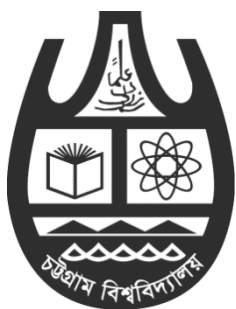


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**Internship Report on**

**“Logistics & Supply Chain Management  
Practices, Prospects & Challenges of  
Bangladesh Steel Manufacturing Industry  
– A Case Study on BSRM”**



**Submitted to:**

**MR. MOHAMMED SHAHEDUL QUADER**

Associate Professor

Department of Marketing

University of Chittagong

**Submitted by:**

**MR. MOHAMMED SANJIDUL ANWAR**

**ID No.: 11304039**

MBA Examination 2015

Session: 2014-2015

Department of Marketing

University of Chittagong

**Date: May 06, 2018**

## Letter of Transmittal

May 06, 2018.

**Mr. Mohammed Shahedul Quader**

Associate Professor

Department of Marketing

University of Chittagong

Subject: **Submission of Internship Report.**

Dear Sir,

With due respect, it is to inform you that I have completed my internship program for a period of **02 months (November 19, 2017 to January 17, 2018)**. The paper titled **“Logistics & Supply Chain Management Practices, Prospects & Challenges of Bangladesh Steel Manufacturing Industry – A Study on BSRM”** has been prepared as per the requirement for the partial fulfillment of my MBA Program at Department of Marketing, University of Chittagong.

In scripting this paper, I have tried my best to apply the concepts learnt in my academic courses along with the vigorous brain storming, discussion, and summarization while working for this project in the corporate environment of BSRM. I hope this paper will entice your kind appreciation.

Sincerely,

**Mr. Mohammed Sanjidul Anwar**

**ID No: 11304039**

MBA Examination 2015

Session: 2014 – 2015

Department of Marketing

University of Chittagong



**Ref :** BSRMS/CTG/111/2018

**Date :** January 24, 2018

### **To Whom It May Concern**

This is to certify that **Mr. Mohammed Sanjidul Anwar**, student of MBA, University of Chittagong bearing ID No: 11304039 has successfully completed his Internship Program with effect from 19.11.2017 to 17.01.2018 in the Supply Chain Department of our organization.

We wish his bright and prosperous life.

*Fahmina Asad*  
(Fahmina Asad)  
Lead Talent Acquisition



### **BSRM Steels Limited**

**Corporate Office :** Ali Mansion, 1207/1099, Sadarghat Road, Chittagong, Bangladesh.  
Phone: +88-031-2854901-10, 635382, 613282, 637758; Fax: +88-031-610101; E-mail: mail@bsrm.com; Website: www.bsrm.com  
**Factory :** Plot No. 4(P), Fouzderhat Industrial Estate, Chittagong, Bangladesh.  
Phone: +88-031-2770192, 2770193; Fax: +88-031-751452; E-mail : bsrmsteels@bsrm.com

## Acknowledgement

*In the Name of Allah, the Most Gracious and the Most Merciful.*

When I started my **MBA Program** at the Department of Marketing in University of Chittagong, I realized that it's a big responsibility to bridge between my academics and the corporate world. As a part of this journey, I got a chance to do my internship at **Supply Chain Management Department of BSRM Group of Companies**. The journey, however, was not accomplished on my own. I wish to express my sincere gratitude and appreciation to all the people who helped me throughout my journey to achieve this goal.

My deepest appreciation goes to my supervisor **Mr. Mohammed Shahedul Quader**, Associate Professor, Department of Marketing. Thanks for opening my view to the corporate world. I would like to convey my gratitude to **Mr. Md. Nayeemul Islam Bhuiyan**, Supply Chain Analyst, Supply Chain Management, BSRM Group of Companies for his continuous guidance on the internship and to cope with the corporate environment.

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## **Preface**

### ***BUILDING A SAFER NATION***

A name that grows incessantly in the map of the world - Bangladesh. Today, our economy is growing at a consistent, intense rate of more than 6 percent. This makes us one of the fastest growing economies in the world. In fact, we are slated to become one of the largest economies in the 21st century.

For an instance, we have a population of 26.4 million female agricultural workers. That's 3 times greater than the total population of Switzerland. On the other hand, Bangladeshis now have a life expectancy of 3.4 years longer than the people of India, despite the Indians being, on average, twice as rich. The most remarkable growth is achieved by our RMG sector. From a ragged nation, we have grown into a country that clothes the world's population. We are the second largest apparel exporter in the world. Moreover, our workers build economies across the world today.

Since the country is moving to the point of a higher development phase, the basic needs of the people have to be met first. One of them is the need of Safety. For Bangladeshis to have a better life, it is vital for them to have a safer Bangladesh. This is why BSRM exists. This is the purpose of BSRM - to build a safer nation, to build a better nation. Because BSRM believes that only when people are safe, they can live a better life.

True development cannot sustain without being people and environment friendly. Bangladesh caters to numerous sustainable initiatives in different sectors of development widely appreciated and acknowledged by everyone. BSRM, being the leading steel producer of Bangladesh, believes in sustainable development which will be resilient in its outcome. Taking all these initiatives into consideration, the future of Bangladesh looks brighter and safer than ever before.

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## Executive Summary

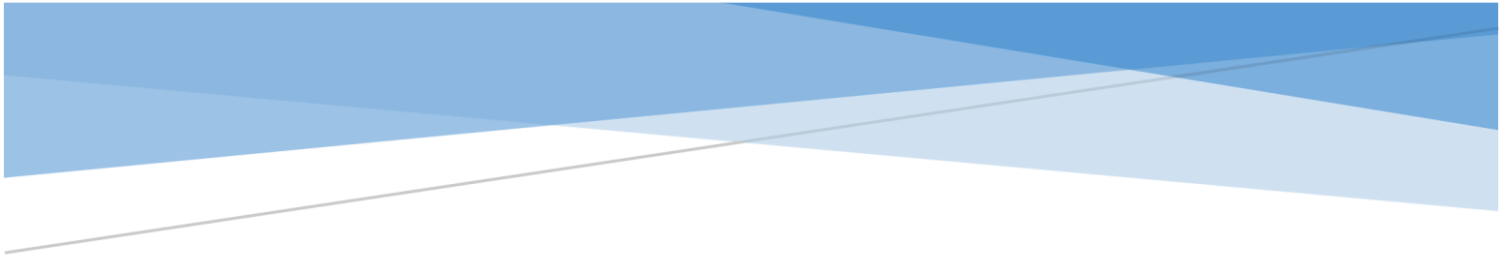
With a vision of being in the row of developed nations, Bangladesh is progressing with enormous and sustainable economic growth. As one of the emerging nations of Asia, the need for steel products have increased due to huge infrastructure development. Eventually, the country has adopted few of the very good steelmaking technologies.

Bangladesh Steel Re-Rolling Mills (BSRM) with 65 years of experience in steelmaking is leading the industry beside few other major players like AKS, RSRM, KSRM, GPH Ispat etc. The company has contributed in major infrastructures of the country like Bridges, Flyovers etc. Following core vision and values, BSRM has grown drastically and continued its progression for increasing its capacity due to the increasing consumption. The company follows high eminence of organizational culture, is active in CSR and sustainable growth.

Empirical study shows that Supply Chain Management can increase the efficiency and responsiveness of an organization. With a core concern of smooth operation and management, BSRM supply chain dynamically works to ensure on time delivery of needed items effectively and efficiently. The local and foreign raw material purchase is crucial which is handled by the top management. Consumables, machineries & spares etc. need quality assurance and cost consideration. The import section is responsible for proper documentation and formalities with regulatory bodies to import the goods from overseas. The export section trades the finished steel products and by products outside the country. Unbroken operations are run by the inbound logistics team to deliver the product from port to the plants, while outbound logistics is responsible to deliver the product to the customers.

Within the frame of work, purchase of raw materials is challenged by price fluctuation, while it is important to ensure on time delivery, quality, and optimum cost in case of other items. Import section is challenged by the documentation, duty and HS code related problem. On the other hand, logistics has to bear the headache of high demurrage and loss. Despite the adverse situation due to macro infrastructural and bureaucratic issue, BSRM SCM is highly potential to reach a height that becomes a benchmark in the whole industry.

**Keywords:** Bangladesh Steel Manufacturing Industry; Logistics; Supply Chain Management (SCM); Bangladesh Steel Re-Rolling Mill; BSRM.



# **Chapter 01**

## Introduction and Background of the Study

## **CHAPTER 01**

### **INTRODUCTION AND BACKGROUND OF THE STUDY**

---

#### **1.1 Introduction**

From the real world situation point of view, in the development of global economy, steel consumption has been growing remarkably in the recent past. In the era of 21<sup>st</sup> century, a significant change has been occurred in the industrial environment. Steel industry of Bangladesh is also driven by many changes from the view point of technological development, economic development and complex industrial mechanism. Steel industry is the primary industry which plays a critical role in the sustainable development of economy of Bangladesh. In the recent past, steel industry faced various types of constraints due to a number of critical issues which were not addressed properly such as integrated logistics system, supply chain management and value system. Steel industry's supply chain and logistics system is obviously a complex mechanism and appears to be part of other industries' supply chain and logistics system such as infrastructure, electronics, electrical or automobiles industries. The changes in competitive market structure and market complexity are forcing traditional trading companies to change their positions in the goods delivery and supply chain by continuously improving total integrated logistics support service to fulfill the expectations of B2C and B2B buyers in a satisfied manner. If we analyze steel industry characteristics, it can be found that at the present situation, the key challenge is not merely to improve the techniques of production, but the industry is also facing uncertainty in its supply mechanism, which might create problem in managing complex and competitive market mechanism. Real world supply chain mechanism has developed overtime as a result of vague integrations between multiple business units. The absence of a synergetic operating strategy results in the poor dynamic behavior displaced by the majority of the supply chains. Moreover, supply chains are complex mechanism because synergy of "man" and "machine" is need to be ensured in a systematic manner and which is usually challenging for every steel manufacturing company. To remain competitive in the ever changing dynamic market environment, it is crucial for every steel manufacturing company to have a competitive business plan framework by incorporating all the critical components of logistics that aim to drive the total supply chain system to fulfill the expectations of shareholders and other important stakeholders.

Steel industry is one of the heavy manufacturing sectors of Bangladesh; and Bangladesh Steel Re-Rolling Mills (BSRM) is the leader in this industry. To manage the proper flow of products, finance, and information in this industry, a streamlined supply chain management is mandatory. Supply chain management extents all attempts and procurements of raw materials like scraps, sponge iron, and consumables, work-in process inventory, and completed products from source of origin to source of consumption to and from the steel industry. Supply chain management systems help in reducing inventories, operational costs, compress order cycle time, enhance asset productivity as well as increase the companies' responsiveness to the market.

After entering into the 21st Century, Bangladeshi steel industry begun to rise with a great extent and faced increasingly serious challenges with offering high-quality, low-cost products with the aim of continuous production flow; and to meet health, social, and environmental compliances in the face of increasingly rigid completion. Because of enormous economic growth and infrastructure development of Bangladesh, steel industry growth is to be sustained by improving supply chain management.

## **1.2 Background of the Study**

Steel industry is considered as one of the economic pillars because it has made remarkable contribution to the socio-economy of Bangladesh. Along with the growth of global economy, steel consumption and manufacturing has been growing significantly in the last few decades. From the rapid growth of demand for steel force, the steel companies to focus strategically on systematic chain mechanism in order to fulfill the requirement of various stakeholders in general and B2B & B2C market in particular. Considering the specific characteristics of steel industry, the key challenge today is not merely to improve the techniques of production but the industry is also facing uncertainty in the area of supply chain, which might lead to create problem for performing well in the competitive market. It is also true that supply chain mechanism is a critical issue in strategic business management point of view. Supply chains are complex combination of critical interdependent components and usually difficult to design. Considering the real-world situation, supply chains have formed overtime as the result of vague association between industrial business units. The lack of a compatible operating strategy results in a poor dynamic behavior displayed by the most of the supply chains of steel manufacturing

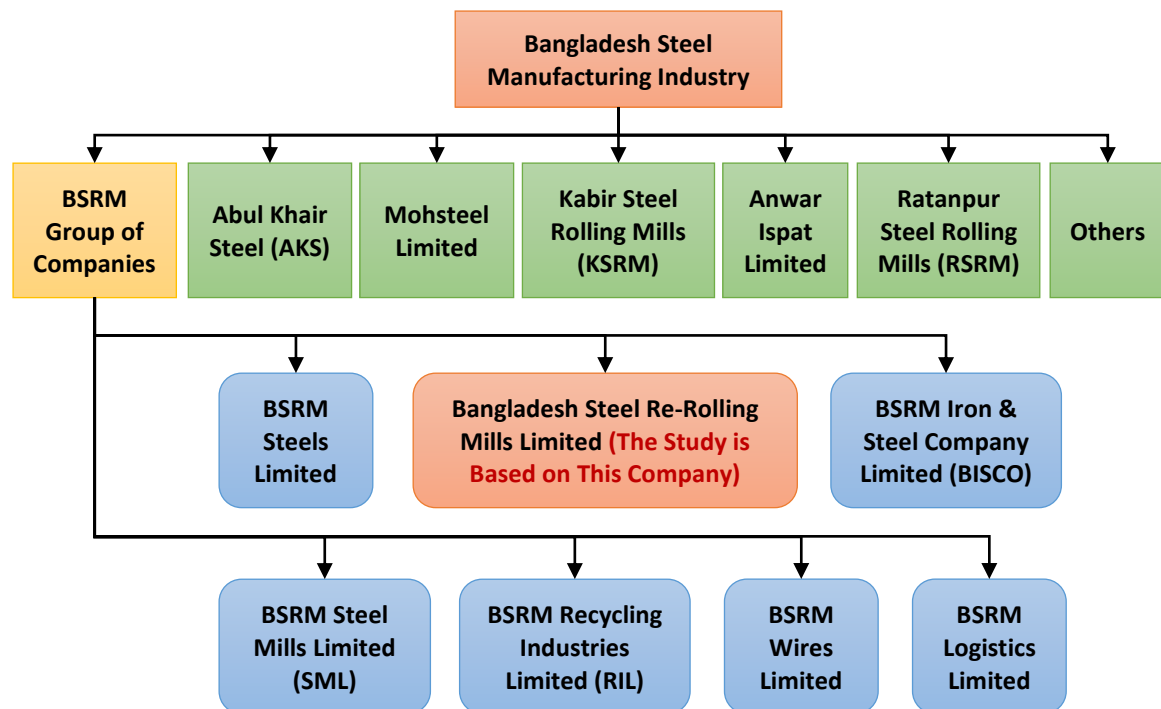
companies. On the basis of above background, an attempt has been taken to evaluate the logistics and supply chain activities of Bangladesh Steel Re-Rolling Mills Limited that has a long experience on competitive market structure and mechanism within Bangladesh.

### **1.3 Research Problem**

Due to higher market complexity and changes in competitive market structures, steel companies are struggling to gain competitive advantage. Such kind of situations are forcing traditional trading companies to change their strategic positions in the delivery of goods and services by continuously extending the integrated logistic system and supply chain management to fulfill the requirement and expectation of target customers and other stakeholders. However, the existing literature tends to be somewhat vague in defining the total supply chain management system and interaction. Considering the situation of steel industry, it is evident that there is a gap between existing theory and practices. This gap needs to be addressed properly and positive steps are required to be taken by the company manager in order to mitigate such kind of gap for gaining competitive advantage in the market of steel manufacturing company.

### **1.4 Scope of the Study**

Steel industry is always an important part of national economy of every developed and less developed countries. This is one of the important industries that enhance the growth and development of industrialization. Nowadays, steel manufacturing companies are continuously trying to focus on realistic integrated logistics system together with value chain of supply chain management. There are number of steel manufacturing companies in Bangladesh that have already captured significant amount of market share. Among these companies, BSRM is the market leader from the view point of reputation, market share, product portfolio, and value delivery activities. This internship report will consider Bangladesh Steel Re-Rolling Mills Limited only to examine its logistics and supply chain management practices at present competitive situation. To have a bird eye's view, the scope of the study is shown in the following figure:



### **1.5 Objective of the Study**

The steel industry is an important basic industry to the economic growth and development of developing countries like Bangladesh. Steel is considered as basic raw materials for many manufacturing firms. That's why the supply chain management has a strategic importance. The fundamental objective of this internship report is to critically examine the interdependent components, effects, process and strategic role of logistics and supply chain integration on steel manufacturing industry and systematically evaluate present practices, future prospects and challenges of BSRM company.

### **1.6 Justification of the Study**

Nowadays, economic development is driven by sustainable industrial growth and progress. Industrial growth and progress is considered to be the backbone of a human civilization. Steel industry is playing a very vital role in the infrastructural development of Bangladesh. The domestic steel industries are facing new challenges from marketing and supply chain management point of view. There are certain types of structural problem also associated with steel industry due to high cost of logistics, physical distribution, quality assurance and just in time delivery. To gain economies of scale and competitive advantage, steel manufacturing companies are struggling continuously and they are trying to focus on systematic logistics and supply chain mechanism to cope with the changes in competitive market structure. It is very important for managers of steel company to have solid understanding on all the interdependent critical issues and components of logistics and supply chain management. Therefore, it is justified to analyze supply chain network and integrated logistics system of steel manufacturing company.

### **1.7 Research Methodology**

This study adopts interpretivist philosophy with an inductive research approach. This internship report has considered a single case study method for the following reasons. First, the purpose of this report is to provide contemporary exploratory empirical insight to the area of supply chain management. For that purpose, the case study method is preferred (Yin 1994). Mintzberg and Waters (1982) suggested that tracking strategies require a longitudinal approach; the researcher has to live with an organization over time (through direct observation or periodic interviews) or has to reconstruct its behavior after the facts. Secondly, the company selected is a critical case itself.

The case study of BSRM has been considered to apply the theories and understand the gap between theory and practice. The data have been collected from primary and secondary sources, basically in the form of personal interview, observation company's annual report, documents, text books, research articles and so on.

Personal Interview: From a small number of in depth interviews, qualitative primary research was undertaken to discover fundamental issues. Although it will not prove an exact measurement of these factors, it will ensure that a full comprehension exists of what really matters. The interviews were conducted by taking notes in real time, which allowed for a more in depth type of conversational exchange. Given the exploratory nature of the research, respondents were encouraged to talk freely on views within their own frames of reference. Questions varied for each respondent based on the nature of their work but were centered on ways in which supply chain management and logistics functions are identified and preserved. Several interviews were carried out and the lengths varied from 1.5-2 hours. A diverse range of respondents were selected to get a well-rounded sample of all stakeholder views.

Secondary Data: Reverent secondary information are generated from various sources to develop theoretical base and logical interpretation. This internship report is purely qualitative based on a combination of theories expressed by both academics and practitioners as revealed in the literature of logistics and supply chain management. The literature is taken from the secondary sources including journals, books, and company annual reports. The journals have been sourced from websites such as BSRM (2018); Bangladesh Brand Forum (2015); ReflectionNews (2011). For this internship report, a whole study on BSRM has also been considered. Gummession (1991), similarly argued that the case study method is a good tool for better understanding the dynamics of a company. It helps develop an understanding about the issues, practices, and future trends of a firm. Thus, this approach has helped the intern examine whether BSRM, as a corporation, used the existing stock of academic theories in its steel manufacturing business and how well it implemented the theories in the real-world situation.

### **1.8 Limitation of the Study**

While existing academic work provides a good source of readily available information, they are geared towards a specific purpose, which may differ from this investigation and thus offer an incomplete picture of this study. The nature of the subject under investigation is such that confirmatory or causal conclusions are difficult to be drawn. The theoretical orientation based on an internship report is neither mutually exclusive nor universally generalizable. It has to be acknowledged that there are some limitations to bear in mind while interpreting the findings of this purely qualitative type of internship report. Qualitative data of the report have been collected by the intern during his 2 months of stay in the BSRM company for the internship program. Due to time and resource constraints, and since the internship program is only assigned to a particular company, more than one firm has not been incorporated for study in the same domain/industry. Like many other qualitative research, case study on BSRM also has limitations. Despite its critical nature, it is limited to one single case study of steel industry. Further research to broaden sample size is desired. In addition, BSRM company operates in a single industry. Different industries have different business environment. Different companies have different logistic and supply chain system based on their business objectives which drive their overall business operation. Therefore, further research needs to be carried out to cover a wider range of companies in the same industry with different supply chain management system. Finally, this internship report used mostly qualitative data for exploratory research purpose. Quantitative research with the help of hypothesis testing can be conducted in future to validate the finding further from real world situation.



# **Chapter 02**

## Literature Review

## **CHAPTER 02**

### **LITERATURE REVIEW**

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#### **Part A**

##### **A.2.1 Nature and Concept of Logistics Management**

Logistics is a recent addition in the jargon of integrated business management, formerly with the traditional fields of marketing, finance, production and personnel, although it has been an integral part of these sectors since the Industrial Revolution. Business logistics, physical distribution, materials management, out-bound logistics, in-bound logistics, logistics management, supply chain management are only some of the terms being used to define and describe the concept of approximately the same subject—logistics, perhaps due to a rapid change in the scope and wide use of the subject matter. The term ‘Logistics’ stems from the Greek word ‘Logisticos’, meaning ‘the science of computing and calculating.’ Since ancient times, logistics has been performed but earlier, it was used first within the facet of military science. In the military sense, Webster defines Logistics as ‘the procurement, maintenance and transportation of military materials, facilities and personnel’ (Webster’s Dictionary, 1963).

In 1905, Major Chauncey B. Baker wrote, ‘That branch of the Art of War pertaining to the movement and supply of armies is called Logistics.’ Logistics systems and various models were used by military forces during World War II to ensure that troops and materials were made available at the right place to meet the country’s requirements. For instance, in a book of Gulf War, it is noted on the first phase that US forces planned, moved, and served 122 million meals during the brief engagement—a task comparable to feeding all the residents of Wyoming and Vermont three meals a day for forty days (Transport Topics, 1991). Hence, from a military point of view, logistics refers to a supportive system which reflects the practical art of moving armies and materials engaged in combats enemy to achieve the desired results.

Today, in the industrial and commercial world, logistics has acquired wider meaning. Essentially, it covers activities for the material flow from the source to the processing facilities, and subsequent distribution of finished goods from there to the ultimate users.

Previously, the term physical distribution was commonly used, which refers to ‘manufacturing and commerce to describe the broad range of activities concerned with efficient movement of finished products from the end of production line to the consumers’.

An early definition encompassing the total material flow involves ‘a total approach to the management of all activities involved in physically acquiring, moving and storing raw materials, in-process inventory and finished goods inventory from the point of origin to the point of use or consumption’ (Lalonde et al., 1970). In 1961, in broader sense, this same term has been defined as ‘that area of business management responsible for the movement of raw materials and finished products and the development of material system.’ (Smykay, et al., 1961)

In 1991, the Council of Logistics Management (CLM), a prestigious professional organization, modified its 1976 definition of Physical Distribution Management by first changing the term to Logistics and then changing the definition as follows: *Logistics is the process of planning, implementing and controlling of efficient, effective flow and storage of goods, services and related information from the point of origin to the point of consumption for the purpose of conforming to customer expectations.* An engineering-oriented definition of logistics has been given by The Society of Logistics Engineers (SOLE, 1947), a professional organization, comprising about 10,000 practitioners of logistics engineering from government, the armed forces, and defense-related cooperation, as: *The art and science of management, engineering, and technical activities concerned with the requirements, design, and supplying and maintaining the resources to support activities, plans and operations.* A more systematic definition of logistics management has been given by Bowersox and Closs (1996) as: *Logistical Management includes the design and administration of system to control the flow of materials, work-in-process, and finished inventory to support business unit strategy.*

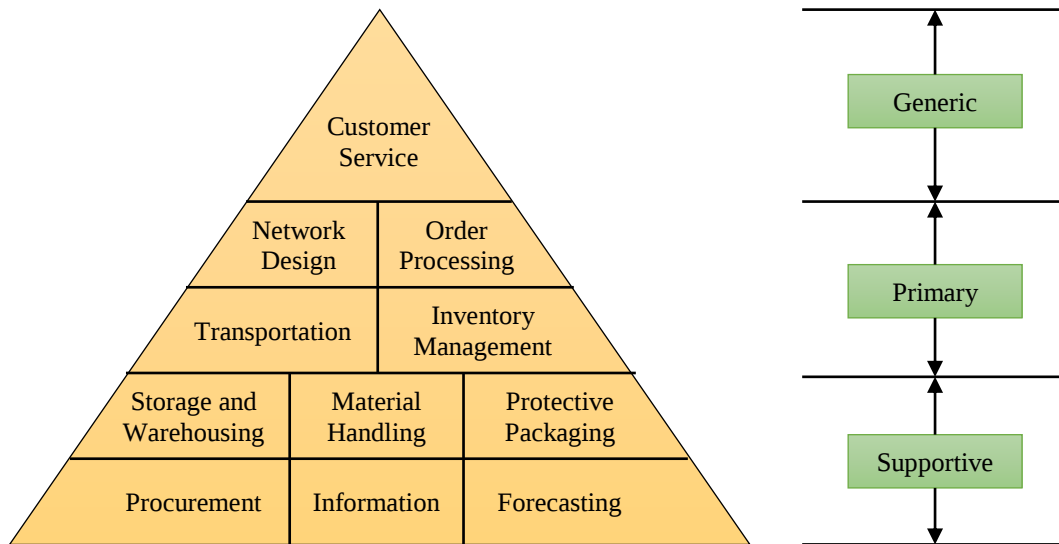
On the basis of above facet of logistics management, a more comprehensive definition of it is: *Logistics management refers to designing, developing, producing and operating an integrated system which responds to customer expectations by making available the required quantity of required quality products as and when required to offer best customer service at the least possible costs.*

It is an internal integration of interrelated managerial functions to ensure a smooth flow of raw materials from the point of inception to the first production point, semi-finished goods within production process, and finished goods from the last production point to the point of consumption. Hence, a set of activities which are involved in the gamut of logistics include procurement, materials handling, storage and warehousing, protective packaging, order processing, forecasting, inventory management, transportation, and related information system. After careful analysis and review of various definitions, the major features of logistics management may be drawn as:

- i) It ensures a smooth flow of all types of goods such as raw materials, work-in-process and finished goods.
- ii) It has the ability to meet customer expectations and requirements of goods.
- iii) It ensures the delivery of quality product.
- iv) It offers the best possible customer service at the least possible cost.
- v) It is an integration of various managerial functions for optimization of resources.
- vi) It deals with movement and storage of goods in appropriate quantity.
- vii) It enhances productivity and profitability.

### **A.2.2 Components of Logistics Management**

In order to achieve logistics operational objectives while achieving its mission, a large number of individual activities are required to perform, which constitute functions of the logistics management system. However, the business activities which consist of logistics function of an enterprise vary from firm to firm, depending on a large number of factors like the size of the firm, nature of business and products, its organizational structure, management philosophy towards logistical requirements, resource availability and the importance of individual activity to logistics operations. Therefore, individual activities which come under the gamut of logistics systems are largely attributed as its components. But, different components contribute differently in the achievement of logistics mission and objective, which can be grouped in three broad categories, namely; generic, primary and supportive components as illustrated in the following figure:



**Figure: Components of Logistics Management**

The separation of all logistical components in three broad categories is imperative because they perform different role in the performance of total logistics system. Generic component refers to the logistics mission of customer service, which is the driving force behind the total logistics system because of its capability to combat competition by generating long-run core competency. Primary components are actors in the smooth functioning of the total logistics system, which include logistics network design, order processing, transportation and inventory management. Whereas, the remaining components of logistics management are supportive components that facilitate smooth functioning of generic and primary components.

❖ **Generic Component:** A generic component includes:

**Customer Service:** It brings about an interface of logistics with marketing that determines:

- Customer service requirements for products and/or competitive advantage;
- Corporate vision towards service goals;
- Service expectations of customers and their response;
- Development of customer service standard;
- Logistics cost-service trade-off;
- Infrastructural requirements;
- Development of evaluation and appraisal mechanism.

❖ **Primary Components:** Primary components include:

**Network Design:**

- Number, size and location of facility network required to perform logistics operations;
- Relationships among locational facilities;
- Their costs and customer service capabilities;
- Infrastructure of each facility center.

**Transportation:**

- Requirement, availability and regularity of the transport service;
- Modes of transport and coordination between them;
- Transport cost, freight and tariff;
- Fleet management;
- Transit insurance and claim processing;
- Time, speed and intact delivery;
- Point-to-point information pertaining to movement status.

**Inventory Management**

- Stocking policies for raw materials, work-in-process and finished goods; Zero-inventory, just-in-time, push-or-pull inventory strategies; Inventory cost;
- Product mix at stocking points;
- Number, location and size of stocking points;
- Approach towards safety stock, reorder point and lot size.

**Order Processing**

- Order receiving and recording;
- Speedy order processing and transmission;
- Order-inventory interface procedures;
- Ordering and back-order systems;
- Warehouse picking and packing;
- Dispatch scheduling;
- Point-to-point information pertaining to order status;
- Accurate, legal and required documentation;
- Order processing cost.

❖ **Supportive Components:** Supportive components include:

**Storage and Warehousing**

- Warehouse location and configuration;
- Infrastructural facilities;
- Operational mechanism;
- Space determination;
- Goods placement;
- Up-to-date recording of goods' stock position;
- Protecting and preserving the physical attributes of goods
- Proper loading and unloading system;
- Marshalling goods for dispatches;
- Warehousing cost.

**Materials Handling**

- Safe, smooth and speedy placing and positioning of goods to facilitate their movement and storage;
- Material handling equipment selection and replacement policies;
- Storage and retrieval frequency of goods;
- Material handling equipment and operating costs;
- Usual life and resale or scrap value of equipment.

**Protective Packaging**

- Protection from loss and damage;
- Design of package required for handling and storage;
- Market value of the package;
- Reuse of packages;
- Scrap value of the package; and
- Packaging cost.

**Procurement**

- Make-or-buy decision;
- Vendor selection and management;
- Quality specification;
- Supply schedule;
- Vendor service capability;
- Vendor-company relationship;
- Vendor training and development;
- Procurement cost.

**Information**

- Information requirement for logistics system;
- Sources of data and their reliability;
- DBMS for processing, analysis and storage;
- Formats for information presentation to facilitate decision making;
- Computer infrastructure (hardware, software and connectivity);
- Information cost.

**Forecasting**

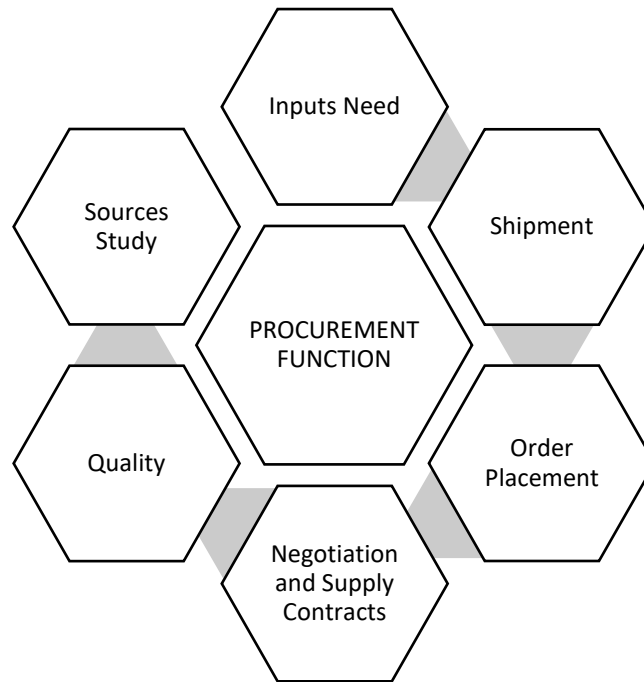
- Nature and trend of demand;
- Elements of forecast;
- Forecast technique and system; and
- Administration and error.

**A.2.3 Functions of Logistics Management**

The generic function of logistics management is making available the required quantity of required quality products at the point of use as and when required at the least cost. In other words, logistics management is concerned with the movement of goods from the point of inception to the point of consumption. In a manufacturing firm, there are three kinds of products which need to be moved, namely; raw materials from suppliers to production point, work-in-process within the production/operation system and finished goods from the last production point to the customers. As such, there are three sets of logistics function at three different phases of the total business function of the firm. Furthermore, the nature of different components of logistics each have a different role in these different phases, depending on the nature of goods, operation system in procurement function mainly emphasizing on quality specification, vendor selection, negotiation and supply contracts and placement of order. Whereas, there is no need to have a formal order processing system in the production function, but it has a great role in the physical distribution function to maximize customer satisfaction by means of speedier processing of customer requirements and final dispatch of consignment, along with the required documents. Three sets of logistics functions are as follows:

- a) Procurement function;
- b) Production function; and
- c) Physical distribution function.

❖ **Procurement Function:** Procurement function of logistics management ensures a smooth flow of raw-materials, parts, and components of specified quality and quantity from quality-certified suppliers to the production centers. This function includes identification of the inputs needed in terms of quality specification and quality requirement, study of sources for procurement (potential vendors for supply), negotiation with, them and final supply contracts, order placement and shipment of input consignments as illustrated in the following figure:

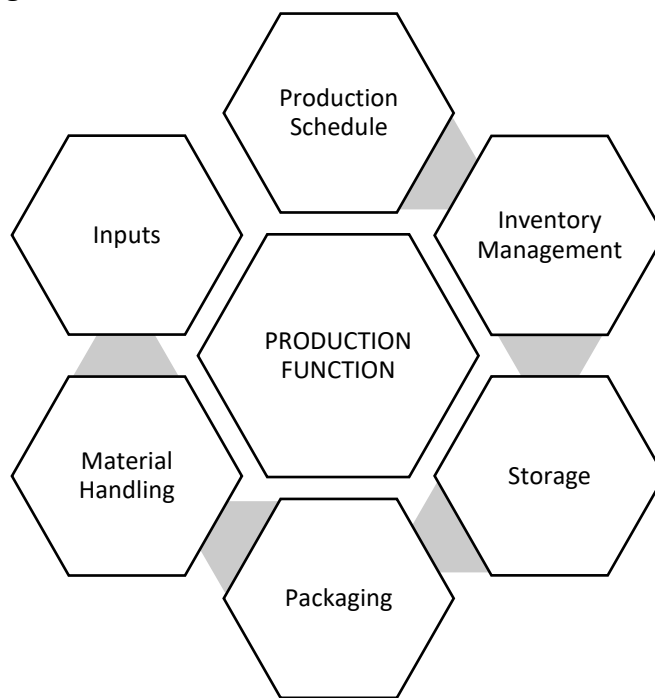


**Figure: Procurement Function of Logistics Management**

This logistics function is required to complete the procurement process. After procurement and arrival of input materials, there is subsequent requirement of other logistical functions such as handling, storage and movement to shop floors for final use in the manufacturing process. These functions are generally attributed as ‘in-bound logistics’ or traditionally ‘materials management’ functions of the total logistics function. Traditionally, companies procured input materials from a large number of suppliers in bulk quantity and quality inspection and checking were made at the company’s storage end. But modern logistics approach has changed the whole facet of procurement management, which advocates procurement of quality specified goods from very limited (say 1 to 3), reliable and quality-certified vendors, always in small quantities in a continuous basis, delivered directly at the manufacturing site so as to avoid repetition of job. This approach further facilitates low inventory level, resulting into huge saving in logistics costs on one hand and strategic alliance between the company and its vendors on the other. This function of logistics is more imperative in those industrial sectors where a large number of components and raw materials are procured, such as the automobile industry. For instance, Maruti Udyog Ltd. procures around 3,000 components from its vendors.

- ❖ **Production Function:** The production function of logistics deals with efficient and effective management of work-in-process inventory and its flow between the different stages of manufacturing. Hence, this logistics function ensures timely availability of

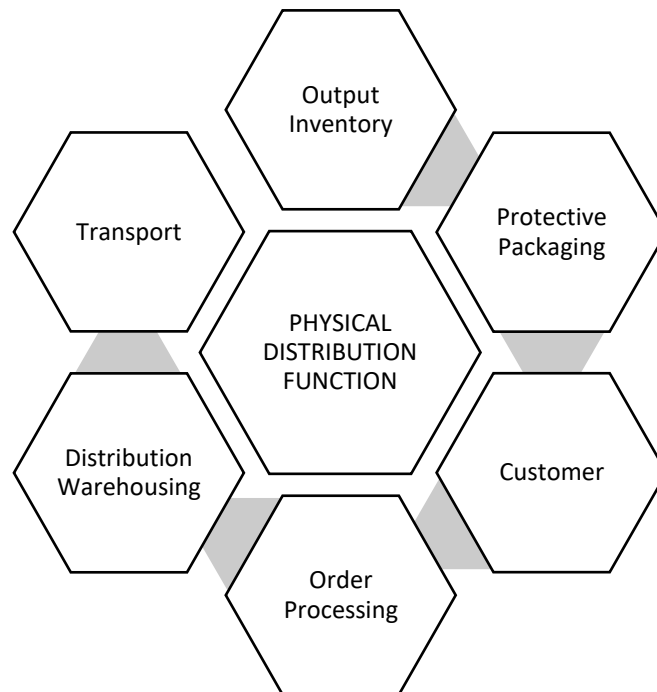
semi-processed materials and components inventory to support the production schedule. In other words, the primary task of production function of logistics is to establish and maintain an orderly, smooth and economic flow of materials facilitating total production system, avoiding idle time for any manufacturing facility due to non-availability of any input items. That is why, a set of logistics components crucial at this stage comprise inputs inventory, production schedule, material handling, storage, temporary protective packaging, if required, and final package, if any as illustrated in the following figure:



**Figure: Production Function of Logistics Management**

Production function of logistics is significantly different from procurement and physical distribution functions. This function is limited to movement within an enterprise, whereas others deal with external facilitators such as suppliers and customers. Hence, the production function of logistics is largely controllable in nature, while the performance of other functions is largely conditioned to the extent of behavior and support of them. The production function of logistics is also called ‘manufacturing function’ or ‘operation function’ of logistics and positioned in between procurement function and physical distribution functions of logistics management. This function is important in all industrial sectors and generally more crucial in those industrial units where the product cycle time is high and needs a lot of processing.

- ❖ **Physical Distribution Function:** As it has been discussed, physical distribution function refers to the movement of finished goods from the last point of production to customers or end users. In other words, this function of logistics facilitates marketing and sale performance of the enterprise by means of timely and economical product availability. Hence, the major logistics components which come under this function are inventory management of output products, transportation, distribution warehousing, order processing, and protective packaging, as illustrated in the following figure. Apart from the above logistics components, there are supportive components which are required in the facilitation of physical distribution function, namely; forecasting for a trade-off between demand and supply to ensure better customer service, information flow, and material handling.



**Figure: Physical Distribution Function of Logistics Management**

The physical distribution function of logistics ensures zero-defect service and prohibits stock-out by making the product available regularly with the minimum inventory level. It offers cost-efficient value-added customer service and makes a difference in the market place. That is why, this function has an advanced customer-driven marketing strategy. This function is also called ‘out-bound logistics’ and ‘marketing logistics’. This particular function of logistics is more crucial in those industrial units where the number of product or product mix is quite large. As for example, FMCG and electronic goods.

