An Empirical Study for Understanding the Container Operations in India

Submitted for partial fulfillment of the requirements for the award of degree of

MASTER OF BUSINESS ADMINISTRATION (IT&LM)

Under the Guidance of

Smt. "Riya Ghosh" (Faculty)

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Declaration

I, **Anjali Pandey** (Registration No: 2101305004) hereby declare the project report entitled **"An Empirical Study for Understanding the Container Operations in India"** submitted by me in School of Maritime Management, Indian Maritime University, Kolkata Campus under the guidance **Riya Ghosh, (**Faculty, School of Maritime Management, Indian Maritime University, Kolkata Campus) in partial fulfillment of the requirement for the degree of **Master of Business Administration (IT&LM)** is a report of original work done by me and the project report has not been submitted either in part of full this or any other university or institution for the award of any degree, diploma or other similar titles.

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Certificate of Originality

This is to certify, that the research paper submitted by me is an outcome of my independent and original work. I have duly acknowledged all the sources from which the ideas and extracts have been taken.

The projected is checked and it has been found that there is 5.14% plagiarism.

Anjali Pandey
MBA (IT&LM)

Acknowledgement

I would like to express my gratitude to all those who gave me possibility to complete this project. I am grateful to the project guide "**Riya Ghosh"** (Faculty, School of Maritime Management, IMU, Kolkata) who gave me valuable inputs and suggestions from time to time. She gave me a brief idea on how to go about with the content so that work towards a right direction was possible. This project would not have been same without the dedicated guidance given by him. I am thankful for the opportunity that has been provided to me and investing his valuable time for the completion of this project.

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Anjali Pandey

Executive Summary

The current situation of container handling in the nation is examined in the thesis report on the study of container operations in India. The report offers a thorough review of India's container operations' regulatory environment, port infrastructure, and containerization process.

According to the study, containerization has been crucial to the expansion of foreign trade in India. However, the port's infrastructure is inadequate for managing containers, which causes blockages and delays. According to the paper, in order to enable the expansion of container operations throughout India, port improvements and the creation of a thorough regulatory framework are required.

The report also identifies several challenges that hinder the development of container operations in India, including inefficiencies in customs clearance procedures, lack of standardization in container handling, and the absence of a unified port tariff structure. The study recommends the implementation of measures to address these challenges and enhance the competitiveness of India's container operations.

Chapter 1

Introduction

Container operations in India have undergone significant changes over the past few decades. The shipping container industry has emerged as a critical component of India's logistics infrastructure, facilitating the movement of goods and enhancing trade connectivity. India's strategic location at the crossroads of international shipping routes has contributed to its emergence as a major transshipment hub. The container industry in India is characterized by a mix of public and private sector participation, with several domestic and international players competing for market share. Despite the rapid growth of the container industry in India, it faces several challenges, such as inadequate infrastructure, high transaction costs, and regulatory barriers. The Indian government has recognized the importance of the shipping container industry for the country's economic growth and has undertaken several initiatives to promote its development. This research study aims to explore and analyze the container operations in India, with a focus on the challenges and opportunities in the industry. The study will provide valuable insights and recommendations for stakeholders in the shipping container industry in India and contribute to the understanding of container operations in India and the broader issues facing the shipping industry globally.

The container industry in India has also witnessed significant investments in infrastructure, equipment, and technology. However, the growth of the container industry in India has been hindered by several challenges, such as inadequate infrastructure, high transaction costs, and regulatory barriers. The Indian government has undertaken several initiatives to address these challenges and promote the development of the shipping container industry in India. The research study aims to provide insights into the current state of container operations in India, including the challenges and opportunities facing the industry. The study will also identify the key players in the industry and provide recommendations for stakeholders in the shipping container industry in India to address the challenges and capitalize on the opportunities identified. The study has the potential to contribute to the development of the shipping container industry in India and inform policy decisions in the sector.

Literature Review

- Wang and Meng (2021) said that the shipping container industry has undergone significant changes in recent years due to technological advancements and increased demand for containerization. The study highlights the role of digital technologies in transforming container operations, such as the use of IoT devices and blockchain technology to improve supply chain visibility and efficiency.
- Kapros and Tavasszy (2018) analyzed the factors influencing the competitiveness of container ports. The study highlights the importance of efficient container terminal operations, such as vessel turnaround times, yard productivity, and container dwell time, in improving port competitiveness. The authors also discuss the role of government policies in promoting the development of container ports.
- Syam and Pradhan (2019) focused on the challenges faced by container operations in developing countries such as India. The study highlights the importance of infrastructure development, including road and rail connectivity to ports, in improving the efficiency of container operations. The authors also discuss the need for effective supply chain coordination and collaboration among stakeholders to overcome the challenges faced by container operations.
- Bichou and Gray (2011) analyzed the environmental impacts of container shipping operations. The study highlights the role of container shipping in global trade and the impact of emissions from ships on the environment. The authors suggest several strategies to reduce the environmental impact of container shipping operations, such as the use of cleaner fuels and improving vessel design.
- Li et al. (2020) focused on the optimization of container terminal operations. The study proposes a mathematical model to optimize the allocation of resources, such as cranes and yard space, in container terminals to improve operational efficiency. The authors suggest that their model can help container terminals reduce waiting times for vessels and improve the utilization of terminal resources.

- Notteboom and Rodrigue (2018) examined the challenges faced by container ports in the era of mega-ships. The study highlights the need for ports to adapt to the increasing size of container vessels, such as improving the depth and width of channels and berths, and investing in larger cranes and container handling equipment.

- Song et al. (2019) analyzed the relationship between container terminal efficiency and port performance. The study proposes a model to measure container terminal efficiency based on the number of containers handled per unit of time, and suggests that improving terminal efficiency can lead to better port performance.

- Alam et al. (2017) focused on the impact of container terminal congestion on supply chain performance. The study highlights the negative effects of congestion, such as increased waiting times and higher logistics costs, and proposes several strategies to mitigate the impact of congestion, such as improving terminal productivity and reducing dwell times.

- Hossain and Azeem (2019) examined the impact of port privatization on container terminal operations. The study suggests that privatization can lead to improved operational efficiency and productivity, as private terminal operators have greater incentives to invest in technology and infrastructure.

- Wan et al. (2020) focused on the optimization of container vessel routing. The study proposes a mathematical model to optimize the routing of container vessels based on factors such as vessel capacity and fuel consumption, and suggests that this model can help shipping lines reduce costs and improve operational efficiency.

Objectives of the Study

- To understand the current status of container operations in India
- To identify the key challenges and opportunities for improving container operations in India
- To identify emerging trends and innovations in container operations
- To understand the impact of container operations on the environment and society in India

Methodology Of the Study

The collection and evaluation of secondary data made up the majority of the methodology for the study of container operations in India. The study aimed at finding more about the state of shipping container operations in India and identify areas for improvement. A thorough analysis of pertinent literature, including academic journals, business reports, governmental publications, and news items, was used to gather the secondary data. The information was gathered from a number of sources, including databases, websites, and publications that had been published. Based on the data analysis, a series of suggestions were created for stakeholders in the shipping container business in India to increase operational effectiveness, lower costs, and boost competitiveness. It was also acknowledged and addressed that the methodology had limitations, including potential biases in source selection and researcher bias in data analysis and interpretation.

