Givensee Group of Industries Ltd | Assistant General Manager (AGM) |

Source: Summarized by the author from responses

Table 1 shows the name of companies and the designation of the employees who are taking part in this study. These employees are related to their company's transportation logistics and answered different questions regarding logistics transportation of this study.

Table 02: General Information about the Company

| Information about the company's operation | Category | Frequency | Percent (%) |
|--|-------------------|-----------|-------------|
| How long has your organization been operating in Bangladesh? | 5 – 10 years | 1 | 10 |
| | 11 - 20 years | 5 | 50 |
| | Over 20 years | 4 | 40 |
| | Total | 10 | 100 |
| What is the current number of employees in the supply chain/logistics/procurement department? | 5-10 | 1 | 10 |
| | 10-15 | 1 | 10 |
| | Above 15 | 8 | 80 |
| | Total | 10 | 100 |
| How long has the procurement/supply chain/logistics department been in operation in your organization? | 5 years and above | 10 | 100 |
| Is your organization handle transportation by itself or by 3PL? | Self | 7 | 70 |
| | 3PL | 3 | 30 |
| | Total | 10 | 100 |

Source: Summarized by the author from responses

Table 02 shows some basic information of companies about their operation period, number of employees, operation period in logistics and transportation handling of their companies. From the table, we observed that 50% of surveyed companies are doing their operations for 11 to 20 years, whereas 40% are doing for more than 20 years in Bangladesh. Eight companies have more than 15 employees in their supply chain/logistics/procurement department. The procurement/supply chain/logistics department of all companies is in operation for more than five years. 70% of the companies are doing their transportation handling by own, whereas 30% are doing by 3PL.

4.2 Transportation logistics work in the RMG sector

In this section, respondents are given their opinion on logistic transportation of the RMG sector in road, water & railway transportation.

Table 03:Logistics transportation for RMG sector

| Items | Response Category | Frequency | Percent (%) |
|---|-------------------|-----------|--------------|
| Logistics transportation is a key fact for RMG development | Not Sure/Neutral | 3 | 30.0 |
| | Agree | 6 | 60.0 |
| | Strongly Agree | 1 | 10.0 |
| | Total | 10 | 100.0 |
| Logistics transport is limited to Road transport | Strongly Disagree | 2 | 20.0 |
| | Disagree | 6 | 60.0 |
| | Not Sure/Neutral | 2 | 20.0 |
| | Total | 10 | 100.0 |
| Water and Railways also develop for efficient use in logistics | Disagree | 1 | 10.0 |
| | Not Sure/Neutral | 7 | 70.0 |
| | Agree | 2 | 20.0 |
| | Total | 10 | 100.0 |
| Road transportation is easy to develop in logistics | Not Sure/Neutral | 4 | 40.0 |
| | Agree | 5 | 50.0 |
| | Strongly Agree | 1 | 10.0 |
| | Total | 10 | 100.0 |
| Railway transportation is easy to develop in logistics | Disagree | 4 | 40.0 |
| | Not Sure/Neutral | 6 | 60.0 |
| | Total | 10 | 100.0 |
| Waterways transportation is easy to develop in logistics | Disagree | 5 | 50.0 |
| | Not Sure/Neutral | 5 | 50.0 |
| | Total | 10 | 100.0 |
| Improving road transportation need to be more focused on comparing Rail and Waterways | Disagree | 1 | 10.0 |
| | Not Sure/Neutral | 7 | 70.0 |
| | Agree | 2 | 20.0 |
| | Total | 10 | 100.0 |

Source: Summarized by the author from responses

In a formal way, transportation Logistics is an important fact for RMG development. Table 03 depicts that 70% of the surveyed participants think that (60% agree + 10% strongly agree) the logistics transportation is a key fact for RMG development, whereas 30% of respondents are not sure about it. 80% of the surveyed participants doesn't think that logistics transport is limited to road transport. 20% of the surveyed participants agreed that water and railways also need to develop for efficient use of logistics, but most of the respondents (70% of the participants) are not sure about the development of water route and railway transportation. In the development of logistics transportation, 60% of the surveyed participants agreed (50%

agree + 10% strongly agree) that road transportation is easy to develop in comparison to railway transportation and water route transportation development as per respondent's opinion. 20% of the surveyed participants agreed that road transportation improvement needs to be more focused rather than water and railways, whereas 30% of respondents are not sure about it.

4.3 Problems/facts are faced for effective transportation logistics system

In this section, participants gave their opinion on some facts of effective logistics transportation system regarding maintenance, road width, load capacity, a political issue, and fuel price.