### **A.2.4 Logistical Mission & Strategic Issues**

The logistical system of a firm refers to an integrated effort towards generating the highest value of customer satisfaction at the least cost while delivering the highest value to its shareholders. Hence, the major missions of logistics are as follow:

- i) To make available the right quantity of right quality products at the right time and place in the right physical condition, i.e. the mission of logistics is making available goods and services to customers as per their requirements and specifications. Hence, firms need to ensure timely and intact delivery of goods.
- ii) To offer the best possible customer service for core competency. In the present days scenario of intense global competition, for further growth and more service from trade, corporate enterprises have to largely depend on their customers (marketing intermediaries) because they are having final interface with end-users and the final sales deal is swung by their push efforts. Hence, firms need to keep their customer motivated towards trade. For this purpose, firms have to offer their best services to their customers in terms of three broad categories of service components, namely;
  - a) Strategic Components: These components reflect the vision of the top management of the company towards relationships with their customers in terms of their ability to ensure the best return against the investment made, space provided and push efforts required for generating sales, their commitment for long-term association along with continuous effort for improvement in the service standard and transparency and uniformity in operations.
  - b) Logistical Components: These components deal with basic services required for delivery of goods, including availability of goods as per normal and unforeseen requirements, fixed replenishment cycle-time, zero-defect delivery, prompt reverse logistics system for early recovery from defective delivery, point-to-point information along with consistency and reliability in their services.
  - c) Non-logistical Components: These service components basically refer to value-added services offered to customers in terms of financial and technical support for infrastructural development, credit facility on special occasions, training for sharpening their marketing and managerial skills, discretionary power for warranty settlement and proper follow-up of the exclusive territory operation norm, if any. Hence, the service mission of logistics reflects the ability of the firm to exploit the

marketing acumen of their marketing intermediaries to bring about a competitive advantage.

- iii) To minimize total logistical costs. Normally, logistical costs range from 15 to 45 per cent of the price of the product next to the costs of raw-materials for most of the goods. In certain cases, it may be about 5 per cent, whereas for others, around 200 per cent. Hence, there is enough scope for curtailment of these costs by means of having better coordination and integration of various logistical and non-logistical functions of an enterprise along with higher level of productivity. New approaches towards total logistical cost offer ample opportunity for more comprehensive analysis and understanding of logistical cost components and identified ways and means to slash it further.

Furthermore, there must be a trade-off between total logistical cost and required customer service level. In order to achieve the above logistical missions, the following strategic issues are important for the smooth and efficient logistical activities in the Bangladeshi environment at the beginning of the twenty-first century:

- i) Decision-makers to realize the importance of arranging inputs to manufacturing, trading or service activity.
- ii) Increase the status of purchase or SCM. Provide motivation for better persons to choose SCM as career. Educational institutions are a starting point and, therefore, a major role.
- iii) Adopt a harmonized system of codification to identify the products.
- iv) Improved vendor relations are a part of cultural change and, therefore, the joint responsibility- of the top management.
- v) Logistics problem requires multiple solutions, depending on the type of industry, geographical area, etc. Only joint efforts of academic institutions, associations and the government can evolve an acceptable solution.
- vi) Service centers with an expertise in computers and telecom should be encouraged. The business is likely to be large and, therefore, the controlling body of such service centers could be a joint venture between the state government, transporters and the industry (Bhargava, 1999).

### **A.2.5 Importance of Logistics Management**

With globalization and shortened product life cycles, the Bangladeshi industry is focusing to re-engineer their supply chain and logistics activities to achieve the competitive edge. Bangladeshi companies are increasingly integrating their supply chains and outsourcing their Logistics and Supply Chain Management requirements. This has created the need for a range of Logistics and Transportation solutions for the industry, ranging from solutions or multimodal transport, freight forwarding, material handling, warehousing, shipping, air cargo, packaging, inventory management and, more importantly, in integrating logistics and supply chains, etc., to name a few. A potentially huge demand for Logistics and Transportation solutions and a developing infrastructure has made Bangladesh—the Logistics market of the twenty-first century and thrown open unprecedented opportunities for companies involved in the Logistics business (Agrawal, 1999).

At the micro level, after decades of continuous development, leading companies across industries now closely match one another in most of aspects of production, manufacturing, sales and marketing. With a lot of work already done in these areas, only a gigantic innovation can bring about a significant change. Logistics and supply chain management is an area in which leading corporate enterprises, especially, automobile, FMC, steel, and other allied industrial sectors have been working since the last six to seven years, reaching high dividends. Across industries, firms are now facing the need to fulfil the never-ending ‘value for money’ demand from the end user and the ever increasing ‘threat’ of product supplies from low-cost, small-sized players. Thus, the stage is now set for logistics to perform as an amazing change agent and provide a competitive edge to companies. Logistics, by virtue of being a function that can work across the chain, will now emerge from the shadows of other functional areas, as a supply chain coordinator and ensure better service to customers by means of phenomenal changes in the corporate mindset aimed at quality delivery.

The requirement of appropriate logistics system to any enterprise may begin with the concept of an integrated total movement and storage approach for coining a synergistic approach between different inter-dependent logistical functions which deals not only with ample opportunity for costs saving but also accelerate productivity and profitability by means of making just-in-time supplies and deliveries with minimum inventory. Logistics may

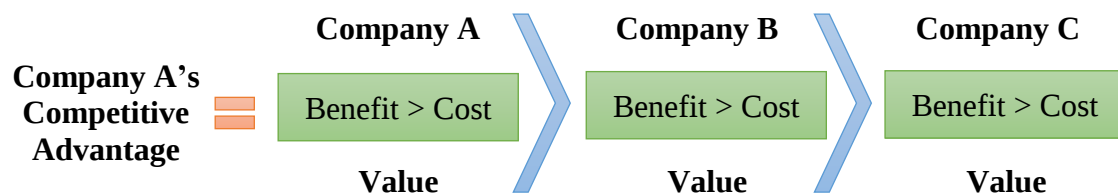
further be used as an effective weapon to combat competition, which leads a firm towards non-price competition. In a buyer's market, a well-positioned product may face rough weather in absence of proper services to customers, who after all, add value in products pushing it for actual sales, if properly motivated. In addition, when a product is available in the shelves of retail outlets, it may bring additional sales by way of impulse buying. Firms' painstaking and continuous efforts for improved customer services lead to develop long-run USP.

On the basis of the foregoing points of fact, it is crystal clear that the fragrance of logistics has been pervading, which is the gift of the early nineties due to mounting pressure on firms to reach the market at the most opportune time and place at a least cost. In other words, we can say that logistics not only leads a firm towards productivity and profitability by elimination of wastage, curtailment of cost and acceleration of sales but can also be used as an instrument of core competency to offset competition. Keeping in mind the overwhelming contributions of logistics as stated above, nowadays, a large number of firms are striving to develop a logistics system in their Organizations, which is never a Sunday-gardening, or child's play. It requires huge infrastructural investment, a high degree of technical excellence as well as sufficient time. Speedier flow of information is the pivotal point of any logistics system. Thus, at last; it can be said, 'mere reduction of cost is not the only climax of logistics but the real excitement is the enhancement of productivity and profitability for core competency by providing superior customer service' (Agrawal, 1999).

### A.2.6 Logistical Competitive Advantage

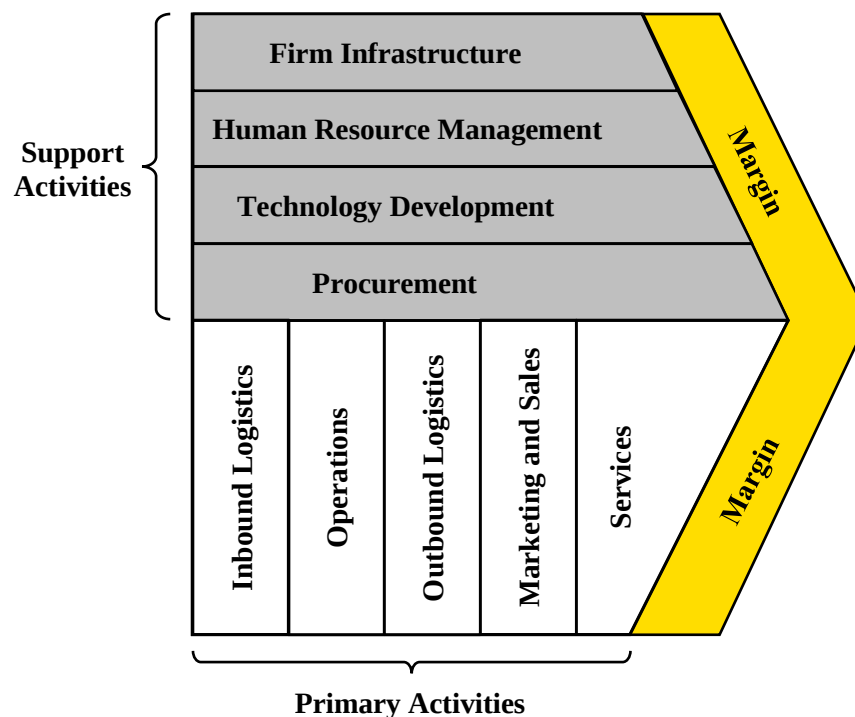
Nowadays in the era of 21<sup>st</sup> century, logistics system is playing a very vital role in the area of modern business and marketing. As we know, from marketing point of view, delivering value to customers is a crucial factor. Value can be delivered effectively and efficiently through well-managed integrated supply chain management. This supply chain mechanism is driven by systematic logistic system. Considering the competitive business environment, logistics is significantly gaining recognition as well as respectability in the corporate world mainly due to its contribution towards core competency in the market place coupled with profitability and productivity. Today, logistics has occupied a strategic position in the overall performance of the enterprise as against a mere operational status in the past. In the prevailing environment where competition is continuously accelerating, firms need to have a competitive advantage for their dominating presence in the market. Hence, they use logistics to create unbeatable-long-run core competency, as product, price, and promotion do not bring competitive edge largely due to quick imitation by competitors with additional features. That is why, core competency by means of logistics management is at the heart of a firm's performance in competitive and maturing markets.

The generic meaning of the term 'competitive advantage' involves the firm's ability to differentiate itself with others, in the eyes of the customer in terms of its various activities and ensuring economies of scale in operations. In other words, it generates highest level of customer satisfaction and maximizes productivity and profitability by operating at a lower cost. It was only Michael E. Porter, Professor of Harvard Business School, who rolled the coin of competitive advantage in circulation through his research and writing and gave a new direction towards the mindset of the corporate strategists and managers in achieving success in the market place. Again, simply we can say that competitive advantage is a power and ability of a company to deliver value better than the competitors through identification, integration, configuration and allocation of economic resources.



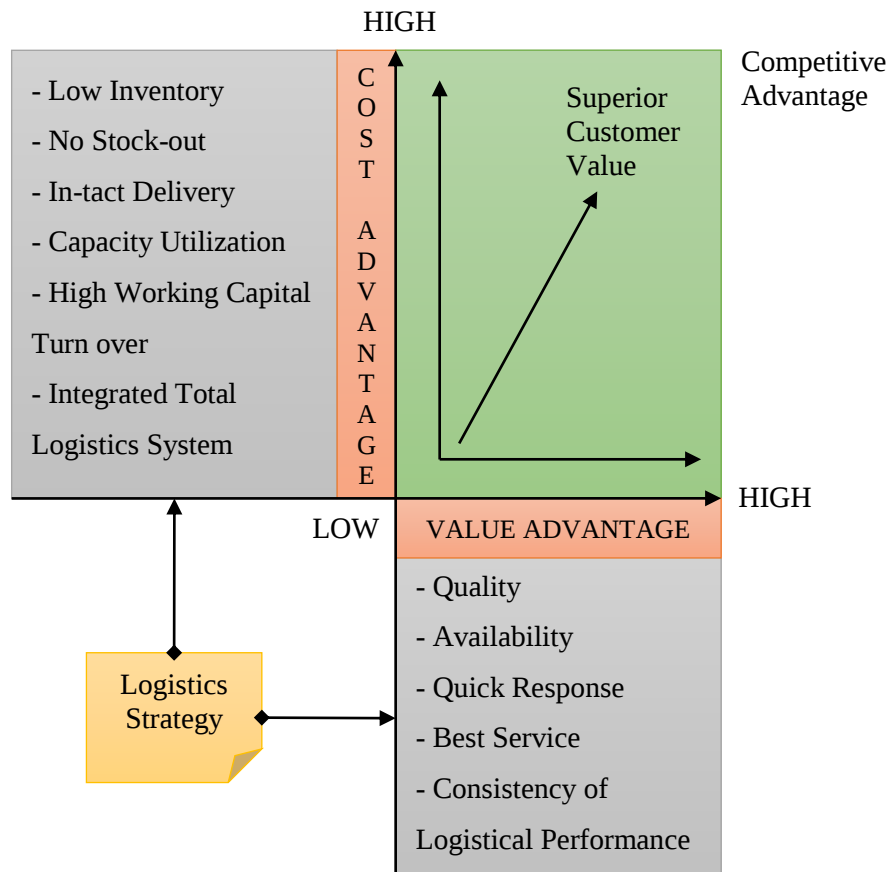
Moreover, systematic logistics generates highest level of customer satisfaction and maximize productivity and profitability by operating at a lower cost. (Mohammed Shahedul Quader, 2015).

Michael Porter has divided total business activities of a firm into two sets of value chain activities, namely, primary and secondary activities. Primary activities include in-bound logistics, operations, out-bound logistics, marketing and sales, and service, whereas, secondary activities involve infrastructure, human resource management, technology development and procurement as shown in the following figure:



Source: M.E. Porter (1985), *Competitive Advantage*, The Free Press, p. 37.

These activities are not independent but interdependent with each other. To deliver value in a cost-effective manner, coordination and link among these activities need to be ensured. To gain competitive advantage over other competitors, a firm should take positive initiative to deliver value to its customers performing value chain activities in a more efficient way than its competitors. Logistics management has tremendous potential to contribute in gaining a competitive advantage because it is a primary activity in the value chain facilitating in the performance of others. Competitive advantage can be created and achieved by logistics managers in two ways, namely: cost advantage and value advantage, which is illustrated in the following figure:



**Figure: Logistics Cost and Value Advantage**

Logistics ensures a high level of cost advantage in terms of low inventory level, resulting in lower inventory cost, no stock-out so no lost sales cost, intact delivery, maximum capacity utilization, high working capital turnover as well as integrated total logistics system, resulting into a synergistic effect. It also contributes in high value advantage by means of high quality products, their regular availability, quick response, best customer service and consistency in the performance of the logistical system. High cost and value advantage ensure superior customer value, revealing a competitive advantage.

William C. Copacino (1992) has identified the following five ways to significantly gain a competitive advantage by the use of logistics management:

- i) **Low cost:** Through superior efficiency, logistics can contribute to a cost advantage that can be leveraged to increase the market share or enhance profitability. Low-cost logistics is particularly important in logistics-intensive industries where there is little differentiation among commodity products.
- ii) **Superior customer service:** The most notable measures for customer service include short-order lead times and in-stock availability. Such measures may also include order

and invoice accuracy, access to information on order status, ability to respond to customer inquiries, and so forth. Most customers are willing to pay a premium for superior customer service, and logistics can play an important role in service differentiation.

- iii) Value-added services:** This involves providing services that enhance customers' ability to compete and includes activities like pricing and ticketing of merchandize, assembling mixed pallets, making drop shipments direct to stores, arranging for quick replenishment or continuous replenishment, and providing training or software to the customer.
- iv) Flexibility:** A logistics system can create an advantage by being flexible enough to customize its service and cost offerings in order to meet the needs of either distinct customer segments or individual accounts. The flexibility to meet diverse customer needs in a cost-effective manner can distinguish a company and allow it to serve a broader customer base.
- v) Regeneration:** A genuine value and competitive 'advantage can be provided by a logistics system with the capability to reinvent itself. This means it has the capability to innovate or develop new ways to serve a market.

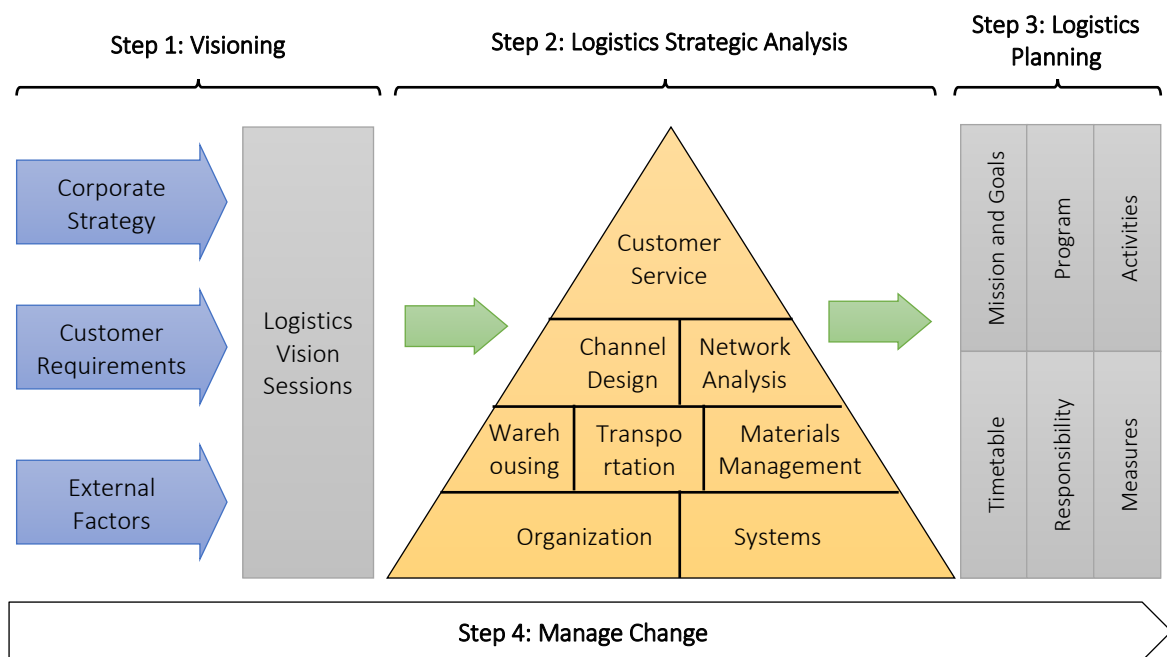
Logistics capabilities do not necessarily have to be superior in all five areas. Generally, they must stand out in one or two of the five categories and be adequate in the remaining ones. This basic framework for assessing customer service requirements and the strategic requirements from logistics not only provides a structure for managers to examine how the logistics function is adding value and how it is aligned with their company's goals, but also represent a way to clarify and communicate their goals within their company.

### **A.2.7 Strategic Logistics Planning Process**

As it has already been discussed, the early 1990s witnessed a growing awareness of logistics and supply chain management which have an amazing contribution on a firm's competitiveness and profitability. That is why, logistics has jumped from mere operational activity to strategic function of an enterprise. It has changed the traditional mindset about purchasing, producing, moving and selling dramatically and occupied the centerstage of corporate strategy. Keeping in mind the overwhelming contributions logistics, most of the world-class companies have incorporated a logistical vision in their mission and objective statements. For instance, the key to achieving Wal-Mart's goal of Consistently Superior

Service to customers was ‘to make the way the company replenished inventory the centerpiece of its competitive strategy.’ This strategic vision ‘reached its fullest expression in a largely invisible logistics technique known as “cross docking”’ (Stalk et al., 1992).

When logistics has occupied a strategic value for the firm’s success, then, quite obviously, its formulation always needs involvement of the top management. Hence, the specific process for logistics strategy development and planning involves four steps as shown in the following figure:



**Figure: Framework for Logistics Strategic Planning**

Source: A. O’Laughlin Kevin, James Cooper, Eric Cabocel (1993), *Reconfiguring European Logistics System*, Council of Logistics Management, Oak Brook, III.

- ❖ **Step 1 Corporate Vision:** Strategic logistics planning process starts with the definition of the corporate vision towards objectives behind the extend of use of logistics, the key inputs of logistics planning process, identification of potential, alternative logistics approaches, resources and infrastructure available and a systematic development of an organizational consensus. A well-defined corporate vision gives future direction to the firm as well as reflects the capability of the management to think beyond the current way of thinking and operating, provide a framework for companies to think of a unique logistics strategy despite existing resource constraints, and rigid traditional systems. The key elements of corporate vision towards logistics strategic plans include:
  - i) recognition of service requirements for different market segments;

- ii) anticipation of key external environmental forces along with their impact, such as industry trends; and
- iii) definition of the mission and objectives for the logistical functions in terms of strategic direction and requirements for logistics.

❖ **Step 2 Logistics Strategic Analysis:** After proper definition of the corporate vision towards strategic logistics requirements, taking into consideration the key environmental forces, the next step involved in the strategic logistics planning process is logistics strategic analysis. The key functions of this step include:

- i) development of various strategic alternatives; and
- ii) review and final confirmation of detailed logistics plan.

This step depicts the essential components of logistics strategy, also reflecting the extent of its use for competitive advantage, in terms of superior customer service and productivity, structural framework with regard to channel design and logistical network, functional aspects such as materials management, transportation management and warehousing management coupled with implementation prerequisites, like information system, policies and procedures, infrastructural facilities and organizational systems. The highlight of this step is to review and rethink each and every specific component individually and collectively to develop a new way of operating which will ensure higher productivity in operation and achievement of logistics vision.

❖ **Step 3 Logistics Planning:** This step of strategic logistics planning process ensures effective implementation of logistics strategy. The logistics plan is a blueprint of the total logistics system in terms of:

- i) functional goals to achieve pre-determined long-run logistical objectives and corporate missions;
- ii) programs and procedures for new logistics projects;
- iii) operational activities along with their coordination;
- iv) time for framework;
- v) authority and responsibility; and
- vi) continuous evaluation and measurement of performance for further improvement of the total logistics system.

❖ **Step 4 Managing Change:** The final step in the strategic logistics planning process deals with managing change by developing a cohesive environment in the organization so as to ensure an efficient way of conducting business. A new logistics strategy

generally requires a new way of thinking and performing and even restructuring the whole organization. Hence, it is imperative to have a well-planned approach towards change management, failing which, people n resort to change. The key elements for managing change effectively are:

- i) clear-out definition of the mission and objectives of the logistics activities;
- ii) communication of the logistical mission and objectives to subordinates along with its contribution capabilities;
- iii) comprehensive specification of authority, responsibility, role, function, and tasks of each and every position in the organizational hierarchy;
- iv) coordination mechanism between logistics function and their related functions; and
- v) organization of training programs to meet the requirements of the new logistical system to ensure its success. Training focuses on developing the needed content of knowledge and process skills to operate in the new environment.

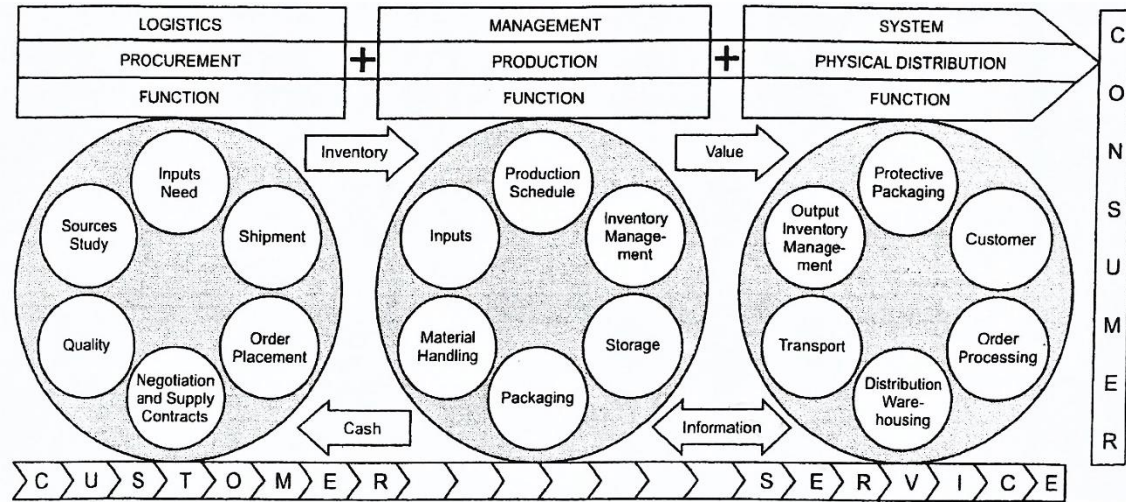
### **A.2.8 Integrated Logistics System**

With the beginning of 1980s, especially mid-1980s, there has been a phenomenal change in the business scenario due to a sea change in the external and internal environment which has been discussed in this chapter in detail. That is why, in order to sustain in the competitive market place and retail market dominantly managers were of the opinion that it is the need of the hour to develop an integrated logistics system which will be an interface of the procurement function, production function and physical distribution function of total logistics management system with an intention to achieve following objectives:

- i) to ensure better customer service by appropriate value addition for superior customer values;
- ii) to ensure higher productivity and further curtailment of logistics cost by means of synergy between different business functions and particularly all three logistical functions;
- iii) to avoid a repetition of similar types of logistical functions by different departments at different levels and the development of a professional integrated approach; and
- iv) to properly monitor the performance of existing logistics system so that a continuous improvement in the system can be made possible in time.

In an integrated logistics system, there is a high degree of coordination brought in between the traditional activities of procurement or material management and the physical

distribution management, along with marketing and production management. Integrated logistics system refers to a set of activities concerned with storage and flow of all materials, information and control system in a cost-efficient manner as illustrated in the following figure:



**Figure: Integrated Logistics System**

After careful perusal of the figure, it becomes clear that an integrated logistics system is an interface of procurement function, production function and physical distribution function of the total logistics function in order to achieve a basic logistics mission of the best possible customer service at the least possible costs. Furthermore, in an integrated logistics system, the flow of goods/inventory is in forward direction to ensure availability of goods at the point of use in time as per specifications for greater market dominance. Whereas, the flow of information is in both directions for activation and improvement of the total system. The nature of backward information flow such as quality feedback, customer order, procurement quality, quality, specification and timing, production and dispatch planning facilitate coordination function. However, the forward information flow, such as availability of goods, order processing and status trading and legal documents, quality assurance report operating and warranty manuals, etc., deals with the operational function of logistics system.

**Part B**

**B.2.1 Nature and Concept of Supply Chain Management**

The phase from 1990s onward is recognized as the era of Supply Chain Management, which has been defined by the Global Supply Chain Forum of 1994 as: *The integration of key business processes from the end user through original suppliers that provides products, services and information that add value for customers (Acharya, 1999).*

American Production and Inventory Control Society (APICS) defines SCM as: *Organizations that successively transform raw materials into intermediate goods, then to final goods and deliver them to customers (Deshmukh and Mohanty, 1999).*

According to T. Davis (1993): *The supply chain is the network of organizations that are involved through upstream and downstream linkages in the different processes and activities that produce value in the form of products and services in the hands of ultimate customers.*

On the basis of various definitions and earlier discussions, Supply Chain Management can be defined as: *An external integration of interrelated functions of the firm with its channel members, vendors, and all third-party logistics service providers who contribute in the flow of goods (raw materials, semi-finished and finished products) and related information from the point of inception to the point of consumption with efficiency (Agrawal, 2001).*

In other words, SCM is an integrated management of various functions in the areas of materials, operations, distributions, marketing and services after sales with a customer focus in perspective so as to synergize various processes in the organization with a view of optimizing the total cost, i.e. it refers to a managerial process of a joint approach of all supply chain participants to design, develop and operate a system which responds to customer expectations by making available the right quantity of right quality products at the right time and place in the right physical form at a right cost. Hence, SCM facilitates to offer best customer service in a cost-efficient manner.

## **B.2.2 Importance of Supply Chain Management**

### **❖ The Role of Supply Chain Management on Organizational Performance:**

The literature of SCM was born on its practical positive impact on firm performance. Early research used to report anecdotal evidence about firms that had adopted the supply chain management approach and how this resulted in benefits for the firm and other supply chain members. Great part of this literature was descriptive, reporting practices of successful companies. The development of the SCM field was largely practitioner-led with theory following (Voss, Tsikriktsis, & Frohlich, 2002).

Burgess, Singh and Koroglu (2006) reviewed the most often used theoretical perspectives in the SCM literature, reporting that 20% of the articles had no discernible theory present. One of the relevant theoretical supports for the positive relation between SCM and performance is the resource-based view (RBV) and its extensions. The resource-based view (RBV) considers that firms are heterogeneous and achieve competitive advantage due to rare, valuable, inimitable and not substitutable resources and capabilities (Barney, 1991; Dierickx & Cool, 1989; Peteraf, 1993). The original approach of the RBV, focused on the internal resources owned by a firm, was broadened to consider the relationship as a source of competitive advantage. This gave rise to the Relational View (RV) (Dyer & Singh, 1998) integrating transaction cost theory (Williamson, 1985, 1996) and its critics (Zajac & Olsen, 1993). The RV considers relationships as potential sources of superior performance. It identifies four different sources of relational rents: investments in relation specific assets, substantial knowledge exchange, complementary and rare resources, and lower transaction costs. All these sources are influenced by more effective governance mechanisms based on informal safeguards, such as trust and reputation (Dyer, 1996, 1997; Dyer & Singh, 1998; Holcomb & Hitt, 2007; Rungtusanatham, Salvador, Forza, & Choi, 2003). As in the RBV perspective, the relational resources and capabilities should be rare, valuable, hard to imitate or to substitute in order to provide sustainable competitive advantage.

The positive impact of SCM in performance can be better understood if we interpret its constructs using the relational view. Information sharing maps directly into knowledge exchange. Long-term relationships can help to reduce transaction costs through the development of trust and reputation (Cooper et al., 1997; Mentzer et al., 2001). It also can contribute to developing knowledge exchange and assure investments in specific assets.

Cooperation and process integration can lead to development of both specific assets and complementary resources.

Only recently, empirical research has been trying to test the causal relationship between SCM and performance, especially in USA and Europe. However, large differences in research design undermine comparability and limit generalization. While some studies refer to SCM as a multidimensional construct (Chen & Paulraj, 2004; Mentzer et al., 2001), others consider only some particular dimension, like cooperation or long-term relationship or assume SCM is an unidimensional construct (Wisner, 2003). Studies also differ in term of unit of analysis: the whole chain (Min & Mentzer, 2004; Wisner, 2003), the buyer-seller relationship (Carr & Pearson, 1999, Narasimham & Das, 2001) or manufacturing and distributor dyad (Griffith, Harvey, & Lusch, 2006). Finally, there is no consensus on how to define and measure performance. While several studies found a positive relationship between SCM and performance (Carr & Kaynak, 2007; Chen, Paulraj, & Lado, 2004; Cousins & Menguc, 2006; Droge, Jayaram, & Vickery, 2004; Fynes, Voss, & Búrca, 2005; Gimenez & Ventura, 2005, others were not conclusive. Weak support for the impact of cooperation on flexibility and delivery (Fynes et al., 2005; Vereecke & Muylle, 2006) and of information sharing on overall operational performance (Krause, Handfield, & Tyler, 2007) are examples of conflicting results.

❖ **The Role of Supply Chain Management for Achieving Competitive Advantage:**

To gain competitive advantage, the firm need to better customer responds against competitors. Williamson, 1991; Martin and Grbac, 2003; Ellinger, 2000 stated that competitive advantage accrues to those company who are responsive to the customer needs and want. Lummus et al. (2003) argued that in the future, supply chain compete with other supply chain. In order to responds, business organization should understand that supply chain responsiveness towards customer needs. Creating responsiveness of supply chain has been become a source of competitive advantage of the firm (Lau and Hurley, 2001).

Companies with more supply chain responsiveness will be more adaptive to demand fluctuation and can overcome the environment uncertainty at a lower cost due to the shorter lead time (Randall et al., 2003). Yusuf et al. (2003) stated that lean manufacturing compromises responsiveness over cost efficiency. However, agile manufacturing place equal importance on both cost and responsiveness. Gunasekaran and Yusuf (2002) argued

that the firm need to responsiveness and effectiveness. Responsiveness without cost effectiveness is not a real competitive strategy. A.A. Thatte (2007) stated that supply chain responsiveness and competitive advantage of the firm are positively related. Yusuf et al. (2003) found high correlation between the responsiveness and time to market, dependability, product innovation and quality.

Towill (2002) stated that the effective engineering of cycle time reduction will generate to significant improvements in manufacturing costs and productivity. Further he argued that reduction in lead times is the necessary condition for a responsive supply chain and which further reduces the time to market. Sharifi and Zhang (2001); Aitken et al. (2002), emphasize that responsiveness in the supply chain is a source of competitive advantage. (Allnoch, 1997) found that average companies required much more time to respond to changes in customer demand than did the leading manufacturers. In some cases, as much as eight times longer was required. A.A. Thatte, (2007) proposed that supply chain responsiveness shall reduce the costs, while leading to competitive advantage for firms on other dimensions as well.

In operational level, responsiveness will enable organizations to compete based on cost, quality, time to market, and delivery dependability; responsiveness of a firm's logistics (transportation and distribution) process will enable organizations to introduce new products faster than major competitors and also lead to greater ability of a firm to provide on time the type and volume of product required by customers (i.e. increasing delivery dependability); responsiveness of a firm's supplier network will improve - the ability of the firm to rapidly introduce new products and features in the market place (i.e. compete based on product innovation and time to market), as well as improve a firm's ability to provide on time delivery (i.e. increase its delivery dependability) as these firms will be endowed with responsive suppliers. A supply chain characterized by quick responsiveness to customer will competitive in term of time and quality.

A supply chain consists of all stages involved, either directly or indirectly, in fulfilling a customer request. A supply chain includes manufacturer, supplier, transporters, warehouses, retailer, third-party logistic provider, and customer. The objective of supply chain management is to maximize the overall value generated rather than profit generated in a particular supply chain (Chopra, and P, Meindl, 2001). Robert Sturim (1999) stated

that achieving competitive advantage through supply chain integration. Furthermore, he argued that responsiveness to customer need requires high degree of supply chain integration and information sharing between partners in supply chain.

### **B.2.3 Value Chain Management & Supply Chain Management**

Value has been defined in many ways based on the dimension of study. Value is the amount buyers are willing to pay for what a firm provides them. Value is measured by total revenue, a reflection of the price a firm's product commands and the units it can sell. A firm is profitable if the value it commands exceeds the costs involved in creating the product (Porter, 1985). Value is any activity that increases the market form or function of the product or service; and in today's business climate, there is a need to maximize the value of every process in a business (Jacoby, 2005).

There is a temptation to use 'value chain' and 'supply chain' interchangeably, but there is really a difference in the concepts that is worth remembering. The supply chain model, which came first, focuses on activities that get raw materials and sub-assemblies into a manufacturing operation smoothly and economically (The Value Chain, 2004). The supply chain focuses on the activities involved with acquiring raw materials and sub-assemblies, then getting them through the manufacturing process smoothly and economically. VCM looks at every step, from raw materials (including those that suppliers' suppliers use) to customers and the eventual end user, right down to disposing of the packaging after use. The goal is to deliver maximum value to the end user at the least possible total cost. This makes supply chain management a subset of the value chain analysis. The value chain notion has a different focus, and a larger scope (The Value Chain, 2004).

A company's value chain is a system of independent activities which are connected by linkages. Linkages exist when the way in which one activity is performed affects the cost or effectiveness of other activities (Porter, 1985). VCM is much more than just optimizing each step in the supply chain. For example, say we switch to a less-expensive package. It might save money, but it may cost the customer or the end user more to dispose of it and it might make the product look 'cheap', both of which would detract from the overall value of our product. Alternatively, we may try reducing warehousing costs by consolidating inventories. However, if that action increases delivery time, it may force customers to

inventory more items on site, increasing their costs and reducing the value of the products to them (The Value Chain, 2004).

Supply Chain Management (SCM) is a process-oriented approach that oversees materials, finances and also information as each move in a process, such as from supplier to manufacturer to wholesaler to retailer to consumer. It involves coordinating and integrating these flows both within and among companies (Monczka et al., 1998). The ultimate goal of any effective supply chain management system is to optimize the deployment of assets to maximize fulfilment of demand (or customer service). The objective is to balance the two.

A supply chain is a collection of interdependent steps that accomplishes a certain objective, such as meeting customer requirements (Kalakota and Whinston, 1997). A supply chain is a network of connected and interdependent organizations mutually and cooperatively working together to control, manage and improve the flow of materials and information from suppliers to end users (Aitken, 1999). A supply chain is a network of business units that facilitates procurement of raw materials, transforms them into intermediate goods and then to final products, and delivers the products to customers through a distribution system (Tan and Shaw, 1998). A supply chain is the process of moving goods from the customer order through the raw materials stage, supply, production and distribution of products to the customer. These networks obtain supplies and components, change these materials into finished products and then distribute them to the customer. SCM contains different relationships between suppliers and it controls supplies in the supply chain. SCM is not restricted to company organizations (Saunders, 1997). The supply chain describes the means by which the company produces products or services to meet its customers' needs. It plays a key role in the modern efficient manufacturing concept (Handfield and Nichols, 1999). In the New Economy, information and information technology drive the supply chain to new requirements and dimensions (Evans and Wurster, 2000). The impact of SCM lies on two constructs: The Knowledge Level of the Supply Chain (The Commercial Challenge) and the Utility Level of Technology in the Supply Chain (The Technological Challenge) (Vanharanta and Breite, 2003).

### **B.2.4 Supply Chain Relationships**

Today, companies establish strategic relationships with various organizations such as suppliers, marketing intermediaries, consumers, transporters, etc., in order to have overall competitive advantage in terms of technology, costs, marketing, and long-run performance of the business. It is happening mainly due to following facts:

- i) As the world market is emerging as a global village with greater diversity in its environment, it is not possible for companies to respond quickly to changing customer wants due to limitation of resources and risks involved in adaptation of changes;
- ii) In the era of rapid innovations in the field of science and technology, it is generally beyond the capabilities of a single organization to meet the skill and resource requirements for the complexity of technology;
- iii) Information revolution makes establishing organizational relationships more flexible in terms of time, costs and effectiveness so as to keep relationships alive and active by improving communication system;
- iv) Expansion of market due to liberalization and globalization of almost all the economies of world further excel the need of gaining access to markets. Effective coverage and reliable knowledge of the market are the major problems faced by most of the companies nowadays, unless they have strategic relationships with their marketing intermediaries such as wholesalers and retailers; and
- v) Emergence of third-party logistics service providing organizations whose professional high degree of core specialization have changed the overall performance of logistics service and so, are largely acknowledged as a dependable means for efficient logistics operations.