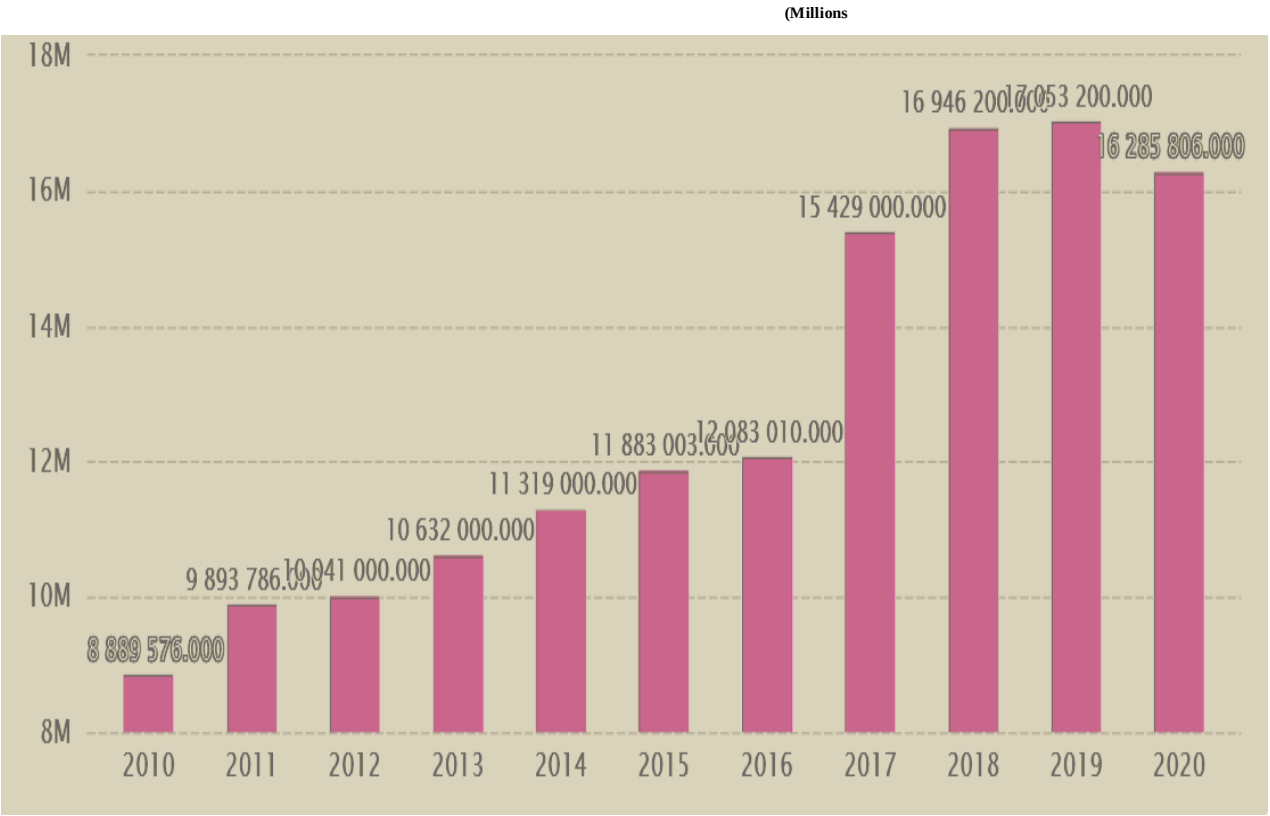
Chapter- 2

Growth of Containerization in India

- Container port traffic (TEU: 20-foot equivalent units) in India was reported at 16285806 TEUs in 2020, according to the World Bank collection of development indicators, compiled from officially recognized sourced from the World Bank on May of 2022.
- The opening up of the sports sector to private entrepreneurs has facilitated the development of containerization. Container terminals are being privatized underBOT arrangements.
- Government of India has accorded priority to port connectivity with the hinterland with time bound schedules for completion of road and rail projects.
- Double stack container trains between ports in the western India and Delhi have been introduced. This will change the economics and the pattern of container transport in the country.

Figure 1.1 India's Container Port Throughput from 2010 to 2020

Source: CEIC Data



Container Operation in India

Container operations in India have been steadily growing over the past few decades, driven by increasing demand for containerized goods and the country's strategic location at the crossroads of international shipping routes. The Indian government has recognized the potential of containerization to enhance trade connectivity and promote economic growth, and has undertaken several initiatives to promote the development of the shipping container industry in the country.

2.1 Major Ports in India

S.L. No	Name of the Port	Coast	State
1	Syama Prasad Mookerjee Port, Kolkata	Eastern Coast	West Bengal
2	Paradip	Eastern Coast	Odisha
3	Visakhapatnam	Eastern Coast	Andhra Pradesh
4	Ennore	Eastern Coast	Tamil Nādu
5	Chennai	Eastern Coast	tamandu
6	Tuticorin	Eastern Coast	Tamil Nādu
7	Kandla	Western Coast	Gujarat
8	Mumbai	Western Coast	Maharashtra
9	JNPT	Western Coast	Maharashtra
10	Mangalore	Western Coast	Karnataka
11	Mormugao	Western Coast	Goa
12	Kochi	Western Coast	Kerala

2.2 Container cargo traffic

						Grand Total (April-March,		Grand Total (April-March,		
		(March, 2021) (P)		(March, 2022) (P)		2020-21) (P)		2021-22) (P)		Percent Change
Commodities										{(Col.8/Col.6
		Cargo handled	Percent share	Cargo handled	Percent share	Cargo handled	Percent share	Cargo handled	Percent share	-1)*100}
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Container	Tones	11508	20.1	9846	16.6	105004	18.3	112172	18.7	6.8
	TEUs*	860	1.5	731	1.2	7977	1.4	8292	1.4	4

Source: Port Data Management Portal, Ministry of Ports, Shipping and Waterways

During the April-March, 2021-22 container growth registered 6.8%. Amongst all commodities, Container is the highest commodity handled at ports of 112172 tones with a share of 18.7%.

2.3 Types of Containers

1. Dry storage container

This is basically most common type of container used in shipping. It comes into different dimensions like 20ft, 40ft and 10ft. This container mainly used for transportation of dry cargo and it is standardized by ISO so that every part of world it can handle easily.

2. Flat Rack Container

A flat rack container is generally use for transportation of cargo which is unique in size. Flat racks container has only sides on the width sides, this is the reason that the cargo can stick out the side of the container during transportation and it can ship the variety of goods worldwide.

3. Open Top Container

This type of container used for shipment of any height of material and it contains convertible top. With the help of this type of container we can easily send the size of cargo which can be oversized and can fit into it.

4. Tunnel Container

This type of container contains both side open doors which mainly help in the fast-evacuating means loading and unloading of cargo.

5. Refrigerated Container

These containers are basically a temperature regulated container which always control and maintains a fixed temperature which helps in keep the goods like fruits, vegetable, meat etc throughout the voyage.

6. Insulated and Thermal Container

These are basically shipping storage container which comes with a regulated temperature control which allows it to maintain high temperature.

7. Tanks container

This type of container used for transportation of liquid material like petrol oils, chemical liquid, vegetable oils etc. These are made of anti-corrosive material.

