

MULTIMODAL TRANSPORTATION

In the current world, multimodal transport is an essential element for moving commodities from one location to another utilising different modes of transport so that, the cargo reaches its final destination rapidly and safely with a single transport agreement. It is the coordination of various means of transport used to move commodities from point of manufacture to the destination, through a shipping contract. Worldwide framework, multimodal transport can be intermodal, where diverse forms of transport will be used to transport the consignment or merge transport that will use a similar chain of vehicles to shift the consignment. This being the incident, the implementation of the same delivery may need different transport means such as, for example, a vessel, trailer or train and all this through a single agreement. Another significant feature of multimodal transport is that its means of shipment can be adapted to short or long distances based on the category of commodities and their destination. In this manner, there are bulky or small transports that can be utilised in a multimodal shipment so that, the cargo can leave or arrive at its location merging surface cargo trucks by road to take the commodity from the warehouse to the sea port, or railway cargo terminal that can transport more goods over long distances. This option makes the entire process simpler on a commercial stage, without having to engage more intermediaries. This is where the significance of multimodal transport mostly lies.



LEARNING OUTCOMES

After studying this lesson the learner:

- compares the diverse aspects of transportation;
- applies analytical techniques to arrive at cost effective remedies to Indian transportation needs;



- manages global logistics partners and service providers;
- decides optimal transportation modal benefit;
- summarizes domestic and international transportation networks;
- identifies transport problems in logistics and warehouses.

11.1 INTRODUCTION TO MULTIMODAL / INTERMODAL / COMBINED TRANSPORT

Multimodal transport is a mode of transport that involves more than one form of transportation to ship the commodities from the exporter to the importer. In the operation of multimodal transport the commodities will be shifted from point X to point Y by using different types of word using by a single transport operator. In a great and diverse nation like India where an end to end distribution is a difficult task and the solution will be the multimodal transport. In order to create a standardised regime for the multimodal transport operators (MTOs), the Multimodal Transport Act was approved by the Indian Parliament in the year 1993. The Director General of Shipping was recognized as the capable ruler under this law. This Act provided the path for MTOs to register themselves with the regulation and begin their operations. IT has been a main enabler of multimodal transport in India and has been broadly used to automate the distribution chain and documentation. For consignments entering into India, documentation begins at the ea / air ports, CFSs, ICDs and then final custom clearances before distribution. ICES is presently operating at 134 major custom areas across India which handles more than 98% of India's global trade of export and import.



Fig. 11.1: Introduction to Multimodal / Intermodal / Combined Transport



Till the early 2000s the Multimodal transport was a monopoly which was under the control of CONCOR. Recently Indian government had given licences to private organisations to operate their own freight trains. At present, in India there are more than 15 Private Freight Train Operators (PFTOs) with top organisations such as a) Hind Terminals b) DP World, c) Adani Logistics and d) CWC all operating their own rail wagons. Indian Railways has also permitted PFTOs to operate their own Private Freight Terminals (PFTs), in order to transport nearly 20-25 mn tonnes of additional loading capability and attract investments of more than \$ 1 bn. Indian Railways also commenced to transport goods in specialised DSO containers. When compared to the developed countries, the completion of the Dedicated Freight Corridors (DFCs) will further increase the share of rail shipment in the nation from the present 30% to approximately 60-70%. Inland waterways goods development has already commenced from NW – 1 by companies like a) Pepsi b) Dabur c) Emami d) IFFCO from Kolkata to Varanasi where to link towards the eastern DFC. Air shipment is considered the best mode for perishable cargoes whereas inland waterways have just commenced.

11.1.1 Appropriate container for shipping cargoes using multimodal transport

Standard containers are generally used to transport cargoes by intermodal transport. In order to generate that they can be fine stacked and protected on cargo vessels, trailers and on board aeroplanes. In common, the stronger the containers, the low risk for exporters will lose their cargoes when changing the mode of transport.

11.1.2 Characteristics of Multimodal Transport

Among the most widespread characteristics of multimodal transport, we can spotlight the following:

- Two or more forms of transport are utilised to transport a consignment.
- The movement can be at national or global level.
- It is available to utilize maritime, air or surface transport vehicles united or of the same form.
- Can transport materials or cargoes using a single contract.
- Transport towards long or short distances.
- Goods tracking via satellite systems.