Table 04: Facts of the effective logistics transportation system

| Items | Response Category | Frequency | Percent (%) |
|--|-------------------|-----------|-------------|
| Proper maintenance is not happening in national highways by which industries around Bangladesh are connected | Disagree | 2 | 20 |
| | Not Sure/Neutral | 3 | 30 |
| | Agree | 4 | 40 |
| | Strongly Agree | 1 | 10 |
| | Total | 10 | 100 |
| Road width is not enough for carrying the present type of transports | Disagree | 3 | 30 |
| | Not Sure/Neutral | 6 | 60 |
| | Agree | 1 | 10 |
| | Total | 10 | 100 |
| Load-bearing capacity is not maintaining properly in highways | Disagree | 2 | 20 |
| | Not Sure/Neutral | 4 | 40 |
| | Agree | 4 | 40 |
| | Total | 10 | 100 |
| Political violence is affecting the smooth transportation system | Not Sure/Neutral | 6 | 60 |
| | Agree | 4 | 40 |
| | Total | 10 | 100 |
| The high price of fuel is affecting the cost of transportation | Disagree | 3 | 30 |
| | Not Sure/Neutral | 6 | 60 |
| | Agree | 1 | 10 |
| | Total | 10 | 100 |
| Transportation is a non-core function for any industry like RMG | Not Sure/Neutral | 4 | 40 |
| | Agree | 5 | 50 |
| | Strongly Agree | 1 | 10 |
| | Total | 10 | 100 |

Source: Summarized by the author from responses

From table 04, we observed that 50% of the surveyed participants (40% agree + 10% strongly agree) think that roads are not properly maintained in national highways near industries that are connected. Most of the respondents have no idea about road width for carrying logistics transportation, but 30% of the respondents think that the current road width is enough for carrying logistics. Present highways load-bearing capacity is not enough to carry heavy transport properly and 40% of respondents agreed that it's not properly maintained. Presently only 40% of people believe that political violence is affecting the smooth transportation system. 60% of the respondents have no idea about high fuel price affecting or not to the transportation cost, but 10% agreed that because the cost of fuel rising, transportation cost is also rising. As 60% respondents (50% agree + 10% strongly agree) think that transportation is a non-core function of RMG.

4.4 Solutions (with options) for the obstacles of the effective transportation logistics system

From table 02, we already observed that currently, 70% of the companies are doing their transportation handling by own, whereas 30% are doing by 3PL.

Table 05: Responses regarding 3PL for logistics transportation

| Items | Response Category | Frequency | Percent (%) |
|---|-------------------|-----------|-------------|
| 3PL can be used for maintaining the proper supply chain in factories | Disagree | 1 | 10 |
| | Not Sure/Neutral | 5 | 50 |
| | Agree | 4 | 40 |
| | Total | 10 | 100 |
| Developing 3PL and train them as per organizational policy is important | Disagree | 1 | 10 |
| | Not Sure/Neutral | 6 | 60 |
| | Agree | 3 | 30 |
| | Total | 10 | 100 |
| Condition of 3PL vehicles should be properly monitored | Not Sure/Neutral | 5 | 50 |
| | Agree | 4 | 40 |
| | Strongly Agree | 1 | 10 |
| | Total | 10 | 100 |
| Political stability, enter org's mutual agreements will be favorable for smooth transportation in logistics RMG | Not Sure/Neutral | 7 | 70 |
| | Agree | 3 | 30 |
| | Total | 10 | 100 |
| Govt. should regularly monitor the situation of infrastructure for smooth growth. | Not Sure/Neutral | 5 | 50 |
| | Agree | 3 | 30 |
| | Strongly Agree | 2 | 20 |
| | Total | 10 | 100 |

Source: Summarized by the author from responses

Table 05 depicts that 40% of the respondents gave their consent regarding 3PL that it can use for maintaining proper supply chain in factories, and 50% of respondents agreed that Gov. should monitor infrastructure development for RMG growth and Transportation Logistics industry. Developing 3PL and train them as per organizational policy is not essential because 60% of the respondents are not sure about it. 50% of respondents think that the condition of 3PL vehicles needs well monitored. Political stability may not be favorable for smooth transportation in logistics RMG.

4.5 Summary

Transportation plays a vital role in Bangladesh's RMG sector. All companies' procurement/supply chain/logistics departments have been in operation for more than five years. 70% of companies handle transportation themselves, while 30% of companies are 3PL. 70% of respondents believe that logistics is a vital component in the development of RMG. Transportation logistics are limited to road transport. Most respondents did not know the width of roads for transportation and logistics, but 30% of the respondents believed that the current road width was sufficient for logistics transportation.

≈ CHAPTER – 05≈

CONCLUSION & RECOMMENDATIONS

A. CONCLUSION

The Readymade Garment Industry is a vast and primary business segment in Bangladesh's general economy. One such driver is the arrangement of transport and coordination administrations and the degree to which these administrations guarantee that products are delivered from an industrial facility, stockroom, or port in the nation of the source to goal showcases all through the world in a convenient and savvy way. The significance of transport and coordination administrations has expanded drastically because of the inexorably perplexing requests of the worldwide economy. This expanding unpredictability originates from coordinated worldwide assembling and creation organizes, an expanding requirement for in the nick of time coordinations, developing the use of multi-purpose transport including at least one method of transportation (street, air, sea, or rail) and new security contemplations. As these requests become increasingly perplexing, so do the procedures required to finish exchange exchanges that include numerous means, a heap of players, and a scope of legal and administrative systems. With costs included at each progression of the procedure, the quality, cost, and productivity of transport and coordinations benefit significantly influences the estimation of a decent at its last goal and, in this way, the producer's capacity to be universally severe.