Hence, to sustain itself in the highly-global competitive environment, effective coverage, reliable market knowledge and real time response are the greatest challenges faced by the corporate world. That is why, currently, the success of companies not only depends on how well they have integrated their functions for optimum utilization of resources so as to have strategic advantages but largely on their ability to establish strategic relationships for comparative advantages with outside organizations or individuals such as vendors, channels partners, third-party logistics service providers like transporters, banks, field warehousing firms, etc. They contribute significantly in the success of the company in terms of technology, costs, consumer satisfaction and long-term performance of the business. Although, conventionally, corporate enterprises have been maintaining

relationships with their other supply chain members, but the nature and purpose of relationships were mostly ad hoc and operational, resulting in to transactional relationships. But, presently, all these have changed significantly in the era of global competitiveness. That is why, companies have been forced to shift their mindset from maintaining mere transactional relationships to partnering relationships, whose nature and purpose should be long-run.

In today's environment, businesses are increasingly dependent on the relationships they have with their suppliers and are demanding that suppliers adhere to high standards. It is increasingly important that buyers have strong relationships with their suppliers to stay ahead of competition. The establishment, development and maintenance of relationships between exchange partners are crucial to achieving success (Parsons, 2002). There are many advantages for firms that enter into productive relationships with their suppliers, such as a lower level of risk, access to technology, more cooperation, increased knowledge and information sharing (Parsons, 2002). By assessing the relative risks of making or buying, companies can leverage their skills and resources for increased profitability. Two new strategic approaches, when properly combined, allow managers to leverage their companies' skills and resources well beyond the levels available with other strategies; these are to concentrate the firm's own resources on a set of 'core competencies' and strategically outsource other activities (Quinn and Hillmer, 1995).

There has been, over the last several years, a profound change in understanding of the dynamics of competitive advantage. A firm's success is tied, in part, to the strength of its weakest supply chain partner. Only through close collaborative linkages through the entire supply chain can one fully achieve the benefits of cost reduction and revenue-enhancing behaviors (Spekman et al., 1998). Effective SCM has become a potentially valuable way of securing competitive advantage and improving organizational performance, since competition is no longer between organizations, but among supply chains. Each type of supply chain integration activity has unique benefits and drawbacks. The strategic integration depends on integration policies and associated resource deployment by the members (Morgan et al., 2007). In buyer-seller relationships, the focus has moved beyond individual firms to value-creating networks formed by key firms in the value chain that deliver value to the end consumer. Value-creating networks have three core building

blocks: superior customer value, core competencies and relationships. Competition in the future will shift to the network level from the firm level (Prabakar and David, 2001).

### **B.2.5 Characteristics of Supply Chain Logistics in Iron and Steel Enterprises**

Iron and steel enterprises are resource consumption intensive industries. The work procedure is to link closely and it's subjected to time, temperature, location, transportation capacity and other conditions. Logistics have the characteristics of multi-stage production, multi-stage transport, and multi-stage storage. The weight of material is large, the temperature is high, the variety is huge, the operation is over a broad area and special requirements have been asked for transport vehicle, methods and techniques. It is highlighted in the following two aspects:

- i) **The logistics quantity of iron and steel enterprise is huge.** According to an annual output of 500 million tons steel, the logistics quantity of inputting and outputting a variety of raw materials, fuel, auxiliary materials, steel and solid wastes is about 2.25 billion tons; the total of internal logistics is about 5.5 billion tons.
- ii) **The supply-chain logistics of iron and steel enterprise is long.** The vast majority of iron and steel enterprises need to be imported a large number of high-grade ore powder from abroad every year affected by a serious shortage of domestic resources. Usually, the ore is allocated at the domestic port which has been shipped back by the great ship, and then transported through the river back to the production base.

### **B.2.6 Supply Chain and Logistics Management of Steel Industry**

Since steel industry consists of manufacturers who produce only semi-finished product (mid-stream steel manufacturer) or only finished product (down-stream steel manufacturer) and manufacturers who has the continuous manufacturing process from mid-stream to down-stream process, it has been found that they are all related. Some manufacturers are suppliers of other manufacturers. At the same time, they are customers of the other manufacturers as well. Considering supply chain of the steel industry in, it has found that there are logistics activities both inbound and outbound processes or even during the in process. The main logistic activities are as follows:

**A. Purchasing and Material Management:** It has found that the procurement of raw materials for steel industry is very complex. Raw material purchasing plan of steel

manufacturers will base on forecasts both in terms of quantity and quality and the forecast of the steel price in the world market. This is also based on the available capital of the manufacturers. The reasons of this complexity are as follows:

- i) Raw materials cost which is the major cost of steel production will be fluctuate all the time. This has made the purchasing plan cannot run according to normal period of time as it should be.
- ii) Purchasing procedures of most of the manufacturers were made through traders. Only a few major manufacturers purchased raw materials directly from manufacturers.
- iii) The manufacturers did not order raw materials only for its production but also for further sales.

**B. Warehouse Management:** Warehouse acts as a linking activity between seller of raw materials and steel manufacturers or between steel manufacturers and consumers. Raw materials will be kept at the warehouse for further use in the production process. If there is no warehouse, the factory might lack of raw materials in the production process. In another case, warehouse was deliveries to the customers. So, warehouse acts as a support to the production process to run according to the schedule and it has an important role in terms of marketing in order to respond to the needs of the customers.

**C. Inventory Management:** Inventory management activities in steel industry are logistics activities which happened during the inbound, in process, and outbound logistics process. If the raw materials purchased are not sufficient for the production in that purchase ordered, it will have direct effect to the production and will create a very high production or opportunities lost cost. For the inventory of Work in Process (WIP), it is very important in the production process to prevent stoppage of overall production process due to the lack of raw materials. If there is the lack of raw materials during the production process, it will affect directly to the production cost. The reason that inventory management of the work in process is very important because most of the steel industries have long continuing production process and use high temperature and energy in the production. If there is any stoppage in the overall production process, it will create a very high cost and will waste a lot of time to bring the production process back to normal status.

**D. Transportation and Material Handling Activities:** Transportation and material handling is an important logistics activity which creates the circulation of products throughout all the supply chain efficiently. From the research, it has found that

management of transportation of steel industry uses mainly Outsource companies. This is due to the fact that these Outsource companies are more efficient in managing transportation to prevent empty trips, as they are able manage transportation between several customers.

- E. Customer Response Management:** It has found that most of steel manufacturers have organized customer services in order to respond to customer's needs very well by using small amount of staff for such activity. This is due to the fact that most of the manufacturers sell their products through dealers. There is no direct contact between manufacturers and consumers. However, if there is any mistake incurred with the products under delivery schedule, between delivery processes or after delivery to consumers, all companies also have efficient measures to correct these mistakes.
- F. Reverse Logistics Activities:** Reverse Logistics are modern logistics activities which focus on four areas of work as - logistics for the return of products and sending back of products, logistics for the collection of container or packages from destinations for reuse, logistics for recycle purpose which is the collection of containers, waste materials or used products to be reused as raw materials or spare parts, and logistics for the destroying of used products, waste materials or various containers.

## **B.2.7 Operational Framework of Supply Chain Logistics in Iron and Steel Enterprises**

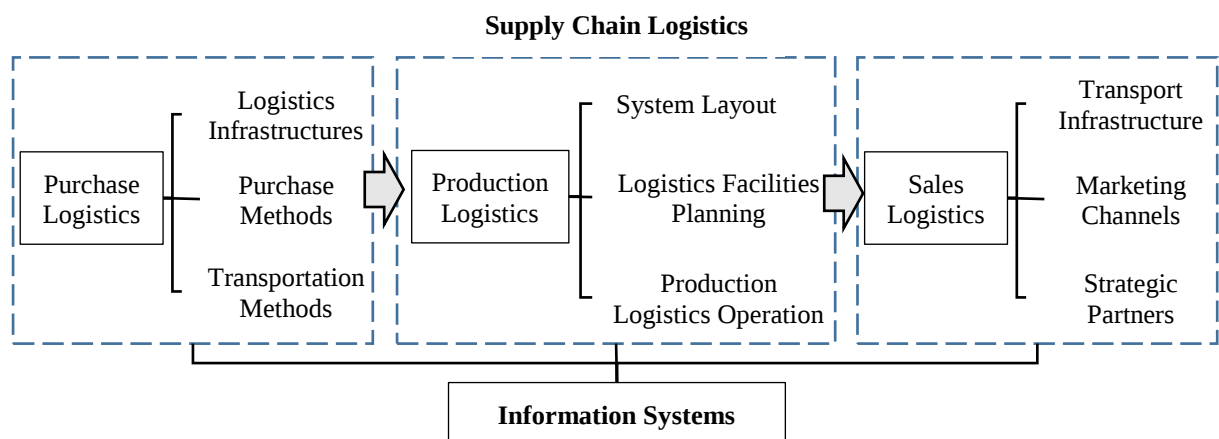
**A. Research Status of Supply-chain Logistics Mode:** The development of supply-chain logistics mode has experienced three stages.

**Phase I:** discrete supply-chain logistics based on **physical flow**. At this stage, each node enterprise operated separately, and logistics cost was not paid enough attention. There wasn't a unified supply chain thought.

**Phase II:** service supply-chain logistics based on **commercial flow**. Specialized logistics enterprises finished some or all the logistics services in this stage. Supply-chain logistics operation tended to the 'relative integration' based on the third-party logistics.

**Phase III:** integrated supply-chain logistics based on **information resources management**. At this stage, through the effective control to the information flow it strengthened the integration capabilities of the upstream and downstream business, made the operation of supply-chain more towards integration, socialization and industrialization. The mode optimized indirectly the entire physical flow by optimizing the information flow, and would bring greater economy, social benefits.

**B. Operational Framework of Supply-chain Logistics in Iron and Steel Enterprises:** Establish the operational framework of supply-chain logistics in iron and steel enterprises, as shown in the following figure. We will use this framework as a guide and combine with advanced iron and steel enterprises to research their supply-chain logistics operations.



**Figure: The Operational Frameworks of Supply-chain Logistics**

### **B.2.8 Application of Supply Chain Management in Steel Industries**

(Roy & Guin, 1999) proposed a conceptual model for just in time produce at a steel plant in India. (Gielen & Moriguchi, 2001) did statistical analysis and value chain analysis in a supply chain of steel. (Jiang, 2005) developed a decision support model for selecting the appropriate component supplier and contractor in the steel industry. (Zapfel & Wasner, 2006) anticipated warehouse layout management in steel supply chain in order to optimize use of space and timely access to products. (Marley, 2006) did a study on defeat factors of supply chain. (Karl, 2008) developed models to improve the environmental performance of steel factories and steel melting process optimization. (Peng et al. 2009) established a mathematical model for optimization the supply chain process of China's coal mines. (Liu & Dong, 2010) suggested a qualitative and conceptual model for supply chain of a steel company. (Xiaozhen et al. 2010) postulated a conceptual – operational framework for the steel company's supply chain. (Helle et al 2010) suggested the optimization of work condition and production of blast furnace. (Seifbarghy et al. 2010) did supply chain performance assessment in Mobarakeh Steel Company based on supply chain operations reference model.



## **Chapter 03**

### **An Overview of Bangladesh Steel Industry**

## **CHAPTER 03**

### **AN OVERVIEW OF BANGLADESH STEEL INDUSTRY**

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#### **3.1 Background of Steel Industry of Bangladesh**

Bangladesh is one of Asia's leading emerging steel markets and has a growing need for raw materials and steelmaking technologies. The World Bank forecasts that average GDP growth in Bangladesh in the period from 2016 to 2018 will be 6.8%, which is significantly higher than that of many other emerging markets. The movement towards a progressive national economy strongly depends on the how construction materials specially steels related industries has evolved and such products are readily available. Fortunately, the country has a proud heritage for the art of steel making and shaping for a long time. Steel is a basic raw material for infrastructural development and multiple other uses. The demand for steel will inevitably grow in line with the country's economic and infrastructural development. Major buyers of mild steel and re-rolled products include individuals, government and institutional buyers in the real estate sector. Implementation of the government's huge infrastructural development plans have been driving the double-digit growth rate in the country's steel industry and the growth is expected to persist for the next two decades amid ambitious development initiatives by the government. Currently, in Bangladesh, there are more than 400 steel, re-rolling and auto-re-rolling mills. However, most of the millers produce steel through conventional process of re-rolling ship cutting plates. (EBLSL Research, 2016)

### **3.2 Classification and Type of Steel Produced in Bangladesh**

Steel producers manufacture steel in several shapes according to demand from end consumers. Based on shape, the steel industry in Bangladesh can be categorized into two classes of products: long steel (MS rod/TMT bar) and flat steel (mainly CI sheet and CR coil). In Bangladesh most construction steel can be traced to local production of long products, most of it in reinforcing steel, commonly known as M.S. Rods. Long Steel products are used in industrial sectors, particularly in construction & engineering industries.

| Different Types of Long Steels |                                                                                                                        |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Bars                           | <ul style="list-style-type: none"> <li>▪ Rebar</li> <li>▪ Merchant Bars</li> </ul>                                     |
| Structural                     | <ul style="list-style-type: none"> <li>▪ Beams</li> <li>▪ Channels &amp; Angles</li> </ul>                             |
| Tubes                          | <ul style="list-style-type: none"> <li>▪ Oil country tubular goods (OCTG)</li> <li>▪ Other tubular products</li> </ul> |

Different types of flat products include Plates, Hot Rolled Sheets, Cold Rolled Sheets and Coated Sheet. Steel stock from capital goods such as machineries and transportation vehicles are entirely imported. Corrugated galvanized roofing sheets commonly known as C.I. sheets are also produced in Bangladesh. (EBLSL Research, 2016)

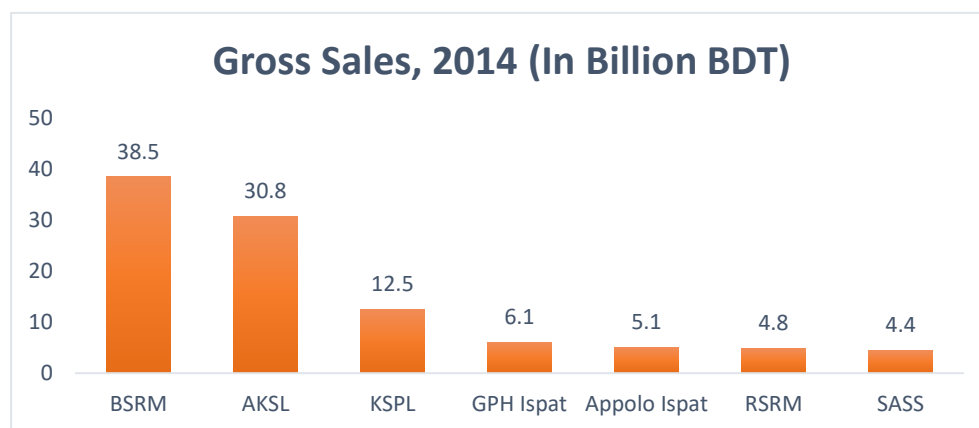
### **3.3 Production, Market Size, and Market Insight**

There is no exact year-to-year data regarding the production and market share of the steel industry of Bangladesh is available. However, according to the leading manufacturers, more than 4.0 million MT steels are currently produced in the country representing a market value of BDT 300 billion roughly. The industry grew from producing a meagre 47,000 MT in 1971 to 4.0 million MT in 2015. The production of this sector is expected to double in 2022 by the industrialists (EBLSL Research, 2016). The country's annual demand for only “branded” MS rod is estimated at more than 2.5 million MT, where the country usually consumes over 1.7 million MT of branded (high quality) MS rod or 70% of its annual demand in the peak season. The increased production of steel industry, special in the long steel, can be signified by the increased amount of import of the raw-materials i.e. scrap materials and billet for the industry in the last few years. According to a leading local daily, import of iron scrap materials and billets in the FY2013-14 was 2.8 million MT, which increased to 4.43 million in FY2014-15 and 5.54 million MT in FY 2015-16. Industry leaders says, currently the industry has been witnessing 5-7% growth from year to year and

the industry is expected to enjoy more than 15% growth, once the country's real estate sector revives from its present sluggish period. (EBLSL Research, 2016)

The steel industry plays a fundamental role in not only driving economic growth, but also other complementary industries such as transportation, energy, heavy engineering and construction. The global steel industry, second in size only to oil and gas, produced 1,665 million tonnes of steel and had an estimated turnover of 900 billion USD in 2014. Despite dynamic shifts in the global scenario, the steel industry continues to be a source of employment for over 50 million people. (LightCasleBD.com, 2016)

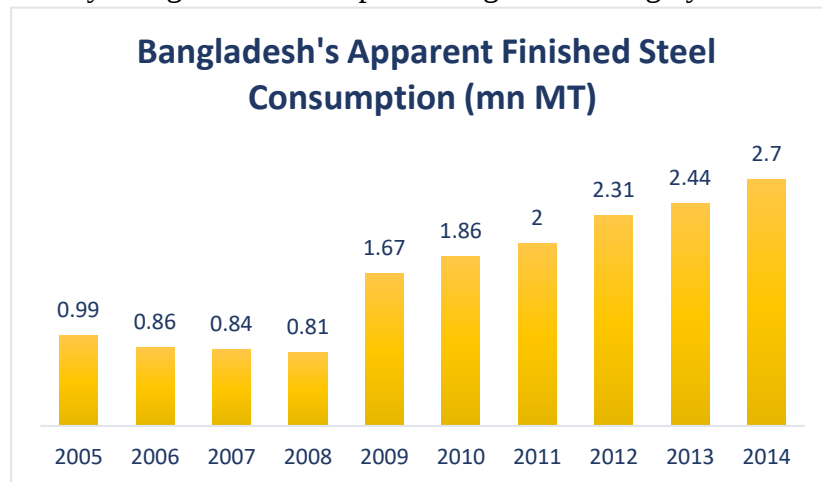
With an estimated market size of 300 Billion BDT, the steel industry in Bangladesh is currently experiencing an upsurge in demand. This growth is driven mostly by government spending on infrastructure projects, which accounts for 40% of steel consumption in Bangladesh. As with the global market, there is also a supply surplus in the local steel industry: the current demand is around 4 million tonnes, while the total capacity is around 8 million tonnes. The steel industry in Bangladesh produces mainly two classes of products: flat steel (mainly CI sheet and CR coil) and long steel (MS rod/TMT bar). Although there are currently over 400 active firms in the industry, the top 20 companies service more than half of the demand. BSRM, the market leader, currently produces around 0.6 million tonnes of steel per year, with plans to scale up production capacity by 0.3-0.4 million tonnes a year. As BSRM and other top firms such as AKS, GPH and Bashundhara Steel expand their capacity and improve their technological capabilities, the industry is becoming increasingly more monopolistic. (LightCasleBD.com, 2016)



*Source: LightCasleBD.com, 2016*

### 3.4 Consumption Pattern

The demand for steel industry is mainly driven by two factors; one is the implementation of the government's ADP plans and government's infrastructure building activities and the other is from the industrial and individual level demand especially for the real estate sector. Currently, the government projects account for nearly 40% of total steel consumption. According to the local industry leaders, present per capita steel rebar consumption in Bangladesh is only 25 kg and this is expected to grow to 50 kg by 2022.



Source: World Steel Association and EBLSL Research

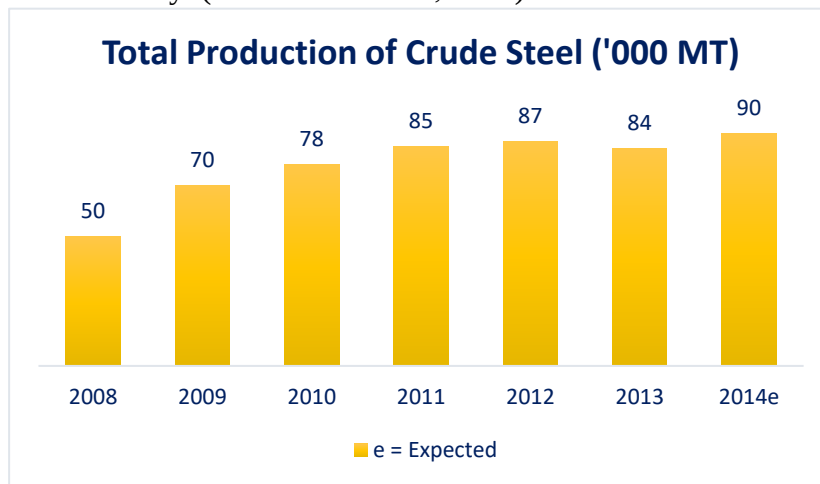
According to the World Steel Association, apparent steel consumption of the country was 2.7 million MT in the FY 2014 compared to 2.4 million MT in the FY 2013, posting 10.4% YoY growth. However, according to the industry insiders, the annual steel consumption of steel (both graded and non-graded) products now stands at roughly 4.0 million MT for long products and 0.7 million MT for CR/GP sheet. (EBLSL Research, 2016)

### 3.5 Production Capacity and Mechanism

In terms of production capacity for both finished and semi-finished (billet) steels Bangladesh is now self-sufficient. Presently, in Bangladesh, the combined annual production capacity for steel is more than 8.0 million MT. Moreover, major industry players are injecting fresh investment in this sector to enhance their production capacity to grab the potential of huge demand for the implementation of government's gigantic infrastructure development plans. For the semi-finished steel melting production, only three big players in the industry Abul Khair (AKS), BSRM and Kabir Steel (KSRM) has more than 3 million MT of billet producing capacity now and total industry as a whole have the capacity to produce roughly 3.6 million MT of billet, representing 90% of total requirements. (EBLSL Research, 2016)

### **Raw Materials**

Among the crude steel products, Billet is considered as the prime raw-materials for producing steel products. Bangladesh had roughly 1.0 million MT of crude steel capacity in 2014 but this figure has grown to more than 3.6 million MT now due to massive investment in the steel melting projects by large market player. The local mills in Bangladesh currently need more than 4.0 million MT billets annually owing to steady economic growth and the demand is growing in line with capacity enhancement of re-rolling mill in the industry. (EBLSL Research, 2016)



Source: World Steel Association and EBLSL Research

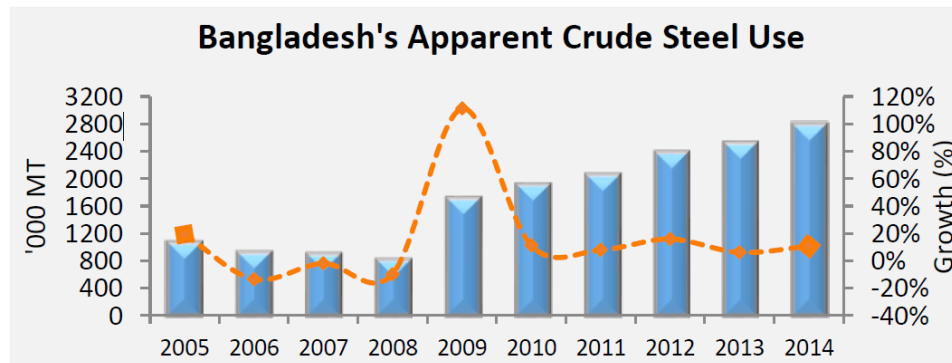
Most of the re-rollers are adopting backward integration process in order to produce quality and cost-effective products. Large players such as Abul Khair (AKS) and BSRM are reported to have already commissioned high-capacity induction and electric arc furnaces which would expand crude steel (billet) production significantly. (EBLSL Research, 2016)

| Manufacturers of Billet                | Capacity in mn MT |
|----------------------------------------|-------------------|
| Abul Khair Steel (AKS)                 | 1,400,000         |
| BSRM Group                             | 1,187,000         |
| Kabir Steel Rolling Mills Ltd. (KSRM)  | 600,000           |
| GPH Ispat Limited (GPH)                | 168,000           |
| Bashundhara Steel Complex Limited      | 100,000           |
| Sheema Automatic Re-Rolling Mills Ltd. | 70,000            |

Source: EBLSL Research

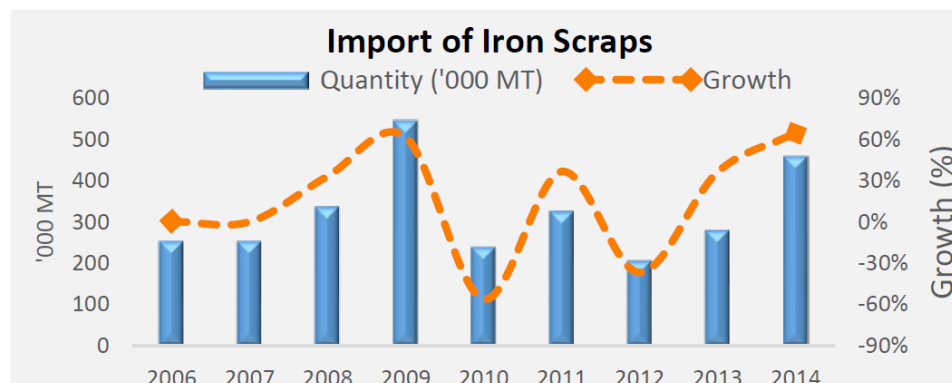
As a result of significant investment by the giant steel millers in steel melting plants to produce billets, Bangladesh now capable of supplying 90% of the required local demand for billets. However, the country still need to import billet as most of the billet millers mostly serve as the backward linkage for their own re-rolling mills.

The import of billet has reduced notably in recent years. In 2013-14, import of billet in Bangladesh was 1.6 million MT which plunged by 18.8% to 1.3 million in the FY2015-16.



Source: World Steel Association and EBLSL Research

Iron scrap is a major raw material for steel melting units based in Bangladesh. Only a small amount of required scrap materials is available from local sources (ship-breaking businesses) and the country need to import significant volume of iron scrap materials from abroad. World steel data shows that import of scrap iron in Bangladesh was only 0.46 million MT. However, the import volume has witnessed tremendous growth in the last two years in response to capacity enhancement by local billet manufacturers in recent period. Bangladesh imported 4.1 million MT raw-materials for producing billets, including iron scraps, in the FY2015-16, which is 51% higher than that of the previous financial year.



Source: World Steel Association and EBLSL Research

Bangladesh is believed to have the potential to become the second largest scrap importer in East Asia, after India, and the fourth largest importer in Asia as a whole. (EBLSL Research, 2016)

### 3.6 Major Competitor Analysis

The steel industry in Bangladesh is oligopoly in nature. Even though there are currently over 400 active firms in the industry, three big steelmakers -- BSRM, Abul Khair Steel and KSRM - supply more than 50% of the country's annual need of steel. The market leader Abul Khair Steel (AKS) and BSRM Group have been continuing their dominance in steel market. (EBLSL Research, 2016)

**About Abul Khair group:** Abul Khair group is the largest steel producer in the country. Abul Khair Steel's re-rolling mill (AKS) is capable of producing 12.75 lac metric tons high quality graded hot-rolled steel (TMT) bars per annum. The company's capacity utilization is ratio is roughly 80-85%. Abul Khair group has total steeling melting (billet) capacity of 1.4 million MT per annum and will be expanded further to 1.6 million MT per annum. The company does not import any billet for its re-rolling mills now. AKS has a special reputation for price adjustment to avail larger market share and other companies do the same accordingly to maintain the competitiveness.

**BSRM Group:** BSRM Group is the pioneer in the steel industry of Bangladesh and has strong presence in the market with around 1.15 million MT capacity of MS rod and bar annually. The group has good track record for producing quality steel and strong market penetration. Recently, BSRM group has commenced its 0.86 million MT capacity billet melting plants resulting into a total of 1.19 million yearly capacity of billet in the group level. However, BSRM group could not utilize full billet making capacity of its new plant till now and still imports around 0.5 million MT billets to meets its demand.

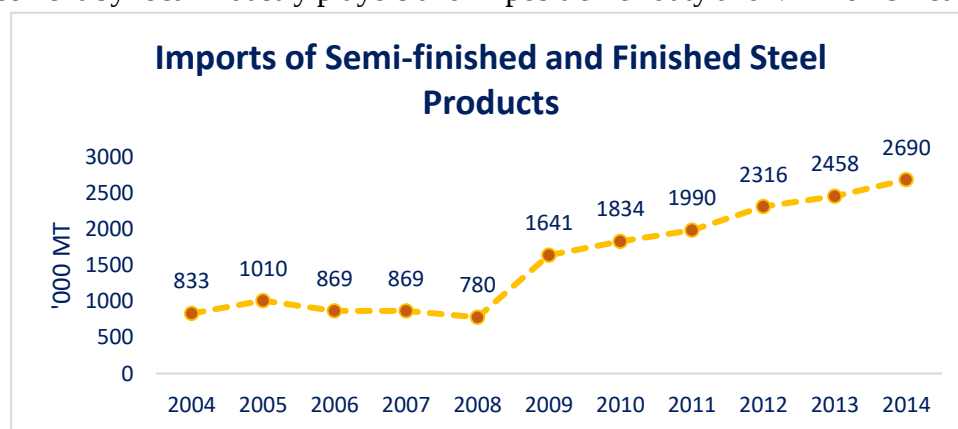
| Major Players in Steel Market               | Capacity in mn MT |
|---------------------------------------------|-------------------|
| 1. Abul Khair Steel (AKS)                   | 1,275,000         |
| 2. BSRM Group                               | 1,150,000         |
| 3. Mohsteel Limited                         | 500,000           |
| 4. Kabir Steel Rolling Mills Ltd. (KSRM)    | 400,000           |
| 5. Anwar Ispat Limited                      | 360,000           |
| 6. Ratanpur Steels Re-Rolling Mills Limited | 187,200           |
| 7. Baizid Steel Industries Ltd.             | 180,000           |
| 8. Bashundhara Steel Complex Limited        | 160,000           |
| 9. GPH Ispat Limited (GPH)                  | 120,000           |
| 10. Bandar Steel Limited                    | 120,000           |
| 11. Sheema Automatic Re-Rolling Mills Ltd.  | 45,000            |
| 12. Rahim Steel Mills Co. (Pvt.) Ltd        | n/a*              |

\*Information not available; Source: EBLSL Research

To cater to the growing demand in coming days, other major industry players like KSRM and GPH Ispat are also increasing their production capacity significantly. KSRM is undergoing an expansion plan to expand its capacity by 45% in addition to its existing 0.4 million MT annually. While GPH Ispat also announced for a massive expansion of its re-rolling mill capacity from 0.12 million MT to 0.76 million MT per year and billet making capacity from existing 0.17 million MT capacity to 1.0 million MT. According to the market players, presently 65% of the country's annual need is met by the graded millers. Even though nongraded millers held 50% of the total market share three years ago, it has now dropped to 35%. (EBLSL Research, 2016)

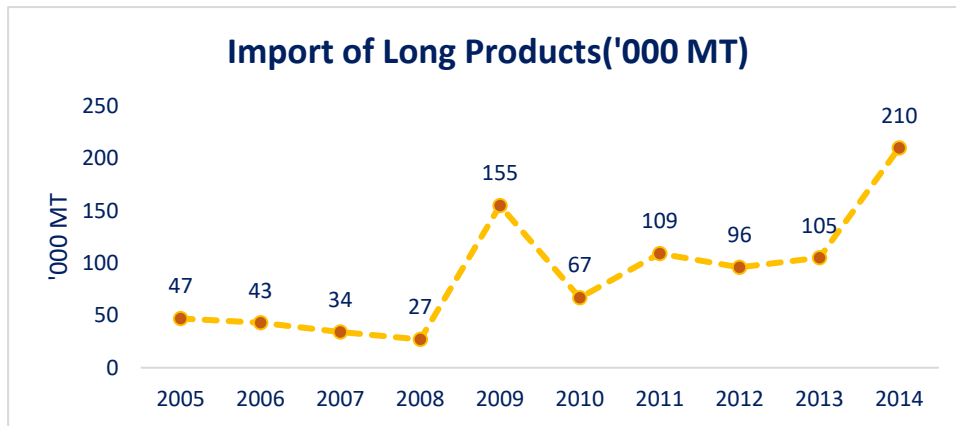
### **3.7 Export & Import**

Even though local steel industry has the capability to feed entire demand of the steel products in Bangladesh, the country also imports roughly 2.5 million MT of semi-finished (billet) and finished steel (both long and flat) products each year. Bangladesh imports mostly semi-finished steel products including billets to serve the demand for re-rolling millers. Billet imports to Bangladesh surged in last few years due to cheaper offers from Chinese suppliers but this is likely to decline in the coming years due to capacity enhancement by local industry players and imposition of duty and VAT on billet import.



*Source: World Steel Association and EBLSL Research*

Import of long products like MS rod and bar is insignificant. Around 5% of the local demand for long steel products are currently imported. Non-graded steel products are imported by some rent-seeking enterprise and such importers have minor dominance in the market.



Source: World Steel Association and EBLSL Research

In 2015, Bangladeshi importers spent on the most on the following 10 subcategories of iron and steel:

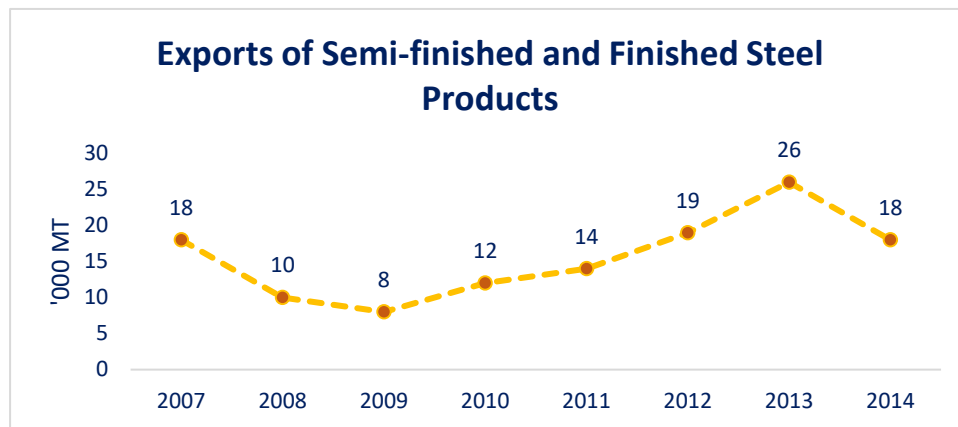
| Bangladesh's import payment on steel related products in 2015    |                 |                 |                    |          |
|------------------------------------------------------------------|-----------------|-----------------|--------------------|----------|
|                                                                  | Amount (USD mn) | Amount (BDT mn) | Change From FY2011 |          |
| 1. Hot-rolled iron or non-alloy steel products                   | 447             | 35,111          | ↓                  | -14.5%   |
| 2. Alloy steel bars, rods                                        | 440             | 34,553          | ↑                  | 24187.4% |
| 3. Iron or steel scrap                                           | 278             | 21,867          | ↑                  | 56.4%    |
| 4. Flat-rolled iron or non-alloy steel products                  | 248             | 19,469          | ↓                  | -4.9%    |
| 5. (plated/coated)                                               |                 |                 |                    |          |
| 6. Iron or non-alloy steel products (semi-finished)              | 133             | 10,430          | ↓                  | -75.2%   |
| 7. Flat-rolled other alloy steel products                        | 103             | 8,088           | ↑                  | 486.5%   |
| 8. Flat-rolled stainless steel items                             | 68              | 5,345           | ↑                  | 187.8%   |
| 9. Iron ore reduced products                                     | 43              | 3,388           | ↑                  | 16.1%    |
| 10. Cold-rolled iron or non-alloy steel products                 | 42              | 3,278           | ↓                  | -61.2%   |
| 11. Flat-rolled iron or non-alloy steel products (plated/coated) | 20              | 1,596           | ↑                  | 185.7%   |

Source: International Monetary Fund, World Economic Outlook Database and EBLSL

Research.

Among imports, Bangladeshi purchases of alloy steel bars and rods, flat-rolled miscellaneous alloy steel products and flat-rolled stainless-steel items grew at the fastest pace from 2011 to 2015. Although the country's steel sector remains mostly focused on domestic demand, owing to overcapacity and incessant investment by the market leaders, the country has the potential to export steel, especially to the northeastern states of India. However, the opportunity has been destroyed as the state governments of India have imposed 13% tax on imported rod.

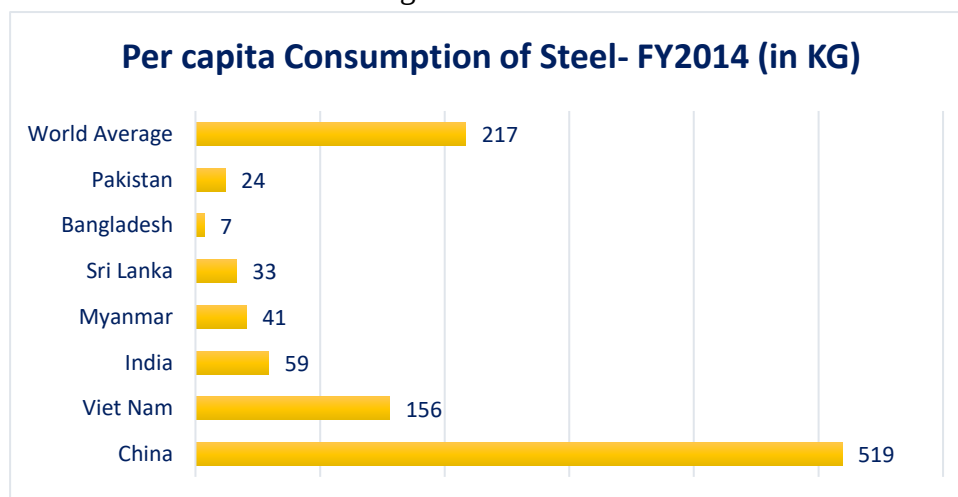
Moreover, Transit will enable the Indian states, near to Bangladesh border-side, to transport steels related products from one state to another at low-cost. Hence, the transit facility also ruined the opportunity to export from Bangladesh.



*Source: World Steel Association and EBLSL Research*

### **Regional Comparison**

Bangladesh is one of the lowest consumers of steel products in the world. According to the Steel Statistical Yearbook 2015 of the World Steel Association (WSA), average per capita steel consumption in the world was 217 kg while that of Bangladesh was only 17 KG in the year 2014. However, per capital steel consumption in Bangladesh witnessed 9% growth in the 2014 than that of 2013 according to WSA.



*Source: World Steel Association and EBLSL Research*

Per capita steel consumption in Bangladesh now stands at only 25 kilograms, according to the local industry players. The sector is expected to grow further in Bangladesh, driven by the increasing purchasing power and ongoing infrastructural developments by both public and private sector of the country.

