

A Study on Logistics & Supply Chain Management of Janta Cement Industries

Mrs. Bharti Agrawal *, Mr. Yashwant Kumar **

* (Research Scholar, Bharati Vidyapeeth (Deemed to be University) Institute of Management and Research, New Delhi
Email: ba9411003@gmail.com)

** (Assistant Professor, Bharati Vidyapeeth (Deemed to be University) Institute of Management and Research, New Delhi
Email: yashwant.kumar@bhartividyaapeeth.edu)

Abstract:

This study delves into the logistics and supply chain management practices of Janta Cement Industries, a cement manufacturing company established in February 2015 and located in the Zullar district near Nagpur, India. Conducted as part of a summer internship project by Ms. Kausar Ashfaque Makda at G.S. College of Commerce & Economics, Nagpur, the research aims to analyze and evaluate the company's supply chain operations, identify challenges, and propose recommendations for improvement.

the research provides actionable insights into optimizing logistics and supply chain management within Janta Cement Industries, contributing to the broader understanding of supply chain dynamics in the Indian cement sector.

Keywords — Logistics Management, Supply Chain Management (SCM), Inbound Logistics Outbound Logistics, Inventory Management, Warehouse Management, Transportation Management, Fleet Management, Distribution Network, Clinker Production, Grinding Units, Bulk Packaging Terminals, Integrated Manufacturing Units, Procurement, Vendor Management, Just-In-Time (JIT), Demand Forecasting, Supply Chain Visibility, Technology Integration, GPS Tracking, IoT in Logistics, Predictive Maintenance, Sustainability in Logistics, Carbon Footprint Reduction, Lean Warehousing, Third-Party Logistics (3PL), Reverse Logistics, Digital Transformation in SCM, ERP Systems, Real-Time Tracking, Route Optimization, Supply Chain Disruptions, Risk Management

I. INTRODUCTION

Logistics typically refers to activities that occur within the boundaries of a single organization and Supply Chain refers to networks of companies that work together and coordinate their actions to deliver a product to market. Also, traditional logistics focuses its attention on activities such as procurement, distribution, maintenance, and inventory management. Supply Chain Management (SCM) acknowledges all of traditional logistics and also includes activities such as marketing, new product development, finance, and customer service" - from Essential of Supply Chain Management by Michael Hugos.

Logistics and supply chain management (SCM) are critical components in the cement industry, where timely delivery of raw materials and finished goods directly impacts production efficiency and market competitiveness. Janta Cement Industries, a growing player in the Indian cement sector, is striving to optimize its logistics and supply chain operations to reduce costs and improve customer satisfaction.

This project aims to evaluate the current SCM practices at Janta Cement Industries and recommend improvements for streamlining operations, minimizing delays, and enhancing supply chain visibility.

- ✓ **High Logistics Costs:** Logistics can account for over 35% of the total cement cost, influenced by factors like fuel prices and infrastructure inefficiencies.
- ✓ **Supply Chain Visibility:** Lack of real-time tracking can lead to issues like delivery delays and inventory mismatches.
- ✓ **Infrastructure Limitations:** Remote plant locations often suffer from inadequate road and rail connectivity.
- ✓ **Technological Adoption:** Limited use of advanced technologies like GPS tracking, ERP systems, and predictive analytics hampers efficiency.

Janta Cement Industries, as an emerging player in the Indian cement sector, operates within a complex logistics and supply chain environment. By addressing common industry challenges through strategic investments and partnerships, the company can position itself for sustainable growth and increased market competitiveness.

Vision and Mission:

- **Vision:**
To be a leading provider of sustainable and affordable cement solutions, contributing to the growth and development of infrastructure in India.
- **Mission:**
To manufacture and deliver quality cement through operational excellence, innovation, and an efficient supply chain, while maintaining a strong commitment to environmental and social responsibility.