11.1.3 Types of multimodal transportation

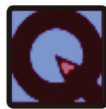
Among the main forms utilised by multimodal transport we can highlight the following:

- **Short sea transport:** This form of multimodal transport takes place because



large goods vessels cannot receive their commodities in all small ports. Therefore, it is essential that the cargoes are shipped in feeder vessels (small ships) so that they can move from a major port to a small port. This form of ship is referred to as “feeder”. In this form of transport, multi-modality comprises the transfer of mini-ships to huge vessels.

- **Land shipment (road/rail):** This form comprises the transfer of commodities between two modes of transport, in this case, the road shipment to reach storage houses or distribution hubs, and rail mode for moving over long distances quickly and without the hassles of land traffic.



INTEXT QUESTIONS 11.1

1. _____ is a mode of transport in which it involves more than one form of transportation.
2. PFTs stand for _____.
3. The Multimodal Transport Act was approved by the Indian _____ in 1993.
4. This form of multimodal transport takes place because large goods vessels cannot receive their _____.
5. Commodities in all _____ ports.

11.2 IMPORTANCE OF MULTIMODAL TRANSPORT

To export and import the cargo, manufacturing units or merchant exporters and importers are always looking for shipping firms all the time. Apart from the quality services, traders nowadays are choosy in nature and they look for logistics agents who transit throughout the world. Due to the different cargo of availability in many countries, and the tastes and preferences of the consumers, a single mode of shipment is sometimes not enough. Constantly, multimodal transportation provides customers and trades to search for a shipping line that helps them select the transit method for their freight. More significantly, multimodality consists of door to door distribution in their services which perhaps makes it the most favoured in the transportation segment.

Multimodal transport involves that, for cargoes to be transported, it is essential to use definite modes of transport in order to arrive at their final location, which is previously generated by contract. This being the situation, the execution of a similar shipment may desire a specific transport division such as, for instance, a vessel, trailer or train and all this through a single agreement. This opportunity makes the entire part simpler on a

commercial level, and this occurs with the assistance of intermediaries. This is where the significance of multimodal shipment largely lies.



Fig. 11.2: Importance of Multimodal Transport

Another significant aspect of multimodal shipment is that its form of transport can be adapted to the distances both short and long based on the nature of the cargo and its final destination. In this sense, there are big or small transports that can be utilised in a multimodal shipment so that, the merchandise can move or arrive at its final destination by combining surface cargo trailers by road to take the commodities from the warehouse to the sea or airport, or railway terminal and other bigger ones such as vessels or railroads that can ship more goods over long distances. Further, this multimodal shipment helps a trader in the following ways 1. Decrease of goods handling times. 2. Reduction of charges per vehicle. 3. Reduction in customs controls. 4. Only one agreement is made. 5. Tracking commodities through satellite structures. 6. Economical rates, robbery or damage to the goods that favour the charges of insurance premiums overseas.

11.2.1 Multi-modal Logistics

Multimodal transport is the shipment of goods under a single agreement, but executed with at least two specific modes of transport; the carrier is responsible (in a legal sense) for the whole carriage, even though it is functioned by many modes of transport. Infrastructural Reforms Technological Investment Regulatory Reforms

11.2.2 Need of the hour

- Sufficient use of the modal mix
- Drive down logistics charges



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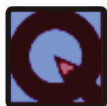


- Decrease the chances of pilferage related to containerization.
- Decrease overall transit time
- Decrease carbon footprint and convert towards the “green logistics”.

11.2.3 Prospects in multi modal logistics

In a country like India, multimodal transport provides a lot of opportunities which are highlighted below:

1. Single document clearance for all phases of multi modal transport
2. Triple as well as double deck train wagons
3. System of Roll on and Roll off
4. Waiting for docks for trailers and trucks
5. Rising hub and feeder executions at sea ports along the coast
6. Enhancement of multi modal shipment parks
7. Superior material handling sophisticated equipments
8. Incorporated IT structure that forecasts and tracks
9. System of fleet exchange
10. Palletization of cargo containers
11. Trucking Cubes: with three standard dimensions of containers
12. Arrive ahead towards Tier 2 and Tier 3 Cities
13. Strategic grouping with railway and logistics corporation
14. Creating one stop terminals for all worth added services



INTEXT QUESTIONS 11.2

1. Multimodal transport is the shipment of goods under a _____ agreement.
2. Multimodal shipment is that its form of transport can be adapted to the _____ of both short and long.
3. Multimodality consists of _____ distribution in their services which perhaps makes it the most favoured in the transportation segment.
4. Multimodal logistics provide the system of Roll on and _____ .