### **3.8 Steel Industry in Bangladesh Capital Market**

Steel Industry has a phenomenal presence in the capital market of Bangladesh. There are 6 steel manufacturing company, listed in Bangladesh capital market out of which, four are specialized in the making of MS Rod, MS Bar and MS billet while other two are specialized in Cold rolled and Galvanized steel sheets/coils. Here we have presented a comparative review on the listed steel industry manufacturing companies that are specialized in MS rod and bar. (EBLSL Research, 2016)

#### **Company Overview:**

**BSRM Steels Limited (BSRMSTEEL):** BSRM Steels Limited is a high-grade steel manufacturing company, mainly engaged in the production and supply of “Xtreme 500W” deformed bars of reinforced steel. The company was incorporated in 2002 and commenced commercial operation in 2008. The product portfolio of BSRM Steels Limited comprises Xtreme-500W, D-Bar Grade-60, D-Bar GR300, D-Bar Grade-75 and Miss Rolls etc. The Company’s flagship product ‘Xtreme-500W’ contributed 93.7% of the revenue (Stand-alone) while its new product line D-Bar Grade-B420DWR generated 4.0% and rest 2.3% revenue was contributed by other products. Present Installed Capacity is 700,000 MT and capacity utilization in FY2015 was 99.5% (weighted average). (EBLSL Research, 2016)

**Bangladesh Steel Re-Rolling Mills Limited (BSRMLTD):** Bangladesh Steel Re-Rolling Mills Limited is the first fully automatic re-rolling mills built in the country. BSRMLTD produces a low carbon weldable quality high strength and high ductility concrete reinforcing bar. The company was incorporated in 1960 and commenced commercial operation in 1961. The company mainly produces MS products like 60 grade and 40 grade MS bars, Angles, Channels, I-beam, Great-beam, etc. and MS billet (Raw-materials for MS Products). BSRMLTD is now operating with two different units: (i) Re-Rolling unit for M.S.Rod, Channel, Angle and (ii) Steel Melting Works unit for production of M.S. Billet. Currently, annual installed capacity of BSRMLTD is 450,000 MT for Re-Rolling Unit and 135,000 MT for Melting Unit. The company does not have any subsidiary but has two associates namely BSRM Steels Limited (31.19% ownership) and BSRM Steel Mills Limited (44.97%) ownership. The company also has indirect control over few other companies, upon which its associate concern has controlling share. The company became listed with DSE and CSE on 27 April 2015. (EBLSL Research, 2016)

| Comparative Snapshot                               |              |               |             |             |
|----------------------------------------------------|--------------|---------------|-------------|-------------|
|                                                    | BSRMSTEEL    | BSRMLTD       | RSRMSTEEL   | GPHISPAT    |
| <b>Relative Position (As on 06 September 2016)</b> |              |               |             |             |
| Current Price                                      | 100.3        | 178.4         | 42.9        | 28.9        |
| 52 Week Range                                      | 81.0 – 106.9 | 106.2 – 207.7 | 39.3 – 65.9 | 26.3 – 57.7 |
| No. of Shares                                      | 341.8        | 195.1         | 78.6        | 311.9       |
| Free-Float*                                        | 29.1%        | 44.2%         | 52.9%       | 44.0%       |
| EPS (annualized)                                   | 11.0         | 10.1          | 3.5         | 1.2+        |
| DPS (C/B) %                                        | 30/0         | 5/10          | 5/20        | 17/0        |
| NAVPS                                              | 29.8         | 52.3          | 40.2        | 17.0        |
| P/E (x)                                            | 9.1          | 17.7          | 12.3        | 23.6        |
| P/V (x)                                            | 3.4          | 3.4           | 1.1         | 1.7         |
| Market Share*                                      | 17.5%        | 8.8%          | 2.6%        | 3.0%        |
| <b>Company fundamentals</b>                        |              |               |             |             |
| Assets (BDT mn)                                    | 29,705       | 28,394        | 4,598       | 7,884       |
| Long term debt (BDT mn)                            | 585          | 4,040         | -/-         | 450         |
| Total debt (BDT mn)                                | 12,965       | 12,315        | 1,077       | 5,295       |
| Equity (BDT mn)                                    | 10,178       | 10,209        | 3,162       | 2,120       |
| Capacity ('000 MT)                                 | 700          | 450           | 190         | 120         |
| Market Cap (BDT mn)                                | 34,280       | 34,805        | 3,373       | 9,012       |
| Market weight                                      | 1.07%        | 1.08%         | 0.10%       | 0.28%       |
| <b>Financial Information (annualized)</b>          |              |               |             |             |
| Revenue                                            | 41,068       | 21,652        | 5,811       | 6,207       |
| Gross Profit                                       | 7,655        | 3,031         | 666         | 1,028       |
| Operating Profit                                   | 6,347        | 2,491         | 602         | 818         |
| Net Profit                                         | 3,759        | 1,968         | 274         | 382         |
| <b>Profitability</b>                               |              |               |             |             |
| Gross Profit Margin                                | 18.6%        | 14.0%         | 11.5%       | 16.6%       |
| Op. Profit Margin                                  | 15.5%        | 11.5%         | 10.4%       | 13.2%       |
| Net Profit Margin                                  | 9.2%         | 9.1%          | 4.7%        | 6.2%        |
| ROA                                                | 12.6%        | 6.9%          | 6.0%        | 4.8%        |
| ROE                                                | 36.9%        | 19.3%         | 8.7%        | 18.0%       |

\*Free float shares exclude sponsor and government holding. + EPS of GPH Ispat has been restated based on post right issue number of shares outstanding.

**Ratanpur Steel Re-Rolling Mills Limited (RSRM):** Ratanpur Steel Re-Rolling Mills Limited was incorporated on 22 April 1986 & commenced its commercial production in 01 July 1986. The Company is engaged in manufacturing and selling of various graded of M.S Deformed Bar (500W /TMT, 400 W and 300W) from M.S. Billet. The company's present production capacity is 187,200 MT and in its FY2014-15 the company utilized 55.23% of its production capacity. (EBLSL Research, 2016)

**GPH Ispat Limited:** GPH Ispat Limited is an integrated steel manufacturing company in Bangladesh that engaged in manufacturing of M.S. Billet from Steel Scrap & M.S. Rod from M.S. Billet and marketing of the same. It was incorporated in Bangladesh as a Private Limited Company on May 17, 2006, commenced its commercial production on 21 August 2008 and got listed to DSE and CSE in 2012. (EBLSL Research, 2016)

**Ownership structure:** As of 31 August 2016, BSRMSTEEL has the highest sponsor holding while 30.58% of the shares of the BSRMLTD are hold by the foreign shareholders. It is to be mentionable that foreign holding of the company represents shares held by the foreign relatives of the company's sponsors/directors. Institutional holding is high for RSRMSTEEL followed by BSRMSTEEL and GPHISPAT.

| Shareholding Structure |                      |       |           |         |        |
|------------------------|----------------------|-------|-----------|---------|--------|
|                        | Sponsor/<br>Director | Govt  | Institute | Foreign | Public |
| <b>BSRMSTEEL</b>       | 70.87%               | 0.00% | 18.13%    | 0.36%   | 10.64% |
| <b>BSRMLTD</b>         | 55.77%               | 0.00% | 6.06%     | 30.58%  | 7.59%  |
| <b>RSRMSTEEL</b>       | 47.14%               | 0.00% | 19.94%    | 0.00%   | 32.92% |
| <b>GPHISPAT</b>        | 56.03%               | 0.00% | 13.94%    | 0.00%   | 30.03% |

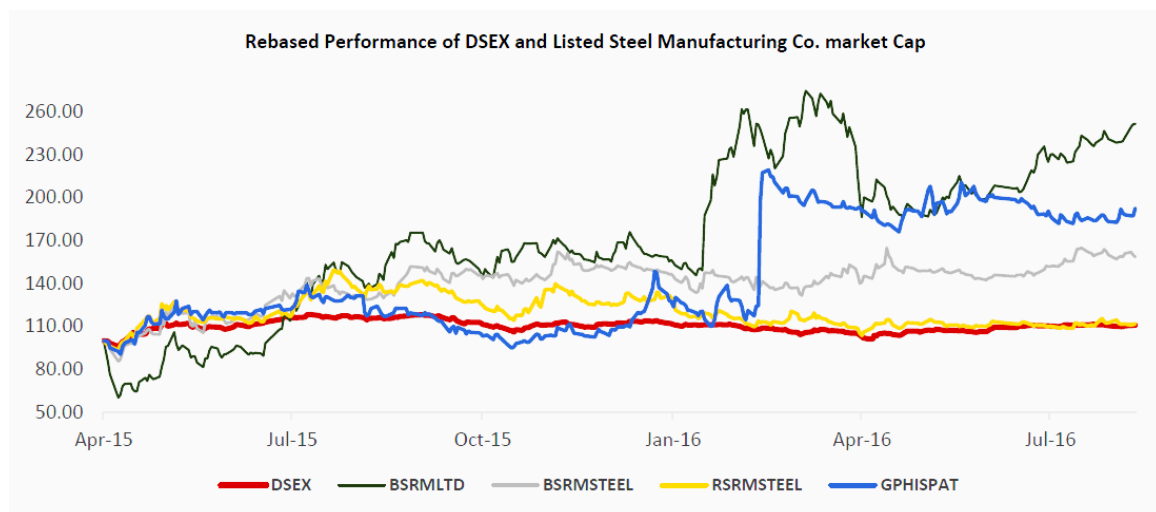
*Source: DSE Website*

#### **Analysis on Listed Steel (MS Rod & Bar) Producing Companies:**

- Among the listed steel manufacturers, BSRMSTEEL has the highest production capacity. The company's sister concern BSRMLTD holds the second largest position in terms of capacity. However, other two companies are also undergoing major expansion project in increase their production capacity.
- As per the latest available financial results of all the four companies, Gross profit margin was higher for BSRMSTEEL (18.6%) and GPHISPAT (16.6%). However, Net profit Margin was higher for both the sister concern of BSRM group (9.2% and 9.1% respectively). Non-Operating income from investment in associates has increased the net profit margin of BSRMLTD.
- Except RSRM, all the other three companies have significant interest-bearing debt in their capital structure.
- BSRMSTEEL and BSRMLTD has significant market capitalization ratio (1.08% and 1.07% respectively) while RSRMSTEEL and GPHISPAT has very low market weight.

| Investment Insights                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Investment Positives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| BSRMSTEEL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | BSRMLTD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | RSRMSTEEL                                                                                                                                                                                                                                                                                                                                                                                                       | GPHISPAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>Increased production capacity to 700,000 MT from earlier 600,000 MT per annum.</li> <li>Capacity enhancement is boosting up the quantity sold of the company and resulting into increased profitability</li> <li>Plants can yield production more than their capacity.</li> <li>Has backward linkage for raw materials through its Subsidiary (BISCO) &amp; Associate (BSML) rather than importing</li> <li>Setting up a coal based 150 MW merchant power plant by investing BDT 1.0 billion, which is likely to commence operation within 2018.</li> <li>Investment in the power project will generate incremental profit for the company in the future.</li> <li>Less affected by increase in the price of gas supply compared to competitors as the company now uses alternative fuel (LDO) for its plants.</li> </ul> | <ul style="list-style-type: none"> <li>Increased capacity of the re-rolling mill from 120,000 MT to 450,000 MT per year.</li> <li>BMRE implementation enabled the company to enjoy sizable growth in production and revenue.</li> <li>An associate of the company, BSRM Steel Mills Limited (44.97% owned) has commenced operation June 2016.</li> <li>High quality product (hot rolled bars, 500 grade Rebar and TMT) line extension is helping the company to significantly increase the profitability with increased profit margin.</li> <li>Launched a new steel rebar 'Maxima', designed for super big structures in December 2015 to cater to the growing needs of mega construction projects in Bangladesh.</li> <li>Going to introduce ASTM 572 and Grade 50 angles, which are used for the manufacture of floor trusses.</li> <li>Gets significant amount of management fees from BSRM Steels Limited for providing management services.</li> </ul> | <ul style="list-style-type: none"> <li>Increasing the production capacity to 357,200 MT per year (90.8% enhancement), which is expected to complete by December 2016.</li> <li>Possess a huge amount of unutilized capacity (44.76%). Any upsurge in demand of MS Rods can be responded quickly with production increase.</li> <li>Has a lower D/E ratio compared to other rod makers in the market.</li> </ul> | <ul style="list-style-type: none"> <li>Decided to outsource for additional sales of MS Rod from local manufacturers with a target of approximately 60000 MT per annum. Outsourcing will generate sales amounting to BDT 3000 mn and NPAT of BDT 60 mn per annum.</li> <li>Enhancing production capacity of MS Billet and MS Rod for an additional amount of 840000 MT and 640000 MT respectively per annum. (Approximate additional sales per annum will become BDT 30618 mn for MS Rod and BDT 1148 mn for MS Billet because of such production enhancement)</li> </ul> |
| Investment Negatives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <ul style="list-style-type: none"> <li>Exposed to foreign exchange risk in certain purchase of raw materials from abroad. Majority of the foreign currency transactions are denominated in USD and relate to procurement of raw-materials from abroad.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li><b>Have high exposure to leverage. High interest eats-up a significant portion of its profit before interest and tax.</b></li> <li>Exposed to foreign exchange risk in certain purchases and borrowings. (In 2015 net exposure to foreign exchange rate stood at USD 15.86 million</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>The financial statement (Q3, 2016) does not reflect any significant capital expenditure yet even after the expansion decision taken in August 2015.</li> <li>Dependent on a single supplier for its raw materials (M.S. Billet). It procures major portion of its</li> </ul>                                                                                             | <ul style="list-style-type: none"> <li>Highly leveraged firm and D/E ratio shows an increasing trend over the periods. Moreover, company is going to take further loan from bank/financial institutions to finance their increased capacity which will increase their D/E ratio further. Approximate</li> </ul>                                                                                                                                                                                                                                                          |

|                                                                                                                                           |                                                                                                                                                         |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Heavily exposed to leverage. High interest eats-up a significant portion of its profit.</li> </ul> | <p>(BDT 1.25 billion). Majority of the foreign currency transactions are denominated in USD and relate to Liability for accepted bills for payment)</p> | <p>raw materials from Modern Steel Mills Limited.</p> <ul style="list-style-type: none"> <li>Revenue &amp; Profit shows a fluctuating trend over the years. OCF has been fluctuating throughout the years. RSRM has the lowest revenue compared to its competitors.</li> </ul> | <p>loan amount will be BDT 14380 mn.</p> <ul style="list-style-type: none"> <li>Revenue, Operating Profit and Net Profit growth depict great volatility over the periods.</li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



Data source: DSE website & EBLSL Research.



## **Chapter 04**

### **An Overview of Bangladesh Steel Re- Rolling Mills**



## **CHAPTER 04**

### **AN OVERVIEW OF BANGLADESH STEEL RE-ROLLING MILLS**

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#### **4.1 Introduction**

BSRM is the leading steel manufacturing company and one of the prominent corporate houses in Bangladesh. Over the years BSRM steel products have been chosen solely for building major National landmarks and infrastructures. To name a few, the Hatirjheel Project, Zillur Rahman Flyover, Mayor Hanif Flyover and Shah Amanat Bridge were made with BSRM Xtreme. BSRM Xtreme is a product that was introduced when there were no graded steels. It was a major change in the steel industry. The core driver was the belief in evolution in steel products, which resulted in bringing the first EMF tested rod, the first steel brand that passed 5 million cyclic loading Fatigue testing in the U.K. and conformed to 10 global standards. With the largest steel producing factory in the country and employing the best technology from Europe, the company maintains volume with uncompromising quality. BSRM is dedicated to providing the best solution for the construction industry. The first ever 50mm rod was specially designed and rolled for the deep piling requirements of Padma Bridge. Its recently introduced brands are also designed to meet special needs for the construction industry. (BSRM Website, 2018)

#### **The Trinity of Strength, Safety, and Sustainability**

*When we think of the effect of steel, we think of the pillars of strength, the roofs over our heads, of metal that binds together the progress of humanity and its dreams. When we think of the steel, we think of the ultimate symbol of strength, of endurance and of safety.*

*The three corners of the Trinity logo represent the three core essences of our products – Strength, Safety, and Sustainability. The number 3 itself is a symbol of totality, of being a ‘whole’. The color is the representation of steel in both real and graphic form. The interlocked structure of the logo symbolizes unbreakable strength and infinite sustainability. We call it “The Trinity of Strength, Safety, and Sustainability”. (BSRM Website, 2018)*

## **4.2 A Brief History of BSRM**

BSRM Group of Companies is the largest and leading industrial conglomerate in the steel sector of Bangladesh. BSRM Group of Companies established its first concern in 1952 and since then serving the nation with an exception. The founder of this group is Late H. Akberali Alibhai Africawali, the father of Mr. Alihussain. Also, 4 other brothers of late Mr. Akberali contributed to the setting up of such a vast empire. The BSRM saga started by setting up of four manual rolling mills, the first of its kind, to produce plain bars for construction purposes. Then in 1987, a milestone was achieved. The four old manual mills were scrapped and an automatic billet based rolling mill was installed under the name of Bangladesh Steel Re-Rolling Mills Limited. The two highway bridges over the rivers of Meghna and Gumti, the Chittagong Airport, KAFCO Fertilizer plant and most of the country's largest prestigious projects and many high-rise buildings were built using the BSRM bars. In 1996 the company saw the commissioning of a captive billet making plant under the name of Meghna Engineering Works Limited. In 2006, the first and the only ribbed wire cold rolling plant in the country using European Technology to make 500 mpa yield strength wire reinforcements in sizes 4.5mm, 5.7mm and 7.1mm was introduced by BSRM helping to bring down the cost of construction. (ReflectionNews.com, 2011).

In 2008, with the commissioning by DANIELI, Italy, BSRM has built a state-of-the-art rolling mill at Fouzderhat, Chittagong under the name of BSRM Steels Limited with the capacity of producing 375,000 MT bars of 500mpa strength at the brand name of "Xtreme 500W". It is a crowning glory not only for the company but also for the nation. Then, BSRM took a step to increase the capacity of the mill to 600,000 MT per annum. Simultaneously, it also planned to increase the capacity of its oldest mill, Bangladesh Steel Re-Rolling Mills Limited up to 400,000 tons to meet the demand for quality sections for the re-bars of the country. Currently, with all the expansion of new capacities, BSRM alone is being able to meet around 30% market share of the country with over 1 million tons steel capacity. The group concerns are ISO-9001: 2000 certified. The products are also tested and certified by BUET, BDS etc. and the group always maintains international standard in its production for the best quality products with guaranteed customer satisfaction. BSRM Group of Companies is a very transparent and well managed industrial house in Bangladesh. The group has a clear vision to be the number one leader of the sector on every count, viz. market share, cost-effectiveness, quality, and innovation. Capital is being

continuously injected into the plants to improve efficiency in line with the capacity and the company conducts product and market research to match the needs of the time. The products of BSRM are Deformed Bars with a yield strength of 72,500psi (min), deformed bars of Grade 300 & 400, Grade-75 wires, Angles, Channels, Spring Steel Flats, Low Carbon Wire Rods, etc. This group has a wide marketing and distribution network across the country for the fastest and smooth delivery of its products to the end-user. (ReflectionNews.com, 2011).

BSRM Group of Companies achieved numerous awards & recognitions for their quality assurance and performance such as best brand award, best presented annual report, corporate governance excellence, presidency award, tax card achievement etc.

The board of directors of the company are involved in various social activities. They ensure quality and focus on customers' satisfaction. The auditing, strategic policy making decisions, human resource development decisions are carefully monitored by them.

### **4.3 Vision and Mission of BSRM**

BSRM Group of Companies aspires a vision with:

- Maintain leadership position in the steel industry by producing the best quality steel products, continuously enhancing customer satisfaction, and becoming a reliable business partner of customers and suppliers.

The missions of the company are:

- Be an employer of choice, with focus on nurturing talent and developing future leaders of the organization.
- Protect the interest of the shareholders through sustainable growth and value creation.
- Preserve the trust of all the stakeholders by adopting ethical business practices.
- Support the society through Corporate Social Responsibility initiatives.

(Annual Report 2016-17, BSRM Limited)

#### **4.4 Goals and Objectives of BSRM**

- To Produce High Quality Products
- To Reduce the Cost of Production
- To Optimize Production Capacity
- To Ensure Maximum Satisfaction of the Customer
- To Recruit and Development Workforce
- To Ensure Adequate Corporate Governance

(Annual Report 2016-17, BSRM Limited)

#### **4.5 Values of BSRM**

- **Sustainable Growth:** Consistent improvement in the quality of products and services, efficiency of processes and profitability of business; continuously anticipating and responding to the changing business and environmental needs using innovation; sharing knowledge and experience within the organization.
- **Quality:** Create products and services valued by the customers; constantly improving processes through innovation and adopting best practices; reducing wastage; minimizing costs; investing in systems and technology & developing people.
- **Reliability:** Be the preferred business partner for the customers and suppliers by offering quality products; providing best and timely service before, during and after the business transactions and honoring all the commitments despite challenges.
- **Trust:** Preserve the faith and goodwill of all the stakeholders – customers, shareholders, suppliers, employees, regulatory bodies, and society by adopting ethical and transparent business practices, being fair and honest in all the dealings and building robust governance and risk management processes.
- **Leadership:** Be a role model, setting benchmarks through the products, processes, and people; constantly moving ahead of the competition by differentiating, innovating, increasing the market-share and nurturing talent to develop leaders.
- **Social Responsibility:** Acknowledge and fulfill the obligations towards the society by undertaking initiatives for the general uplifting of the society, building capability and making facilities available to the underprivileged.
- **Customer Satisfaction:** Delight the customers at every stage of interaction with them by truly understanding their needs, offering them the best products and services, treating them with respect and actively seeking and acting on their feedback.

(Annual Report 2016-17, BSRM Limited)

#### 4.6 A Number of Distinctive Milestones

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1952</b> | The BSRM saga began with the first steel re-rolling mills to emerge in the then East Bengal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>1984</b> | Introduced high strength cold twisted steel bars (TORSTEEL) to the construction industry.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>1987</b> | Introduced high strength Deformed reinforcing steel bars conforming to ASTM 615 Grade 60 for the construction industry.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>1996</b> | Commissioned the then largest billet making plant in the country - Meghna Engineering Works Limited, now known as Steel Melting Works (SMW) unit of Bangladesh Steel Re-Rolling Mills Ltd.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>2006</b> | Introduced micro reinforcement wires, below 8mm, for low-cost rural construction.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>2008</b> | BSRM Steels Limited commenced production of internationally recognized Grade 500 steel bars branded as “Xtreme500W” conforming to ISO 6935-2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>2009</b> | Entrance in the Capital Market - Shares of BSRM Steels Limited, the flagship company of BSRM Group was listed with the country’s premier bourses Dhaka Stock Exchange (DSE) Ltd. and Chittagong Stock Exchange (CSE) Ltd. on 18 January 2009. Market Capitalization as on 30 June 2017 is Tk. 29,974 million.<br>The public shareholding including institutional investors is 29.13%.                                                                                                                                                                                                                                               |
| <b>2010</b> | BSRM Iron and Steel Co. Ltd. largest billet making plant in the country started commercial production on June 01, 2010.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>2012</b> | The production capacity of BSRM Steels Limited enhanced to 600,000 MT per year.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>2013</b> | A syndicated term loan of US\$ 40 million and BDT 5,908 million, raised by a consortium of 25 banks and financial institutions for BSRM Steel Mills Limited. It is the largest ever syndicated loan facility arranged for a private company in Bangladesh. The Plant produces high-quality MS Billets.                                                                                                                                                                                                                                                                                                                              |
| <b>2014</b> | Oracle e-BS -12 went GO LIVE on 1ST March 2014. Oracle Financials, Costing, Purchasing, Manufacturing, EAM, Inventory & order management are now integrated into a single platform which ensures the accuracy, accountability, and reliability of the Group.                                                                                                                                                                                                                                                                                                                                                                        |
| <b>2015</b> | <ol style="list-style-type: none"> <li>1. Enhanced capacity of BSRM Steels Limited from 600,000 MT to 700,000 MT per annum.</li> <li>2. Announced a new product namely “<b>BSRM Maxima</b>”</li> <li>3. Increased capacity of Bangladesh Steel Re-Rolling Mills from 120,000 MT to 450,000 MT per annum which will be the first and largest merchant mill in Bangladesh.</li> <li>4. Listing of Bangladesh Steel Re-Rolling Mills Limited with the stock exchanges (DSE &amp; CSE).</li> <li>5. Start of trial production of world’s largest induction furnace based billet casting project –“BSRM Steel Mills Limited”.</li> </ol> |

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2016-17      | <ol style="list-style-type: none"> <li>1. BSRM Steel Mills Limited, the largest billet making plant in the country started commercial production in June 2016.</li> <li>2. <b>Ultima &amp; EPOXY coated bars - CENTURA</b> are introduced.</li> <li>3. Start to set up a new melting plant at Sonapahar, Mirsarai, Chittagong under BSRM Steels Limited with a capacity of 430,000 MT.</li> <li>4. For first time sales of BSRM has crossed <b>ONE MILLION</b> M. ton.</li> </ol> |
| WHAT'S NEXT? | Another melting unit with a capacity of 430,000 M. Ton for producing billets is under construction at Sonapahar, Mirsharai, Chittagong.                                                                                                                                                                                                                                                                                                                                           |

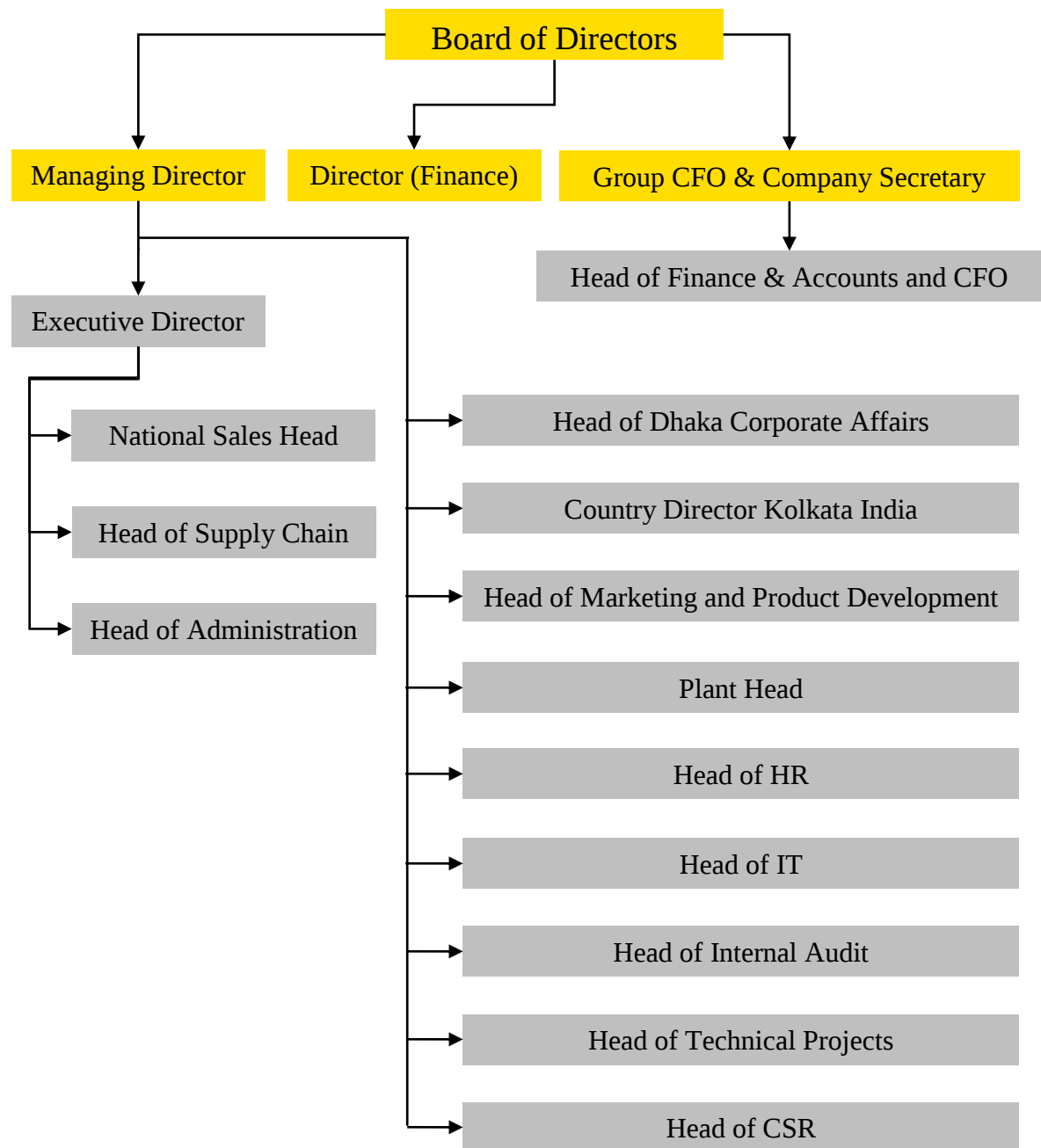
(Annual Report 2016-17, BSRM Limited)

#### 4.7 Various Branded Products of BSRM

- **BSRM Xtreme (Feel Safe with Xtreme Inside):** Xtreme is a high strength reinforcing steel for general purpose construction of low and medium rise commercial and residential buildings and bridges. It is the steel of choice among home builders.
- **BSRM Maxima (The Steel for Mega-Structures):** Steel is the backbone of a nation's infrastructure and used in the tens of millions of tons to build cities, bridges, and factories. BSRM Maxima is exactly the material for construction of projects which needs extra strength combined with an extra dose of safety.
- **BSRM Ultima (Designed for Superior Safety):** All vital installations anywhere in the country like hospitals, schools, airports, railway stations, and bridges cannot be allowed to fail in an earthquake. In a landmark innovation, BSRM brings BSRM ULTIMA with the unique 'strain hardening' property with superior safety in the time of earthquake.
- **BSRM Xtrong (Strength in Every Angle):** Xtrong is a high strength structural steel conforming to standards and grades. Channels and Angles section rolled out of this high strength steel provides an economic alternative to steel fabricated structures. BSRM makes Angles, conforming to Grade 50 in different sizes.
- **BSRM Centura (Assured for a Century) - Epoxy Coated Rebar for Corrosion Free Structures:** Corrosion-induced failures cause severe distress to concrete structures is most common in any chemically aggressive environments. Repair and rehabilitation of the structures not only costs but also cause inconvenience to the public. So, it is essential to plan corrosion protection strategy to combat corrosion for the durability of structures, particularly in marine, coastal or industrially polluted areas. Fusion Bonded Epoxy Coating provides protection against corrosion for the design life of the structures.

(BSRM Website, 2018)

#### 4.8 Organizational Structure of BSRM



(Annual Report 2016-17, BSRM Limited)

#### **4.9 How the BSRM Brand Changed an Industry**

In 2008, BSRM became the first steel manufacturer in Bangladesh to launch their flagship product ‘BSRM Xtreme’, the first 500W-grade rebar in the country. This bold move was seen by many as foolhardy because steel was an extremely low involvement product back at that time. This was a market dominated by retailers, where consumers relied on them. But BSRM went against the tide by advertising to consumers. In 2008, BSRM launched the iconic 360-degree campaign of BSRM Xtreme involving all media vehicles, where press advertisements showed an elephant standing on a steel rod to exemplify the strength of BSRM rods. Through this campaign, BSRM becomes the first manufacturer to talk about the true purpose of rebar, which is safety. After 2008, BSRM kept BSRM Xtreme on the forefront of technological innovations by becoming the first rebar to conform to 10 global standards. This effort was noticed and BSRM enjoyed a pull market effect while the competition was still languishing in the push market. This loyalty helped ward off increased competition in the form of players in the category, even charging a premium price. (Bangladesh Brand Forum, 2015).

Over the period of time, BSRM went miles ahead of their competition by conducting research and using insights to design campaigns to address the decision-making aspect of consumers and educating consumers on what features of steel rods kept a structure safe. That’s how the stakeholder campaign was born, where consumers were educated on just how much steel is needed, and why it was important to choose the best steel because one can’t change the steel inside once the building is made. The concerted effort of the communication campaign as well as a strong distribution network ensured BSRM’s leadership in the market and turned the table around in terms of buyers as the “Individual Home Builder” buyers became the majority of BSRM sales. BSRM later ventured outside Bangladesh to enter foreign markets, mainly India, because BSRM is the only steel manufacturer in the country to have achieved Indian certification, where BSRM is planning to compete with eminent steel manufacturers in India. Today, BSRM has become a household name, and more importantly, is synonymous with safety with the slogan of **“BUILDING A SAFER NATION”**. BSRM achieved the Best Brand Award of Bangladesh for 2011, 2013, 2014, 2015, 2016, and 2017; also, has been recognized as the no. 1 brand in Reinforced Steel Category. (Bangladesh Brand Forum, 2015).

#### **4.10 Organizational Culture of BSRM**

Organizational culture encompasses values and behaviors that "contribute to the unique social and psychological environment of an organization" (The Business Dictionary). According to Needle (2004), organizational culture represents the collective values, beliefs and principles of organizational members and is a product of such factors as history, product, market, technology, strategy, type of employees, management style, and national culture; culture includes the organization's vision, values, norms, systems, symbols, language, assumptions, environment, location, beliefs, and habits.

BSRM is one of the prominent corporate houses in Bangladesh leading the steel industry of this country with professional excellence and sociable culture. BSRM always adopts best ethical and transparent business practices to be fair and honest in all its dealings. BSRM always acknowledge and fulfill the obligations of the society and offer the best services to the customers and treat them with respect and honor. Major important aspects of BSRM culture are:

- Different world class consultancy firms like PricewaterhouseCoopers (PwC), Deloitte brought changes in the culture of BSRM through structural changes, process improvements, and personal developments.
- The attire of the employees is decent and they are quite friendly. Employees are very much keen on one another.
- The authority and responsibility are very much clear and the hierarchical organogram is fairly maintained. This gives them the courage to become achievement oriented and bring professional excellence.
- Employees are prone to changes because they know that change is inevitable and changes bring improvement. To support such intention, different workshops, training, and development programs are very frequent here.
- The corporate culture is immensely great. The top management keeps a high commitment for an honest and corruption free corporate culture and practice across the organization.

### **4.11 Moving Towards Eventual Sustainable Growth**

To keep human resources safe and sound and the environment clean, BSRM has taken a number of measures. It always gives priority to maintain workplace safe, secure and ensure the green environment for all of the employees as well as for the country.

#### **Green Environment**

BSRM Steels Limited uses world-class Water Treatment Plant (WTP) for recycling the water for reusing and to keep the environment free from pollution. The Company has also commissioned Air Pollution Control (APC) system in BSRM Iron & Steel Co Ltd. (BISCO) to keep the air free from Pollution. In the same way, they are going to implement a rainwater harvesting project for their new billet casting plant at Mirershorai. It will have a marvelous positive impact on the environment. As recognition of the effort to keep the environment clean and greener, BSRM was awarded the “Divisional Environmental Award” by Poribesh Odhidaptar.

#### **Human Resources Function**

Success isn't possible without a great team. At BSRM Group of Companies, nurturing and supporting human talent is the utmost priority. They believe sustainable growth is only possible if they foster teamwork, develop talent, enhance leadership capability, and maximize the potential of the human capital. BSRM focuses on valued people to optimize their creativity and performance by ensuring a safe and congenial working environment, cohesive corporate culture, appropriate training, reward and recognition, and various employee benefits schemes. Hiring the right person for the right job is the first step in the efforts to maintain a strong, capable, and independent workforce.

Being an **Employer of choice**, BSRM aspires to align the people with their Vision and Values and make them a key factor for success in business transformation and change process. **Talent Acquisition** is a stringent process of recruitment, selection, and strategy to attract qualified potential candidates who are committed to achieving the organizational goals. BSRM **Training and Development** activities are systematic, organized, and ensure that individual training needs are well defined, understood, and catered to. The safety of the people is of paramount importance, and **Health, Safety, and Environment (HSE)** policies are created and implemented to maintain a safe working environment for every

stakeholder. **A well-designed Succession Planning policy** is used to assess, develop, and retain a talent pool in order to ensure a continuity of leadership for all critical/significant positions. BSRM people deserve the best, and hence they focus on their **Benefit Policy** to ensure that the talent receives benefits and allowances beyond the basics. **Rewards and Recognitions** are given to recognize employees for their excellence in service, loyalty, ideas, dedication to the vision and values of the group, and their contribution to change management. The achievements are communicated through "**Xtreme Talk**", corporate newsletter so that they can all rejoice in the success of the people.

### **Information Technology**

BSRM Group was founded more than 60 years before and continuing its rapid growth more so in the past decade. In such complex rapid growing scenario, the IT-based business-friendly solution is the only way to handle all the data. BSRM IT through Management foresight managed to keep up with this fast & complex growth as an organized entity and began to systematically address the challenges. Today IT as a strategic partner in business enablement plans, controls, and manages all IT-based business issues in a very constructive, productive & controlled manner with periodic reporting & monitoring.

BSRM IT is managing the total network of BSRM Group including server management, managing and upgrading Oracle eBS, developing in-house software integrating with Oracle eBS and providing several levels of support to end user. Last year BSRM IT has focused on ERP up-gradation by modifying and creating various customizations, personalization, reports etc. Last year BSRM IT also provided almost in-house maintenance of ERP, took several initiatives to expand technology, enabled services for the external and internal customers, sales promoter and provide a business solution to the internal department. The key objective of these initiatives was to make the information more available, fast & easily accessible to the stakeholders. Next year BSRM IT will focus on the implementation of Business Intelligence (BI) as well as support. BSRM IT also planned to increase employee efficiency by developing various Android Apps and Software System.

(Annual Report 2016-17, BSRM Limited)

### 4.12 A Constructive SWOT Analysis of BSRM

SWOT analysis (or SWOT matrix) is an acronym for strengths, weaknesses, opportunities, and threats and is a structured planning method that evaluates those four elements of an organization, project or business venture. It involves specifying the objectives of the business venture or project and identifying the internal and external factors that are favorable and unfavorable to achieve that objective. (Wikipedia, 2018)

- Strengths: characteristics of the business or project that give it an advantage over others
- Weaknesses: characteristics of the business that place the business or project at a disadvantage relative to others
- Opportunities: elements in the environment that the business or project could exploit to its advantage
- Threats: elements in the environment that could cause trouble for the business or project

| BSRM SWOT Analysis      |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                               |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | Positive Factors                                                                                                                                                                                                                                                       | Negative Factors                                                                                                                                                                                              |
| <b>Internal Factors</b> | <b><u>Strengths:</u></b> <ul style="list-style-type: none"> <li>▪ Market Leader</li> <li>▪ Quality Products</li> <li>▪ Great Competitive Skills</li> <li>▪ Guiding Values</li> <li>▪ Strong Marketing and Supply Chain Lineup</li> <li>▪ Updated Technology</li> </ul> | <b><u>Weaknesses:</u></b> <ul style="list-style-type: none"> <li>▪ High Financing Rates</li> <li>▪ Crisis of Power Supply</li> <li>▪ Difficult to Manage Vast HR</li> </ul>                                   |
| <b>External Factors</b> | <b><u>Opportunities:</u></b> <ul style="list-style-type: none"> <li>▪ Growing GDP</li> <li>▪ Growing Steel Consumption</li> <li>▪ International Scope</li> <li>▪ Entering New Industry</li> </ul>                                                                      | <b><u>Threats:</u></b> <ul style="list-style-type: none"> <li>▪ Huge Increasing Cost</li> <li>▪ Raw Materials Price Fluctuation</li> <li>▪ Import Related Hassles</li> <li>▪ Threat of New Entrant</li> </ul> |

#### **Strengths:**

- BSRM is the market leader in steel industry by serving around 30% of the market.
- The quality of BSRM products conforms to a great standard and different tests.
- It has strong competitive skills to fight with the major challenges in the industry.
- It has 7 core guiding values that give a sense of work and progress.
- It has SCM capabilities to dominate the market with ethics & quality products.
- It has amalgamated with updated technologies from time to time both in production and management to bring accuracy and ease the process.