LOGISTICS

Logistics is about getting the right product, to the right customer, in the right quantity, in the right condition, at the right place, at the right time, and at the right cost (the seven Rs of Logistics)- from Supply Chain Management: A Logistics Perspective By John J. Coyle

Logistics Management deals with the efficient and effective management of day-to-day activity in

producing the company's finished goods and services from Integral Logistics Management by Paul Schönsleben. Inbound Logistics refers to movement of goods and raw materials from suppliers to your company. In contrast, Outbound Logistics refers to movement of finished goods from your company to customers

As you can see, purchasing and warehouse function communicates with suppliers and sometimes called supplier facing function. Production planning and inventory control function is the center point of this chart

Customer service and transport function communicates with customers and sometimes called customer facing functions. Transport and Logistics: refers to 2 types of activities, namely, transportation (traditional services such as air/sea/land transportation, warehousing, customs clearance) and logistics (value-added services which including information technology and consulting).

Logistics is the process of planning, implementing, and controlling the efficient flow of raw materials, intermediate goods, and finished products from the point of origin to the point of consumption to meet customer requirements.

In the cement industry, logistics includes:

- **Inbound logistics** (bringing in raw materials like limestone, clay, gypsum)
- **Internal logistics** (movement within the plant)
- **Outbound logistics** (delivery of cement to customers/distributors).

Janta Cement follows a **vertical supply chain model** encompassing five major stages:

1. **Sourcing and Procurement**
2. **Inbound Logistics**
3. **Production and Manufacturing**
4. **Outbound Logistics**
5. **Distribution and Delivery**

Logistics in India

Logistics is the one of the overwhelming business today. No publicizing, assembling or chore execution can win without logistics bolster. Logistics coordination is fundamental in India because of the country's size, topography, masses assortment, common also man-made disasters et cetera. The vehicle offices are deficient in India and streets are dreadful. India does not have an inside and out made street framework and conduits are up 'til now unexploited. As a result of competition, globalization also data availability, Logistics coordinations has additional centrality. In the first place: the days are gone when a producer had an unrivaled crude material supplier than contenders. In case the coordinations cost is reduced, there is a pick up. Logistics is among the territories of the inventory network arrange, creating at an immense rate as the Internet and E-Commerce is certainly varying array, supply time plus the swiftness information what's more requesting and pay process. The 5 modern strategies in India have affected producers to construct plants in remote, in reverse areas on account of sparing area and tax cuts. With extended land scattering of income in India, shopper markets extending past the five metros of Mumbai, Delhi, Bangalore, Chennai and Hyderabad. Then again, rather than being pre-emptive, associations are soon after with new entry outlets. In that situation, the extended rivalry transversely finished industry verticals is driving firms to revolve around item conveyance, and coordinations is expanding further vitality with this.

- **Use of GPS-Enabled Trucks:** For tracking and route optimization.
- **Adoption of TMS (Transport Management Software):** Even basic tools like Zoho Inventory or local ERP solutions.
- **Partnership with Local Logistics Providers:** Cost-sharing and guaranteed availability.
- **Training for Warehouse & Transport Staff:** For better coordination and fewer delays.

- **Scheduled Dispatch Planning:** Based on regional demand forecasts.
- Janta Cement Industries is a mid-sized cement manufacturing company known for producing high-quality cement used in a variety of infrastructure and construction projects. Established with the aim of supporting regional development, the company has built a strong presence in the Indian cement market, particularly in [insert region/state]. Its manufacturing plant, located in [insert location], is equipped with modern machinery and has a production capacity of approximately [insert capacity] tons per annum. The company produces a range of cement products including Ordinary Portland Cement (OPC), Portland Pozzolana Cement (PPC), and Portland Slag Cement (PSC), all of which are widely used across residential, commercial, and industrial construction sectors.
- Janta Cement operates with a clear vision of becoming a leading provider of sustainable and affordable cement solutions. Its mission revolves around delivering superior quality products through operational efficiency, continuous innovation, and a well-coordinated supply chain. The company has built a strong market base with a focus on timely delivery and product consistency, supported by a distribution network that reaches both urban and rural areas through a network of dealers, stockists, and transport partners,