11.3 MERITS OF MULTIMODAL TRANSPORT

Multimodal Transport is the blend of definite modes of transport, in order to enhance the development of commodities, i.e. making it quicker and more adequate. When it arrives to this form of transportation, there is more than one type of means of shipment that is essential to take the cargoes to their final location, by utilising the trailers, rail, vessels, aeroplanes or some other mode of shipment for the delivery. The merits of Multimodal Transport lies in the most efficient grouping of multiple forms of transport, at the same time by optimising the deadlines, cutting back on stock charges, therefore holding the charges of the merchandise below control. In spite of the support of ecologists and cargo shipment experts, multimodality may induce certain charges through the utilisation of modal borders , such as handling of transshipments,etc.



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Fig. 11.3: Merits of Multimodal Transport

Multimodal transportation is also referred to as combined transport because it moves goods from various parts with different forms of transport. International shipment is a division of multimodal transport which comprises road , rail, air as well as the ocean. The improvement is done with shipping containers that can simply move from one transport mode to another. Pickup from the manufacturing unit and drop off part towards the warehouse or port is usually by road, and in some circumstances rail, whereas the main transit comprises the ocean or air transport. The shipment during multimodal shipping is simple to track due to following reasons. This form of transportation influences the distribution time of the freight, the mode of the freight, the budget limitations and the point of destination. Multimodal freight is generally handled by a intermediary referred as



multimodal transportation operator (MTO, or freight forwarder) who undertakes job on the behalf of the exporter and the importer.

1. Communications is less in nature
2. Improvement in routing system
3. Transit time is shorter

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A. Merits:

Due to the arrival of new driving hour limits on trailer drivers, the surface transportation takes longer transport time compared to earlier years. The mixture of multimodal shipping is required for goods to make it from port of origin to final destination. Moreover the main merit being the capability to transport the world had expanded, and there are several other merits of multimodal transportation which are as follows:

1. Decrease the overpopulation, ocean ports are congested owing to the chain of vessels and feeder vessels.
2. Decreases the charge in monitoring the cargoes and offers greater safety in tax collection.
3. Decrease the customs charges and rising smuggling control.
4. Decrease the costs of imported cargoes.
5. Enhance the competitiveness of national goods in the global market.
6. Permit scheduling of activities and manage of compensation cargoes.
7. Decrease the cargo shipment on time.
8. Decrease the transportation charges.
9. Decrease the risk of loss owing to robbery or looting
10. Minimum time and effort
11. Reduction of cost



12. Timely efficiency on Handling and distribution
13. Increased shipping security
14. Single contract to keep track of and
15. Easier shipment tracking



INTEXT QUESTIONS 11.3

1. Multimodal transportation is also referred to as _____ transport.
2. Multimodal freight is generally handled by a intermediary referred as _____.
3. The merits of Multimodal Transport lies in the most efficient grouping of _____ types of transport.
4. Ocean ports are congested owing to the chain of mother and _____ vessels.

11.4 MULTIMODAL TRANSPORTATION IN SUPPLY CHAIN MANAGEMENT

Multi-modal shipment refers to where more than one method of transport is utilised in a distribution chain. A multi-modal shipment structure may consist of road, train, sea and air shipment which is a definite location among the network.

This form of transport system may be also classified as:

- **Multimodal:** It is a multiple shipment part are utilised across the distribution chain and cargoes are transferred among different parts during their journey
- **Inter-modal:** It is mainly found with container shipment, where the cargoes remain inside the containers but the container moves among the transport areas
- **Co-modal:** It is "A" term coined by the EU which refers to the utilisation of more than one mode of transport to distribute the most sustainable on the whole result.

Of all the parts of the distribution chain, few have a force on the business quite like the trader's choice of shipping. Transportation accesses generate deliveries to and from the competence flow smoothly and move at their designated locations on time. Because of the significance of transportation to any trade's success, it's vital to comprise this factor in the distribution chain management plan. In fact, it is so significant that transportation is measured as one of the three main components of distribution chain management.