2.4 Shipping Cargo Container Size List

Metric	Internal Dimensions			Door Opening		Weight			
	Length	Width	Height	Width	Height	Max Cargo	Tare	Gross	Capacity
20' Dry Container	5897	2348	2385	2330	2280	21727	2229	23956	33.18
40' Dry Container	12000	2348	2385	2330	2280	26780	3701	30481	67.67
40' High Cube Container	12000	2348	2690	2330	2560	26512	3968	30480	76.28
20' Flat Rack Container	5610	2200	2230	--	--	21469	2530	23999	--
40' Flat Rack Container	12000	2080	1950	--	--	38918	5479	44397	--
20' Open Top Container	5879	2348	2385	2280	2180	21600	2394	23994	32.16
40' Open Top Container	12000	2348	2380	2330	2260	26630	3850	30480	66.54
20' Refrigerated Container	5830	2260	2260	2260	2200	20756	3193	23949	28.31
40' Refrigerated Container	11480	2260	2180	2260	2130	25526	4889	30415	57.76

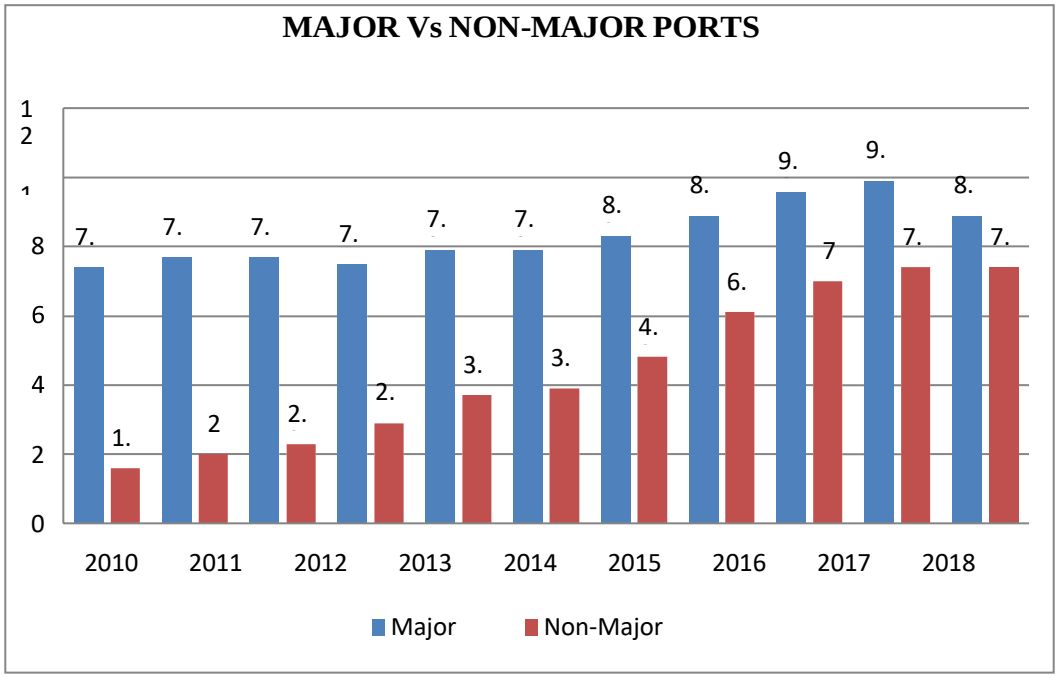
Note: Length (mm), Width (mm), Height (mm), Weight (kg), Capacity (cub)

Source "https://www.discovercontainers.com/shipping-container-dimensions/"

2.5 Indian Container Market

In 2018, India has become the world's fifth largest economy in the world ranking by leaving behind France & the UK. However, China registered single digit growth in container throughput in last three years, India's container throughput grew by 11.4% in 2011.4% in 2018. All Indian ports have registered positive growth during the year except one or two unfortunate ones. Overall, India's container traffic in last four years has grown significantly with a CAGR of close to 12%.

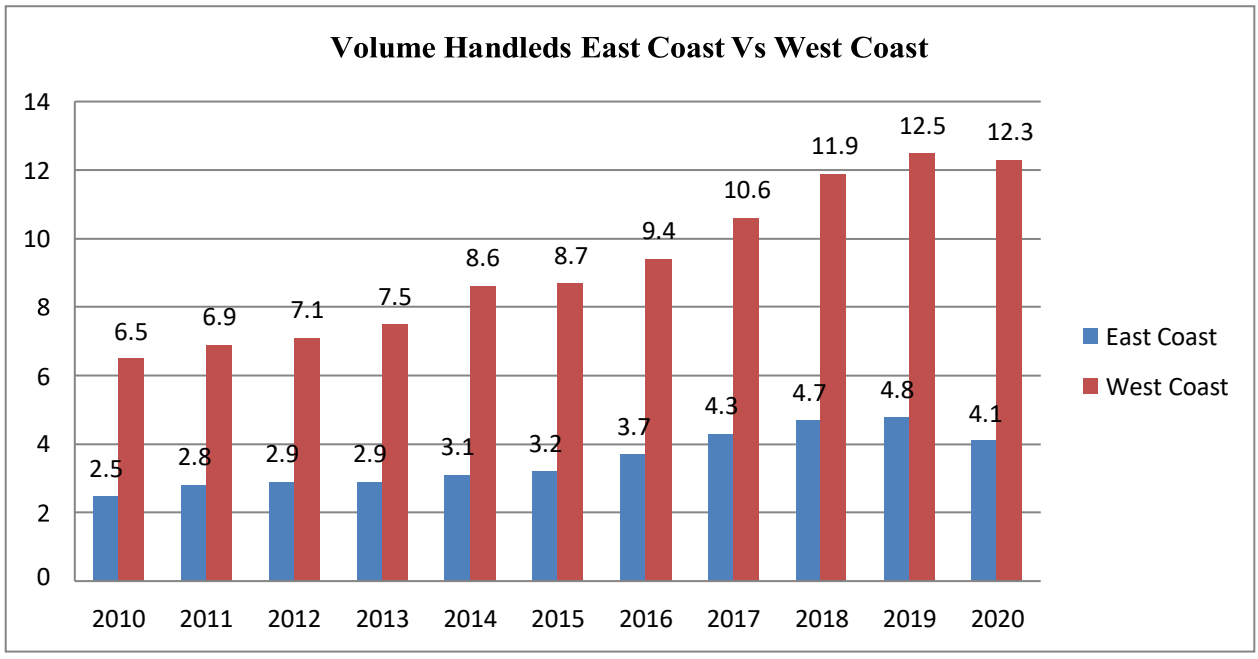
Note: On Y axis Throughput (million teus) Source: Drewry Maritime Research, 2021



Major ports have continuously lost a significant share of container traffic to non- major ports in last decade. The market share of non-major ports has increased by more than five times in last 10 years. Rapid expansion of private terminal operators in the non-major ports diverted significant chunk of cargo. Krishnapatnam and Katupalli on the east coast of India have amassed significant volume in last four/five years and they are adding to the growth story of non-major ports which were driven previously by Mundra and Pipavav. The largest Indian port JNPT registered a healthy close to 8% growth in 2018 which is the highest y-o-y growth in last four years. Nevertheless, its share has been reduced to almost half in last 15 year. Mundra is rapidly approaching to become the largest shareholder of total container traffic and handled 11% more boxes in 2018 over the previous year. Mundra's share was just 3% less than the largest port JNPT in total container traffic.