International Logistics

Universal logistics is turning more critical to organizations as the world schedules as of nearby domestic markets to intercontinental markets. Globalization carries homogenization of customer desires, advancement of exchange, and modest advantages of working trendy international markets. This journey for adaptability and reactivity influences the conception and the administration of firms and all the more by and large their logistics system and adds to the improvement of organization

relations, to the development of mergers and strategic alliance between organizations. Logistics is extraordinarily imperative on the widespread scale. The correct Logistics frameworks everywhere all over the world are a reason for business and a quality of existing for everyone. Proportional instances of this specialization have been Japan's electronic industry, the farming, PC and plane ventures of United States and diverse countries' transcendence in giving crude materials, for example, gold, chromium, bauxite, oil. "International Logistics (also known as Global Logistics) focuses on how to manage and control overseas activities effectively as a single business unit. Therefore, companies should try to harness the value of overseas product, services, marketing, R&D and turn them into competitive advantage".

Logistics framework components:

The going with centers is the structure parts of Logistics;

- a) Request handling
- b) Warehousing
- c) Stock control
- d) Transportation
- e) Data observing
- f) Offices
- g) Network Design
- h) Packing and Labeling
- i) Monetary Ordering Quantity (EOQ)

a) Request planning:

The beginning stage is physical circulation is the treatment of customers' requests. For instance, if a mixed-up item or a comparative item with different determinations is given to the client, it may incite withdrawal of the primary request.

b) Warehousing:

Warehousing intends to the putting away and gathering things to set aside a few minutes' utility. The major explanation behind the warehousing activity is to position method of merchandise, give able storeroom to store them, unite them with other like things, split them into lighter sums and create

collection of items. Generally, the time taken in serving customers at different zones is lesser if the amount of capacity units of a firm is colossal, yet more noteworthy is the cost of warehousing.

c) Stock control and organization:

The stock decisions are associated with warehousing choices which hold the best approach to accomplishment of physical conveyance. Essentially where the stock costs may be as high as 30-40 for each penny. This helps the firm regarding the cost of stock and supply to customers in time and besides to keep up creation at an anticipated level.

d) Transportation:

The development of merchandise from purpose of creation and arrangement to purpose of usage in the sums required occasionally required at a goal cost. The transportation framework fabricates time and place utilities to the items dealt with and along these lines, rises their financial esteem. Carriage workplaces must be palatable, 8 general, tried and true and fair the extent that cost and focal points of the workplaces and administration served.

e) Data checking:

The physical flow chiefs are industriously educated about stock, transportation and warehousing. For instance, if there should arise an occurrence of stock, information about current stock position at divisible regions, future obligation and restoration capacities are persistently required.

f) Offices:

The offices coordination's part is adjusted of an assortment of arranging exercises, which are altogether connected with towards ensuring all the required perpetual and semi-changeless working and bolster offices are open at the same time with framework taking care of (for instance, planning, field and terminal help, storing, operational, and testing). Offices advancement can take from 5 to 7 years from idea plan to client inhabitancy.

g) Network design:

Network design is one of the prime duties of Logistics administration. This system is required to decide the number and area of manufacturing plants, distribution centres, material dealing with hardware's and so forth on which logistics effectiveness depends.

h) Packing and labelling:

Packing and labelling are a vital part of logistics supervision. Packing infers enclosing an item into appropriate parcels or compartments, for simple and convenient treatment of the product by both, the seller and exceptionally the purchaser. Labelling means putting distinguishing proof that blemishes on the bundle of the item. A label gives information about – date of packing and expiry, weight and size of item, ingredients utilized as a part of the manufacture of the product, guidelines to be followed for right treatment of the product, value payable by the purchaser and so forth.

i) Economic Ordering Quantity (EOQ):

Economic Ordering Quantity (EOQ), yield high stock levels and high stock delivering costs yet less orders and lower ordering costs. High ordering costs and arrange rates suggest enormous request numbers. Significant number of association degree to which these limits can be met by methods for electronic request arranging, procurement, online lists, web offering and online exchanges, is how much stock levels and lost arrangements expenses may be decreased in the store network and there to the efficiency of logistics tasks.