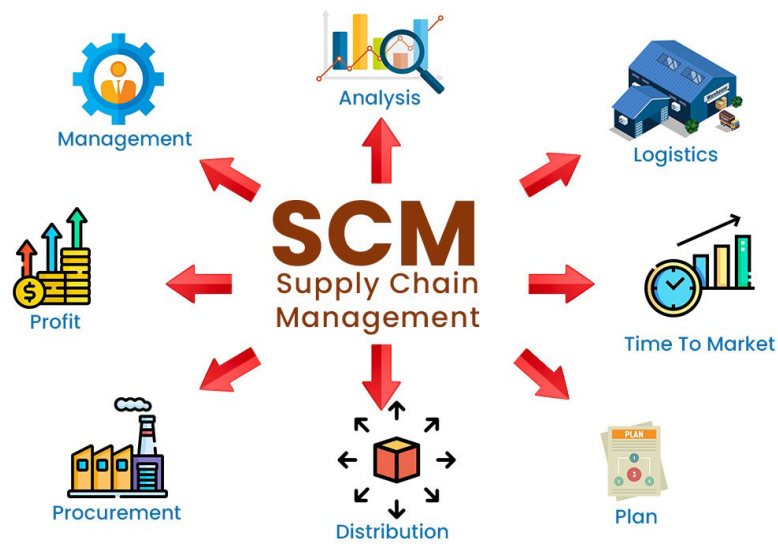


Fig. 11.4: Multimodal Transportation in Supply Chain Management

11.4.1 The three components of distribution chain management

A distribution chain attributes three main components 1.Purchasing 2.Manufacturing and 3.Transportation. A trader require to make several key decisions among these three components from beginning to end comprising

- Material to be utilised for goods.
- Production charges
- Stock Levels
- Supply Network Configuration
- Shipment for both receiving and shipping

Sufficient transportation administration is often the spirited definition for a company and should be added in any distribution chain management plan.

11.4.2 Transportation works in distribution chain management

Transportation in a distribution chain refers to the movement of cargoes from port of origin to another, which starts at the distribution chain as materials make their path to the storehouse and loaded into containers and it moves further to the end user and the order is delivered at the doorstep. Because of the significance of transportation, warehouse executives should consider transportation within their distribution chains. Eventually, this is the only method to attain lower total charges for a method where shipment can account



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for as much as 60 percent of entire operational charges, an important portion of an organisation's distribution chain charges.

11.4.3 Supply chain transportation risks considering

The current risks facing the transportation segment consist of a) driver shortages b) cyber attract and c) deteriorating infrastructure, to mention a few. Generally a driver in America at the age of 56 will soon retire in huge numbers and they are in need of adequate drivers as replacement with lesser drivers, huge demand will be placed on the drivers still on the surface, which could boost the risks of fatigue created accidents. With a sacking of automobile technology in present years comprising the risks, such as cyber attacks performed by hackers, it's significant that drivers should use the newest security tactics in the software structure. Another mounting risk in the transportation segment is the continued decrease of America's surface paths and shipment infrastructure. From crumbling the bridges and surface ways to augment traffic overpopulation on the trains and in the air shipment, delays can take place anywhere. An instance would be to implement an active transportation structure, which utilises the cross docking by exchanging the goods between trailers so that each trailer delivers goods from definite vendors to the final destinations. To assist and manage these risks and to increase success the companies require to welcome visibility and often transparency among the shipping supply chain and utilise a well executed shipping management structure.

11.4.4 Benefits of Multi-Modal Transport Optimization

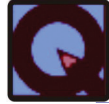
If an exporter uses the definite transport method to shift the cargoes, it is in their interest to innovate a multi-modal system that associates the success with value. The similar applies if they are considering by implementing a multi-modal structure. In both cases, the subsequent questions should be taken into consideration:

1. What mixture of transport parts distributes the most economical overall system solution?
2. Which are the possible combinations of transport modes given the demand and supply points?
3. Should a port-centric distribution strategy be considered?
4. What mixture of transport mode will distribute the most sustainable overall remedy?

Obviously there are merits to using economical mode of transport such as surface or ocean, if viable. Whether an exporter can utilize these reasonable modes will be based on numerous factors. Do they have access to sea ports and terminals? Are they moving acceptable cargoes in bulk or volume to generate large adequate shipments? What are the lead time needs?