East Coast Port Vs West Coast Port

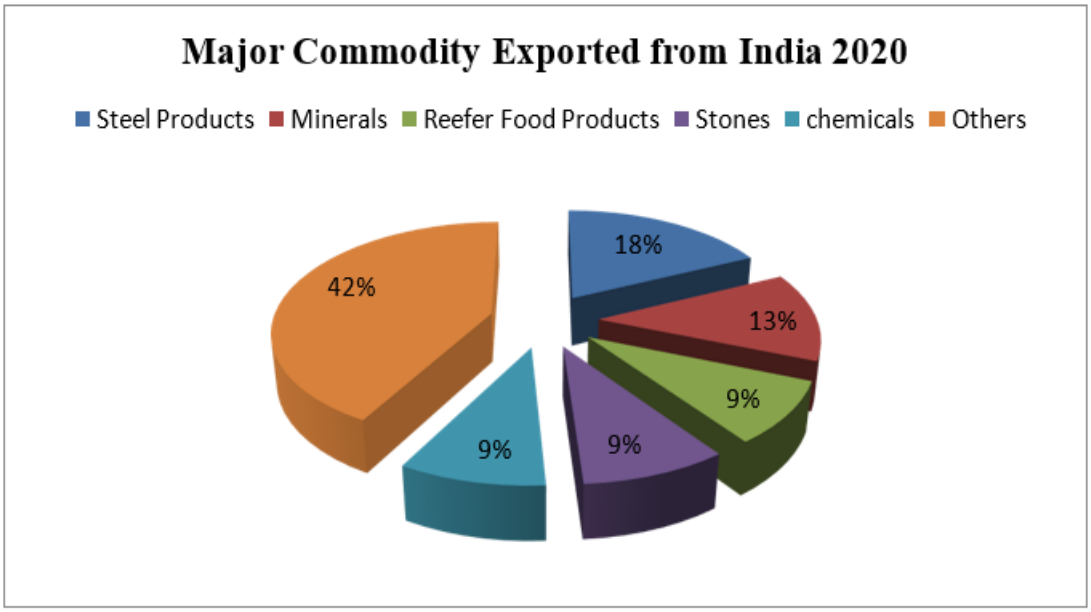
Ports on the west coast will continue to dominate in total container throughput, so as in the container infrastructure. Around 72% of the country's container throughput is handled by the west coast ports.

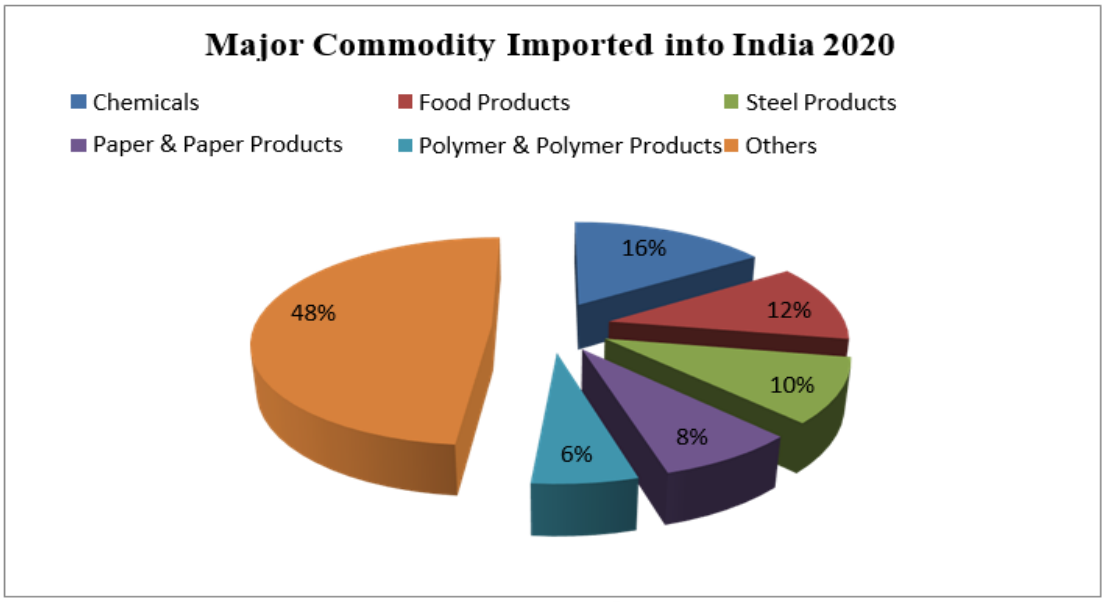


Note: On Y axis Throughput (million teus**)** **Source: Drewry Maritime Research, 2021**

2.6 Major Containerized Cargo and Commodity

Major products exported from India in 2010 were steel products which was 25%, Fabric was 12%, Reefer food products were 10%, Sugar was 7% similarly Polymer and Polymer Products was 5%. Now when we see the 2010 major import products Into India where Steel products were 20%, Food Products (10%), Chemical Products (13%), Polymers products (5%) and Paper and Paper products (6%). Now here below given this two-pie chart shows us data related to the containerized cargo export and import as per the year 2020.





Drewry Maritime Research, 2021

2.7 Major Trade Partners

China dominates as a partner on both export and import side when analyzed bytrade volume (million tons). Although the US is the top export destination of Indian exports in value terms, it ranks second when export volume is concerned. China had 12.7% of market share in India's total containerized or container sable exports in 2020 and has been consistently on the top position over the last decade. Bangladesh however, has increased its ranking in India's export from 4th position in 2008 to 2nd position in 2020. The US has consistently remained at the third position in India's export market while export to Oman has increased in last decade. Oman was at the 33rd position in 2008 and reached 11th position in 2020

INDIA'S TOP 20 EXPORT DESTINATIN AND EXPORT SOURCES IN 2020(BASED ON VOLUME)

INDIA'S TOP 20 EXPORT DESTINATION 2020				
Country	2010 Share	2010 Rank	2020 Share	2020 Rank
China	11.90%	1	18.70%	1
Bangladesh	5.00%	3	10.10%	2
United States	4.90%	4	5.60%	3
Nepal	1.00%	25	4.60%	4
Vietnam	4.50%	6	4.10%	5
UAE	4.40%	7	3.80%	6
South Korea	4.80%	5	3.80%	7
Saudi Arabia	2.40%	12	3.00%	8
Indonesia	3.10%	10	3.00%	9
Malaysia	3.10%	11	2.90%	10
Oman	0.70%	32	2.40%	11
Maldives	0.10%	79	2.40%	12
Japan	4.30%	8	1.70%	13
Italy	2.00%	15	1.70%	14
United Kingdom	1.90%	16	1.60%	15
Thailand	2.20%	14	1.60%	16
Sri Lanka	2.40%	13	1.50%	17
Iran	1.70%	17	1.20%	18
Belgium	3.20%	9	1.20%	19
Qatar	0.30%	57	1.20%	20
Others	35.90%	--	24.00%	--

Source: UN Comtrade data compiled by Drewry Maritime Research, 2021

INDIA'S TOP 20 EXPORT DESTINATIN AND IMPORT SOURCES IN 2020(BASED ON VOLUME)

INDIA'S TOP 20 IMPORT SOURCES 2020				
Country	2010 Share	2010 Rank	2020 Share	2020 Rank
China	14.50%	1	12.70%	1
United States	7.90%	2	6.50%	2
UAE	2.70%	10	6.40%	3
Indonesia	7.50%	3	6.20%	4
Saudi Arabia	3.30%	7	4.40%	5
Malaysia	3.10%	8	4.20%	6
South Korea	4.30%	4	3.90%	7
Canada	3.70%	6	3.10%	8
Oman	2.90%	9	3.10%	9
Russia	4.20%	5	3.00%	10
Singapore	2.00%	18	2.80%	11
Ukraine	2.70%	11	2.40%	12
Argentina	1.40%	20	2.40%	13
Brazil	2.50%	12	2.40%	14
Japan	2.20%	16	1.90%	15
Thailand	2.00%	17	1.90%	16
Qatar	1.00%	24	1.80%	17
United Kingdom	2.20%	15	1.70%	18
Vietnam	0.40%	40	1.40%	19
Egypt	0.20%	59	1.30%	20
Others	29.10%	--	26.40%	--