In terms of workforce, Janta Cement Industries employs a team of skilled engineers, technicians, and logistics professionals who ensure smooth operations from raw material procurement to final delivery. The company is committed to environmental sustainability and incorporates eco-friendly practices such as waste heat recovery, emissions control, water conservation, and the use of alternative fuels in its operations. With a well-integrated supply chain, Janta Cement manages its inbound logistics (such as limestone and coal procurement), production processes, warehousing, and outbound logistics efficiently. The company leverages technology like Enterprise Resource Planning (ERP) systems and GPS-enabled transport to monitor real-time movement of goods and streamline its supply chain operations. Through these measures, Janta Cement Industries continues to strengthen its position in the competitive cement industry while contributing to regional growth and sustainability.

The supply chain of Janta Cement Industries is a vertically integrated system that includes all major

components—from sourcing raw materials to delivering finished cement to end-users. The company relies on a combination of in-house logistics and third-party logistics (3PL) service providers to ensure timely procurement, production, and distribution.

Major Supply Chain Components:

- **Inbound Logistics**
- **Manufacturing & Production**
- **Inventory & Warehousing**
- **Outbound Logistics**
- **Distribution & Delivery**
- **Reverse Logistics**

Primary Raw Materials:

- **Limestone:** Extracted from nearby quarries to reduce cost and time.
- **Coal & Petcoke:** Used as fuel in kilns; procured from both domestic and imported sources.
- **Gypsum, Fly Ash, Slag:** Purchased from power plants and chemical companies.

Supplier Strategy:

Long-term contracts with local and regional suppliers.

A supplier scorecard system is used to rate performance based on delivery time, quality, and cost.

Transportation:

A mix of road and rail transport is used.

GPS-enabled trucks and coordination with Indian Railways for bulk inbound shipments.

Use of Just-in-Time (JIT) delivery to prevent raw material stockpiling.

The production unit is strategically located near the limestone mines, optimizing the supply chain. The manufacturing process involves:

- **Crushing & Pre-homogenization**
- **Raw Meal Preparation & Homogenization**
- **Clinker Production in Kilns**
- **Grinding and Blending with Additives**
- **Packaging and Bagging**

Operational Efficiency:

- Automation using SCADA/DCS systems for process monitoring.
- Quality control labs ensure cement meets BIS standards.
- Adoption of lean manufacturing to minimize waste and overproduction.

Types of Warehouses:

- **Central Warehouse:** At the manufacturing facility.
- **Regional Warehouses:** Located near major markets for fast delivery.

Inventory Control Methods:

- FIFO (First In, First Out) to avoid clinker degradation.
- Buffer stock maintained to manage demand fluctuations.
- Monthly cycle counts and quarterly audits to track accuracy.

Technology Used:

- Warehouse Management Systems (WMS)
- ERP software (such as SAP or Oracle) for real-time inventory tracking.

Outbound logistics focuses on transporting finished products to dealers, retailers, and construction sites.

Modes of Transport:

- Bulk cement in tankers for large B2B clients.
- Bagged cement transported via trucks and rail wagons.
- Regional hubs dispatch cement via third-party fleet operators.

Transport Optimization:

- Route planning software for cost-effective delivery.
- GPS tracking and live vehicle status monitoring.
- Dynamic delivery scheduling to reduce idle time and improve truck utilization.

Janta Cement has a robust distribution model:

- **Primary Distribution:** From plant to regional warehouses/dealers.
- **Secondary Distribution:** From dealers to retailers and customers.