**Weaknesses:**

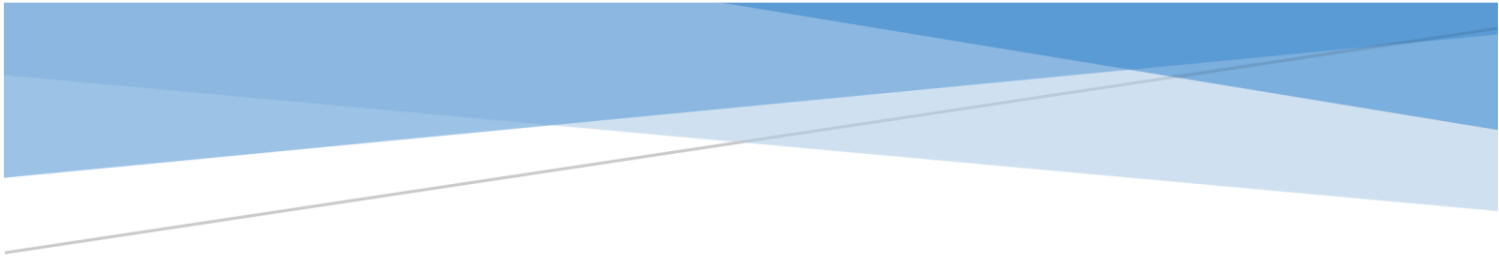
- BSRM is exposed to high market risks due to the high financing rates. The internal capital management face difficulties in managing projected financial income.
- Power is one of the major utility services a steel manufacturing firm needs. The crisis of power supply is immense in this country. The company is aware of such risks although self-sufficiency is quite difficult.
- A lot of employees are working around in different factories, distribution, and corporates. Managing this vast human resource is really challenging.

**Opportunities:**

- Bangladesh is an emerging growth market for infrastructure development. Different private & governmental projects need a huge amount of steel.
- According to the projection of numerous steel industry expert, the average steel consumption in Bangladesh is going to be double in 2022 (Current: 25 Kg).
- Now, BSRM serves the Indian market in a very tiny portion. Huge foreign feasible investment can widen the scope.
- BSRM has taken a vow to create a safer nation with its quality steel products. Still, in the near future, there is an immense scope to explore other industries with related diversification such as safety products for roads/building/security service, construction, real estate etc.; also, with another unrelated diversification.

**Threats:**

- The steel industry is a heavy industry which needs a huge investment in different aspects. The increasing costs of these aspects are a great threat to keep a reasonable price of the finished products.
- BSRM is highly dependent on the international market to import raw materials (about 90%). The price fluctuation of raw materials impacts the overall cost.
- The congestion in the port and commercial wing related problems create a huge impact on the cost and overall production system because the lead time of different materials and products.
- Since the industry attractiveness is very much high for the last few years, new companies are trying to harness the cream from the market. Though BSRM is constantly trying to maintain its market position through quality and innovation.



# **Chapter 05**

## Supply Chain Management of BSRM

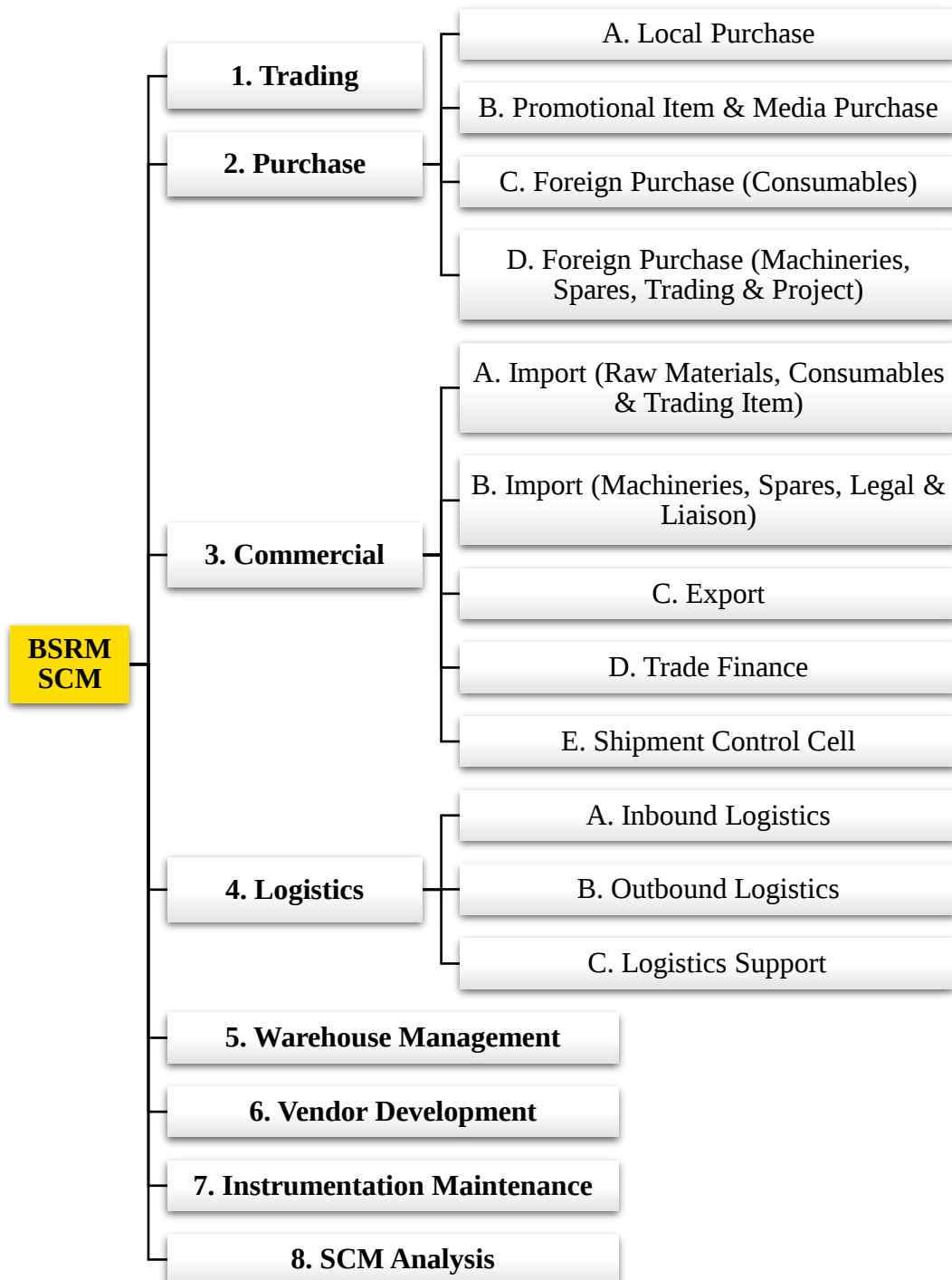


## **Chapter 05**

### **SUPPLY CHAIN MANAGEMENT OF BSRM**

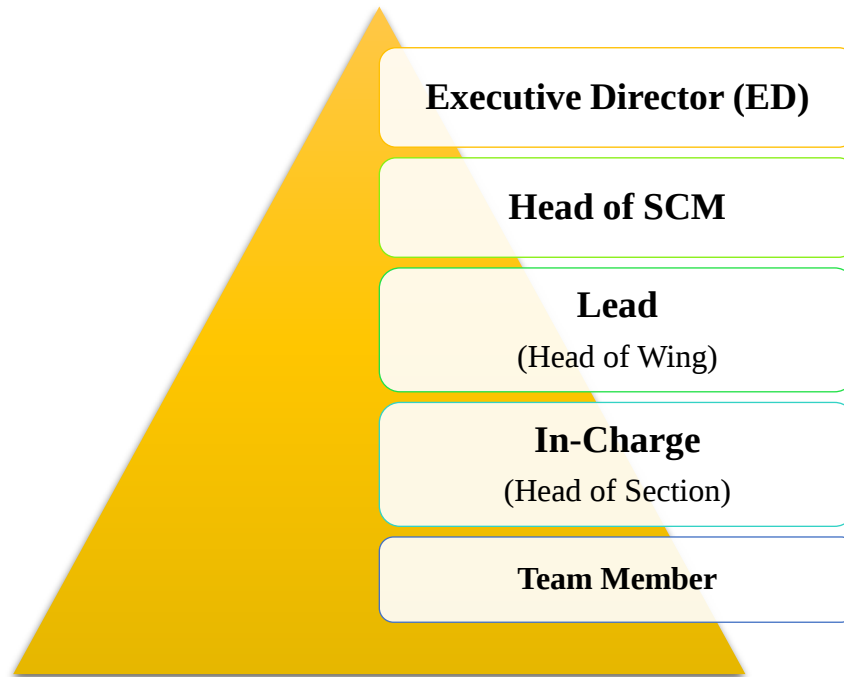
#### **5.1 Structure of BSRM Supply Chain Management**

The structure of BSRM Supply Chain comprises the following wings:



## **5.2 Authoritative Hierarchy of BSRM SCM Department**

BSRM SCM is one of the biggest supply chain management of Bangladeshi companies. The scope and people working in this department are involved in the huge amount of activities on organizing the overall flow of products, information, and funds.



- The authority flows from the Top to Bottom.
- The Executive Director (ED) supervise the SCM Department through the Head of SCM, who in turn supervise and manages all the activities of SCM.
- Leads are responsible for a particular wing of the SCM Department. Ex- Trading, Purchase, Commercial, Logistics, and Warehouse Management etc.
- In-Charges are responsible for a particular section under the wing. Ex- Local Purchase, Foreign Purchase, Import, Export, Inbound Logistics, and Outbound Logistics etc.
- Team Members are supervised under the In-Charges. The team members are responsible for particular tasks assigned to them as such someone is working for SMW/BISCO/SML/BSRM Mills/BSRM Steels. They are also divided into different teams based on the nature of the tasks assigned to them.
- Around 150 people are working in the management level, and in total around 250 people are working under this whole department.

## **5.3 Breaking Down of Each Wing**

### **5.3.1 Trading**

The primary activity of the wing is to buy scrap according to the requirement of the company from local sources, and assist in selling required materials to different internal and external customers. The main source of this local scrap is from the ship breaking scrap purchase. There is a requirement of 4,000 Tons/Day of scrap, out of which only around 400 Tons/Day are fulfilled from the local sources i.e. 10%. Because of using the ship breaking scraps, the quality of the steel made out of BSRM is so high and passes different tests. There are 40-45 enlisted scrap suppliers of BSRM, out of which 15-20 supply scraps regularly. (Kamrul, Kurabanbbhai, 2017; interviewed)

#### **❖ Subject Matters of Trading:**

1. Scrap Purchase/Receiving Procedure
2. Purchase of Structural Trading Items
3. Assisting the Sales Department in Selling to Foreign External Companies

(Kamrul, Kurabanbbhai, 2017; interviewed)

#### **❖ Process Steps of Trading:**

##### **Scrap Purchase/Receiving Procedure:**

1. Un-Order Receive of scrap materials from the supplier in different receiving site.
2. Preparing Truck Gate Entry – by checking Party Challan / VAT Challan.
3. Preparing Inward Gate Pass (IGP) – Party Name, Driver Name, and Truck No.
4. Weighting the received truck and scraps.
5. Preparing Provisional Goods Received Note (GRN) by the receiving site authority.
6. Preparing Purchase Order (PO) by the trading wing.
7. Preparation of Final GRN by the receiving site.
8. Check Final GRN, then the Bill is sent to the Accounts Department for payment.

##### **Purchase of Structural Trading Items:**

1. Receiving of Pro-Forma Invoice (PI) from the foreign supplier.
2. Preparing Purchase Order (PO) according to the requirement.
3. Send the PI to the Commercial Wing (Import) for further actions.

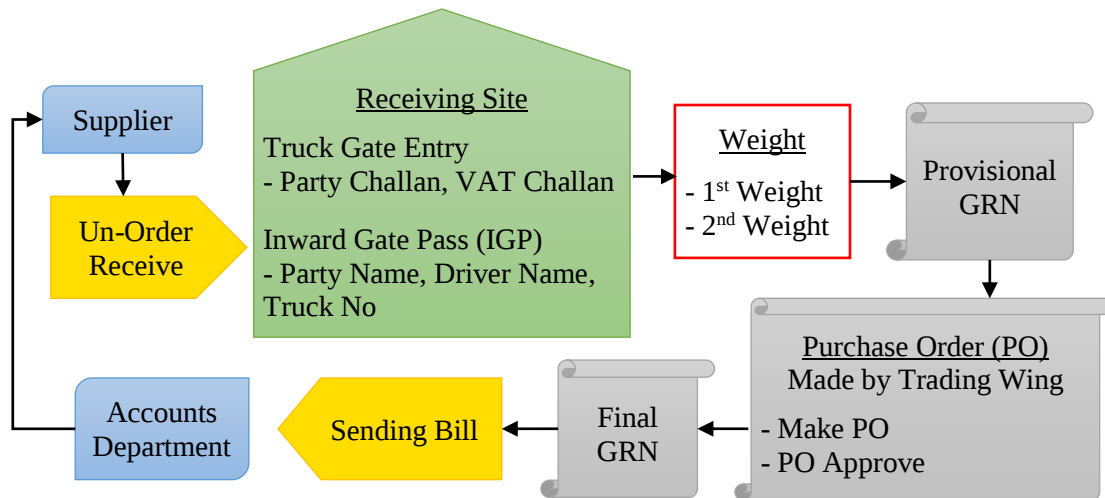
**Selling to Foreign External Companies:**

1. Receiving the Purchase Order (PO) from the buyer (foreign external company) by the sales department.
2. Receiving of Purchase Requisition (PR) from the sales department.
3. Preparation of another PO by the trading wing.
4. Shipment of the products to the destination site.

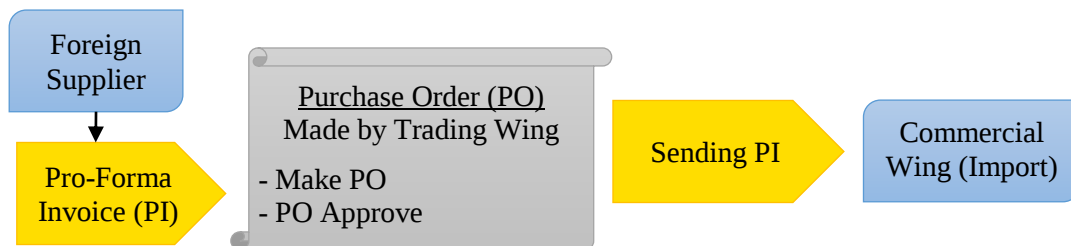
(Kamrul, Kurabanbbhai, 2017; interviewed)

❖ **Flow Chart of Trading Process:**

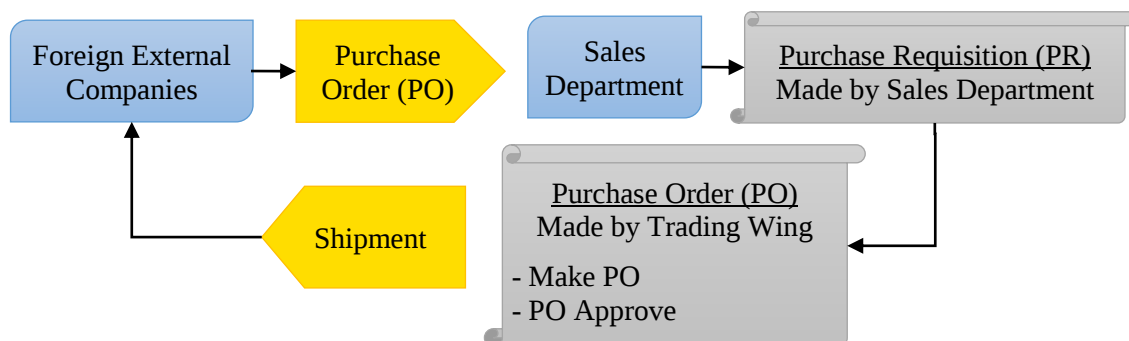
**Scrap Purchase/Receiving Procedure:**



**Purchase of Structural Trading Items:**



**Selling to Foreign External Companies:**



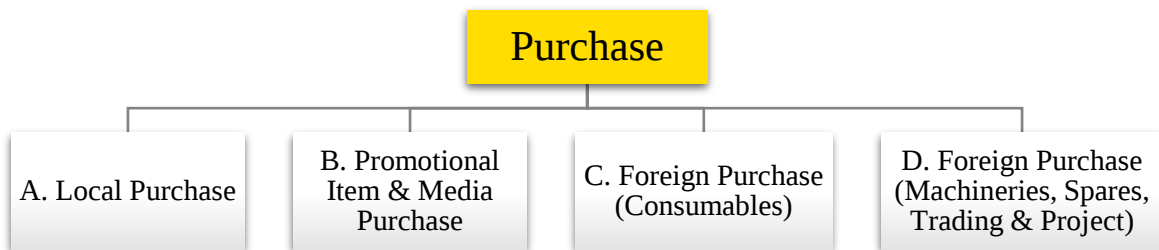
(Kamrul, Kurabanbbhai, 2017; interviewed)

### **5.3.2 Purchase**

Purchase, a wing of supply chain management that works for inputs of any things/materials/supplies/products required by the organization. It is one of the vital wings of the organization because the execution of many other functions is highly dependent on the purchase wing. Different person/s determine the business requirements for each category spend using assurance of supply, quality, service, cost/economic value, innovation, and regulatory compliance. In addition to that, the purchase wing works for creating alternative sources to handle future contingencies and gain additional bargain/negotiation power. It handles and manages the risk of overstock or out-of-stock issue. It also manages financial demurrage created due to port congestion and other problems, ensures the smooth flow of production at any cost.

(Mosharraf, 2017; interviewed)

There are 4 major sections under the Purchase wing of BSRM Supply Chain Management. Each section entails different functions.



#### **A. Local Purchase**

The primary activity of the section is to purchase materials and supplies from local sources according to the requirement of the company (both factory & office).

##### **❖ Subject Matters of Local Purchase:**

1. Purchase of Materials and Supplies

(Jamshedul, 2017; interviewed)

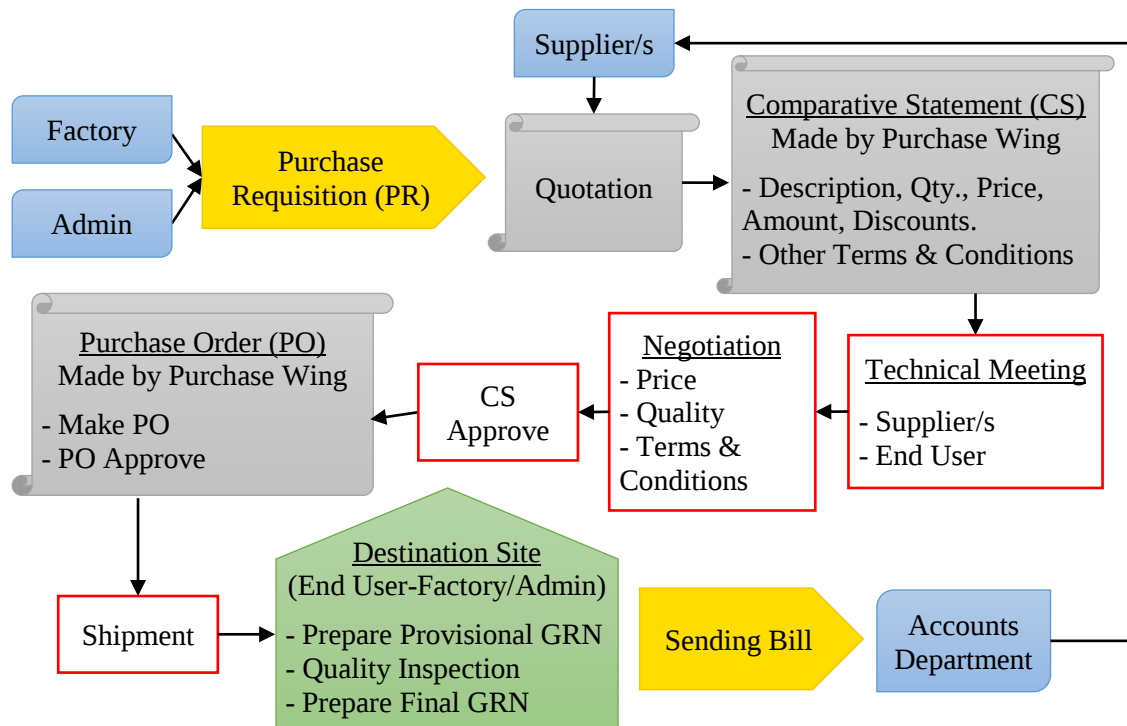
##### **❖ Process Steps of Local Purchase:**

1. Receiving of Purchase Requisition (PR) from the related production department (factory), and administration (office).
2. Collecting Quotations from different suppliers according to the materials and supplies requirement quoting product description, rates etc.
3. Preparing a Comparative Statement (CS) mentioning product descriptions, qty., unit price, amount, discounts, and other terms & conditions. Then CS is approved.

4. In this stage, the buyer (local purchase) arranges a meeting between the supplier/s and end users. Then they both decide about the final specification of those products. A pre-delivery inspection is made at this time so that the products don't get rejected.
5. Negotiate with the suppliers on prices. Selection of supplier/s based on their reliability, past history, relationship, and other factors when the rates, product specification, qty. etc. become identical. Then, CS is Finalized and Approved.
6. Purchase Order (PO) is prepared. There are two types of PO: i) Standard PO (For purchasing once, and short-term items – ex: Toiletries); ii) Blanket PO (Long-term agreement items where partial payment will be made periodically – ex: Catering service for a year, but payment will be made weekly/monthly). PO is approved.
7. Shipment of the products to the destination site. It can be done by BSRM logistics, or supplier's logistics depending on the condition. If supplier's logistics is used, then the price includes the carrying cost.
8. A Provisional Goods Receiving Note (PGRN) is made before the quality inspection.
9. After inspection, Final Goods Receiving Note (GRN) is prepared at this stage.
10. Then the Bill and Challan are received by the buyer (local purchase).
11. The Bill is sent to the Accounts Department for payment.

(Jamshedul, 2017; interviewed)

❖ **Flow Chart of Local Purchase:**



(Jamshedul, 2017; interviewed)

**B. Promotional Item & Media Purchase**

The primary activity of the section is to purchase and manage promotional items and media according to the requirement of the end user from suppliers, vendors, and agencies.

- ☑ The marketing department, sales department, legal department, corporate affairs department, human resource department, accounts department, and the like are the major sources who provide requisitions for different items in this section.
- ☑ Marketing and sales are the 90% end user of this section.

(Jishotosh, 2017; interviewed)

**❖ Things Dealt in Promotional Item & Media Purchase:**

- |                              |                                        |
|------------------------------|----------------------------------------|
| 1. Promotional Items: Gifts. | 6. TVC/CG/AV Production                |
| 2. Printing Items            | 7. Outdoor Branding: Billboard, Dealer |
| 3. Event Management          | Shop Branding.                         |
| 4. Media Buying – TV         | 8. Social Media Purchase               |
| 5. Media Buying – Print      | 9. Business Expense                    |

(Jishotosh, 2017; interviewed)

**❖ Subject Matters of Promotional Item & Media Purchase:**

- |                              |                   |
|------------------------------|-------------------|
| 1. Promotional Item Purchase | 2. Media Purchase |
|------------------------------|-------------------|

(Jishotosh, 2017; interviewed)

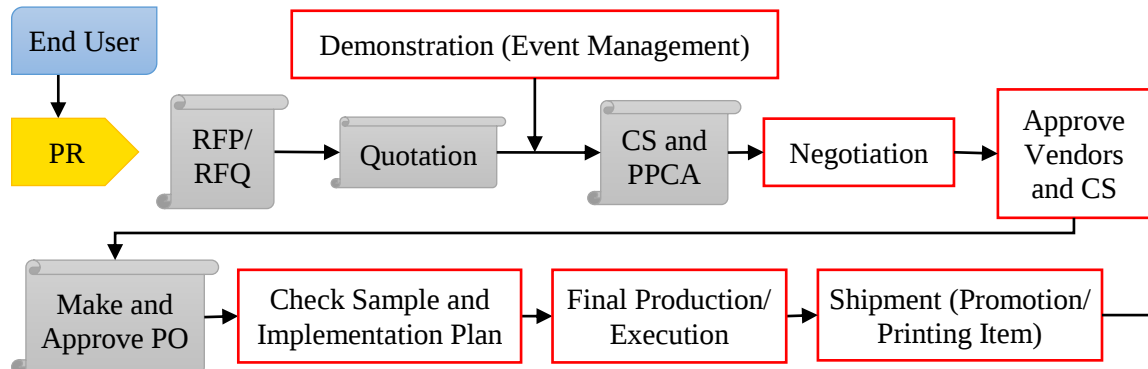
**❖ Process Steps of Promotional Item & Media Purchase:**

1. Receiving of Purchase Requisition (PR) from end user
2. Prepare Request for Quotation (RFQ)/ Request for Proposal (RFP) sheet
3. Collect quotations from the vendors
4. Demonstration of project proposal with financial aspects (Event Management)
5. Prepare a Comparative Statement (CS) based on the quotation
6. Negotiate with the vendors on the price of the service
7. Approving vendor/s and CS
8. Preparing Purchase Order (PO), Approve PO.
9. Check the sample before going for bulk production
10. Final production
11. Shipment and delivery to the destination site (Promotional Item and Printing Item)
12. Bill is received by the Media Purchase section
13. A Goods Receiving Note (GRN) is prepared by the end user
14. The Bill is sent to the Accounts Department for payment.

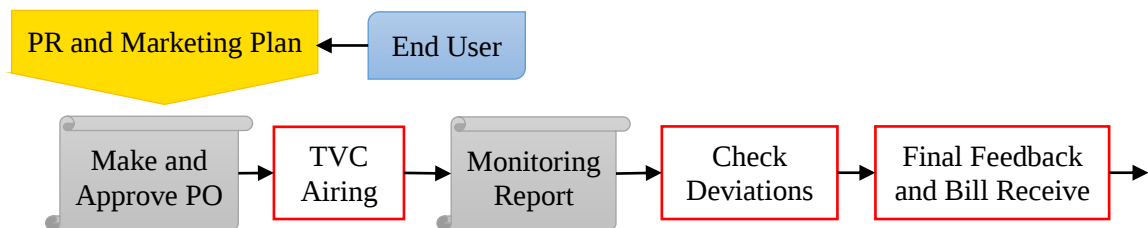
(Jishotosh, 2017; interviewed)

❖ **Flow Chart of Promotional Item & Media Purchase:**

**Promotional Item & Printing Item / Event Management:**



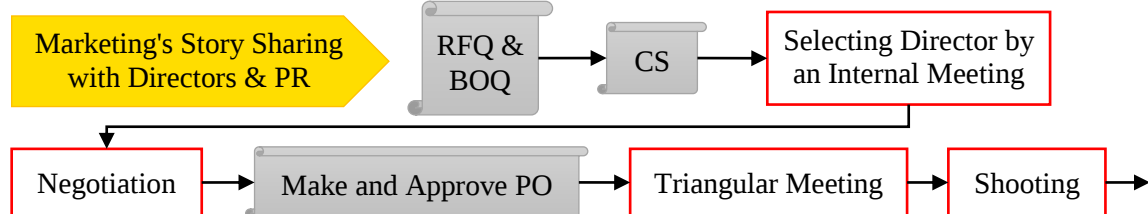
**Media Buying – TV:**



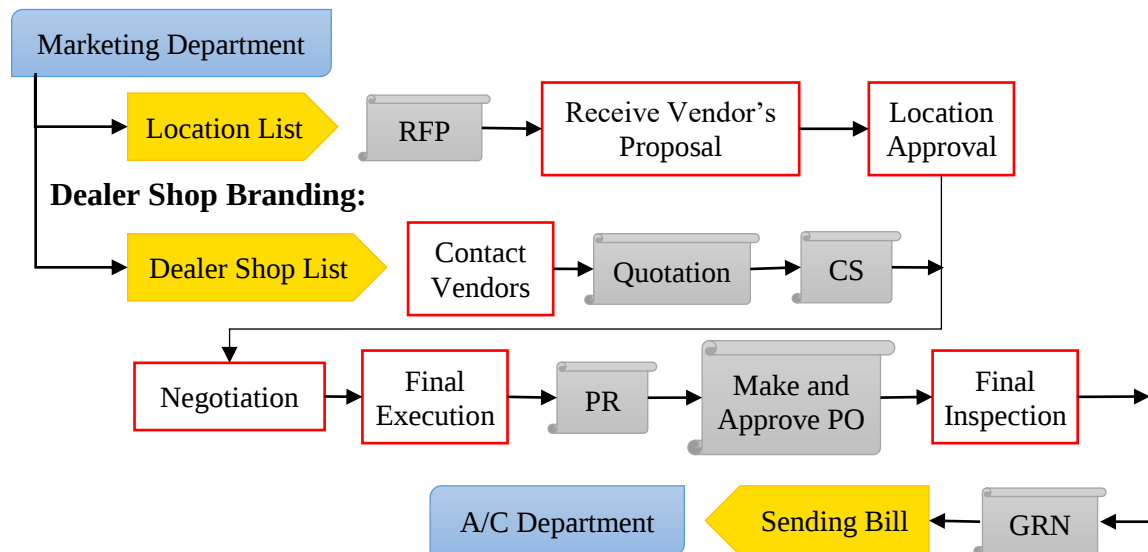
**Media Buying – Print:**



**TVC/CG/AV Production:**



**Billboard:**



(Jishotosh, 2017; interviewed)

**C. Foreign Purchase (Consumables)**

The primary activity of the section is to purchase consumables from foreign sources according to the requirement of the billet manufacturing plants (SMW, BISCO, and SML).

Consumables are the supporting inputs in production which are consumed in a fixed manner. These are different from i) Raw Materials - which are the main ingredients and are visible in the finished product, and ii) Machinery or Spares – equipment and parts that are used in the production. Since the amount of consumable is fixed in consumption, there is no specific purchase requisition for these inputs, and this wing follows auto procurement procedure rather than an indent procurement procedure. The stock of consumables is checked every single week and the purchase process starts with the inquiry.

(Aniruddha, 2017; interviewed)

**❖ Subject Matters of Foreign Purchase (Consumables):**

1. Purchase of Consumables from Foreign Sources

(Aniruddha, 2017; interviewed)

**D. Foreign Purchase (Machineries, Spares, Trading & Project)**

The primary activity of the section is to purchase machinery & spares from foreign sources according to the requirement of the manufacturing plants. Machinery and spares are very much vital for any kind of industry, especially if it is a manufacturing one. A heavy production process like BSRM steel manufacturing requires a huge initial investment for purchasing heavy capital machinery. Also, subsequently, the spares get obsolete over time. So regular additional investment and purchase are necessary.

(Prokriti, 2017; interviewed)

**❖ Things Dealt in Foreign Purchase (Machineries, Spares, Trading & Project):**

1. **Capital Machinery** – one-time purchase for a very long time till the life goes. A very much high-value item which needs a very much careful decision. These machines are purchased for plants, warehouse, and logistics.
2. **Regular Spares** – these requirements arise from the Regular Inspection and Full Inspection in the plant, then the Purchase Requisition (PR) is given. On a periodic basis, the plant authority inspects everything. Some machinery and spares seem to be less performing, some are going to be obsolete, some may disturb suddenly, and some are needed for smaller expansion and the like.

(Aniruddha, Prokriti, 2017; interviewed)

❖ **Subject Matters of Foreign Purchase (Machineries, Spares, Trading & Project):**

1. Purchase of Machinery and Spares from Foreign Sources

(Prokriti, 2017; interviewed)

❖ **Process Steps of Foreign Purchase:**

**Purchase of Consumables from Foreign Sources:**

1. The process starts with the receiving of Weekly Stock Report from the three billet manufacturing plants namely SMW, BISCO, and SML.
2. Then the Stock Report is analyzed to check the stock level of different items of the consumables. The 3-6 months' requirement, stock in hand, pipeline quantity, and to be procured are checked at this stage. The pipeline quantity items are analyzed from the system with the previous purchase order report and shipment report etc.
3. If the "To Be Procured" is determined, then an inquiry is sent to the respective supplier with detail specification.
4. Collecting quotation from different suppliers according to the specification with the description, rates etc.
5. Preparing a Comparative Statement (CS) mentioning product descriptions, qty., unit price, amount, discounts, landing cost, stock analysis report for each plant, the recommendation of stock, and other terms & conditions.
6. Negotiate with the supplier on price and other conditions based on a ground of calculation of the materials cost, shipment charges, and profit of the seller, and finalize the CS. The relationship, proper communication, and honesty are the vital aspects of negotiation. Then, the CS is Finalized and Approved.
7. Preparation of Purchase Order (PO). Approval of Purchase Order (PO).
8. The foreign supplier sends a Pro-Forma Invoice (PI).
9. Then the PO & PI is handed over to the Commercial Wing for LC opening, and the LC is confirmed by the bank and commercial wing.
10. The "Follow Up" stage is started here. First, the shipment schedule is checked by contacting the supplier.
11. When the supplier does the shipment, then a confirmation is given by him.
12. Collection of copy documents from the supplier. These documents are Invoice, Packing List, Consignment Note / Airway Bill / Bill of Lading, Certificate of Origin, SAFTA Document, Quality Report, and Declaration etc.
13. Handing over the documents to the Commercial Wing.

14. The commercial wing with the help of C&F agent tracks the consignment by using copy documents.
15. In the meantime, the supplier sends the original documents to the issuer's bank by beneficiary bank. Payment is made bank-to-bank according to the condition after getting the original documents. The original documents are collected and handed over to the C&F agent for clearing the products/materials from the port.
16. Delivery of the product to the plant site by the inbound logistics team.
17. Preparation of Goods Receiving Note (GRN).
18. Quality inspection and collecting quality feedback from the plant.

(Aniruddha, 2017; interviewed)

#### **Purchase of Machinery and Spares from Foreign Sources:**

The foreign purchase process of machinery and spares items is almost same as the foreign purchase process of consumables except some initial differences. Here instead of Weekly Stock Report of Consumables, Purchase Requisition (PR) is received from end user in case of Foreign Purchase (Machinery and Spares).

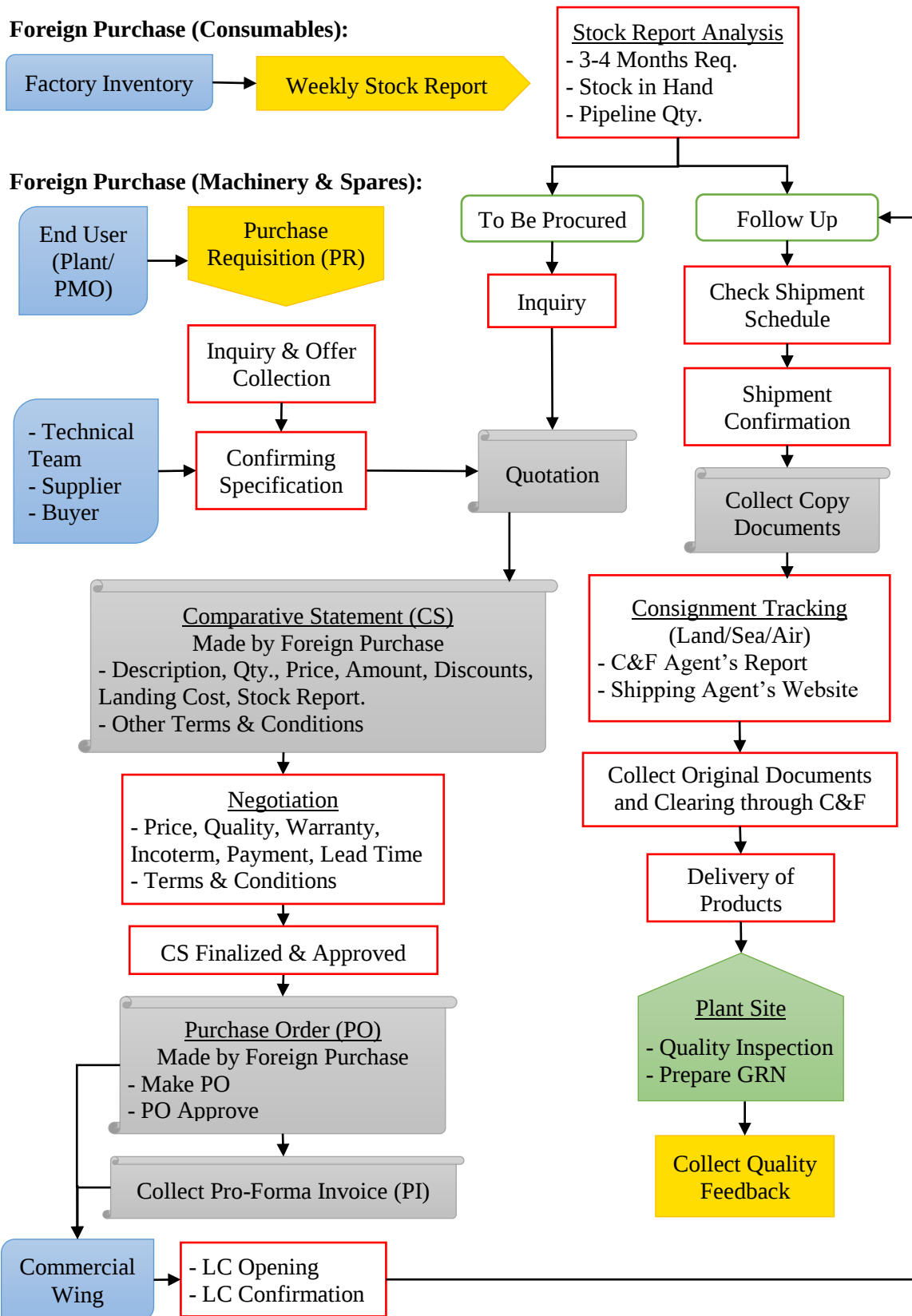
1. Receiving of Purchase Requisition (PR) of machinery and spares from the end user - basically from Plants and Project Management Office (PMO).
2. An inquiry is sent to the respective manufacturer, trader, or supplier. Then offers are collected from them regarding the total specifications, and parameters.
3. Then the specifications are confirmed. The purchaser and the supplier continuously communicate each other to come to a common ground of specification.
4. Collecting quotation from the manufacturer, or trader, or supplier according to the specification with the description, rates etc.
5. Preparing a Comparative Statement (CS) mentioning product descriptions, qty., unit price, amount, discounts, landing cost, and other terms & conditions. Mostly, there are very few manufacturers/traders/suppliers, sometimes confined to only one. Then CS is made on other grounds like previous price or rate.
6. Since the specifications and parameters are very much sophisticated, negotiation is done based on warranty period extension, transport term/incoterm, payment method, lead time, terms of LC, cost of a manufacturer, and the like. Then the CS is Finalized and Approved.
7. Preparation of Purchase Order (PO). Approval of PO.