Executing a less carbon supply chain can furthermore be an incentive to consider the multiple transport segments. Offering an acceptable amount of commodities, a multimodal shipment solution can bring down the charges while lowering the usage of carbon.



INTEXT QUESTIONS 11.4

1. _____ is "A" term coined by the EU which refers to the utilisation of more than one mode of transport.
2. A distribution chain attributes _____ main components.
3. A firm's supply chain's success relies on a strategic use of _____ transportation.
4. Transportation in a _____ refers to the movement of cargoes from port of origin to destination.

11.5 MULTIMODAL TRANSPORTATION OF GOODS ACT 1993

11.5.1 Multimodal Transportation

This sort of Multimodal Transportation can be executed only by registered persons i.e. they should have registered with MTO under 1993 Act of MTG. Further the Director General of Shipping has been informed as the capable organisation to rule and to execute these functions under the Act comprising registration of MTOs. The registration certificate of MTO is valid for a period of 1 year and can also be renewed for another one year from time to time. The 1993 Multimodal Transportation of Goods Act was invented to enhance the exporters and offer them a sense of protection in transporting their cargoes. Under the stipulation of the Act only those shipping agents who are registered by the capable regulations which have been highlighted to be the Director General of Shipping, can perform the Multimodal Transportation. According to the Act of MTG three types of organisations are eligible to be registered as MTO's. In order to be eligible for registration as MTO., the Shipping Companies (which own containers and vessels) as well as Freight Forwarding firms should have a turnover of Rs.50 lakhs and above during the last three years.

1. Within the meaning of C. A. Act 1949, they have to present a certificate of turnover which is duly signed and provided by a Chartered Accountant
2. They should possess offices/agents/representatives in at least two other nations.

11.5.2 Multimodal Transport Document and its implementation in India

1. The trade environment is moving quicker than ever before. Augmented competition



at domestic and international means quality as well as prosperity must be preserved. We live in a continually evolving globe where harmonisation is tremendously important and the business desperately desires a sufficient and simple door to door responsibility structure. This was one of the causes why ICC and UNCTAD innovated the new UNCTAD/ICC Regulations for documents related to Multimodal Transport.

2. Development of containerization has resulted in the Multimodal Transport of cargoes under a single shipping document covering all modes of transport from the exporter's unit to the importer's premises such as Multimodal Transportation by under a single transport document which has a number of merits like a) decrease in entire transport b) price reduction in delays, c) smoother and faster development d) and development in the quality of services. In India, there was no regularity followed in connection with the MULTIMODAL Transport of cargo. The Government observes that the absence of regularity in such practices, directs to ambiguity and inequity of interests among the operators and the commodity owners. A working land was therefore; set up to consider the widespread situation and to suggest a law which should obviously determine the tasks and liabilities of MULTIMODAL shipping operators for loss or damage towards the cargo. The recent law on MULTIMODAL transport was created by giving an ordinance in October 1992 and was afterwards replaced by the 1993 Act of Multimodal Transportation of Goods.

11.5.3 The multimodal transport document

One of the most significant ingredients included in such Multimodal Transport is the continuation of a legal rule to govern the terms of the agreement and indicate the basis of responsibility and tasks of the Multimodal Transport Operator. In India, (FEDAI) i.e. the Foreign Exchange Dealers Association of India has developed its own regulations laying down the tasks and responsibility of Combined Transport Operators from the respective inland container depots. Looking to the vital requirement of Industry and bearing in mind the necessities of the Multimodal Transportation of Goods Act 1993 which is significantly based on the regulations created by the ICC and also taking into account the requirements of the UN rule of 1980 on Multimodal Transportation of cargoes, the Director General of Shipping, with the sanction of the Govt., has presented an Order on 17th March, 1994 mentioning a approach for the Multimodal Transport Document (MTD). The document has been created to perform the provisions of the Act bearing in mind the main objective of the legislation that the carriers are there to serve business and not the other way around.

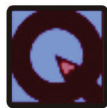
- An agreement for the Transportation of Goods by Multimodal Transport.