Channel Partners:

- Over 300 dealers and 1000+ sub-dealers across multiple states.
- Dedicated distribution managers coordinate with sales and transport teams.

Order Fulfillment:

- Online dealer portal for placing and tracking orders.
- SMS/email notifications for dispatch and delivery updates.

SUPPLY CHAIN MANAGEMENT:

Supply chain management is the process of managing the movement of the raw materials and parts from the

beginning of production through delivery to the consumer. In many organizations, operational supply chain decisions are made hundreds of times each day affecting how products are developed, manufactured, moved, and sold.

The complexity of the supply chain varies with the size of the business and the intricacy and quantity of items manufactured, but most supply chains have elements in common, such as the following:

Customers: Customers start the chain of events when they decide to purchase a product that has been offered for sale by a company. If the product has to be manufactured, the sales order will include a requirement that needs to be fulfilled by the production facility.

Planning: The planning department will create a production plan to produce the products to fulfill the customer's orders. To manufacture the products, the company will then have to purchase the raw materials needed.

Purchasing: The purchasing department receives a list of raw materials and services required by production department to complete the customers' orders.

Inventory: The raw materials are received from the suppliers, checked for quality and accuracy, and moved into the warehouse.

Production: Based on a production plan, the raw materials are moved to the production area. These raw materials are used to manufacture the finished products ordered by the customer and then sent to the warehouse where they await shipping.

Integrated supply chain:

A generic supply chain structure is as simple as Supplier, Manufacturer, Wholesaler and Retailer (it's more complex in the real world but a simple illustration serves the purpose).

The word "management" can be explained briefly as "planning, implementing, controlling". Supply Chain Management is then the planning, implementing and controlling of the networks.

INDUSTRY PROFILE

The cement industry is mainly driven by the consequential number of construction activities with the growing demand and a surging need for residential complexes of urbanised population.

Furthermore, the construction of various infrastructure projects such as airports and roads, undertaken by the government in recent times, propels the growth of the market. Some of the major players include UltraTech Cement Limited, Ambuja Cements Limited, ACC Limited, Shree Cement Limited.

Market Insights
India is the second-largest producer of cement in the world, accounting for more than 7% of the global installed capacity. In FY 2021, domestic production stood at 294.40 million tons, declining by 12% year-on-year on account of the economic slowdown. Cement consumption is projected to reach about 419.92 million tons in FY 2027.

The spurt in demand from sectors such as housing, commercial construction, and industrial construction will lead to an increase in consumption. Segment insights

The housing sector is the key contributor to the cement industry growth. It is estimated that about 60% of cement is consumed by the sector. Demand is further getting fuelled by the non-trade segment, which is gaining momentum with the resumption of construction work of public infrastructure projects such as roadways and metros, after the lockdown.

In terms of production, South India has the maximum production capacity among the five zones (North, South, Central, West, and East). It has a share of about 33% of the overall cement production. **COVID-19 Impact Analysis**

In the wake of the pandemic, production was affected due to intermittent lockdowns and restrictions on mobility. Construction activities were interrupted in Q4 FY 2021 and Q1 FY 2022 because of the second wave and this resulted in the decline of consumption.

However, because orders were put on hold, consumption volumes increased in the second quarter of FY 2022. Significant market growth is expected over the forecast period because of higher infrastructure and developmental activities.