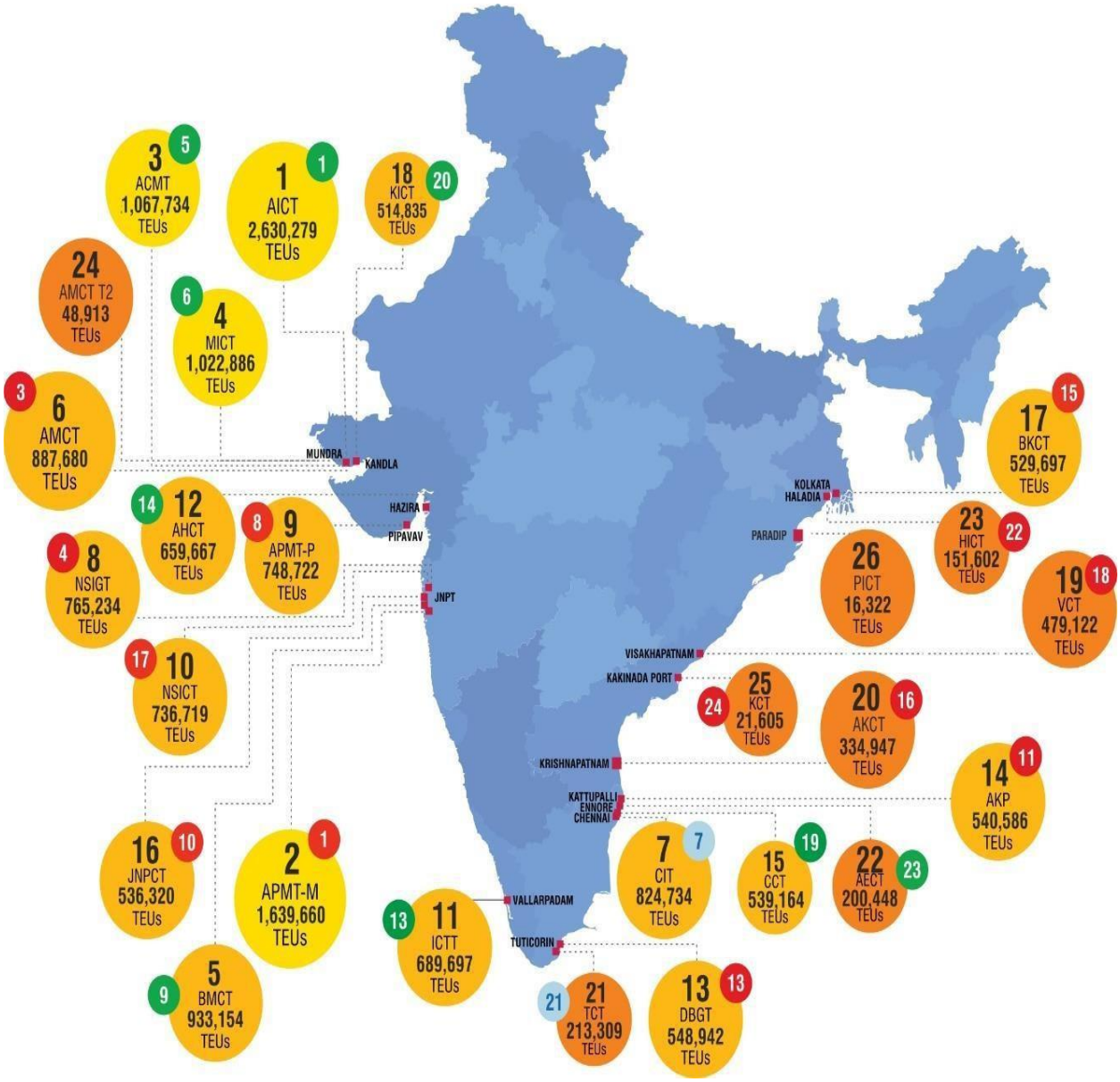
Source: UN Comtrade data compiled by Drewry Maritime Research, 2021

3 Indian Container Terminals

As entire container operation only happens through the container terminal only, which leads to the transportation of container from our country to the other part of world. As far as India is concerned total of 28 container terminals are in operations as of 2020. Most of these container terminals are operated by the private party which has been authority given by the government onthe basis of BOT or BOOT model.

INDIAN CONTAINER TERMINALS						
Container Terminal Name	**Operated By**	**Installed Capacity**	**Throughput**	**Import Share**	**Export Share**	**Capacity Utilization**
APM Terminals Pipavav	**APM Terminals Pipavav**	13,50,000	9,03,344	--	--	67%
Mundra International Container Terminal	**DP World**	15,00,000	8,35,825	--	--	56%
Adani Mundra Container Terminal	**Adani Ports & SEZ Ltd**	12,00,000	10,51,298	46%	48%	88%
Adani International Container Terminal	**JV of Adani Ports & SEZ Ltd and MSC**	30,00,000	19,18,070	49%	51%	64%
Adani CMA Mundra Terminal	**JV of APSEZ and CMA CGM SA**	8,00,000	7,40,786	48%	52%	62%
Adani Hazira Container terminal	**Adani Ports & SEZ Ltd**	12,00,000	5,59,330	49%	51%	47%
Kandla International Container Terminal	**ICTIPL & JM Baxi Group**	6,00,000	2,44,371	50%	50%	41%
Jawaharlal Nehru Port Container Terminal	**Jawaharlal Nehru Port Trust**	13,50,000	10,56,368	--	--	78%
Nhava Sheva International Container Terminal	**DP World**	12,00,000	5,60,661	--	--	47%
Nhava Sheva India Gateway Terminal	**DP World**	8,00,000	9,38,512	51%	49%	117%
APM Terminals Mumbai	**APM Terminals and CONCOR**	20,00,000	20,48,454	53%	47%	102%
Bharat Mumbai Container Terminals	**PSA International**	24,00,000	5,20,110	51%	49%	22%
New Mangalore Port - Containers International	**New Mangalore Port Trust**	--	1,31,613	49%	51%	--

Source https://www.ipa.nic.in/
Fig Shows container terminal ranking in India



Chapter-3

Challenges of Demand and Supply of Containers

The demand and supply of containers are critical factors that affect the container industry's growth and operations. The demand for containers is driven by factors such as global trade, economic growth, and the shift towards containerization. On the other hand, the supply of containers is influenced by several factors such as the production capacity of container manufacturers, fleet size, and the availability of containers for repositioning.

One of the major challenges facing the container industry is the imbalance between demand and supply. The demand for containers has been growing faster than the supply, resulting in a shortage of containers in some regions. The shortage of containers has been particularly acute in regions such as South Asia, where demand has outpaced supply, resulting in high container prices and longer waiting times for containers.

Another challenge facing the container industry is the lack of standardization in container specifications. Containers are manufactured by different companies with varying specifications, resulting in compatibility issues and inefficiencies in the movement of containers. This lack of standardization has also led to challenges in the repositioning of containers, which is critical for maintaining the balance between supply and demand.

Furthermore, the COVID-19 pandemic has had a significant impact on the demand and supply of containers. The disruption of global supply chains and the slowdown in trade have resulted in a decrease in demand for containers. At the same time, the pandemic has also led to the closure of container manufacturing facilities and reduced the availability of containers, leading to a further imbalance between supply and demand.