- A negotiable document except it is marked non negotiable at the option of the consignor.
- A document of title on the origin of which its holder can take distribution of the cargoes covered by it. The relevant parties who would have business interest who would be governed by the document once it is implemented it would begin) The MTO who a person accountable for the carrying out of the Multimodal Transport agreement) The exporter who places the cargoes in question with the MTD for shipping the same and the importer who is to take delivery towards the final destination.
- The bankers who would provide the mechanism for documentary credit.
- The insurers who insure the cargoes against loss or damage and the responsibility insurers who would cover the MTO's responsibility under agreement.

11.5.4 Standard conditions governing multimodal transport

Definitions of pertinent terms are provided in Para 1 as per the Act. Since this is a current legislation, the suitable to be applied in linkage with India's abroad trade and the importers would be outside the nation, it is essential to provide the definitions in these normal conditions so that all related parties in specific nations are aware of the meaning of several terms as understood as per the Act. The capacity of applicability of the document is to be limited in accordance with the preface of the Act and, consequently, has been mentioned in the second condition. The negotiability as well as the title to the cargoes has been included in the standard stipulations in accordance with division 8 of the Act. Reservations related to inaccuracies, grounds of doubt or the absence of logical means of verification have been spotlighted in condition 5 and are in flow with Section 10 of the Act. The evidentiary consequence of the Multimodal Transport Document is as per with Section 11 of the Act. The Guarantee by the exporter as mentioned in Section 12 has been spotlighted in Condition No.7.



INTEXT QUESTIONS 11.5

1. The Multimodal Transport Act came into existence during the year _____.
2. B/L stands for _____.
3. The registration certificate of MTO is valid for a period of _____ year.
4. The _____ has set the Multimodal Transport Document in accordance with 1994, Rule 3 of Multimodal Transport Document.



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11.6 MULTIMODAL TRANSPORT OPERATORS

The worldwide exports over the past 3 years stand at an average of 18 trillion US Dollars. Trade across the globe deliver cargoes to their clients both domestic as well as global, by several modes of transport. Cargoes are shipped over the road by trailers or trucks, by train or rail on freight trains, ocean freight on cargo vessels, and by air on air cargo flights. Cargoes may be shipped by a single mode of transport or it could be a mixture of two or more. When cargoes are transported by utilising two or more definite types of transport, it is referred to as multimodal transport. The model of door delivery in trade is developed only through multimodal transport. It assists in the faster the development of cargoes while reducing the overall logistics charges of doing trade. A multimodal transport operator is a person one who handles the shipment of goods from the manufacturing unit to the port of destination or importer premises by specific modes of transport. The goods that are shipped will commonly move under a single transport agreement or bill of lading. It will explain all the specific type of transport that is forced for the movement of the goods from its point of origin to its final destination.

11.6.1 Merits of multimodal transport operators

- A. Easy Communication:** It is very simple to communicate with a single MTO rather than communicating with numerous transport operators. They are responsible for coordinating the shipment of cargo by several modes of shipment and its related logistics. The exporter who is sending the commodity has a single point of contact which is the multimodal transport operator. Updates in shipping schedules such as delay occurs or early arrivals are easily communicated by this way instead of different transport intermediaries.
- B. Saves Time:** The MTO is generally an expert in his field of trade. They are aware of the easiest and quickest way to move cargoes from one destination to another. Their extended variety of contacts and to transport goods and the executives makes it easier for them to position towards the movement of goods between diverse locations by utilising the right mode of transport and in the shortest time period. This saves time as well as effort and cargoes reach their final destinations on time and as scheduled. Documentation and other shipping formalities such as clearance at port and customs, loading the cargo, arrangement of workers, etc. can be burdensome for exporters as well as importers. These can be simply handled by skilled multimodal transport operators by saving the exporter's precious time.
- C. Cost advantage:** The MTO performs several transport infrastructures and the expertise to handle it. Successful trade organisations concentrate on their core areas such as manufacturing and outsource the non-core tasks with service providers. Sending cargoes through multimodal transport operators can be a cost advantage as



they are the professionals and can opt for the greatest transport which would benefit to send the cargoes. By utilising the right method of transport and customs formalities they can assist to save on the cost.

- D. More benefit:** MTO's are aware of what form of transport will best suit a precise type of goods. They can choose from an expanded series of shipping and logistics service providers and often obtain services at the finest rates. With an extended phase of operators to select from, they are in an enhanced environment to obtain the best freight rates that can then be passed on to their client by way of cost reductions.