Then the rest of the process is same as Foreign Purchase (Consumables) Section.

(Prokriti, 2017; interviewed)

❖ **Flow Chart of Foreign Purchase:**

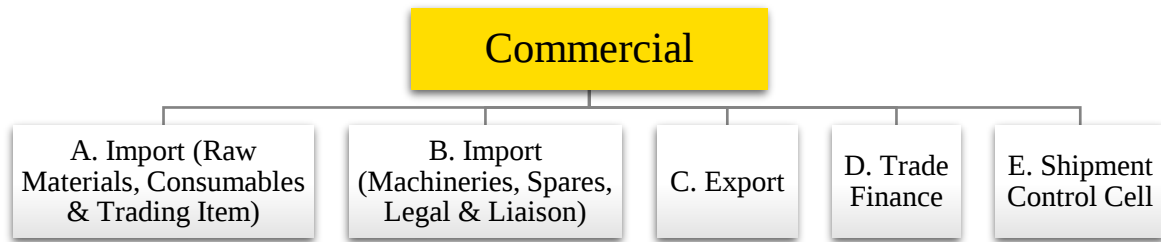
**Foreign Purchase (Consumables):**



(Aniruddha, Prokriti, 2017; interviewed)

### 5.3.3 Commercial

There are 3 major and 2 minor sections under the Commercial wing. Each section entails different functions.



#### **A. Import (Raw Materials, Consumables & Trading Items)**

The primary activity of the section is to facilitate the import of raw materials, consumables, and trading items according to the requirement of the end users - the manufacturing plants.

Raw materials are the ferrous metal items/things that are used as inputs in the production process of the steel industry and are generally visible in the finished products. Different types of scraps are very much crucial to handle in Bangladesh because the lion-share of raw material in this industry comes from the foreign countries due to the scarcity of raw materials from the local sources. BSRM needs around 4,000 Tons/Day (1,440,000 Tons/year) of scraps, out of which 90% scraps come from the foreign sources. Imported scrap types are: Plate and Structural Steel (PNS); Heavy Melting Steel Scrap (HMS) - HMS 1, HMS 2; Bundle Scrap (Busheling); and Shredded Steel Scrap. Raw materials are purchased in two forms depending on the planning of top management:

1. Container – containers are used as a carriage to import the raw materials. There are different sizes of containers as such 20 Feet, 40 Feet, and 45 Feet etc. which are used based on raw material requirement. The containers are directly shipped to the plant.
2. Bulk – bulk purchase is also done frequently according to the requirement. Large bulk vessels are used to import the raw materials in a huge amount. Then they are transshipped to the plant by inbound logistics after clearing from the port.

(Harun, 2017; interviewed)

Direct-Reduced Iron (DRI), also called Sponge Iron is another very important raw material used in the steelmaking production. It is produced from the direct reduction of iron ore (in the form of lumps, pellets, or fines) to iron by a reducing gas or elementary carbon produced from natural gas or coal. (Harun, 2017; interviewed)

Consumables are the supportive items/things used in the steelmaking production. The Foreign Purchase (Consumables) Section facilitate the purchase of consumables and Import (Consumables) Section facilitate the import of those consumables.

(Harun, 2017; interviewed)

Trading Items are purchased now and then. The Trading Wing facilitate the purchase of trading items and Import section facilitate the import of those trading items.

❖ **Subject Matters of Import (Raw Materials, Consumables & Trading Items):**

1. Import of Raw Materials
2. Import of Consumables
3. Import of Trading Items

(Harun, 2017; interviewed)

**B. Import (Machineries, Spares, Legal & Liaison)**

The primary activity of the section is to facilitate the import of machinery and spares according to the requirement of the end users mainly the manufacturing plants.

❖ **Subject Matters of Import (Machineries, Spares, Legal & Liaison):**

1. Import of Machinery and Spares

(Harun, 2017; interviewed)

❖ **Process Steps of Import:**

**Import of Raw Materials:**

1. Receiving of Sales Contract and Pro-Forma Invoice (PI) after the decision of Top Management - Head of SCM and Executive Director (ED).
2. After checking different aspects of the sales contract and PI, a Purchase Order (PO) is made in the system by Foreign Purchase Section to record the transaction.
3. Then the Import (Raw Materials) section selects the bank on which the LC will be opened and applies to the bank for opening a Letter of Credit (LC).
  - ☑ First, an LC Draft is created by the Import (Raw Material) section by analyzing the sales contract and Pro-Forma Invoice (PI). It is provided to the bank.
  - ☑ Then, the bank creates their own Bank LC Draft according to the Import (Raw Material) section LC Draft and give it to them. Import (Raw Material) section checks different aspects of the Bank LC Draft as such the Latest Date of Shipment (LDS), Date of Expiry (DOE), Bill of Lading (B/L) Free Time Clause, Amounts and the like.

- ☑ Then an LC Set (set of documents) is submitted to the bank for opening the LC:
  - i) LC Opening Letter
  - ii) Pro-Forma Invoice (PI)
  - iii) Letter of Credit Authorization Form (LCAF)
  - iv) LC Application
  - v) LC Draft
  - vi) Marine Insurance Cover Note
- ☑ The bank opens the LC by following the rules of UCPDC, and Import (Raw Material) section collects & checks the Final Acknowledgement Copy/Transmitted Copy before transmitting the LC through SWIFT.
- ☑ Import (Raw Material) section forwards the Transmitted Copy to the supplier with an LC Advice.
- ☑ Usually, the LC for Scrap Purchase is opened for the first quarter (90 days) and can be extended at most for the 3rd quarter (270 days) according to the Import Policy. For every extension, LC Amendment has to be made.
- 4. Shipment of raw materials by the supplier. According to the condition of LC, the supplier can ship the raw materials partially from different ports at a different time.
- 5. Then the supplier prepares and submits the full set of commercial documents to the LC Confirming Bank/Negotiating Bank. There are 5 essential documents in case of raw materials purchase namely:
  - i) Bill of Lading
  - ii) Invoice
  - iii) Packing List
  - iv) Certificate of Origin
  - v) Inspection Certificate
- 6. In the meantime, the supplier sends the Copy Documents to the Import (Raw Material) section through E-mail. After getting the Copy Documents, the Import (Raw Material) section takes the following actions:
  - ☑ Take a Marine Insurance Policy against the raw materials for safety issue.
  - ☑ Track Shipment through C&F Agent about where the ship is, when the ship will come to the port, how much time it will take to clear from the port etc.
- 7. The confirming bank checks the original commercial documents, and if everything is okay, then sends the original documents to the LC Opening Bank through international courier.
- 8. When LC opening bank receives the original documents, they give an E-mail to the Import (Raw Material) section. Import (Raw Material) section collects the following original documents from the LC opening bank by giving an Acceptance:
  - i) Bill of Lading
  - ii) Invoice

- |                               |                                          |
|-------------------------------|------------------------------------------|
| iii) Packing List             | vii) LC Set Endorsed by Bank             |
| iv) Certificate of Origin     | viii) Pro-Forma Invoice Endorsed by Bank |
| v) Inspection Certificate     | Bank                                     |
| vi) LCA Copy Endorsed by Bank |                                          |

In the meantime, after getting the original documents, the Applicant's Bank gives payment to the Beneficiary's Bank according to the LC condition.

9. After getting the original documents, C&F Agent is selected based on different criteria. The original documents are then given to the selected C&F Agent for clearing the raw materials from the port. At times, the raw materials/goods can be cleared from the port with the Copy Documents when the Original Documents are yet to be received at a later date through the following two methods:
  - i) Letter of Indemnity: In such case, Loading Port Shipping Line gives a clear instruction to the Destination Port Shipping Line that the goods can be cleared without the original documents by using copy documents.
  - ii) No Objection Certificate (NOC): In such case, the Bank gives a no objection certificate (NOC) to the Commissioner of Customs & Shipping Line that if the goods are cleared from the port without the original documents, then the bank will not have any problem to honor the payment.
10. When the ship arrives at the Outer, then the Shipping Line Company does a primary inspection and declares that the ship has arrived at the outer through an Import General Manifest (IGM) by C&F agent. Then it waits for Berthing.
11. While Berthing, the C&F collects the Bill of Entry prepared by the Customs Authority. Bill of Entry is issued by the customs presenting the total assigned value and the corresponding duty charged on the cargo. It is a value assessment notice for customs duty calculation. The customs duties are calculated based on the guidelines of National Board of Revenue (NBR) for every fiscal year. The duty, port charges, shipping line charges, depot charges, and other charges are paid by the C&F agent. Without paying the duties and charges, the goods cannot be cleared.
12. When all the containers are unloaded from the carriage/ship, then a Common Landing (CL) is declared. This CL is the time limit (4 days) declared by the port authority within which the containers must be discharged from the yard. Otherwise, demurrage will have to be paid to the port authority as to the size of the container.
13. For taking the delivery of the raw materials, a Delivery Order (D/O) has to be collected from the Shipping Line Company. This also nominates where and when

the Empty Container will be delivered if it is an on-chassis delivery. In that case, an Undertaking has to be given to the Shipping Line and a Risk Bond has to be given to the Customs Authority against the value of the containers.

14. After getting the D/O, C&F gives an Intend to the port authority 1 day before it is going to clear the raw materials. It is a declaration that the raw materials will be cleared 1 day after the declaration so that the port authority can take necessary actions. If the consignment is an urgent one and has to be taken within a very short time, then a Special Delivery request can be made by providing extra charges.
15. Then the raw materials are cleared and delivered to the destination scrap yard/plant through inbound logistics team.
  - ☑ Receiving of the raw materials scrap by the scrap yard/plan authority by inspecting them whether these are okay in terms of quantity, quality, raw material type consistency etc.
  - ☑ A Goods Receiving Note (GRN) is made in the system.
  - ☑ If the raw materials are not okay in accordance with the clauses, then a Debit Note is issued to claim compensation. The Import (Raw Materials) section prepares this and sends it to the supplier. The compensation amount includes:
    - Non-conformed raw materials/goods value
    - Custom and other duties paid for those goods
    - Other expenses incurred by them
    - Reimbursement charges (\$50) etc.
16. Empty containers are returned to the depot nominated by the shipping line.
17. After completing all these, the C&F Agent prepares and sends the Bill to the Import (Raw Materials) section with all the related documents. It is then reviewed and sent to the Accounts Department for payment.

(Harun, 2017; interviewed)

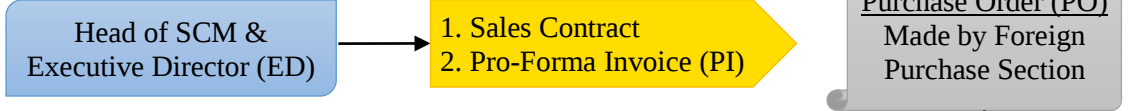
### **Import of Consumables & Trading Items; and Machinery and Spares:**

The import process of consumables & trading; machinery and spares items are almost same as the import process of raw materials except some initial differences. Here instead of Sales Contract and PI, only PI is received from Foreign Purchase (Consumables)/Trading Wing in case of import of consumables and trading item. On the other hand, PI is received from Foreign Purchase (Machineries, Spares, Trading & Project) in case of import of machinery and spares. Then the rest of the tasks are same.

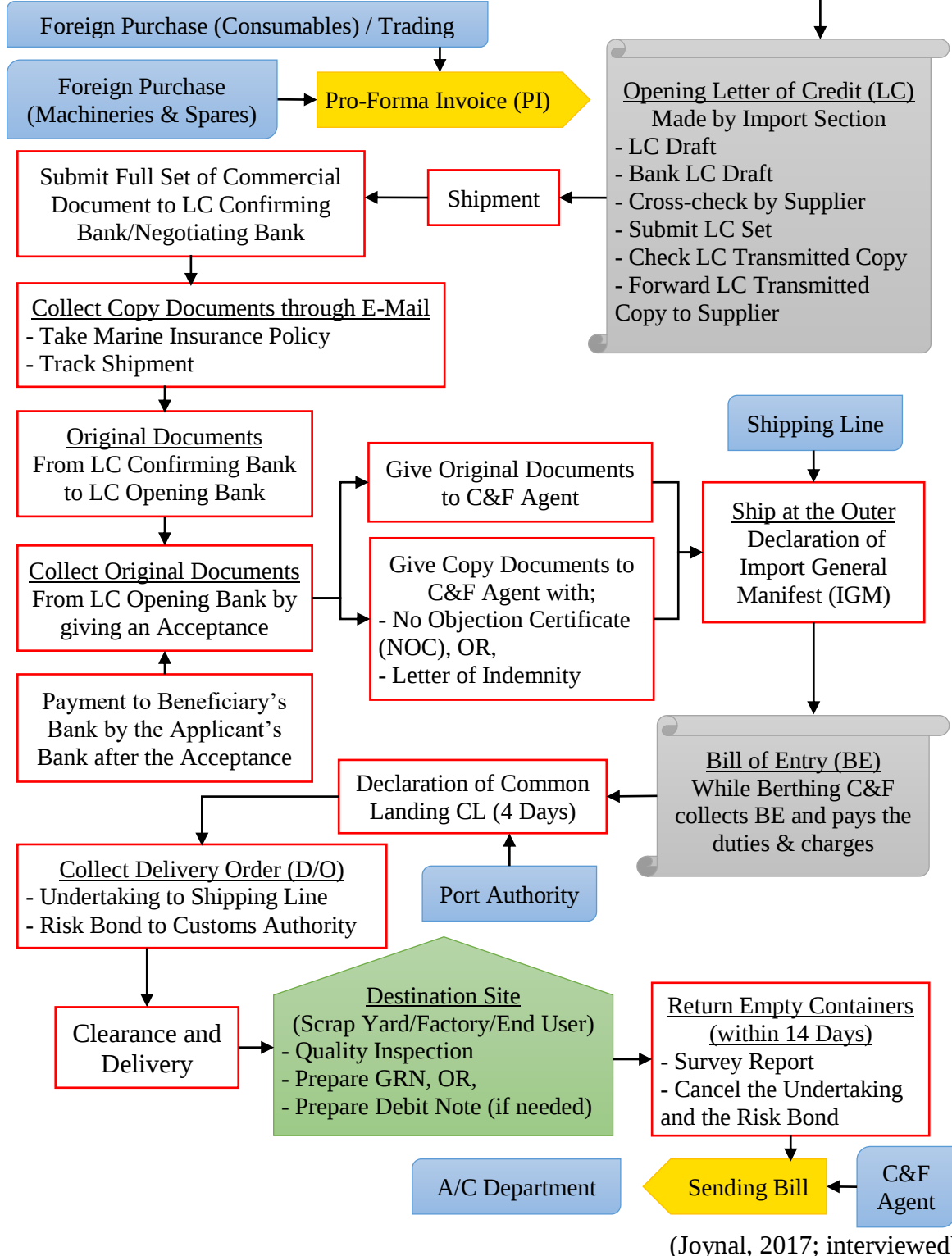
(Joynal, 2017; interviewed)

❖ **Flow Chart of Import:**

**Import of Raw Materials:**



**Import of Consumables/Trading Items/Machinery & Spares:**



(Joynal, 2017; interviewed)

**C. Export**

The primary activity of the section is to facilitate the export of finished steel products as such deformed bars, wires, and different by-products as such compounds of zinc oxide etc. The export is basically done in different ways:

1. Export Processing Zone (EPZ) – the plants/projects made in the EPZs need steel products which are exported by BSRM, and the payment is made in US Dollar.
2. Foreign Companies through International Tender – different govt projects need huge steels which are exported by BSRM, and the payment is made in US Dollar.
3. Deemed Export – it is done to those 100% Export Oriented Companies out of EPZ which need steel products, and the payment is made in US Dollar.
4. Local Export through LC – different companies purchase through Letter of Credit (LC), and the payment is made in BD Taka.
5. Export to Foreign Country – steel products specifically in India's different states in the Seven Sister Zone; and by-products to China and other countries. The payment is made in US Dollar.

(Latifa, 2017; interviewed)

**❖ Subject Matters of Export:**

1. Export of Steel Products and Others – Deformed Bars, Wires, Zinc Oxide etc.

(Latifa, 2017; interviewed)

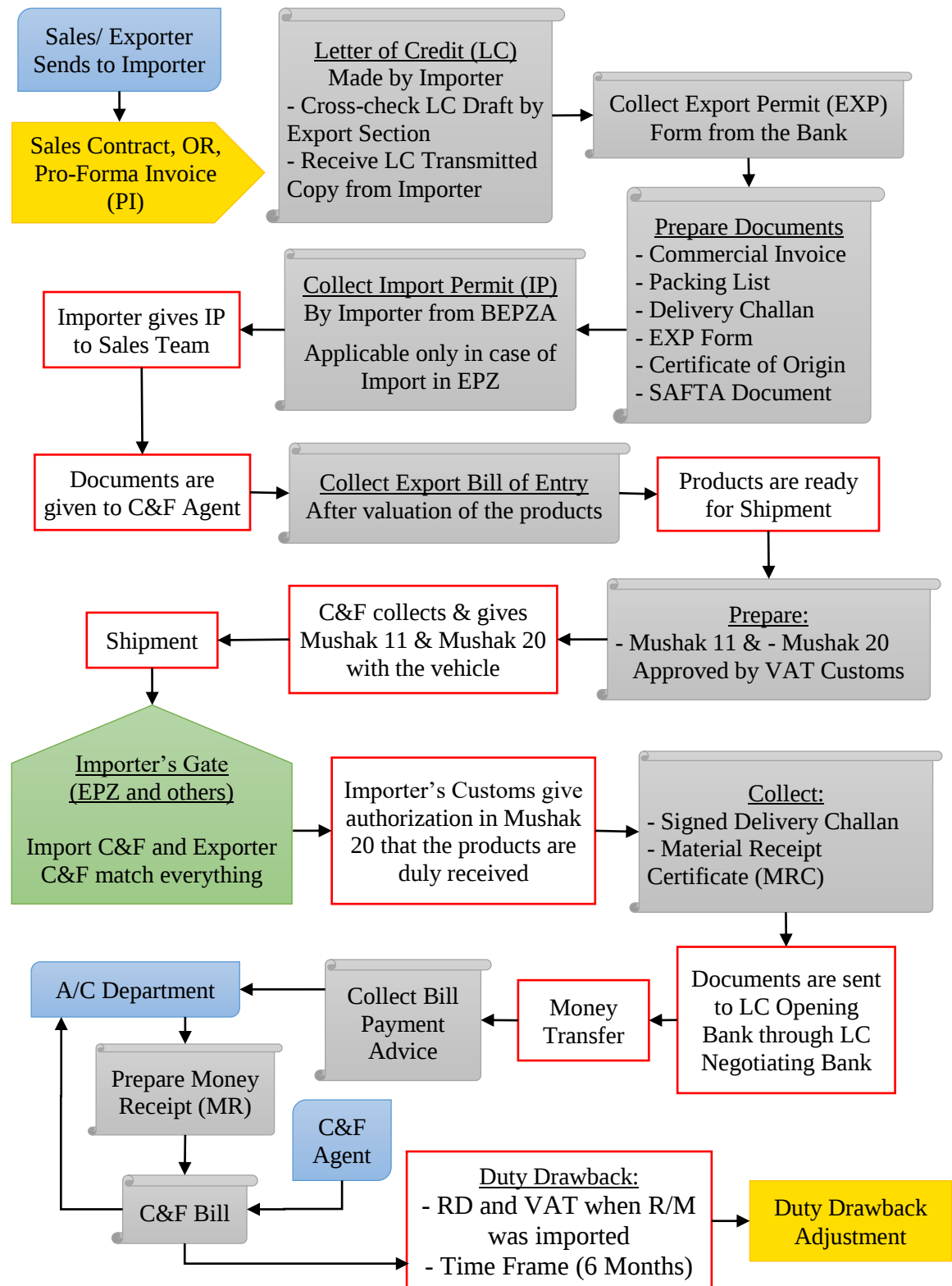
**❖ Process Steps of Export:**

1. The process starts with the sending of the Sales Contract or Pro-Forma Invoice (PI) from the sales team to the importer.
2. The importer prepares LC Draft and sends it to BSRM Export team to check it. If everything is okay, then LC is prepared and transmitted, or, amendment is made.
3. Then EXP Form (Export Permit) is collected from a Bank (Advising Bank, or any other bank) that offers higher exchange rate for the US Dollar.
4. Preparation of documents:
  - i) Commercial Invoice
  - ii) Packing List
  - iii) Delivery Challan
  - iv) EXP Form
5. The documents are given to the importer for collecting Import Permit (IP) from BEPZA in case of EPZ Import ONLY. In case of International Tender or Deemed Export, it is not necessary.
6. Importer gives IP to Sales Team which will be required to be shown in the EPZ gate at the time of export.

7. Export section gives all the original documents to C&F Agent for valuation/value assessment by the Exporter's Customs and collects Exporter Bill of Entry.
8. When the Outbound Logistics team is ready to ship the products from the Warehouse, then they inform the C&F agent for the inspection by VAT Customs.
9. VAT Customs gives authorization after inspection according to Mushak 11 (VAT Invoice - approval of 0% Statutory Rate of Export Duty), and Mushak 20 (Removal of Goods for Export - approval of Inspection of Products 24 hours before shipment).
10. C&F agent collects those Mushak 11 and Mushak 20 from VAT Customs and gives these with the vehicles for avoiding any legal occurrences in the time of transport.
11. Shipment of the Products.
12. When the products reach the gate of EPZ, then both the Exporter C&F and Importer C&F stay present. They match everything and the importer takes the products. If everything is okay, then the Importer's Custom gives an acceptance by signature in the Mushak 20 that the products are duly imported and received.
13. Then the Sales Team is assigned to collect two important documents from the importer within 21 days of product receiving:
  - i) Delivery Challan duly signed and authorized
  - ii) Material Receipt Certificate (MRC)
14. All the documents are then submitted to the LC Negotiating Bank.
15. LC Negotiating Bank sends these documents to LC Opening Bank.
16. The LC Opening Bank then transfers the money to LC Advising Bank.
17. The Bank provides a Bill Payment Advice (detail statement of money transfer) to the Export section. It is then forwarded to the Accounts Department.
18. Accounts department prepares a Money Receipt (MR), and then the Delivery Order (DO) which was prepared by the Sales Person becomes nil against the MR.
19. The C&F and other agents send bills to the Export section, they review the bills and forward this to the Accounts department for clearing.
20. The Export Section then applies for Duty Drawback – Regulatory Duty (RD) and Value Added Tax (VAT) paid at the time of import of billets. This duty has to be drawn within 6 months from the time of export. All the documents with a Forwarding Letter has to be submitted to the customs.
21. With duly continued, if everything is okay, the custom returns the Duty which is adjusted through the Current Account.

(Latifa, 2017; interviewed)

❖ **Flow Chart of Export:**



(Latifa, 2017; interviewed)

**D. Trade Finance**

Trade finance signifies financing for trade, and it concerns both domestic and international trade transactions. A trade transaction requires a seller (exporter) of goods and services as well as a buyer (importer). Various intermediaries such as banks and financial institutions can facilitate these transactions by financing the trade. The importer's bank may provide a letter of credit to the exporter (or the exporter's bank) providing for payment upon presentation of certain documents, such as a bill of lading. The Trade Finance Section of BSRM does the following activities:

- ☑ Bank selection for LC based on certain criteria for a particular import/export
- ☑ Negotiation with foreign and local banks – deciding about the confirmation and discounting charges of trade finance
- ☑ Offshore Banking negotiation with the OBU of the bank
- ☑ Deciding about the (LIBOR + Margin) Rate for inter-bank money borrowing
- ☑ Building and maintaining good relationship with the old and new banks
- ☑ Making correspondence with the Bangladesh Bank (BB) regarding:
  - Money transfer to a private account more than the limit defined by BB
  - Advance payment beyond a certain limit defined by BB
  - Time Extension for Letter of Credit Authorization Form (LCAF) etc.

(Shah Nura, 2017; interviewed)

**E. Shipment Control Cell**

Coordination among different parties involved in import is very much vital. Because the lack of proper synchronization can create greater cost and impact. The involve parties are:

- |                   |                           |
|-------------------|---------------------------|
| 1. Import Section | 3. Inbound Logistics      |
| 2. C&F Agent      | 4. Factory/Yard/Warehouse |

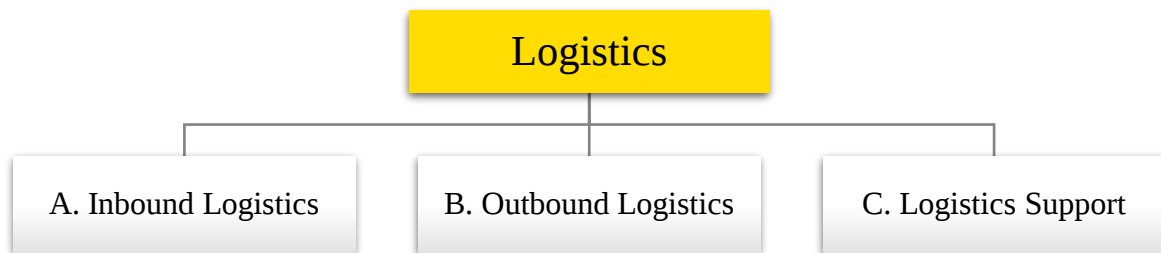
In the time of shipment and transportation, different gaps and complains are encountered among these parties in terms of document submission delay, delay in loading & unloading, projection gap etc. So, to minimize these gaps, this cell has been created to coordinate among these parties. Also, to identify the problems and providing solution proposals to the concerned entity.

Another important issue of this cell is to make short & long-term projections about the current and future imported volume (containers/packages/bulk), the impacting time and involving cost behind all these.

(Sakib, 2017; interviewed)

### 5.3.4 Logistics

There are 3 major sections under the Logistics wing. Each section entails different functions.



#### A. Inbound Logistics

The primary activity of the section is to facilitate the flow of imported raw materials, consumables, machineries & spares, project items, and internal shifting of different items at the right time, at the right place, at a minimum cost according to the requirement.

#### ❖ Subject Matters of Inbound Logistics:

1. All Imported Item Delivery from Port to Plant/Yard/Warehouse
2. All Types of Raw Material Internal Shifting
3. Own Vehicle Management
4. Equipment Contract Management and Engagement

(Abhijit, 2017; interviewed)

#### ❖ Process Steps of Inbound Logistics:

##### **All Imported Item Delivery from Port to Plant/Yard/WH - Bulk Vessel Operation**

All the bulk vessels come through the Chittagong Port from different countries:

1. When the ship arrives at the outer, the shipping line company gives a Notice of Readiness (NOR) of the raw materials.
2. The shipping line company gives Draft measurement. If the draft of the ship is above the limit (8.5 Meters), then the raw materials have to be lightered.
3. Lightering vessels have to be hired. The Ship Handling Operator helps in shifting the raw materials from mother vessel to the lighter vessel, and Lighter Agent helps clearing the raw materials from the lighter vessels in the jetty.
4. When the draft of the bulk vessel decreases (below 8.5 meters) after lightering, then the vessel starts berthing.
5. After berthing, the raw materials are cleared from the vessel in the port. The Berth Operator helps in arranging and clearing the raw material from the vessel.

6. The vehicles of inbound logistics carry those raw materials to the scrap yard/plant/warehouse.
7. After inspection, Goods Receiving Note (GRN) is prepared at the Scrap Yard/Plant.
8. Different bills are received from different agents/parties.
9. Bills are then reviewed and sent to the A/C department for the payment.

(Abhijit, 2017; interviewed)

**All Imported Item Delivery from Port to Plant/Yard/WH – Container Delivery**

The inbound logistics delivers the containers from those ports to different destinations.

**i) Chittagong Port:** Raw Materials, Consumables, Machinery & Spares, and Chemicals are imported through this port. Full Container Load (FCL), and Less than Container Load (LCL) are used in this port depending on the situation.

**In case of FCL,** 20 Feet (30 CBM) and 40 Feet (60 CBM) containers are used. The process is as follows:

1. Declaration of Common Landing (CL) (Free time of 4 days) in the port and C&F informs import section and inbound logistics. If the free time exceeds, then demurrages have to be borne by the company.
2. Delivery Order (D/O) is collected from the Shipping Line Company.
3. C&F gives an Intend to the port authority 1 day before clearing the containers.
4. Then, the inbound logistics team contacts the transport agencies for vehicles according to the requirement.
5. Those Vehicles' Numbers have to be approved and permitted from the port authority to enter into the port.
6. Port authority scans the containers to see if there is anything suspicious inside the containers. If they are okay, then they are ready for the delivery.
7. Later, Rubber Tyred Gantry (RTG) Cranes are used in the port to load the containers in the vehicles.
8. The containers are then delivered to the destination site.
9. The empty containers are then returned to the nominated depot. There are 14 days of free time from the shipping line company to return them.
10. Bills from the transport and other agencies are received. They are reviewed and then sent to the Accounts Department for payment.

**In case of LCL,** the process is almost same except some differences. Here, the containers are not taken out of the port, rather they are opened within the port, and the particular packages are delivered through the vehicles. So, the company doesn't

have to bear any demurrages for not returning the empty containers within 14 days. Bills from agencies are then received and sent to the Accounts Department.

- ii) **Benapole Port:** Raw Materials, Consumables, Machinery & Spares, and Chemicals are imported through this port. Covert Van and Truck are used in this port. There is a free time of 3 days in the Benapole Port.
- iii) **Burimari Port:** Consumables are imported through this port. Covert Van and Truck are used in this port. The process is same as Benapole Port.
- iv) **Dhaka AirPort:** Machinery & Spares are imported through this port by packages and containers. The C&F clears and send the goods through courier service from Dhaka to Chittagong and Inbound Logistics Team collect those.

(Abhijit, 2017; interviewed)

### **All Types of Raw Material Internal Shifting**

Internal shifting is the internal logistics support for ensuring on-time production. It is done within the sister concerns of BSRM Group of Companies.

| INBOUND LOGISTICS                  |              |              |              |
|------------------------------------|--------------|--------------|--------------|
| Raw Materials/ Consumables/ Others |              | Billet       |              |
| Scrap Yard/ Warehouse              | Melting Unit | Melting Unit | Rolling Mill |

The internal shifting of inbound logistics is fully done by the own vehicles of BSRM Logistics Ltd. There are different sizes of Trailers, Dump Trucks, and Tipper Trailers. When an internal shifting is necessary, then the respective unit gives a requirement, and the inbound logistics team schedules, delivers and monitors the internal shifting.

(Abhijit, 2017; interviewed)

### **Own Vehicle Management**

The vehicles under the BSRM Logistics Ltd. are managed by this team. The cost related to the salary of the driver, helper, supervisor; fuel & line cost; management cost; maintenance cost etc. are incurred by BSRM but these vehicles are managed by contracted third parties for staff hiring and proper utilization of the vehicles.

(Abhijit, 2017; interviewed)

### **Equipment Contract Management and Engagement**

At times, different projects of BSRM need additional equipment to handle different operations that are not available to BSRM. In this case, the team contracts and manages the equipment by collecting different quotations, making comparative statements, and approving PO from higher authority. Here, the team does the work of a purchaser.

(Abhijit, 2017; interviewed)

❖ **Inbound Logistics Control Cell (ILCC):**

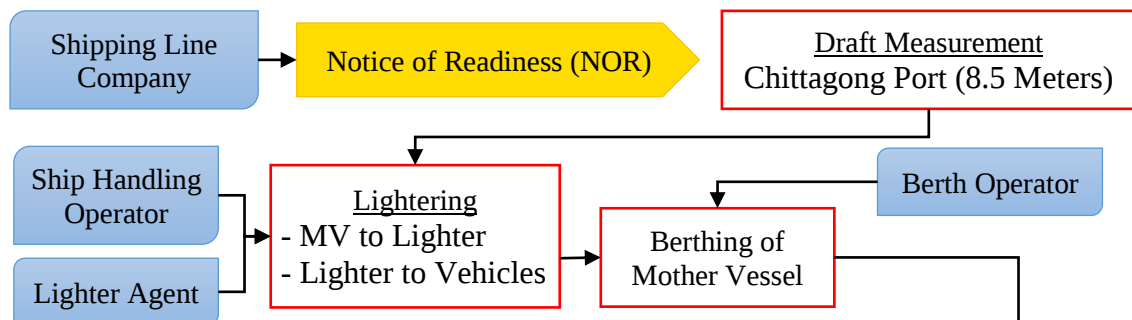
Besides the four major operations/subject matters in the inbound logistics team, there is also an Inbound Logistics Control Cell (ILCC) which is involved in the field level operation. The tasks of the team are as follows:

- ☑ 24 hours field operation, the corporate inbound logistics team supervises them.
- ☑ Real-time tracking of the own vehicles in the transportation system.
- ☑ Tackling different difficulties and challenges in the field level such as strikes, riots, theft, obstacles by different authority, vehicle problem etc.

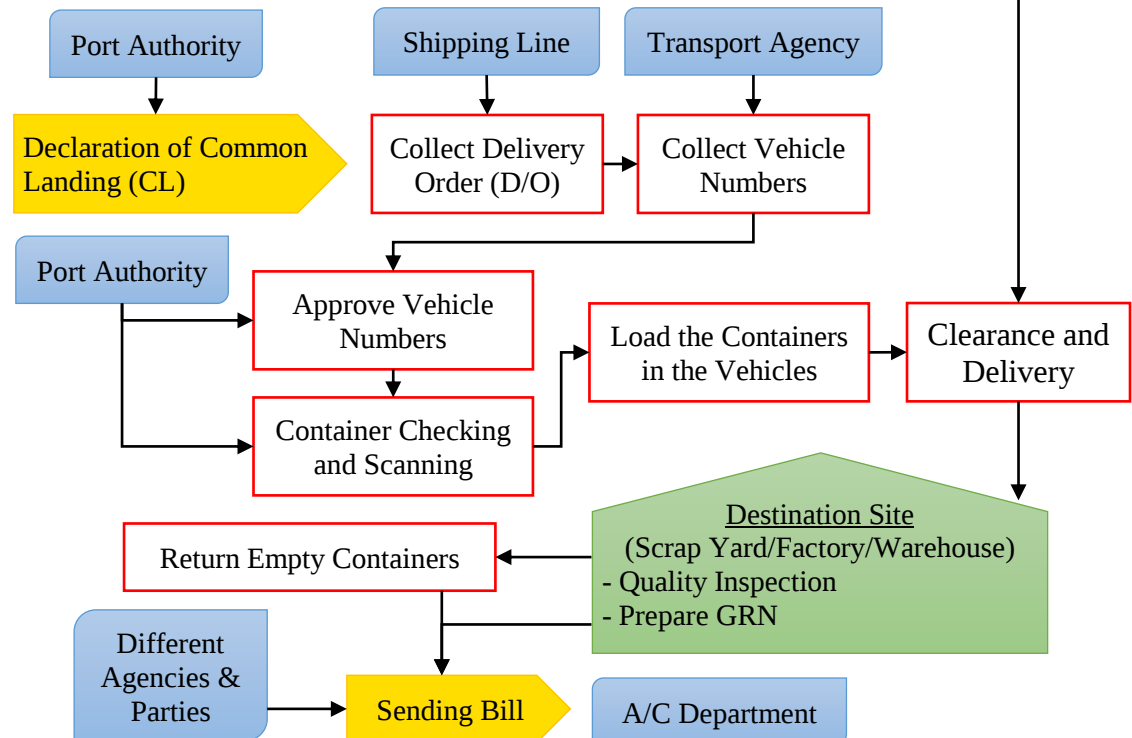
(Abhijit, 2017; interviewed)

❖ **Flow Chart of Inbound Logistics:**

**All Imported Item Delivery from Port to Plant/Yard/WH - Bulk Vessel Operation**



**All Imported Item Delivery from Port to Plant/Yard/WH – FCL Delivery**



(Abhijit, 2017; interviewed)

**B. Outbound Logistics**

The primary activity of the section is to facilitate the flow of finished steel product from Rolling Mills to Warehouse and to different Dealers & Customers around the country at the right time, at the right place, at a minimum cost according to the requirement of warehouse, government projects, dealers, big clients, and individual customers.

| OUTBOUND LOGISTICS |           |
|--------------------|-----------|
| Bar/ Rebar/ Others |           |
| Rolling Mill       | Warehouse |
|                    | Dealers   |
|                    | Customers |

There are two methods of for determining outbound logistics costs:

- i) Ex-Mill – where all the costs of transportation are borne by the buyer. Here, the rate given to the customer is only for the product.
- ii) C&F – where all the costs of transportation are borne by the seller i.e. BSRM. Here, the rate given to the customer includes the transportation cost.

(Jahedul, 2017; interviewed)

❖ **Subject Matters of Outbound Logistics:**

1. Delivery of the Finished Steel Products

(Jahedul, 2017; interviewed)

❖ **Process Steps of Outbound Logistics:**

1. The process starts with the receiving of Sales Order (SO) Release by Outbound Logistics Team.
2. The outbound logistics team collects the SO from the ERP system. Then it prepares a Dispatch Program for a particular day mentioning the place, SO Number, date of dispatch, move order number, transport agency used etc.
3. The Dispatch Program is then sent and communicated to the unit of dispatch (Warehouse/Plant/Shed) and transport agencies.
4. Then the Follow-Up is started if the vehicles have been loaded, dispatched, tracked, reached the destination etc. by Outbound Logistics Corporate Team and Outbound Logistics Control Cell (OLCC).
5. When the products are successfully received by the client, then the transport agency sends the bill to the Outbound Logistics Team. Then the bills are reviewed and sent to the Accounts Department for the payment.

(Jahedul, 2017; interviewed)

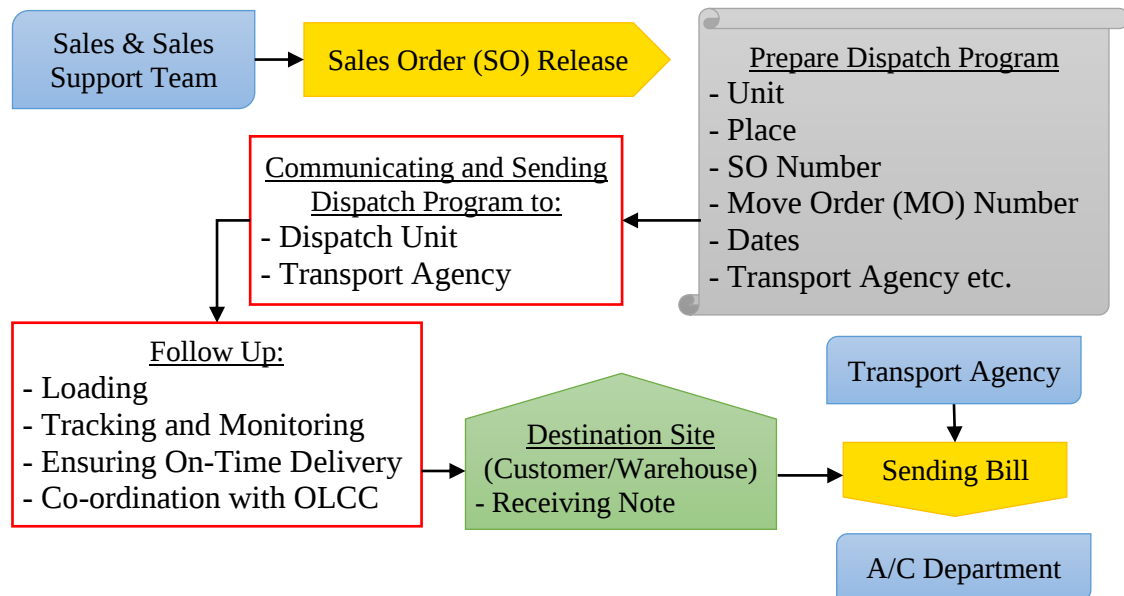
❖ **Outbound Logistics Control Cell (OLCC):**

Besides the corporate office team of outbound logistics, there is also an Outbound Logistics Control Cell (OLCC) which is involved in the field level operation.