To address these challenges, the container industry needs to develop strategies to improve the balance between demand and supply. This includes increasing the production capacity of container manufacturers, improving the efficiency of container utilization, and promoting standardization in container specifications. The container industry also needs to collaborate with other stakeholders, such as shipping lines, freight forwarders, and governments, to address the challenges and promote the sustainable growth of the industry

4.1 Challenges faced by Export for getting containers

Inadequate Infrastructure

Infrastructure remains India's weakest link. In data firm Statista's ranking of 100 countries based on the quality of their infrastructure in 2019, Inadequate infrastructure can pose a significant challenge for exporters who rely on efficient transportation systems to move their goods to market.

Port infrastructure: Despite efforts to improve port infrastructure in India, several ports still suffer from congestion, limited capacity, and outdated technology. This can result in delays in container movement, increased handling costs, and reduced com.

Road infrastructure: The quality of road infrastructure in India is often inadequate, particularly in rural areas. This can lead to delays in the movement of containers, increased transportation costs, and damage to containers.

Rail infrastructure: While rail transport is an important mode of transportation for containers in India, the rail infrastructure is often outdated and congested. This can lead to delays in the movement of containers and increased transportation costs.

Intermodal connectivity: There is a lack of intermodal connectivity between ports, roads, and railways in India, which can result in inefficiencies and increased transportation costs.

Challenges: Low Credit Access

Low credit access is another significant challenge faced by container operators in India. Access to credit is critical for container operators to finance their operations, purchase equipment and containers, and expand their businesses. However, many small and medium-sized enterprises (SMEs) in the container industry face challenges in accessing credit due to several factors:

- **Lack of collateral**: SMEs in the container industry may lack the collateral needed to secure loans from banks or financial institutions
- **High interest rates**: Even when SMEs can secure loans, the high interest rates can make borrowing expensive and unsustainable.
- **Lack of financial literacy**: Many SMEs in the container industry lack financial literacy, making it challenging to navigate the complex credit application process and manage their finances effectively.

- **Lack of financial literacy:** Many SMEs in the container industry lack financial literacy, making it challenging to navigate the complex credit application process and manage their finances effectively.

4.2 Solution to The Challenges Faced by Exporter for Getting Container Process

- **Infrastructure Overhaul**: India has made progress with road construction in recent years. But its maritime infrastructure still requires work. Here's what India is doing and needs to do to improve its transport infrastructure:

- **Plan Ahead:** Exporters should plan ahead to ensure that they have enough time to obtain necessary approvals and complete all required documentation. This includes ensuring that all paperwork is in order and that all required permits are obtained before the shipment is ready to go.

- **Work with Experienced Freight Forwarders**: Experienced freight forwarders can help exporters navigate the complexities of the shipping process. They can provide guidance on documentation, customs clearance, transportation, and other aspects of the shipping process

- **Explore Alternative Transportation Options:** Exporters can explore alternative transportation options such as intermodal transportation or multimodal transportation, which can help reduce costs and improve efficiency

- **Consider Container Leasing Options**: Exporters can consider container leasing options to ensure that they have the necessary equipment available when needed. Leasing can be a cost-effective option for small businesses or those with limited capital

- **Improve Credit Access**: To address the challenge of low credit access, exporters can work to improve their credit score or establish credit history. This can involve paying bills on time, reducing debt, and working with lenders to establish a positive credit history.

- **Improve road connectivity:** India is currently building 30 km of highways in a day. This tie in with the objectives of the Bharat Mala Programmer, which aims to build new roads, develop 9,000 km of economic corridors for better connectivity between manufacturing centers and export hubs, and improve port connectivity.

- **Cutting tariffs:** Cutting tariffs refers to the reduction or elimination of taxes on imported goods by a country's government. Tariffs are essentially taxes levied on imported goods, which are intended to protect domestic industries.

- **Invest in Technology**: Technology can help streamline the shipping process and improve efficiency. Exporters can invest in technologies such as tracking and tracing software, warehouse management systems, and transportation management systems to help improve the speed and accuracy of their shipments.

4.3. Challenges Faced by Importer for Getting Container Process

As Imports have not only today but traditionally outpaced exports in India. In 2020-2021, imports in India were valued at $388.92 billion while its exports valued at $290.18 billion. On the other hand, government wants to more focus on export shares in world shares in world trade and reducing dependence on imports more with an aim to promote domestic manufacturing. But India's import shares are not coming down from the beginning itself.

High Import Duties

Import duties in India are the highest among all countries in the world. When we compare it at Most Favored Nation (MFN) applied rate, which is what World Trade Organization member states have agreed to impose on trading partners who are also WTO members.

Country	Simple Average MFN Applied Rate (%)	Maximum Average MFN Applied Rate (%)
Japan	4.4	662
United States	3.4	350
European Union	5.1	200
India	**15.0**	**150**
China	7.5	65
South Korea	13.6	887

Source: WTO World Tariff Profile 2020

- **Shortage of containers**: The shortage of containers is not just a challenge for exporters but also importers. The demand for containers far exceeds the supply, which leads to delays and higher costs for importers.
- **Congestion at ports**: Ports in India are often congested, leading to delays in the clearance and movement of containers. This can result in demurrage charges and other costs for importers.
- **High transportation costs**: The transportation costs for containers can be high, particularly for importers located far away from the port. This can increase the overall cost of importing goods and make it less competitive.
- **Complex documentation:** Importing goods into India requires a significant amount of documentation, which can be complex and time-consuming. This includes customs clearance, import licenses, and other regulatory requirements, which can further delay the clearance, import licenses, and other regulatory requirements, which can further delay the

clearance of containers.

- **Lack of transparency:** The lack of transparency in the container supply chain can also be a challenge for importers. It can be difficult to track the movement of containers, leading to delays and uncertainty in the delivery of goods
- **Limited container availability for certain products:** Importers of certain products, such as hazardous goods or perishable items, may face additional challenges in finding containers that meet their specific requirements.
- **Demurrage and detention charges**: Importers may also face additional costs in the form of demurrage and detention charges if they are unable to return containers within the allotted time. These charges can be significant and can further increase the cost of importing goods.
- **Lack of coordination:** Lack of coordination between various stakeholders, including port operators, customs officials, and logistics providers, can also lead to delays and inefficiencies in the container supply chain. This can result in longer lead times, increased transportation costs, and reduced competitiveness in the global market.
- **Inadequate technology adoption**: India lags behind other countries in terms of adopting technology in container operations. The lack of advanced technology, such as real-time tracking systems, can make it difficult to monitor and manage container movements
- **Insufficient capacity:** The container industry in India is growing rapidly, but there is still insufficient capacity to meet the growing demand. This can lead to container shortages, delays in container availability, and increased transportation costs.
- **Security concerns:** The security of containers is an important issue, especially in the post-9/11 world. India has faced security challenges in the past, including smuggling of contraband and terrorist attacks. Ensuring the security of containers during transport and storage is crucial to maintaining the integrity of the supply chain.
- **Lack of standardization: T**here is a lack of standardization in container operations in India, which can lead to inefficiencies and increased costs. Different stakeholders may have different processes and requirements, leading to confusion and delays.
- **Inadequate training**: Container operations require specialized skills and knowledge. Inadequate training of personnel can lead to errors, accidents, and delays in the supply.

Challenges: Geographical Issues

Political instability: Political instability in a particular region or country can also impact international trade, particularly if it leads to disruptions in transportation, communication, or supply chains.

Language and cultural differences: Exporters and importers may also face challenges related to language and cultural differences when conducting business with partners in foreign countries

China: India's border dispute with China has always cast a shadow on bilateral trade between these the two neighbors. The violent representation between Indian and Chinese troops in Ladakh's Galwan Valley in 2020 drove the wedge deeper. As we know that China is top trading partner with India for both imports and exports. It makes up approx 13.7 percent of India's total imports. However, in 2018-2019, China accounted for 80 percent of India's imports in 375 product categories, according to a report by the Institute of Chinese Studies, Delhi.