11.6.2 Types of shipment utilised by Multimodal Transport Operators

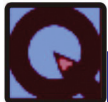
- A. Road:** Road shipment is the most widespread form of transport in several nations. It assists to move passengers as well as goods between different places over land. The road connectivity among several places has been increased considerably in present times. These roads have been put down at very high altitudes and over rough terrains by making sure that it is available to move passengers and goods to these locations by automobiles such as cars, buses, Trucks and freight trailers. Road transport links the cargo depots, store houses, and business organisations to seaports, airports, and other surface transport hubs. They link almost all corners of a nation as well as join over most worldwide land territory. Further, this mode is easily accessible and inexpensive; it is measured as the backbone of moving the overall transport structure of the nation.
- B. Rail:** Another popular mode of transport for the movement of passengers and freight is by train. Locomotives which are powerful engines that can haul numerous rail cars over a track, at a time. Freight rails assist to transfer huge quantities of goods over a long distance. Almost any form of cargo is shipped over trains these days. Commodities such as Coal, ores, fuel oils, cement, food grains, gases, and various other commercial products are shipped by freight trains. Since rail moves over fixed steel tracks, they go behind a fixed path and require the essential infrastructure such as sophisticated signaling structures and railway terminals to finish smoothly. But it is still an economical mode of transport.
- C. Ocean:** It is predictable that sea or ocean shipment accounts for the movement of 80% of the world's goods. They largely transport through boats, barges, vessels, and super tankers which facilitate to move freight through waterways and oceans, among the world's best ports. Containerization invention, advances in vessel building, and consistent accesses of packaging and packing namely boxes, barrels, pallets, etc. is considered as another revolution towards the ocean transport industry. Ocean freight is extremely cost effective and has access to carrying the bulk cargo and heavy consignments over a vast distance.



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D. Air: Air transport is certainly the quickest mode of transport when it comes to moving passengers or goods over a long distance. But here, the infrastructure charges are high and so the charges to passengers or transport of goods are also obviously high. It is, however, an easy and fast mode for the transport of passengers. Cargoes such as Perishable, high-value, or time-bound distribution of cargo that require to be shipped over a long distance are finest moved by air transport. The temperature-controlled store houses at airports and innovations in packaging by using special packing materials would facilitate keeping such products fresh without decline in quality. The utilization of dry ice in packing assists to control the freshness of perishable goods or the excellence of temperature-sensitive cargoes during their waiting period. Dry ice which is a solid carbon dioxide (CO₂) has a temperature of -78.5 °C.

In India, multimodal transport is regulated under the Multimodal Transportation of Goods Act of 1993 (MMTG). The Director General of Shipping (DGS) in support with the Ministry of Road Transport and Highways (MORTH) assists in framing the rules and stipulations in connection to the multimodal transport of the nation and in regulating them.



INTEXT QUESTIONS 11.6

1. MTO is generally an _____ in his field of trade.
2. DGS stands for _____.
3. The utilization of _____ in packing assists to control the freshness of perishable goods
4. It is predictable that _____ shipment accounts for the movement of 80% of the world's goods.

11.7 MULTIMODAL TRANSPORTATION CHALLENGES IN INDIA

Let's have a glance on what challenges multimodal and intermodal transportation possess and what sort of remedies exporters and shipping companies revert to.

11.7.1 Road movement challenges

- Inadequate infrastructure and quality of roads
- Last mile distribution, pricing per ton varies very much, based on the accessibility to a metropolitan



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- Lack of training between Indian drivers and insufficient real time visibility
- Intra-state taxes augment the charges of transportation
- At present typically unorganized players (9:1 ratio)
- High CO₂ emissions per tonne-km

A. Opportunities:

1. Level of GST to eliminate inter-state taxes, so 4PL firms may set up store houses based on savings from decreased transportation charges.
2. Innovation of multi-modal logistics parks.
3. Utilization of GPS and information analytics for optimized path analysis
4. Generating the fleet exchanges similar to Stock or Commodity Exchange to unite together shipping customers and transport manufacturers for the mostly unorganized transport.
5. Uniting together the unorganized players such as Trailer Porter, Trailer Mandi, Lets shipment)
6. Use of high load tonnage trailers for better effectiveness.