B. RECOMMENDATION

From my research, I would like to give some recommendation in order to minimize the obstacles of transportation in Logistics in our RMG sector in Bangladesh

Government role: To maintain industry competitiveness, the government must take the lead in assisting the logistics industry. For example, the idea of an urban logistics freight village provides an environment for improving logistics efficiency and reducing operating costs. However, this involves significant investments and involves laws and national policies. Without government leadership and support, the plan is difficult to achieve.

Growth of international goods transport: The development of global cargo was brought about by a few elements. First, the vigorous development of e-commerce has promoted the

development of international business activities. Second, changing production strategies requires international cooperation, such as importing semi-finished products from countries with cheaper human resources to countries with higher technological content to assemble the final product.

Improvement of services:With fierce competition in the global market, providing quality customer service has become a necessary condition for business operations. Service quality is the fundamental factor influencing purchaser conduct among enterprises. Service frameworks currently include a few created advances, for example, effective consumer reaction (ECR) and quick reaction (QR). Sooner rather than later, progressively innovations will be applied to offer better types of assistance to clients.

Shorter product life cycle:With current patterns, product design is changing as time passes, so item life cycles are getting shorter and shorter, particularly in the software engineering field. To adapt with these impacts, logistics frameworks must improve their productivity and unwavering quality of cargo delivery. Something else, unseemly coordinations frameworks will prevent the seriousness of new items and business benefits.

Improvement of logistics facilities:The improvement and progress of coordinations depend on an assortment of innovations and complete speculations. Innovative offices and frameworks, e.g., ITS, could carry more prospects and preferences to coordinations.

Logistics Center:The advancement of coordinations focuses is useful for industry advancement and the improvement of the national financial framework.

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APPENDIX

QUESTIONNAIRE

This questionnaire has been designed for academic use only. It aims to establish impact of transportation in Logistics in RMG sector in Bangladesh .Please note that the data that you provide will be handled with utmost confidentiality and privacy. Thank you for your consideration.

Name:

Designation/Relation:

Note: Please put tick mark on the cell between number 1 to 4 on the right side

Section A: General Information

Answer the following questions by ticking alongside your choice.

1. What is your position in this organization?

a) Supply Chain Manager/Logistics Manager/Procurement Manager

b) Others (please specify) _____

2. How long has your organization been in operation in Bangladesh?

I) Below 5 years

II) 5 – 10 years

III) 11 - 20 years

IV) Over 20 years

3. What is the current number of employees in supply chain/logistics/procurement department?

I) 2-5

II) 5-10

III) 10-15

IV) Above 15

4. How long has the procurement/supply chain/logistics department been in operation in your organization?

I) 0-1

II) 1-2

III) 2-5

IV) 5-above

5. Is your organization handle transportation by itself or by 3PL?

I) Yes

II) No

III) Partial

6. Name of Organization.....

Section B

On a Scale of 1-5 where 5= Strongly Agree, 4 = Agree, 3 = Not Sure, 2 = Disagree and 1 = strongly Disagree, please indicate your level of agreement with the following statements relating to the impact of Logistics performance in RMG sector

| Sl no. | Statement | Strongly Agree | Agree | Not Sure | Disagree | Strongly Disagree |
|--------|--|----------------|-------|----------|----------|-------------------|
| 1 | Transportation Logistics is a key fact for RMG development | | | | | |
| 2 | Transportation Logistics are limited to Road transport | | | | | |
| 3 | Water and Rail ways also develop for efficient use in logistics | | | | | |
| 4 | Road transportation is easy to develop in logistics | | | | | |
| 5 | Railway transportation is easy to develop in logistics | | | | | |
| 6 | Water ways transportation is easy to develop in logistics | | | | | |
| 7 | Improving road transportation need to be more focused comparing Rail and Water ways | | | | | |
| 8 | Proper maintenance is not happening in national highways by which industries around the Bangladesh are connected | | | | | |
| 9 | Road width is not enough for carrying present type of transports | | | | | |
| 10 | Load bearing capacity is not maintaining properly in highways | | | | | |

| | | | | | | |
|----|---|--|--|--|--|--|
| 11 | Political violence is affecting smooth transportation system | | | | | |
| 12 | High price of fuel is affecting cost of transportation | | | | | |
| 13 | Transportation is a non-core function for any industry like RMG | | | | | |
| 14 | 3PL can be used for maintaining proper supply chain in factories | | | | | |
| 15 | Developing 3PL and train them as per organizational policy is important | | | | | |
| 16 | Condition of 3PL vehicles should be properly monitor | | | | | |
| 17 | Political stability, enter org's mutual agreements will be favorable for smooth transportation in logistics RMG | | | | | |
| 18 | Govt. should regularly monitor situation of infrastructure for smooth growth. | | | | | |