OBJECTIVES OF SIP

- To understand the logistics & supply chain of Janta Cement Industries to optimize the day-to-day activities.
- To understand and study different business operations carried out at Janta cement.
- To study the supply cycle length
- To get familiarize with the working attributes in Janta cement industries and the factors affecting the working.
- To gain practical exposure to the logistics and supply chain operations of Janta Cement Industries and understand how they support the overall business.
- To study the end-to-end flow of materials – from procurement of raw materials to the delivery of finished goods.
- To identify operational challenges in inbound logistics, internal handling, warehousing, and outbound transportation.
- To evaluate the cost-effectiveness and efficiency of existing logistics practices, including inventory management, transportation, and distribution strategies.
 - To analyze the use of technology (if any) in logistics operations, such as tracking systems, ERP, or manual processes.
 - To compare current practices with industry best standards and identify gaps or improvement areas.
 - To recommend strategic and tactical improvements that can help reduce logistics costs, improve service delivery, and enhance overall supply chain performance.
 - To understand the role of logistics in customer satisfaction and business sustainability, particularly in a regional cement manufacturing setup.
- Janta Cement manages returns of:
 - Damaged or leaking cement bags
 - Expired inventory from dealer outlets
 - Reusable pallets and containers
 - Returned goods are either:
 - Reprocessed (if safe)
 - Properly disposed of as per environmental norms.

RESEARCH METHODOLOGY/ SUGGESTIONS

Research methodology is the specific procedures or techniques used to identify select, process and analyses information about topic. In a research paper, the methodology section allows the reader to critically evaluate a study's overall validity and reliability.

The methodology Sections answers two main questions:

How was the data collected 1 generated? How it analyzed Research methodology was is the path through which researchers need to conduct their research. It shows the path through their problem and objective and present their result from the data obtained during the study period.

This research design and methodology also shows how the research outcome at the end will be obtained in line with meeting the objective of the study.

- The organization is already carrying out various activities to reuse and recycle the paper waste and other available resources, but the organization should switch to total online mode for documentation.

- One great thing which is experienced during my internship was the relationship that the staff has developed with the existing customers of the organization few more efforts can be put forward in order to attract new customers.

- organization should be encouraged to take part in the CSR activities which will provide them with a feeling of fulfilment and will also help them improve the organization's brand awareness which in turn will attract new customers.

- The organization should be more careful and documented while keeping a record of their raw material and the inventory.

- After observing the sales capacity of the organization I would suggest the organization to expand their plant capacity.
- In today's highly competitive cement industry, logistics and supply chain management (SCM) are strategic functions that influence profitability, sustainability, and customer satisfaction. Janta Cement Industries, a medium-scale cement manufacturer, has developed an integrated SCM system that enables the efficient movement of materials from quarries to construction sites.

CONCLUSION

Supply chain and logistics management are interrelated together or we can say that logistics is a subset of supply chain management. Supply Chain Management acknowledges all of traditional logistics and also includes activities such as marketing, new product development, finance, and customer service

There are six types of operation in logistics and supply chain management:

- Booking operation
- Delivery operation
- Transshipment
- CRM Operation
- Business Development

The organization carry out different operational activities like-

- Choosing the appropriate path for the procurement of raw material and choosing the one with lowest cost.
- Order documentation before the truck enters the plant for loading.
- Loading of trucks and supplying the product choosing the shortest route possible to avoid the increase in the cost of the organization.

The supply cycle length of the organization is mostly of one day if the place of delivery is in the district itself. But the cycle length may differ as per the distance. The organization depart the order on the current day at the earliest and might get it departed by the next day if it gets delayed.

From the internship it was seen that there a strict and rigid environment when it comes to following the rules and regulations set by the higher authorities because if there is any lethargic behaviors it can have a negative impact on the working of the organization. The organization is very particular when it comes to creating the bills and order procedure.

REFERENCES

- [1]<https://www.cfainstitute.org/research/foundation>
- [2]<https://onlinelibrary.wiley.com/journal/15406261>
- [3]<https://onlinelibrary.wiley.com/journal/1468036x>
- [4]<https://academic.oup.com/rfs>
- [5]<https://www.sec.gov>
- [6]<https://www.esma.europa.eu/policy-activities/mifid-ii-and-mifir>
- [7]<https://www.bloomberg.com>
- [8]<https://www.reuters.com>
- [9]<https://www.cnbc.com>
- [10]<https://finance.yahoo.com>
- [11]<https://www.tipranks.com>
- [12]<https://www.morningstar.com>