- ☑ 24 hours field operation, the corporate outbound logistics team supervises them.
- ☑ Real-time tracking of the own vehicles through Vehicle Tracking System (VTS).
- ☑ Tackling different difficulties and challenges in the field level such as strikes, riots, theft, obstacles by different authority, vehicle problem etc.

(Jahedul, 2017; interviewed)

❖ **Flow Chart of Outbound Logistics:**



(Jahedul, 2017; interviewed)

**C. Logistics Support**

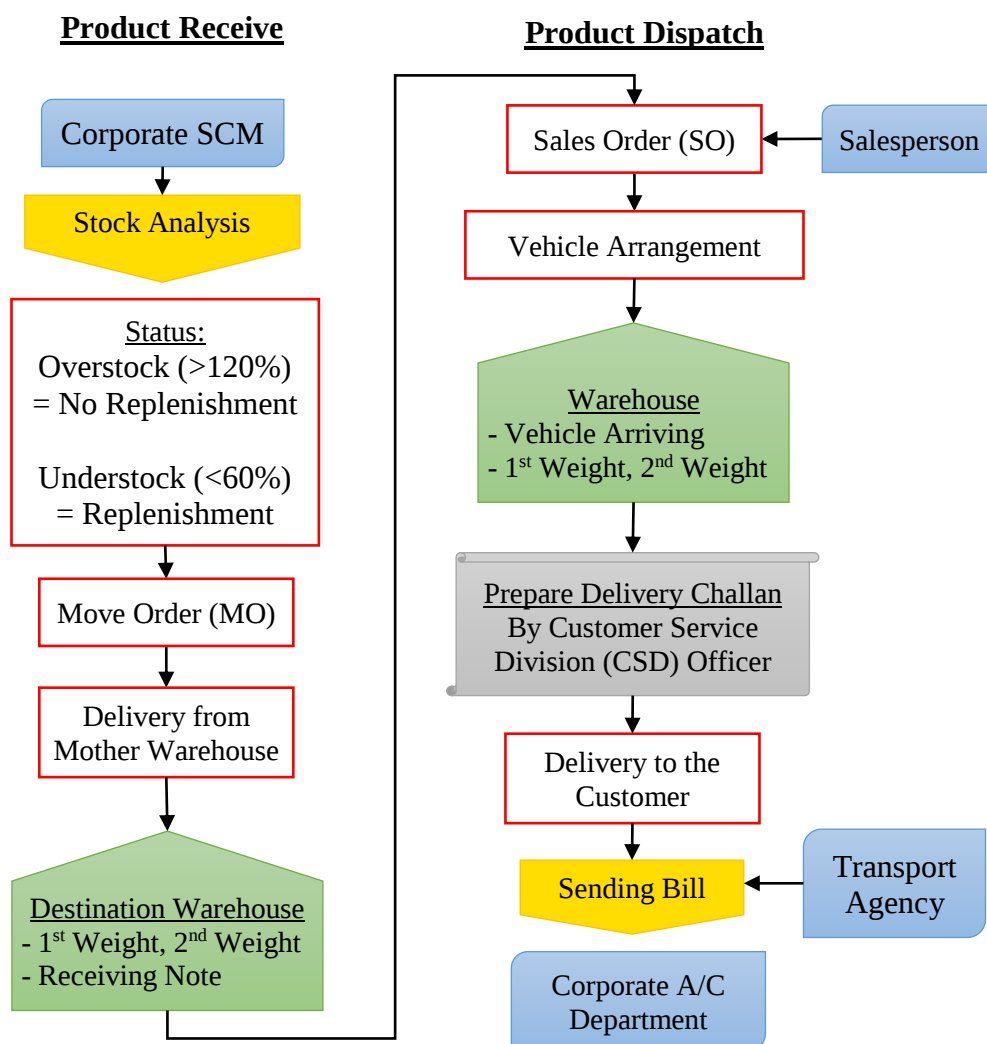
The logistics support of BSRM usually looks after the vehicles of BSRM Logistics Ltd.

1. Fleet management of own vehicles
2. Workshop for the maintenance of own vehicles in Baroawlia
3. Fuel station for the fuel refilling of the own vehicles and others in Baroawlia

(Jahedul, 2017; interviewed)

### 5.3.5 Warehouse Management

The raw materials, consumables, machinery & spares, finished steel products, and different other items are stocked in the warehouse. A proper warehouse management can reduce the cost and time involved in the process. The warehouses are placed at different places of the country and they are managed by a different management team. The Corporate SCM only coordinates with the warehouses on different issues. BSRM has 8 warehouses under warehouse management at: Jungal, Mirasrai, Mymensing, Bogra, Rangpur, Benapole, Khulna, and Barishal. Besides, it has two more mother warehouses under the re-rolling plants known at Steels, and K. Rahman. There are two basic activities of a warehouse:



#### 1. Product Receive:

The Corporate SCM team decides about the level of stock that has to be maintained in a particular warehouse depending on the sales projection. Every day the warehouses send current stock report to the Corporate SCM. Depending on this projection, the warehouse

checks the stocks whether it is overstocked (>120%) or understocked (<60%). Then, depending on the requirement of replenishment, the warehouses place a Move Order (MO) to the mother warehouses. Delivery is done by the outbound logistics. Products are weighted and received. (Nayeemul, 2017; interviewed)

## **2. Product Dispatch:**

Sales Order (SO) is received by the salesperson. Transport vehicles are arranged by checking the SO assigned to that particular warehouse. On the date of dispatch, the vehicles arrive and they are given a token according to the serial. The products are loaded on the vehicle, and weighted. The Customer Service Division (CSD) Officer issues a Delivery Challan. After the delivery of the product to the ultimate customer, bills are received from the transport agency, and payment is cleared. (Nayeemul, 2017; interviewed)

### **5.3.6 Vendor Development**

Vendor Development is structurally a new wing of BSRM SCM. The task of this wing is to develop new foreign vendors for different items used in production, plant, and other structures of BSRM. The major goal of this wing is to minimize the cost of the company and being competitive by developing alternative sources of supply. New foreign vendors or alternatives sources are developed based on the priority of three important issues:

1. Monopoly Issue – there are items whose vendors are only one or very few. These types of items need to be developed with new vendors.
2. Pricing Issue – high value, mostly used items. If the vendors are charging very much high price, then new vendors need to be developed.
3. Location Wise Dependence – for example, depending on India and China for some raw materials and consumables. This dependence creates a barrier for competition. New vendors are developed based on new location.

(Jashim, 2017; interviewed)

#### **❖ Subject Matters of Vendor Development:**

1. Develop New Vendors and Alternative Sources

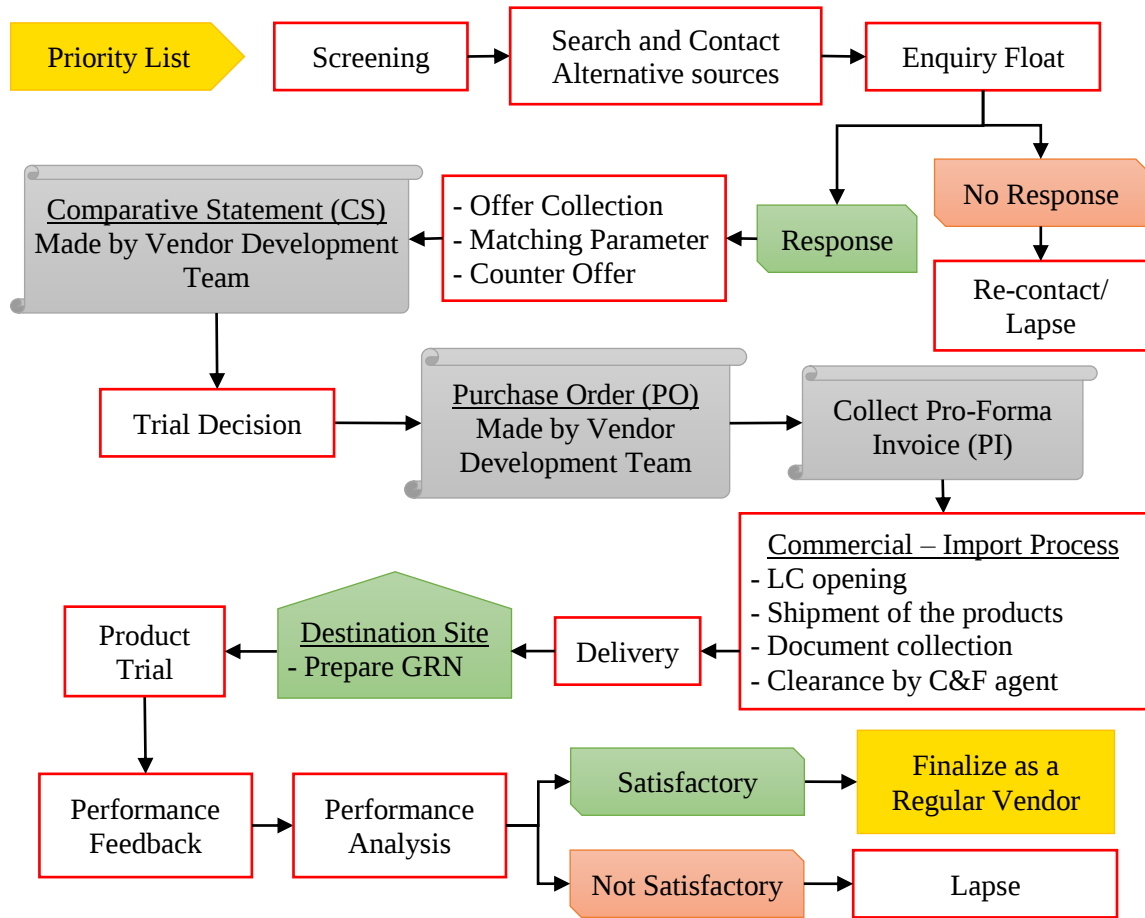
#### **❖ Process Steps of Vendor Development:**

1. Based on the priority, an item list is prepared which is categorized by Monopoly, Price, and Location issue.
2. Further screening is made on the items based on emergency requirement.

3. Different alternative sources are searched and contacted over the phone & internet.
4. The vendors are given enquiry float. If they response, then the team proceed with further query. If they don't response, then a reminder is given and they are reconnected or lapsed.
5. When the vendors are contacted, Techno Commercial Offer is collected. They may have questions regarding the parameters of the particular items. A questionnaire is given to the company to match the parameters, filled in and sent to the vendors.
6. The offer is evaluated in terms of the precision and tolerance limit of the parameters. Counter offer is given.
7. Comparative Statement (CS) is prepared and approved.
8. Since the vendor is new, a trial order decision is made in a small quantity.
9. Purchase Order (PO) is prepared and sent to the vendor.
10. Pro-Forma Invoice (PI) is received.
11. Commercial – Import process:
  - i) LC opening
  - ii) Shipment of the products
  - iii) Document collection
  - iv) Clearance by C&F agent
12. Delivery to the destination site and preparation of GRN.
13. The trial of the products is done.
14. The production team prepares a performance feedback and sends to the vendor development team.
15. The vendor development team analyzes the performance, see whether there are any quality deviations. Based on the facts and future requirement, the vendor is finalized and confirmed as a regular vendor.

(Jashim, 2017; interviewed)

❖ **Flow Chart of Vendor Development:**



(Jashim, 2017; interviewed)

**5.3.7 Instrumentation Maintenance**

As mentioned earlier, steel is a very heavy manufacturing industry which involves various mechanical and electrical equipment to run and assist the flow of production. The primary activity of the Instrumentation Maintenance wing is to maintain the instruments used in two major operations: the weighing of the products at different sites of BSRM and the bulk vessel operation. It is truly a technical team which is divided into two separate teams:

(Siraj, 2017; interviewed)

❖ **Weigh Bridge Maintenance Team:**

The weigh bridge maintenance team is responsible for the following activities:

- ☑ Planning about the maintenance schedule and conducting the maintenance operation. Usually maintenance is done twice a year.
- ☑ Providing SOP training.
- ☑ Troubleshooting different bridges as and when required on emergency basis.
- ☑ Surprise audit at different sites to check if the proper maintenance is being done.
- ☑ Projecting the requirement and maintenance of spare parts.

❖ **Grab and Magnet Maintenance Team:**

The grab and magnet maintenance team is responsible for the following activities:

- ☑ Provide support at the time of bulk vessel operation.
- ☑ Preparing plans about the requirement of the equipment needed.
- ☑ Troubleshooting of the cargo discharging equipment as and when required.
- ☑ Coordinate with the inbound logistics team for vessel operation.
- ☑ Projecting the requirement and maintenance of spare parts.

(Siraj, 2017; interviewed)

### **5.3.8 Supply Chain Management (SCM) Analysis**

❖ **Importance of SCM Analysis:**

Data are scattered, and they needed to be sorted and processed to provide a meaningful conclusion. Different BSRM SCM wings store a lot of data in the ERP and other tools. Bringing out a meaningful insight of those data is the major task of SCM Analysis. Before the implementation of ERP system, data were scarce and the analysis was difficult. But currently data are much available and the scope has been widened.

(Nayeemul, 2017; interviewed)

❖ **Data Collection, Data Analysis, and Report Preparation:**

Data are basically collected from ERP, and some manually recorded sources from the Purchase, Commercial, Logistics, Warehouse, Inventory, Production, Sales, and other related departments. The secondary sources like internet is used to collect some data as such exchange rates fluctuation, fluctuation in material prices etc. These data are analyzed mostly with the help of MS-Excel to bring out the desired insight. Some daily reports along with few new reports as per the requirement of the concerned authority.

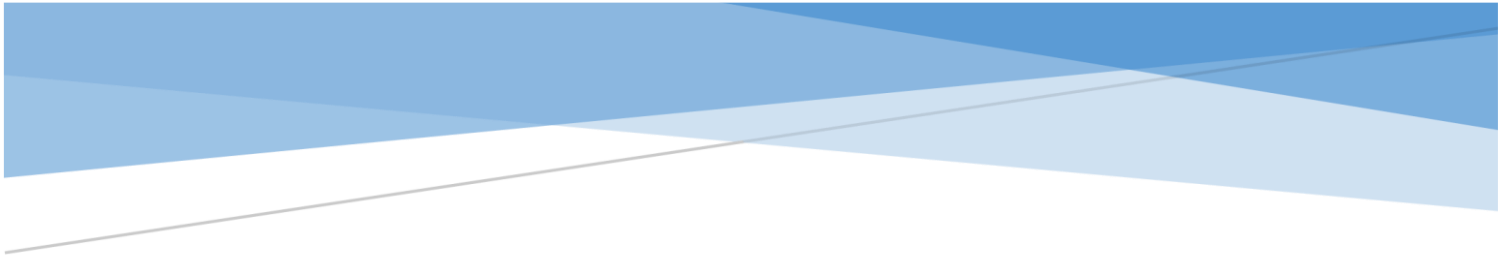
(Nayeemul, 2017; interviewed)

❖ **Outcomes of the Analysis:**

- |                              |                       |
|------------------------------|-----------------------|
| ☑ Trend Analysis             | ☑ Root Cause Analysis |
| ☑ Future Projection Analysis | ☑ Process Development |

The end users of the reports are variant. Not only Supply Chain Management but also other departments and top management use these reports for having an insight about the overall supply chain cost structure; and how it impacts the company's competitive strategy.

(Nayeemul, 2017; interviewed)



# **Chapter 06**

## Value Chain of BSRM



## **CHAPTER 06**

### **VALUE CHAIN OF BSRM**

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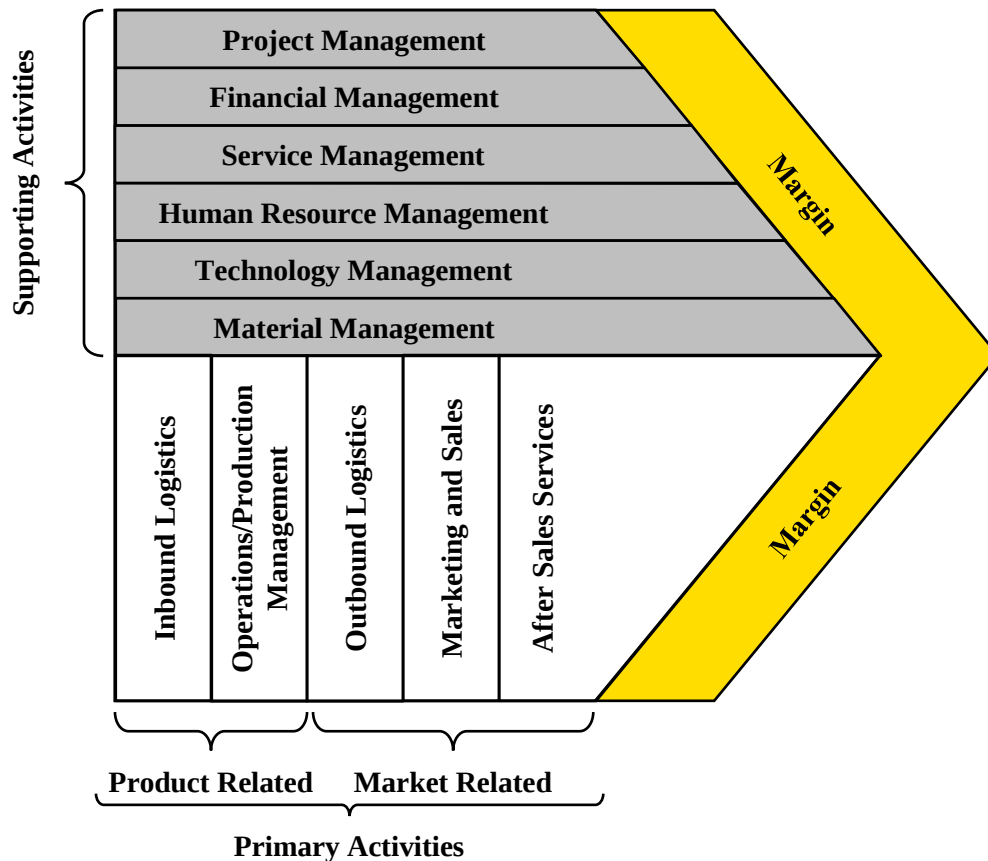
#### **6.1 Value Chain Model for Steel Manufacturing Company**

Value chain is defined as “a chain of value added activities; products pass through the activities in a chain, gaining value at each stage”. Michael E Porter (1985) first introduced the value chain concept in his book “Competitive Advantage: Creating and Sustaining Superior Performance”. The concept of value chain is used to an individual organization’s supply chain networks. It needs addition of value for each and every activity through which the product/service moves through the product life cycle.

Porter developed a general-purpose value chain that manufacturing companies can use to examine all of their activities, and to see how they’re connected. The value chain activities of an organization determine the costs, thus affects the profits. The value chain tool is useful to analyze the sources to improve the value of any organization. Value chain focuses on systems, and how business inputs are changed into business outputs purchased by customers. (S G Acharyulu, et. al. 2015)

In integrated steel plants like BSRM, steel is manufactured from the basic raw materials like iron ore, coking coal and fluxes like lime stone and dolomite. The main production units are raw material handling plant, coke ovens, sinter plant, refractory material plant, blast furnace, steel melt shops, light and medium merchant mills, wire rod mills, medium merchant and structural mills, special bar & structural mills. Besides, there are several auxiliary units like power plant, engineering shops, oxygen plant, etc. Hot metal produced at blast furnaces is converted into steel through the process of removing impurities in the metal by oxidation. This steel is further refined in the secondary refining facilities provided in the steel melt shop. Blooms are produced at steel melt shop, which are converted into various finished products like wire rod coils, rebars, rounds, structural, squares etc. in various rolling mills. These products are called as long products used in construction and infrastructure building and manufacturing sectors. (S G Acharyulu, et. al. 2015)

The value chain model developed by Porter with five primary activities and four supporting activities can be used as a generic one. Due to the nature of the activities, a different version of the value chain for steel manufacturing industry can be developed with five primary activities and six supporting activities. The shape of the value chain for steel manufacturing industry will be the same as that of Porter but the difference is in some of the activities and their application. The figure and a brief discussion on each activity are given as follows:



### 6.1.1 Value Chain - Primary Activities

Primary activities are those activities, directly involved in the conversion process of basic raw materials into final output/products including the receipt of basic raw materials from suppliers and marketing of output/ products to customers. They are grouped into two types of activities related to product and market. Product related activities are the activities, performed by the organization to add value to the product and services itself. Market related activities are the activities, performed by the organization to transfer the finished product or services to the customers. (S G Acharyulu, et. al. 2015)

- i) **Inbound Logistics:** These include receiving the basic raw materials required for the steel making process, stacking and reclaiming the materials, and distribution of materials to various departments etc.

- ii) Operations/Production Management:** These include raw material handling and processing (receiving and handling of major raw materials like scraps, coking coal, iron ore, fluxes, boiler coal etc., crushing, lump ore crushing and screening); making of coke, sinter, lime and calcined dolomite, pitch bonded magnesia bricks; production of iron, steel, wire rods, TMT bars, rounds, squares, structural (angles, channels and beams); blooms, billets etc. and preparation and repair of rolls.
- ✓ Manufacturing or buying of spares and components to meet the plant requirements; carrying out the major repairs of equipment in plant units; vibration and condition monitoring of equipment; repair of electrical and electronics equipment (control panels, electrical meters, PLCs etc.) etc.
  - ✓ Planning and monitoring production, equipment design support by plant design.
- iii) Outbound Logistics:** These include planning and despatch, distribution management, transportation, warehousing, and order fulfilment.
- iv) Marketing and Sales:** These include product management; price management; placement (distribution) management; promotion management; domestic sales (project sales, actual user sales, retail sales); export sales; sale of special steels; by products sales; planning and despatch; pricing and policy; contracts; customer relations management etc.
- v) After Sales Service:** These include commercial terms; quality aspects; delivery aspects; pre/post sales contact; complaint settlement procedure.

#### **6.1.2 Value Chain - Supporting Activities:**

Supporting activities are those activities, not directly involved in the conversion process but support the primary activities in their functions. These activities are classified as:

##### **i) Material Management**

- ✓ **Vendor Development** - These include registration; categorization; performance rating & continuous monitoring; encouraging and regular interaction with local suppliers etc.
- ✓ **Purchase** - These include identifying sources for various materials; selection of suppliers; taking requests from plant units (indents); processing of indents; procurement of raw materials, components and parts, machinery and spares, consumables, stationery, servicing; ensure supply of materials etc.
- ✓ **Logistics** - These include utilization of port facilities; handling of vessels at ports etc.

- ✓ **Stores** - These include receipt of raw materials at ports and spares & consumables; custody of spares and consumables; stock control; issue of spares & consumables to various departments; disposal of non-moving spares & consumables; transport contract; discrepancy receipt & inventory control etc.
- ii) Technology Development:** These include quality assurance and technology development (QA&TD); research and development (R&D); processes automation etc.
- iii) Human Resource Management:** These include corporate coordination (manpower planning, recruitment, executive establishment, rules & policies, welfare, parliament cell); Human resources - non works (human resource development, non-works personnel, mines, industrial relations, sports); Human resources - plant (plant personnel); Management services (quality circles, suggestion schemes, awards, incentive schemes); CSR; Medical; Town administration; Administration (general administration, law, hospitality, Liaison Office); Human Resources Development (training, management development, HR information systems).
- iv) Service Management:** These include corporate offices (CMD and Directors' offices), corporate strategic management, corporate communications, company affairs, information technology (process control, materials management system, marketing system, payroll system and financial accounting system).
- v) Financial Management:** These include treasury management, budgeting, costing, corporate accounts, raw material accounts, sales finance, operations & general accounts and works accounts, central excise and insurance, pay sections (payments to present employees i.e. employees on rolls and payments to retired and expired employees), stores accounts, purchase bills (payments to indigenous and imported materials), project accounts, mines accounts, internal audit and stock verification.
- vi) Project Management:** These include the activities of Design & Engineering for the existing plant and the activities of Design & Engineering, Project Contracts, Construction and Project Monitoring for plant expansion.
  - a) Existing plant**
    - ✓ **Design & Engineering** - These include conceptual planning, basic engineering and detailed engineering, implementation of automation to improve production, implementation of major Additions, Modifications, Replacements (AMR) & Non-AMR schemes in the plant, Modifications/alterations for debottlenecking, improvements during operation of the plant.

**b) Plant expansion**

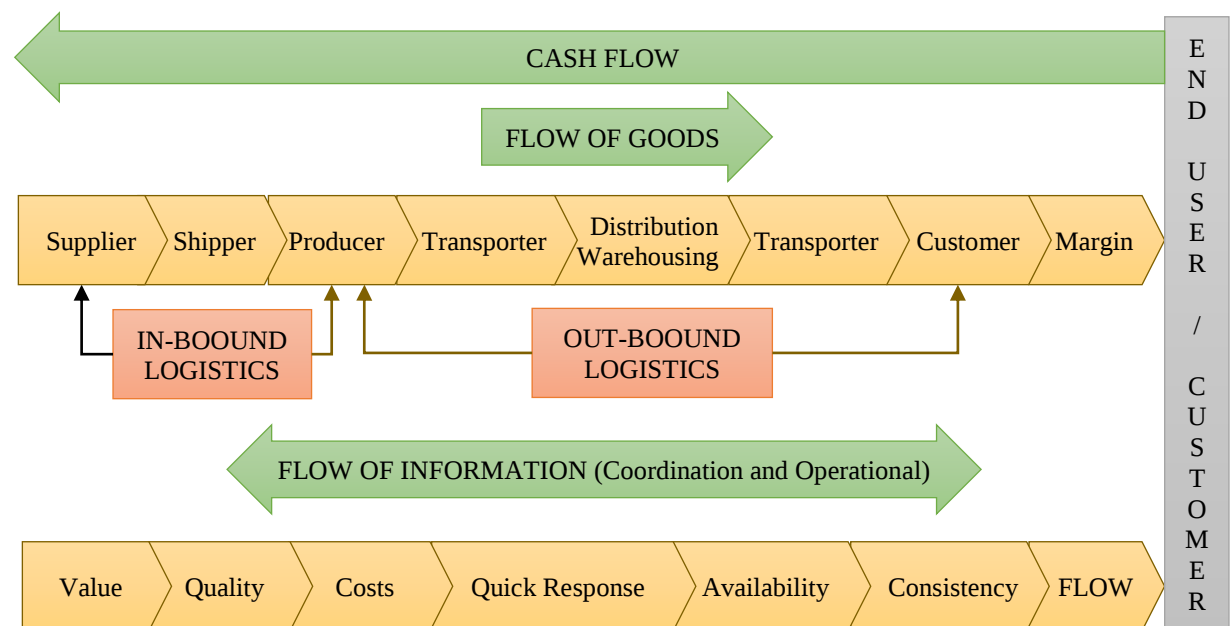
- ✓ **Design & Engineering** - These include preparation/scrutiny of project reports; engaging consultants wherever required; obtaining various clearances/approvals; executing the expansion from concept to commissioning (preparation & scrutiny of basic engineering concepts; preparation, scrutiny & finalization of technical specifications; receipt of bids; conducting techno-commercial discussions & finalizing techno-economic recommendations; detailed engineering; active involvement in order placement and finalization of the contract specifications; design supervision; liaison with statutory bodies; indexing, storage & retrieval of technical documents).
- ✓ **Project Contracts** - These include preparation of special conditions of contract (SCC), general conditions of contract (GCC), payment terms of contract; issue of notice inviting tenders (NIT); enlistment of contractors; preparation & issue of tender documents to tenderers; scrutiny & evaluation of commercial offers; preparation of contract documents; handling arbitration cases.
- ✓ **Construction** - These include executing the contract; construction supervision to ensure quality; accounting of materials & processing bills of contractors for payment; implementing statutory obligations; ensure adherence of safety practices; processing gate passes, work permits, shut downs etc.
- ✓ **Project Monitoring** - These include submission of timely feedback information to management on progress, delays and critical activities of project; preparation of various reports to the management related to status of approval of various projects, erection, testing & commissioning by indicating critical areas over progress of project; furnish periodical reports on actual expenditure with respect to estimates.

**6.1.3. Value Chain – Margin:**

The organization incurs certain costs for creating value for its final products/services. The margin is the difference between the sum of all the values created at the activities in the value chain and the total cost incurred by the organization to create such values.

## 6.2 Value Chain of SCM

Corporate enterprises are to a large extent developing supply chain systems in their organizations in order to gain a competitive edge in the market place due to its value addition capability in cost-efficient ways. In other words, SCM ensures superior customer value for core competency by a blend of better quality logistical services at minimum costs. That is why, the value chain of SCM focuses on speedier flow of goods, cash, value and related information within the complete supply chain process as illustrated in the following figure.



**Figure: Value Chain of SCM**

*Source: D.K. Agrawal (2001), 7 Ms to Make Supply Chain Relationships Harmonious, Proceeding of National Conference on People, Processes and Organizations: Emerging Realities, Excell Book Ltd., New Delhi.*

In the value chain of SCM, which starts with vendors and ends with consumers, via the shipper (in-bound transporters), producer (manufacturer), out-bound transporter, distribution warehouses, transportation from there to customers and finally, to the end user (consumer), the flow of goods and value are in forward direction for greater market dominance and the flow of cash is in a backward direction to the total business system alive, whereas the flow of information is in both directions for activation and improvement of the total supply chain system.

- ❖ **Value Flow:** Value is delivered through the defined business activity of the firm in the form of goods and services. The flow of value is always in a forward direction in the supply chain process as each supply chain participant adds some value in the goods or source received by him from his proceeding member before making delivery to the next party. The value addition may be in the form of quality, costs, quick response, availability and consistency of the logistical system. For instance, generally, if a product remains unsold due to late availability, its cost increases due to involvement of working capital and value decreases due to gradual decrease in the physical attributes. Or take the instance of delivery of a damaged product (due to mishandling during transit) by the company to a dealer. The same cannot be sold at tagged price due to the decrease in the value of the product unless it is recovered from the damage. Appropriate SCM prevents from these embarrassments and enhances the value of the products.
- ❖ **Goods Flow:** The second item of flow in the value chain of SCM is goods or inventory, which is the heart of the total system. The flow of goods are always in a forward direction, ensuring better customer service, superior value, greater market dominance and higher market share. Raw materials flow from suppliers or vendors to the producer, the work-in-process flows between the various production subsystems and finished goods flow from the last production price to the ultimate users of a distribution warehouse and distribution channel. Smooth flow of goods from vendors to consumers prevent for any item of inventory. Systematic and sophisticated supply chain approach deals with better customer service with inventory level and flexibility to meet unforeseen requirements.
- ❖ **Cash Flow:** Flow of cash in the value chain of SCM has commercial significance, which flows in a backward direction (against the value and goods flow) to keep the total business system alive and activated. Cash flow basically deals with the money paid for goods and services received by a supply chain member. For instance, the end user pays money to a retailer against the product received by him. Similarly, the retailer pays to wholesaler, the wholesaler to the company's distribution warehouse; distribution warehouse to the head office; the company's head office to the suppliers of the raw materials. Any credit/advance is with respect to the transfer of title and/or service delivery in supply chain.
- ❖ **Information Flow:** Information flow is as significant in the supply chain as blood is for human life. The flow of information in the value chain of SCM is in both directions for activation and improvement of the total supply chain system. The nature of

backward information flow facilitates coordination activities consisting of quality feedback, customer order and specification, procurement quantity with specification and timing, strategic capacity, production and dispatch planning, etc. However, the forward information flow refers to operational activities consisting of availability of goods, order processing and management, order status, invoice, transportation and shipping advices, quality assurance, warranty card, operating manual, etc. Any delay in the information flow costs to the company ranges from higher transportation cost to lost sales and corporate image. In a broader sense, there should be a trade-off between value flow and information flow, as between goods flow and cash flow. For instance, a more streamlined value flow needs quick response in terms of a speedier flow of information regarding the quantity required by customers along with quality specification, timing of delivery, etc. Similarly, an even speedier flow of goods from company to customer leads to a speedier flow of cash from the customer to the company.

### **6.3 Supply Chain Effectiveness and Bangladeshi Infrastructure**

Supply chain is a process which interfaces and interacts within the entire company and with external organizations like, vendors, customers, carriers, etc. It is responsible for the movement of products from vendors to customers through manufacturing facilities, warehouses and third-parties, such as transporters, repackagers, etc. Hence, supply chain must work effectively, for which there are five key issues.

- i) Movement of Products;
- ii) Movement of Information;
- iii) Timing of Service;
- iv) Total Logistics Costs; and
- v) External and Internal Integration of Activities.

For the successful performance of supply chain activities to meet the requirements of the above key issues, it is essential to have adequate infrastructure in terms of internal as well as external facilities. Hence, an appraisal of the Bangladeshi infrastructural facilities is essential. There are numerous Bangladeshi infrastructural bottlenecks and challenges ahead which are as follows:

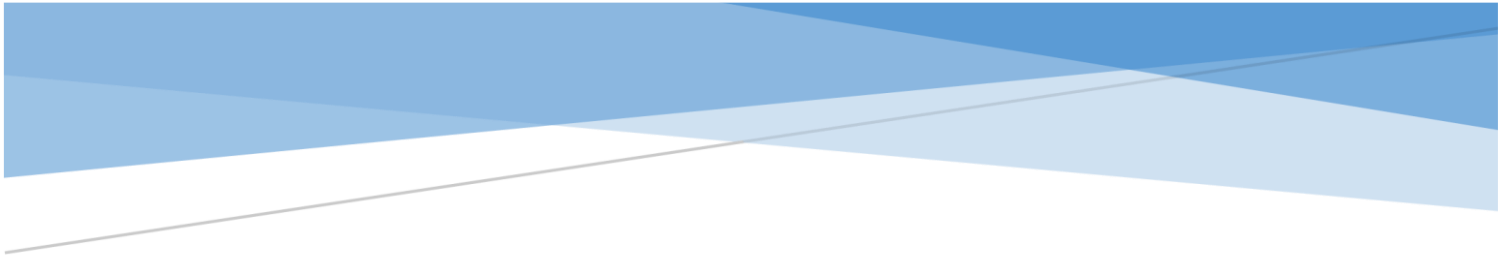
- a) When we look at the infrastructure available with us, we wonder how we are going to progress in this millennium. The old built and managed railway network is getting clogged day by day. We have roads connecting the country from one part to

the other but their width and surface are of serious concern. To this extent, the productivity of our rolling is less and to that extent, supply chain management is more difficult in this part of the world.

- b) In the development of Supply Chain Management, we are still at the bottom of the ladder – we are still at the stage of trucking and distribution. There are not many companies we can remember who are in Third-Party Logistics Management business in Bangladesh. Of late, corporates are professionally looking at this area.
- c) There have been efforts by the government to create road infrastructures which will make us at par with the developed world. But the kind of funds that we require to set up super highways may pose a serious challenge.
- d) Our transportation and distribution management business processes have a long gap to be bridged to take us to the twenty-first century.

As you have seen, the world is much ahead of us and we have a lot of gap bridge. This, however, is not a matter of very serious concern. When things start changing, it is very, very fast. New dynamics step inside the existing processes and realignment starts taking place. The change engines which have really made qualitative contributions to the economics of the world are the automobile revolution, the retail revolution and the container revolution. Despite the limitation of infrastructure, there is a lot to be done in the Supply Chain Management. We need to ensure that in a country of resource constraints like Bangladesh, each resource is utilized to its highest capacity.

Through the proper utilization of logistical and supply chain effectiveness, competitive advantage can be created and long-term sustainability can be achieved over a longer period of time. The advantages are cost advantage, and value advantage. Moreover, these advantages can ensure profit maximization and cost minimization which is the overall objective of any kind of firm. BSRM SCM with its immense coordination has been working to streamline the supply of all needed value, goods, cash and information for the smooth conduct of the leading steel manufacturing firm of Bangladesh. This value chain of SCM within BSRM guides the whole company about its capabilities and efficiency in terms of how it can exploit the opportunities of growing steel industry of Bangladesh.



## **Chapter 07**

### Challenges and Prospects of Supply Chain of BSRM

## **CHAPTER 07**

### **CHALLENGES AND PROSPECTS OF SUPPLY CHAIN OF BSRM**

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In the steel industry, the supply chain, apart from actual production, is an extremely complex task requiring the consideration of numerous factors and objectives. The difficulties are accentuated by a heavy production process with sharp fluctuated demand, raw materials supply and also uncertain prices, so that factors of such supply chains may negatively impact steel production. In contrast to other industry, the supply chain of the steel industry considers multiple objectives and multiple stages of steel production and supply chain simultaneously in a global market. It generates optimized supply chain alternatives by extending visibility of demand based on economy and market, raw material supply based on transportation, and suppliers and their price. These alternatives reveal tradeoffs with respect to competing objectives, such as maximizing profitability, minimizing delivery time, minimizing the cost of raw materials, and minimizing manufacturing disruptions by optimization of the steel supply chain. (Guangyu X. & Petri H. 2008)

#### **7.1 Introduction**

From the rapid growth of global demand for steel, turning to the supply chain in the world steel industry, steel producers are faced with pressure on raw materials, and their prices as well. According to the characteristics specific to the steel industry, the key challenge today is not merely to improve the techniques of production, but the industry is also facing uncertainty in its supply chain, which might lead to uncertainty in raw materials, marketing demand and the price of the product. As a historical industry facing new challenges, there have been two major obstacles preventing the steel industry from achieving its developing objectives. The first obstacle is higher input to its steel production caused by the higher prices of raw materials. This brings the steel company lower profits. The second obstacle is the lack of visibility across the entire steel supply chain. Despite having a well-recognized ERP package, most steel companies have been focusing on new solutions for their supply chain. (Guangyu X. & Petri H. 2008)

## **7.2 The Challenges in the Steel Industry**

### **7.2.1 The Challenge of Sharp Fluctuation of the Demand and Raw Material Supply:**

Along with the surging demand for steel product, boom demand is putting pressure on the availability and prices of raw materials in the supply chain in the world steel industry due to steel industry being sensitive to the impact of raw materials on its total manufacturing costs. In the steel industry, it is obvious that without adequate supplies of materials the global steel industry will absolutely be unable to meet the expected growth in world steel consumption. Many steel companies have been considering how to make their raw material supply meet the sharp fluctuations in steel demand. This is quite a tall order, and the reality is that materials could start to run short, which, coupled with shipping constraints, is likely to put a brake on future steel growth. (Mackrell Steve, 2004).