4.4 Solution to The Challenges Faced by Exporter for Getting Container Process

- **Improving container availability**: Efforts should be made to ensure a steady supply of containers by increasing the number of container manufacturing facilities in India and implementing strategies to reduce the time taken to return empty containers to ports
- **Improving container availability**: Efforts should be made to ensure a steady supply of containers by increasing the number of container manufacturing facilities in India and implementing strategies to reduce the time taken to return empty containers to ports develop flexible and customized container leasing and rental solutions.
- **Enhanced visibility**: Improved real-time visibility and tracking of container movements can help importers plan their operations more effectively, reducing the time and costs associated with container availability.
- **Standardizing processes:** Standardizing processes and procedures can reduce confusion and delays, and improve efficiency in the container supply chain.
- **Improving port infrastructure**: Investment in port infrastructure, including the construction of new berths and terminals, can improve efficiency and reduce congestion, enabling quicker turnaround times for containers.
- **Encouraging competition**: Encouraging competition among shipping lines and other stakeholders in the container supply chain can help keep prices reasonable and improve

service quality.

- **Improving training:** Training programs for personnel involved in container operations can improve efficiency and safety, and reduce errors and accidents.
- **Developing intermodal transportation**: Intermodal transportation that integrates multiple modes of transport, such as rail, road, and waterways, can help reduce congestion at ports and increase the speed and efficiency of container movement.
- **Promoting container repositioning:** Strategies can be implemented to promote the repositioning of empty containers to areas where they are needed. This can include incentivizing shipping lines to reposition empty containers or facilitating container leasing or rental arrangements between different stakeholders in the supply chain.
- **Creating a centralized container tracking system**: A centralized container tracking system that enables importers and other stakeholders to monitor the location and availability of containers can help reduce the time and costs associated with obtaining con containers
- **Developing container leasing schemes**: The Indian government can develop container leasing schemes to provide containers to importers on a long-term basis. This can help to stabilize the market and reduce the impact of sudden surges in demand.
- **Encouraging local container manufacturing**: Encouraging local container manufacturing can reduce the dependence on foreign suppliers and increase the availability of containers in the domestic market.
- **Increasing container throughput at ports:** The Indian government can work to increase the throughput of containers at ports by investing in port infrastructure, improving port management and operations, and reducing clearance times for containers.

- **Developing container yards**: Developing container yards located near ports and transportation hubs can provide additional storage space for containers and reduce congestion at ports.
- **Encouraging container sharing:** Encouraging importers to share containers can help to increase the utilization of existing containers, reduce costs, and improve the efficiency of the container supply chain.

Chapter-4

Analysis on Container Shortage

5.1 Global Container Shortage

The supply chain bottlenecks in the form of shipping container shortage are raising trade costs are here to stay according to Economic Survey 2021-22. According to the survey the stress in the container shortage can be captured in the Drewry's composite Word Container Index. Basically, the index here stands at $ 9,698.33 per 40ft container as on January 2022 data. the index here stands at $ 9,698.33 per 40ft container as on January 2022 data. Also this is basically $ 6,656 higher than the last five year average and remains 82 percent higher than an earlier year. This type of significance rise in price for a long period of time shows that disruption or shortages of container in global container market are not yet over and it will continue to impact the global sea trade in coming days, according to the Economic Survey 2021-22

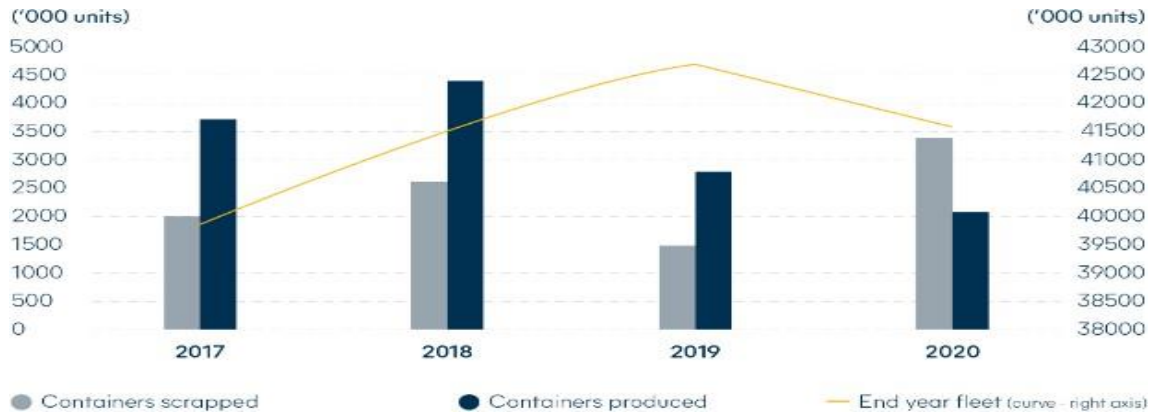
Figure: 4.1 **Rising of Freight Rates**

Source: World Container Index (per US $ 40ft container)

5.2 Global Container Fleet Shrinking

Compounding on the shift in trade imbalances and bottlenecks is that production of new containers is woefully low. The rate was already down in 2019 and dropped even further this year, especially when demand fell dramatically in Q1 2020. The scrapping of containers now exceeds the building of new ones, causing inventories in factories to plummet. It will take months before more vessels and containers are built, meaning capacity likely won't normalize until Q2 2021.

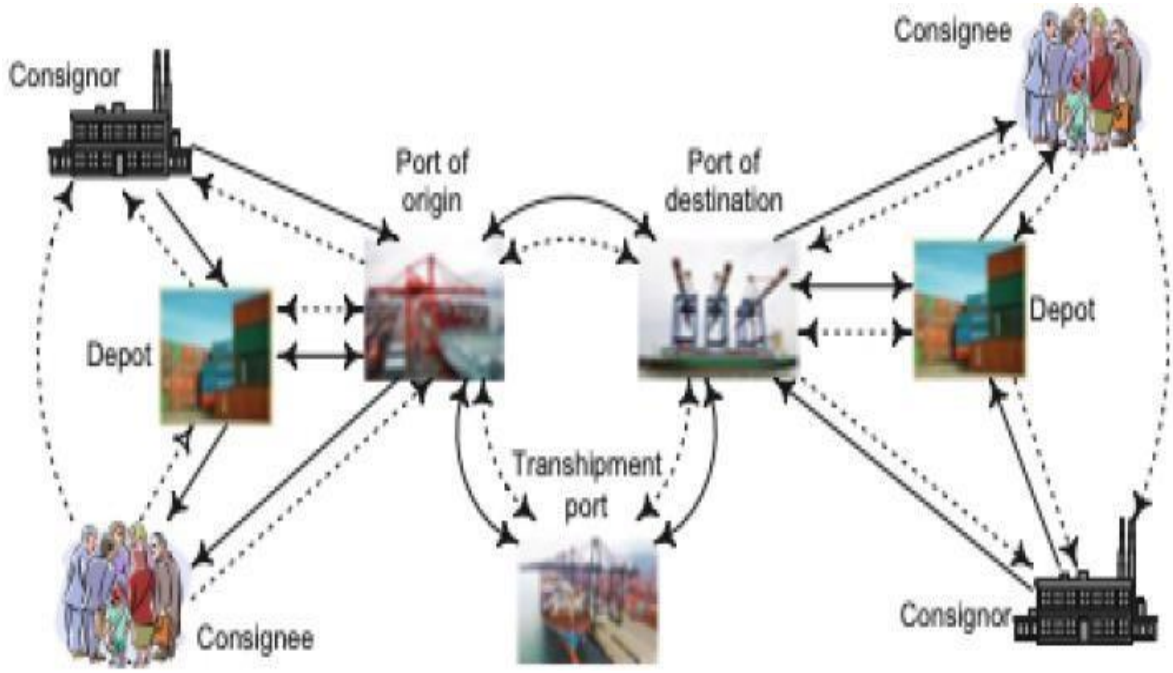
Container Fleet



Source: World Container Index Assessed by Drewry

How Can the Government Help Address This Issue?