**7.2.2 The Challenge of Structural Relocation and Consolidation:** The demand for and consumption of steel have shown a steady increase in spite of cuts in international capacity. The number of steel products is high and still increasing. The international steel trade and its relatively heavy supply chain are playing a key role in the world steel industry. Caused by a very strong demand for raw materials, high prices relative to demand have been a feature of the past few years, consequently, both for raw materials and steel products. So far, steel companies have been able to successfully increase selling prices for most products and more than offset the increase in input prices. However, apart from increasing steel prices to raise raw material input, what strategies might the steel industry adopt to deal with the sharply fluctuating demand in the supply chain? (Guangyu X. & Petri H. 2008).

Relocation and consolidation is a necessary strategy for steel companies, which can optimize the supply chain to improve efficiency and competitiveness, and achieve greater flexibility in the steel supply chain. Steel companies might adopt it for their supply chain strategy. However, the world steel industry has been in any case undergoing a structural relocation and consolidation over the last decade and the changed map has never been clearer and the potential is still huge nowadays. The challenge is to optimize the structural relocation and consolidation between steelmakers and raw materials suppliers so that each side can get maximum profits, i.e. a win-win strategy. (Guangyu X. & Petri H. 2008)

In summary, there are several benefits that steel companies can share from relocation and consolidation in the supply chain (Guangyu X. & Petri H. 2008):

- a) Optimizing investment, including raw materials and WIP
- b) Maximizing the value of supplier relationships
- c) Minimizing input cost for steelmaking
- d) Determining the effect of shutting down or opening new manufacturing facilities
- e) Improving the price competitiveness
- f) Utilizing key assets optimally
- g) Restructuring to other new businesses

### **7.2.3 Challenge of Application of Supply Chain Software to Improve Steel**

**Production:** Faced with high pressure on the supply chain in the steel industry, advanced supply chain software or IT (Information Technology) solutions based on e-commerce might be an alternative for the steel industry, which would empower steel companies to achieve a better synchronization and extend visibility of the value chain through a whole range of production management improvements. One of the main motivations for the application of IT solutions in the steel industry is the objective to combine maximizing profits of the steel company and real-time steel demand. IT solutions based on e-commerce would extend visibility across the entire supply chain in the steel industry (Guangyu X. & Petri H. 2008). IT solutions based on e-commerce have brought about the fact that it is becoming a technical reality to extend visibility across the supply chain for the steel industry. Wilson (2003) summarizes the advantages of extended supply chain visibility as follows:

- a) Streamlined automated transaction processing and order tracking.
- b) Simplified planning and management with supply chain participants, from raw materials receipt through to customer delivery.
- c) Collaborative, proactive monitoring and measuring of key performance objectives.
- d) Real-time electronic communication with supply chain participants.
- e) Year-round marketing via online promotion and sales.
- f) Lower personnel costs thanks to automated business transactions.
- g) Real-time monitoring of customer buying habits.

Apart from the existing supply chain software, steelmakers can also select any adequate supply chain IT solution product. The steel company can also design its own supply chain software, responding to the requirements of the supply chain. One such case is Oracle ERP (Enterprise Resource Planning) to merge its production, information and cash flows into a

single system. Realizing that an important key to competitiveness is a solid IT platform, I should be decided to create a commercially proven e-business system that would integrate strategy and execution, and boost profits by optimizing internal and external resources. The new system yields measurable operational improvements, from better production planning and lower costs to faster strategic decision making. (Guangyu X. & Petri H. 2008)

Even supply chain software can help steel companies achieve extended supply chain visibility and improve optimization. The supply chain software makes tremendous demands of the steel company's network infrastructure. In order to ensure the success of its applications, it is important that the steel company is involved at an early enough stage of its implementation. Implementation should be done in segments so that the company can plan the deployment of a scalable and intelligent supply chain infrastructure. (Guangyu X. & Petri H. 2008). Therefore, during implementation of IT solutions or supply chain software, there are several steps that a steel company must follow:

- i) Before pursuing supply chain software, the steel company's own system needs to be functioning properly. The needed data should be accurate, and the objectives of a new system need to be clearly defined. It is better to be reliable, scalable and intelligent.
- ii) During the implementation stage, companies should move in stages, beginning with those critical units that will have the greatest initial impact on the bottom line. Implementing in stages also makes the project much more manageable than implementing the software across the entire organization.
- iii) The company should provide training and help employees understand the new, overall approach after the implementation of the new system, since the supply chain software implementation requires a completely new approach to planning and scheduling. Employees have to learn the new approach and trust the software, which is the related software's recommendation and is held accountable.

### **7.3 Challenges Specific to the Major Wings of BSRM SCM**

#### **❖ Purchase**

##### **Local Purchase**

1. Quality of the works and products is not uniform since all the suppliers don't conform to a unified system of production
2. Uneducated suppliers who don't have proper expertise in communication
3. Manual and conventional system of the supplier that make the communication difficult

##### **Foreign Purchase**

1. Physical inspection is difficult, in turn it is difficult to assess their credibility
2. Non-conformance of the imported items and their remedies is complex
3. International price fluctuation of products and their impacts on the overall cost

#### **❖ Commercial**

##### **Import**

1. Bank rates and charges related issue
2. Documentation related problem – human error and discrepancies
3. Harmonized System (HS) code related problem – extra duty demanded by customs
4. Duty related problem – duty overload
5. Legal compliance issue – compliance with BIDA, Customs, Port, BB etc.

##### **Export**

1. Ensuring on time shipment and document negotiation according to the terms of LC
2. Coordination between the logistics and customers
3. Collection of payment from the importer

#### **❖ Logistics**

1. Managing congestion related problem in the port is difficult
2. Minimizing the huge amount of demurrage is a big challenge
3. Managing the charges and prices of transport agency
4. Regulatory bars given by the transport authority

### **7.4 Plausible Solutions:**

#### **❖ Development of the Supply Chain Model in the Steel Industry – “Win-Win”**

Due to the fact that there are many long and complex supply chains in the world steel industry, including raw materials and transportation, and sharp fluctuations of demand, as we have previously pointed out, so relationships, engineering, and information are the key to improving the supply chain, and the key to new strategy for the supply chain in the world steel industry will be the success of cooperation between steel producers, distributors and end-users to take costs out of the supply chain so that a win-win situation can be achieved for each side. The following issues revealed a way forward to achieving a win-win path for each participant across the supply chain in the steel industry (Guangyu X. & Petri H. 2008):

- i) Keep up with global integration of the supply chain in world steel industry by proper strategies, e.g. relocation and consolidation.
- ii) Pursue extending the supply chain visibility and shorten the bullwhip effect by advanced supply chain models and implementation of IT solutions, e.g. i2, SAP R/3, TOC and Oracle ERP, etc.
- iii) Employ optimization logistics functions such as transportation and distribution by optimized cooperative relationships and using Vendor Managed Inventory (VMI) across the supply chain, and relocation and consolidation.
- iv) Apply supply chain software to existing and potential participants in steel production planning, transportation, customer service, and participants' relationship management by electronic data interchange (EDI), and Enterprise Resource Planning (ERP) applications across entire chains.

Firstly, these issues can result in a global evolutionary change integrating the steel industry with the real-time supply chain management of tomorrow. Next, IT solutions based on e-commerce will enable the development of a modern supply chain model in the world steel industry, which will ensure the information visibility of each participant so as to shorten the bullwhip effect across the supply chain such as in market demand, raw materials and their prices and inventory levels, and then determine how to make an integrated supply chain model, whether a raw materials order policy, schedule of upstream and downstream steel production, or transportation, and distribution retail systems. When handled properly, advanced strategies and models will improve and effect optimization of the entire supply chain, while at the same time improving the supply chain in the steel company. Taking IT

solutions based on e-commerce into their entire supply chains, steel companies will affect an integration of the supply chain from raw materials producers through to the final end-user, and develop a highly competitive supply chain model for the market. Substantial reductions in cost can be achieved in the entire chain by using Oracle ERP (Enterprise Resource Planning); SAP APO and SAP R/3. (Guangyu X. & Petri H. 2008)

❖ **Plausible Solutions:**

- i) **Taking a Long-Term Approach:** Before exploring further actions, it is important to recognize that long-term approach, or sustainability, is not against doing business and creating value. In fact, here at steel industry, sustainability is different from corporate social responsibility and environmental protection (or philanthropy). To companies, sustainability means a stable growth now and in the future. (Andy Chan, 2016)
- ii) **Digital Transformation:** When looking into the future, some of the long-term competences for companies will definitely be the ability to innovate (be open-minded) and iterate (embrace failure). This is especially true for a traditional industry like steel. Digitalization is certainly the biggest opportunity and threat deciding if the traditional industrial companies will thrive or barely survive after 10 years. This includes Internet of Things (IoT), robotics, artificial intelligence, big data, cloud computing, and additive manufacturing (AM) (Andy Chan, 2016). In terms of idea and production, design and change data are integrated closely in the production process. Engineers can simulate the production and thus estimate the effect of performance changes and the cost needed for those changes. In terms of sales and delivery, big data demand forecasting techniques enable manufacturers to analyze different information along the downstream supply chain in real-time, such as customers' online configurations, third-party data, CRM systems, etc. This hugely improves forecasting models and is better than the usual built-to-stock logic. Assembly line utilization also greatly benefits from the real-time simulation and feedback loops between the shop floor and engineering. (Andy Chan, 2016)
- iii) **Turning Externalities into Edges:** In a professional practice, manufacturers usually want to be more lean and efficient in its supply chain. They also want to get rid of wastes, as it incurs company costs in multiple ways along the supply chain stages. With wastes, transportation and disposal are needed, which are not value-creating activities. Besides, companies need to comply with strict disposal regulations, so it can almost be treated as 'fixed' costs anyway. The mind-set change, that executives become aware to

the sweet spot between planet and profit, is the fundamental goal. This can drive companies to a new area of innovation and efficiency, resulting in a longer competitive lead in the market. (Andy Chan, 2016)

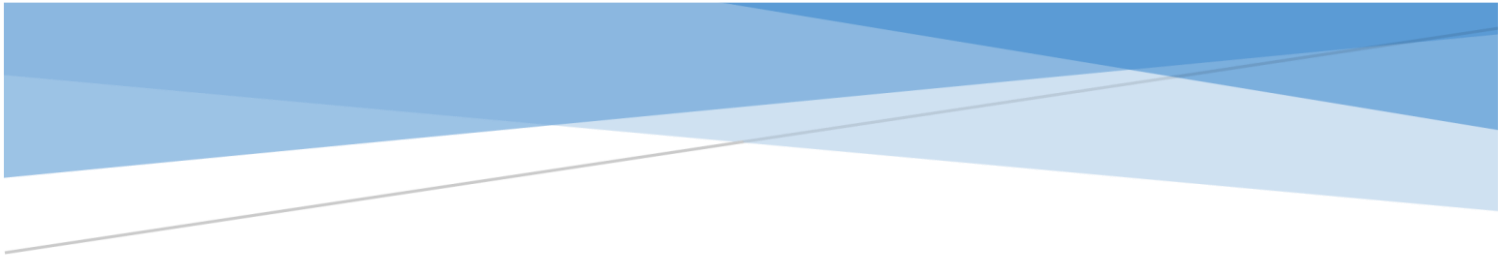
- iv) **An Industry Under-pressure:** While those in-factory approaches have been adopted for years, the industry is still under pressure to be transparent and responsible in both social and environmental aspects along the supply chain (and even all scopes of operations). Often required by different sustainability advocates nowadays, companies need to adopt ‘ethical sourcing practice’. Therefore, they have to select suppliers with high economic, social, and environmental value and work with them. Recall a principle from operations management: a stable partnership with only a few suppliers is usually more favorable. Along the process of selection, suppliers with similar values and operation systems can be relied on and even grow together in the long term. This pushes for mutual reliance of supplier and buyer, achieving a better power balance in the buying process as well. (Andy Chan, 2016)
- v) **Becoming a Purpose-driven Business:** The steel industry is one of the most traditional and fundamental industries supporting many others, like oil & gas, power generation, construction, etc. The country needs more steel (products), of higher-quality and improved safety to advance our quality of life. However, there is no point to achieve it while sacrificing someone else’s quality of life. That is why the industry must be sustainable. That is why companies must look beyond current paradigm, and create innovation within to go digital. (Andy Chan, 2016)

### **7.5 Prospects of BSRM SCM**

Availability of raw materials, transportation, port facilities and tariff rationalization are the key challenges for the development of steel industry. Traditionally, steel is produced through conventional process of re-rolling ship cutting plates. But a structural change is noticed in the steel industry. Over capacity of the steel industry also indicates enormous export potential, though the option is yet to be explored. Since steel demand is derived from other sectors like construction buildings, roads, consumer durables and infrastructure, its fortune is dependent on the growth of these user industries. However, initiation of Padma Bridge construction, acceleration of Government's big infrastructure projects under Annual Development Program (ADP) and revival of the local real-estate industry will undoubtedly boost-up the steel consumption locally. However, uneven competition from big players, price fall in international steel market, dependency on imported raw materials and a decline in domestic demand for construction materials due to bearish vibe in the real estate sector are forcing the small mills owners out of the market.

The prospect of any particular department depends on the overall prospect of the particular firm, industry, and the economic condition of the country. BSRM as the leading steel manufacturing firm in the industry is facing enormous progression in making quality products and providing safety solution with the motto of "Building A Safer Nation".

- Enormous business growth and infrastructure development in the country, projects adopted by the government and privately-owned organization.
- There is a huge scope of applying scientifically proven methods of supply chain structure in BSRM by proper consultation, training and development.
- Developing diversified portfolio of business can open a new door for BSRM SCM as the nation progresses to a phase of developed economy.



# **Chapter 08**

## Recommendation and Conclusion

## **CHAPTER 08**

### **RECOMMENDATION AND CONCLUSION**

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#### **8.1 Recommendations**

There's a saying, "Products are made in the factory, but brands are created in the mind of customer". All the front-line departments of a company can make the promises to the customers and other stakeholders of the company by defining a competitive strategy for the market. But fulfilling the promises is way much harder than making the promises. Streamlining the flow of products, funds, and information from the tiers of supplier to the supplier to the manufacturer to the intermediaries to the customer effectively and efficiently is very much difficult as the customer's needs and the situations are ever changing. The steel manufacturing supply chain management may consider the following points to streamline the operation:

- Keeping the production running is very much crucial in a heavy manufacturing industry like steel. A simple shortage of any raw materials, machinery & spares, or other items can hamper or shut the production which is a matter of great loss to the company. The SCM can dedicate itself to keep the production running.
- The SCM can work closely with the suppliers and regulatory stakeholders to reduce the lead time needed which in turn reduces the cost and negative impacts.
- SCM may consider the suppliers as partners rather than mere parties who supply items. The partnership paradigm is truly beneficial for the company in the long-run.
- The aggregate level planning, inventory management, sourcing, purchasing, manufacturing, transportation, warehousing & distribution, continuous improvement are the major parts SCM, continuously working for the fulfillment of company leadership in the steel industry of Bangladesh.
- Be efficient in cost minimization, SCM helps in making money for the company. And, being responsive to the market by providing quality products, it can charge premium prices in the market. The trade-off is contemporary.
- Fulfilling the promises needs a top management commitment which entails giving proper authorization and responsibilities to the employees who work for the company. SCM is truly committed to gain a competitive advantage.
- A system can be introduced for analyzing different operations such as purchase requisition, purchase order, logistics operation which are going to save time.

- Follow up activity should be given more priority for having a smooth procedure.
- A guide line is needed from given by custom authority so that procedures become smoother.

## **8.2 Managerial Implication and Contribution of Knowledge**

Over the last couple of years, the economy of Bangladesh is doing very well. The government of Bangladesh has a vision to take the country into an epic height. For that very reason, numerous numbers of medium and large-scale infrastructure projects have been undertaken to realize this goal. Steel manufacturing industry is one of the biggest contributor in reaching this height.

Doing a study on such a heavy industry is really a matter of great desire. The observations and the facts found under the study are very much important to the managerial decisions. Since the input of the industry mostly depends on the characteristics of the international market, the managers must stay conscious and be able to make hardheaded decisions to keep the stream effective and efficient. The internship report covers many aspects of steel manufacturing industry such as the circumstances and context of steel industry, empirical views of different authors, industry review, a heavy emphasis on the SCM and value chain of the industry, and the challenges and the prospects. By considering this particular study, managers can have an overall idea about the people, processes and policies of the steel manufacturing industry which might be a great source of their future decisions.

Moreover, due to the various types of constraints, there were very few studies in this sector. The primary aim of the interne in this study is to relook at the concept of supply chain management from a new perspective and how they are applied in the steel manufacturing industry. So far, most studies on steel industry have focused on the challenges and prospects that are faced by the industry. In this study the intern has tried to shift the focus to the contemporary supply chain processes rather than simply looking at the conventional approach to solve the problems, which might guide the future research approach in an enhanced way.

### **8.3 Conclusion**

Bangladesh is emerging as the economic tiger in this region of South Asia. For many countries, Bangladesh is the safe and reliable destination for investment, especially government's investment friendly policies encouraging many foreign investors. These investments will surely increase demands for prime quality construction steel. Demand for high quality steel is also fueled by a number of mega civil construction projects, undertaken by both private and public sectors. BSRM is supplying a lot of products to those mega projects, ensuring proper quality and compliance issue.

Logistics is a recent addition in the jargon of integrated business management formally, although it has been an integrated part of it since the Industrial revolution. Due to a gradual change in the business functions itself, there has been a transformation in the concept and scope of the logistics within the gamut of management. The discipline of business logistics has advanced from the warehouse and transportation dock to the boardroom of leading global enterprises. Logistics has become a strategic issue for almost all the industrial sectors due to its significant mission of ready availability of goods, best possible customer service and minimum total logistics costs. That is why, logistics management nowadays, contributes significantly both at the macro and micro level. It has the capability to create an unbeatable long-run competitive advantage in the market place.

The strategic logistics planning process involves a corporate vision towards logistical requirements, their strategic analysis and then their development effective implementation of logistics plans. In order to achieve its missions, the operational objective of logistics management is to rightly respond to customer's requirement as per the right quantity and right quality so that the right value addition can be made possible at the right cost trade-offs between cost and service also related to the flow of right information. The various components of logistics management have strategic, primary and supportive activities. Customer service is a strategic component of logistics, network design, order processing, transportation and inventory management, which are all primary, whereas storage and warehousing, material handling, protective packaging, procurement, information and forecasting are supportive components of logistics management. These components have a wide range of functions in production, procurement and physical distribution functions of logistics.

Since the beginning of the 1990s, there has been considerable change in the concept of logistics management from a managerial function to a complete process. In other words, logistical functions deal with movement and storage of goods within the organization, whereas supply chain process starts with the supplier of raw materials and ends with the delivery of finished products to its customers. Supply chain management is a coordinated systematic approach of all supply chain participants for making goods available at the place of use from the source at the least possible cost. It facilitates in gaining a strategic advantage in the market place by the addition of right value in the product or service.

The value chain of SCM depicts the movements of goods/inventory, cash, value and information. In the value chain of SCM, the flow of goods and value are in a forward direction for greater market dominance and core competency; flow of cash is in backward direction to keep the total business system alive and with commercial significance; and the flow of information is in both directions, facilitating coordination and operational activities.

The success of supply chain management is largely dependent upon the best contribution from their other supply chain partners to achieve organizational objectives of core competency. Simultaneously, every supply member has an individual identity and goals, specialized knowledge and a unique role to play in value addition. It means more dependence with each other, which results into conflicts. Hence, conflicts should be prevented and resolved at the earliest. Efforts should be made to maintain harmonious supply chain relationships, for which there should be mutual strategic alliance, cooperation and coordination, excellence, trust and commitment, information sharing, involvement by investment and transfer of technology and skills between the supply chain partners.

The generic value chain developed by Porter is useful, mostly for manufacturing sector but not in all cases in the value systems of other sectors. However, it can be used as stepping stone for developing the value chains for other sectors. Therefore, a value chain model for steel manufacturing sector is developed using a case of an integrated steel plant with five primary activities and six supporting activities and presented in this paper. In the primary activities operations is proposed as operations/production management under product related activities and services is excluded from product related activities and included in market related activities as service after sales. In the support activities procurement is

proposed as materials management and infrastructure is proposed as services management. Finance is separated from infrastructure and shown as a separate support activity as finance management. Projects management which is important activity in the expansion of integrated steel plants is added as a support activity. This study can be extended to identifying critical activities of proposed value chain model for steel manufacturing sector and evaluating its overall assessment.

BSRM Supply Chain Management as a benchmark for others in the industry plays a very vibrant role to keep the company surviving and comply with the competitive strategy. Depending on that competitive strategy the supply chain structure is created. Earlier, BSRM SCM was a very insignificant department when the company was searching for opportunities in the market. After a tremendous growth with the brand BSRM Xtreme in the Bangladesh steel market, the supply chain has become the most significant part of the company. It grew with experience, learning, expertise, training and development. Beholding from the top of the house, BSRM SCM is now such a department that integrates every other department and safeguard the reputation of the company by proper flow of products, funds, and information. The significance of supply chain management is universal and ever growing.

# **Annexure**

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**Summary of Officials who were Interviewed:**

| <b>Name &amp; Functional Title</b>                                                  | <b>Responsibility Level</b>                                   | <b>Time of Face to Face Interview</b> |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------|
| Mohammad Imtiaz Uddin Chowdhury; Head of Supply Chain                               | Strategic – Supply Chain                                      | Nov 2017 – Jan 2018                   |
| <b>Trading</b>                                                                      |                                                               |                                       |
| Kazi Kamrul Islam; Lead Trading                                                     | Strategic – Trading                                           | Nov 2017                              |
| Mohammed Kurabanbhai Dhabid; In-Charge Trading                                      | Planning – Trading                                            | Nov 2017                              |
| <b>Purchase</b>                                                                     |                                                               |                                       |
| Mohammed Mosharraf Hossain; Lead Purchase                                           | Strategic – Purchase                                          | Nov 2017                              |
| Md. Jamshedul Islam Chowdhury; In-Charge Local Purchase                             | Planning – Local Purchase                                     | Nov 2017                              |
| Jishotosh Talukder; In-Charge Promotional Item & Media Purchase                     | Planning – Promotional Item & Media Purchase                  | Nov 2017                              |
| Aniruddha Das; In-Charge Foreign Purchase (Consumables)                             | Planning – Foreign Purchase (Consumables)                     | Nov 2017                              |
| Prokriti Rudra; In-Charge Foreign Purchase (Machineries; Spares; Trading & Project) | Planning – (Machineries; Spares; Trading & Project)           | Dec 2017                              |
| <b>Commercial</b>                                                                   |                                                               |                                       |
| Ali Mahbub Hossain; Lead Commercial                                                 | Strategic – Commercial                                        | Dec 2017                              |
| Abdullah Al Harun; In-Charge Import (Raw Materials; Consumables & Trading Item)     | Planning - Import (Raw Materials; Consumables & Trading Item) | Dec 2017                              |
| Joynal Abedin; In-Charge (Machineries; Spares; Legal & Liaison)                     | Planning – Import (Machineries; Spares; Legal & Liaison)      | Dec 2017                              |
| Latifa Khanam; In-Charge Export                                                     | Planning - Export                                             | Dec 2017                              |
| Shah Nura Alam Chowdhury, TM, Trade Finance                                         | Operational                                                   | Dec 2017                              |
| Nazmus Sakib, TM, Shipment CC                                                       | Operational                                                   | Dec 2017                              |
| <b>Logistics</b>                                                                    |                                                               |                                       |
| Sanjoy Kumar Ghosh; Lead Logistics                                                  | Strategic – Logistics                                         | Jan 2018                              |
| Abhijit Das Gupta; In-Charge Inbound Logistics                                      | Planning – Inbound Logistics                                  | Jan 2018                              |
| Mohammad Jahedul Islam; In-Charge Outbound Logistics                                | Planning – Outbound Logistics                                 | Jan 2018                              |
| <b>Corporate Warehouse Management and SCM Analysis</b>                              |                                                               |                                       |
| Md. Nayeemul Islam Bhuiyan; Supply Chain Analyst                                    | Planning and Operational                                      | Jan 2018                              |
| <b>Vendor Development</b>                                                           |                                                               |                                       |
| Jashim Uddin Ahmed Chowdhury; In-Charge Vendor Development                          | Strategic, Planning and Operational                           | Jan 2018                              |
| <b>Instrumentation Maintenance</b>                                                  |                                                               |                                       |
| Md. Siraj Uddoula; In-Charge Instrumentation Maintenance                            | Strategic and Planning                                        | Jan 2018                              |

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## Glossary

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**Airway Bill:** An air waybill (AWB) or air consignment note is a receipt issued by an international airline for goods and an evidence of the contract of carriage, but it is not a document of title to the goods. Hence, the air waybill is non-negotiable.

**Annual Rate Contract (ARC):** The Annual Rate Contract is a contract between the buyer and the seller under which, during the period of its currency (one year), the contractor engages to supply materials on demand, irrespective of quantity, at fixed unit rates or prices, within a given period of the receipt of such demand.

**Berthing:** Berth is the term used in ports and harbors for a designated location where a vessel may be moored, usually for the purposes of loading and unloading. Berths are designated by the management of a facility (e.g., port authority, harbor master). Vessels are assigned to berths by these authorities.

**Bill of Entry:** An account of goods entered at a customhouse, of imports and exports, detailing the merchant, quantity of goods, their type, and place of origin or destination. It is issued by the customs presenting the total assigned value and the corresponding duty charged on the cargo.

**Bill of Lading (B/L):** A document by which the master of a ship (or any other carrier) acknowledges receipt of goods for transport.

**Bill of Quantity (BOQ):** A bill of quantities (BOQ) is a document used in tendering in the construction industry / supplies in which materials, parts, and labor (and their costs) are itemized. It also (ideally) details the terms and conditions of the construction or repair contract and itemizes all work to enable a contractor to price the work for which he or she is bidding. The quantities may be measured in number, length, area, volume, weight or time.

**C&F Agent:** Any person or organization who or which is engaged in providing any service, either directly or indirectly, concerned with the clearing and forwarding operations in the port in any manner to any other person and includes a consignment agent.

**Certificate of Origin:** Certificate of origin (COO), is the country of manufacture, production, or growth where an article or product comes from. There are differing rules of origin under various national laws and international treaties.

**Comparative Statement (CS):** A CS is a statement mentioning the comparison of different vendors for a particular item/s based on price, incoterm, warranty, payment method etc. The need for comparative statement (CS) arises especially in case of bids comparison of local and foreign vendors. There are many additional charges applying on foreign vendor like duties, while taxation effects are also different.

**Consignment Note:** Document prepared by a consignor and countersigned by the carrier as a proof of receipt of consignment for delivery at the destination. Used as an alternative to bill of lading (specially in inland transport).

**Copy Documents:** Copy documents are the copy of original commercial documents sent by the exporter to the importer for the purpose of tracking shipment and clearing goods from the port by using the letter of indemnity or no objection certificate.

**Debit Note:** A debit note is a document sent by a buyer to a seller, or in other words, a purchaser to a vendor, while returning goods received on credit. This notifies that a debit has been made to their accounts. A debit note is issued for the value of the goods returned. In some cases, it is created for claiming compensation of goods that are damaged and of other non-conforming issues.

**Delivery Challan:** A Delivery Note or Challan is a document addressed to the Stores-in-charge containing instructions to effect delivery of the goods mentioned therein. A copy will go along with the goods package to the customer.

**Delivery Order (D/O):** A delivery order (D/O) is a document from a consignee, or an owner or his agent of freight carrier which orders the release of the transportation of cargo to another party by the Shipping Line. Usually the written order permits the direct delivery of goods to a warehouseman, carrier or other person who in the course of their ordinary business issues warehouse receipts or bills of lading.

**Demurrage:** Penalty for exceeding free time (usually 4 days) allowed for taking delivery of a shipment from the port or returning of containers (usually 14 days) to the shipping or transporting company's nominated depot.

**Draft:** The draft or draught of a ship's hull is the vertical distance between the waterline and the bottom of the hull (keel). In the simplest terms, the draft of a ship or boat is the distance between the surface of the water and the lowest point of the vessel. The measurement should be made as close to vertical as possible. Draft determines the minimum depth of water a ship or boat can safely navigate.

**Export Permit (EXP):** To export certain goods out of the country, the exporter must have a permit ensuring the compliance with applicable export control measures. The export of some goods may be restricted to support strategies of beneficiation or to assist local manufacturers to obtain raw materials before they are exported.

**Ferrous Metals:** Ferrous Metals mostly contain Iron. They have small amounts of other metals or elements added, to give the required properties. Ferrous Metals are magnetic and give little resistance to corrosion. Examples of the ferrous metals: Vehicle scrap metal, Demolition Site scrap metal, Metal offcuts from manufacturing industries.

**Full Container Load (FCL):** FCL is a container shipping option where a container is exclusively used for a single shipment and the container is not shared with other cargo shipments, and the costs are borne by one party. Even if the container isn't enough completely filled to the brim with cargo, the shipping party can choose to still opt for it.

**Goods Receiving Note (GRN):** The goods receipt note is an internal document produced after inspecting delivery for proof of order receipt. Generally produced by your stores team. It's used by stores, procurement and finance to raise any issues, update your stock records and to be matched against the original purchase order and supplier invoice, to allow payment to be made.

**Harmonized System (HS) Code:** The Harmonized Commodity Description and Coding System, also known as the Harmonized System (HS) of tariff nomenclature is an internationally standardized system of names and numbers to classify traded products. It came into effect in 1988 and has since been developed and maintained by the World Customs Organization (WCO) (formerly the Customs Co-operation Council), an independent intergovernmental organization based in Brussels, Belgium, with over 200 member-countries. It allows participating countries to classify traded goods on a common basis for customs purposes. At the international level, the Harmonized System (HS) for classifying goods is a six-digit code system.

**Import General Manifest (IGM):** Once before arrival of cargo at destination port, the carrier has to file the details of cargo arriving to such port of importing country with the Customs. Normally IGM is filed on the basis of Bill of Lading or Airway bill, issued by the carrier. The IGM Import General Manifest contains the details about shipper, consignee, number of packages, kind of packages, description of goods, airway bill or bill of lading number and date, flight or vessel details etc.

**Import Permit (IP):** An import permit is a document issued by a national government authorizing the importation of certain goods into its territory. Government may put certain restrictions on what is imported as well as the amount of imported goods and services.

**Incoterm:** The Incoterms rules or International Commercial Terms are a series of pre-defined commercial terms published by the International Chamber of Commerce (ICC) relating to international commercial law. They are widely used in International commercial transactions or procurement processes as the use in international sales is encouraged by trade councils, courts and international lawyers. It is a series of three-letter trade terms related to common contractual sales practices, the Incoterms rules are intended primarily to clearly communicate the tasks, costs, and risks associated with the transportation and delivery of goods. Incoterms inform sales contract defining respective obligations, costs, and risks involved in the delivery of goods from the seller to the buyer. However, it does not constitute contract or govern law. Also, it does not define where titles transfer and does not address the price payable, currency or credit items.

**Inspection Certificate:** A report issued by an independent surveyor (Inspection Company) or the exporter on the specifications of the shipment, including quality, quantity, and / or price, required by certain buyers and countries.

**Institute of Scrap Recycling Industries (ISRI):** The Institute of Scrap Recycling Industries (ISRI) is a United States-based private, non-profit trade association representing more than 1,600 private and public for-profit companies. Its membership is made up of manufacturers and processors, brokers and industrial consumers of scrap commodities, including ferrous and nonferrous metals, paper, electronics, rubber, plastics, glass and textiles. ISRI's associate members include equipment and service providers to the scrap recycling industry. Manufacturers and sellers of equipment and services—such as shredders, balers, cranes,

cargo transporters, computer systems and more—also promote the scrap recycling industry through their membership in ISRI.

**Insurance Cover Note:** A temporary document issued by an insurance company that provides insurance coverage until a final insurance policy can be issued. A cover note is different than a certificate of insurance or an insurance policy document. The note features the name of the insured, the insurer, the coverage, and what is being covered by the insurance.

**Insurance Policy:** An insurance document, with full details of the insurance coverage, evidencing insurance has been taken out on the goods shipped.

**Invoice/Commercial Invoice:** It is a formal demand note for payment issued by the exporter to the importer for goods sold under a sales contract. It should give details of the goods sold, payment terms and trade terms. It is also used for the customs clearance of goods and sometimes for foreign exchange purpose by the importer.

**Lead Time:** Lead time is the amount of time that elapses between when a process starts and its completion. Lead time is examined closely in manufacturing, supply chain management and project management, as companies want to reduce the amount of time it takes to deliver products to the market.

**Less than Container Load (LCL):** LCL is a shipping term when various cargo shipments share the same container as well as the container shipping costs.

**Letter of Credit (LC):** A letter of credit (LC) also known as a Documentary Credit, is a written commitment by a bank issued after a request by an importer (foreign buyer) that payment will be made to the beneficiary (exporter) provided that the terms and conditions stated in the LC been met, as evidenced by the presentation of specified documents.

**Letter of Credit Authorization Form (LCAF):** LCAF is mainly application for permission for opening LC as well as importing of goods into Bangladesh and remittance there against. So it is used for opening LC, releasing goods and remittance there against.

**Letter of Indemnity:** A letter of indemnity is a written confirmation by the loading port shipping line to the destination port shipping line that the goods can be cleared without the original documents by using copy documents.

**Lightering:** Lightering (also called lighterage) is the process of transferring cargo between vessels of different sizes, usually between a barge and a bulker or oil tanker. Lightering is undertaken to reduce a vessel's draft in order to enter port facilities which cannot accept very large ocean-going vessels. Lightering can also refer to the use of a lighter barge for any form of short-distance transport, such as to bring railroad cars across a river. In addition, lightering can refer to the process of removing oil or other hazardous chemicals from a compromised vessel to another vessel to prevent oil from spilling into the surrounding waters.

**No Objection Certificate (NOC):** A no objection certificate is a written confirmation the bank to the commissioner of customs & shipping line that if the goods are cleared from the port without the original documents, then the bank will not have any problem to honor the payment.

**Notice of Readiness (NOR):** A paper or telex document urgently issued by a shipmaster that advises a person awaiting a shipment that his ship has arrived and is prepared for the cargo to be unloaded or loaded. When a business receives a notice of readiness (NOR), it means that the company needs to make appropriate preparations for their cargo immediately.

**Original Equipment Manufacturer (OEM):** An original equipment manufacturer (OEM) is a company whose goods are used as components in the products of another company, which then sells the finished item to users.

**Outer:** Ship-to-ship transfer operations take place at open sea or outer port limit. When the mother vessels cannot enter the country port, then the lighter vessels transfer goods from them in the deep sea.

**Packing List:** A list with detailed packing information of the goods shipped.

**Payment Method:** The payment of the LC can be made Advance, At Sight, Deferred (Banker's Usance or Supplier's Usance) basis; or in open term basis such as Cash Against Documents (CAD).

**Process Flow Chart:** A picture of the separate steps of a process in sequential order. Elements that may be included are: sequence of actions, materials or services entering or leaving the process (inputs and outputs), decisions that must be made, people who become involved, time involved at each step and/or process

measurements. The process described can be anything: a manufacturing process, an administrative or service process, a project plan. This is a generic tool that can be adapted for a wide variety of purposes.

**Production Schedule Chart:** The timetable for the use of resources and processes required by a business to produce goods or provide services. A typical business will modify its production schedule in response to large customer orders, to accommodate resource changes, to reduce costs, and to increase overall production efficiency.

**Pro-Forma Invoice (PI):** An invoice provided by a supplier prior to the shipment of merchandise, informing the buyer of the kinds and quantities of goods to be sent, their value, and importation specifications (weight, size and similar characteristics). This is not issued for demanding payment but may be used when applying for an import license/permit or arranging foreign currency or other funding purposes such as LC.

**Purchase Order (PO):** A purchase order (PO) is a commercial document and first official offer issued by a buyer to a seller, indicating types, quantities, and agreed prices for products or services. It is usually a ERP generated document used to control the purchasing of products and services from external suppliers.

**Purchase Price Cost Analysis (PPCA):** The Purchase Price Cost Analysis (PPCA) allows users to develop an understanding of the cost build up and profits earned by suppliers of the products and/or services being sourced. The price of any product or service is made up of labor, material, production and logistic costs, plus overheads and profit margins. It allows the user to build up the cost, overhead and profit structure relative to the price of the product and/or service being purchased. This information allows users to understand what is a 'fair' price for suppliers to charge when they respond to a Request for a Proposal (RFP) or an Invitation to Tender (ITT). Should the price quoted be significantly different from the expected 'fair' price, the PPCA work allows the user to identify where the supplier is being opportunistic in their pricing and, therefore, a target for exclusion or structured negotiation.

**Purchase Requisition (PR):** Document generated by a user department or storeroom-personnel to notify the purchasing department of items it needs to order, their quantity, and the timeframe. It may also contain the authorization to proceed with the purchase. Also called purchase request or requisition.

**Quotation:** An offer to sell goods and should state clearly the price, details of quality, quantity, trade terms, delivery terms and payment terms.

**Request for Proposal (RFP):** A request for proposal (RFP) is a document that solicits proposal, often made through a bidding process, by an agency or company interested in procurement of a commodity, service, or valuable asset, to potential suppliers to submit business proposals. It is submitted early in the procurement cycle, either at the preliminary study, or procurement stage.

**Request for Quotation (RFQ):** A request for quotation (RFQ), whereby the customer may simply be looking for a price quote. It is a standard business process whose purpose is to invite suppliers into a bidding process to bid on specific products or services.

**Sales Contract:** An agreement between the buyer and the seller stipulating every detail of the transaction. Since this is a legally binding document, it is therefore advisable to seek legal advice before signing the contract.

**Society for Worldwide Interbank Financial Telecommunication (SWIFT):** The SWIFT provides a network that enables financial institutions worldwide to send and receive information about financial transactions in a secure, standardized and reliable environment.

**Transshipment:** Transfer of a shipment from one carrier, or more commonly, from one vessel to another whereas in transit. Transshipments are usually made (1) where there is no direct air, land, or sea link between the consignor's and consignee's countries, (2) where the intended port of entry is blocked, or (3) to hide the identity of the port or country of origin. Because transshipment exposes the shipment to a higher probability of damage or loss, some purchase orders or letters of credit specifically prohibit it.

**Uniform Customs and Practice for Documentary Credits (UCPDC):** The Uniform Customs and Practice for Documentary Credits (UCP) is a set of rules on the issuance and use of letters of credit. The UCP is utilized by bankers and commercial parties in more than 175 countries in trade finance.