Exporters are calling on the government to regulate the export of empty containers. Experts noted that some countries were willing to pay a premium for empty containers and that this was further adding to the container shortage. Exporters have asked the government to curb the export of empty containers at all Indian ports in line with a move by the Kolkata port to restrict the number of empty containers permitted to be exported to 100 per vessel for a three-month period.



Chapter-5

Key Findings

Container operations in India have witnessed significant growth in recent years, but there are still challenges that need to be addressed.

- One of the major challenges faced by the container industry in India is the demand and supply mismatch of containers.
- Exporters face challenges in obtaining containers due to the shortage of containers and high demand.
- Importers face challenges in obtaining containers due to high detention charges and limited availability of containers.
- Inadequate infrastructure, including ports and road networks, is a significant challenge for container operations in India
- The lack of credit access for small and medium enterprises in the container industry is also a significant challenge
- The demand and supply of containers are not in balance, leading to challenges in the logistics industry in India.
- The high turnaround time of containers at ports is a significant challenge for both importers and exporters.
- The lack of standardization in the documentation process and the absence of a single-window clearance system led to delays in container clearance.
- The government's initiatives such as the Sagar Mala project and the development of coastal economic zones can help address the infrastructure-related challenges in container operations.

- Digitalization, automation, and the adoption of technology can significantly improve the efficiency of container operations in India.

- The development of dedicated container terminals and increased private sector participation can also help address the challenges in container operations.

- Collaboration between stakeholders, including the government, port authorities, logistics companies, and shipping lines, can help overcome the challenges in container

- The solutions proposed for the challenges in container operations require a coordinated effort from multiple stakeholders to achieve effective implementation.

- One of the key challenges faced by the industry is the shortage of containers, which has been exacerbated by the COVID-19 pandemic. This shortage has led to higher container rental costs and delays in the movement of cargo.

- Another major challenge is the inadequate infrastructure for container operations in India. The lack of modern container handling equipment, such as gantry cranes and rubber-tired gantry cranes, has led to inefficiencies in the handling and movement of containers

- The study has also identified challenges faced by exporters and importers in obtaining containers. Exporters often face difficulties in securing containers due to the high demand for containers in India and globally. Importers, on the other hand, often fa face delays in obtaining containers due to congestion at ports and other infrastructure bottlenecks.

- The study also recommends the creation of more container leasing companies and the establishment of a national container exchange platform to improve container availability and reduce rental cost

Conclusions

The research of container operations in India concludes that the nation faces a number of difficulties in this field, including a lack of containers, ineffective infrastructure, and excessive import taxes.

These difficulties have hindered India's capacity to compete internationally in this sector and caused delays and higher prices for companies who operate containers.

The Indian government must act quickly and decisively to address these issues, including developing infrastructure, expediting the customs process, and lowering import taxes.

To address these issues and spur growth in the container operations industry, the private sector's involvement and investment can also be very important.

It is also significant to note that the COVID-19 outbreak has made some of the problems the Indian container operations industry was already facing worse.

However, it has also produced fresh chances for innovation and expansion in the industry, like the rise in e-commerce and the uptake of new technologies.

Recommendation

- The government can consider reducing import duties and taxes on equipment used for container handling and storage, to encourage investment in this sector and increase the availability of containers.
- The government can also consider providing financial incentives or tax breaks to shipping companies and container operators to increase their capacity and invest in new container technology.

- There should be more investment in improving the transport infrastructure, including roads, rail networks, and port facilities, to reduce transportation costs and improve efficiency.

- To address the issue of container congestion, it is recommended to promote the development of alternative ports and container freight stations to reduce the pressure on the major ports.

- Collaboration between the government, shipping companies, and other stakeholders should be encouraged to identify and address any bottlenecks in the container operations value chain.

- The use of technology and digital solutions, such as blockchain and IoT devices, can be explored to improve transparency, track containers, and reduce the risk of loss or theft.
- To address the issue of container shortages, efforts can be made to increase the production and supply of containers, as well as to promote the use of alternative materials and designs that are more cost-effective and environmentally sustainable.

- The government should invest in improving the transport infrastructure, including roads, railways, and ports, to facilitate the smooth movement of goods and containers across the country.

- The government should work towards reducing the dependence on imports and promoting domestic manufacturing to achieve a balance between import and export of goods.

- The customs clearance process should be streamlined to reduce the time and cost involved in the clearance of containers at ports.

- There should be a focus on the development of intermodal transportation to provide alternative modes of transportation for containers, which can also reduce congestion.

Future Scope of Container Operations in India

The future scope of container operations in India is quite promising. With the increasing demand for containerization and the growth of international trade, there is a need to improve and modernize container handling and transportation infrastructure in India. Some of the areas that can be focused on for future development include:

- Investment in technology and automation to improve container tracking, handling, and monitoring.
- Development of dedicated container freight corridors and logistics parks to enhance the efficiency and speed of container transportation.
- Focus on sustainability and environment-friendly practices in container operations, including the use of cleaner fuels and adoption of green supply chain practices.
- Strengthening of trade agreements and partnerships with other countries to facilitate smoother and more efficient container movements.
- Expansion and modernization of port facilities, including the development of deep-sea ports and improvement of port connectivity with the hinterland.
- Encouraging private sector participation and investment in container operations to improve efficiency and reduce costs.
- Development of smart ports: The integration of technology such as the Internet of Things (IoT), artificial intelligence (AI), and blockchain can make ports more efficient and reduce wait times. This can help optimize container handling and reduce the risk
- Promotion of containerization in transportation: Encouraging more industries to adopt containerization in their transportation can increase the demand for container operations and improve efficiency in the movement of goods.
- Improvement of logistics and supply chain management: An efficient logistics and supply chain management system can improve the movement of containers from ports to their final destinations. This can include the use of technology such as GPS tracking and automated warehouses.
- Expansion of port infrastructure: There is a need for the expansion and modernization of port infrastructure in India. This can include the construction of new ports and terminals, expansion of existing ones, and improvement of access roads and rail links.

Limitation of the study

The possibility of bias in source selection is one disadvantage of the study, which mostly uses secondary data. It may not be possible to review all pertinent materials due to the abundance of literature on container operations in India, and the sources chosen may have a bias towards particular writers or publications. The quality of the sources may also have an impact on the data's correctness and dependability, and there can be gaps in the data that have an impact on the conclusions' validity. The utilization of diverse sources and, when practical, primary data gathering will be used to verify findings and resolve these constraints.

The lack of control over the data collection process is another potential drawback of depending on secondary data. has no control over the procedures used for data collecting, sampling, or the accuracy of the information in secondary sources. The information might not be whole, accurate, or current as a result. In order to overcome this limitation, we will carefully assess the reliability and applicability of the secondary data sources and combine them with primary data gathering techniques, such as in-depth interviews with significant figures in the Indian shipping container market. As a result, the state of container operations in India today and the prospects for improvement would be better understood in a more thorough and accurate manner.

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