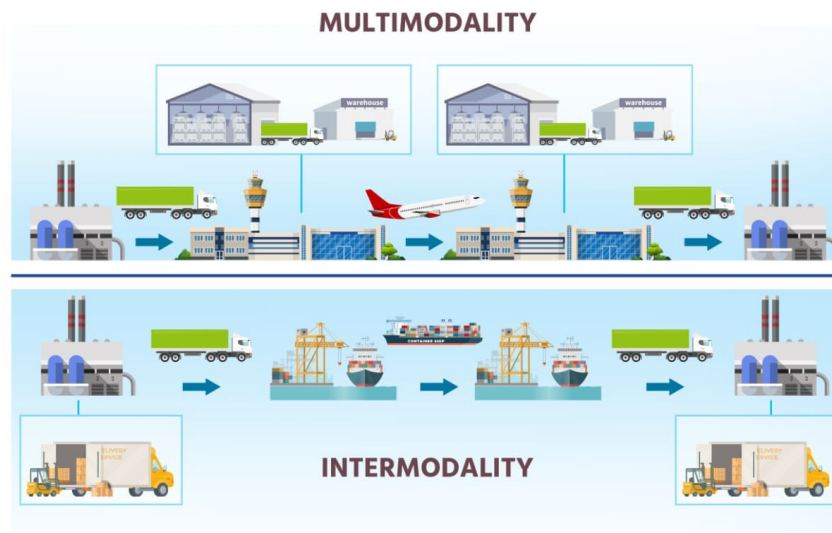


Fig. 11.5: Road movement challenges

11.7.2 Rail shipment challenges

- At present average velocity is a meager 25 kmph, although cargo trains can move speeds up to 160 kmph



- Overused
- 7 extensive haul corridors
- 27% of system but 50% of the traffic

A. Opportunities :

1. Generating of committed freight corridors
2. Scheduled shipment trains
3. Covers the Eastern Corridor: From Ludhiana towards Punjab to Dankuni adjacent to Kolkata (1839 Kms) and the Western Corridor from Jawaharlal Nehru Port (JNPT) in Maharashtra towards Tuglakabad as well as Dadri adjacent to Delhi 1499 km.
4. Three proposal towards development of East to West, North to South and East Coast.
5. Charge freight possible to go down from 1 rupee/NTKM(Net tonne km) towards 0.18-0.53 Rupee/NTKM

11.7.3 Air transport challenges

- Much high cost per ton of commodities transported
- Last mile link is not achieved
- Lesser entry in Tier-2 and Tier-3 cities

A. Opportunities: 1.1500 crores allocated by government for 200 economical airports in Tier-2 and Tier-3 cities. Decrease in Dwell time for air consignment.2.Develop government policies. 3.Develop of ecological field airports. 4.Progress of infrastructure for movement of perishable goods, till last mile.

11.7.4 Ocean Transport Challenges

- Short of last mile linkage and incorporation with other parts.
- There is ineffectiveness in berthing and delays in stuffing and de-stuffing. i.e. high turnaround time of ships
- There are delays in harmonization among seaports and the Customs officials
- There is poor hinterland linkage and poor sea port and surface side infrastructure and old equipment.
- Navigation mode of constraints does not permit bigger ships to be berthed.



Opportunities: 1. Growth of mega-ports. 2. Improve capability utilization especially for sea ports which are potentially limited by the hinterland. 3. Improving the sea port infrastructure by focusing on upgrading the ocean side and surface side infrastructure 4. Improvement of an incorporated structure for inland waterways that also is linked to the roads as well as railways for last mile distribution 5. Acceptable numerous ships to handle bulk as well as container cargo. 6. The initiative of Sagarmala that focuses on port development will be an immense move and will harmonize the Golden Quadrilateral venture. 7. Containerization to assist to bring down the handling charges and enhance the multi modal shipment.

11.7.5 Warehousing challenges

- Problems in land acquisition owing to huge capital.
- Low stage of customization in the store houses.
- Insufficient operational employees that handle the store house.
- State of cold warehouses in India is not of high-quality.
- Shortage of IT enablement to make executions sufficient in warehouses.
- Maximum Utilization of store houses.

A. Opportunities : 1. Execution of GST: The landscape of fragmented which is existing, unorganized little go-downs will probably undergo important reorganization. 2. Improvement of new warehouse and networks: The urgency of next-generation warehouse mode such as a) multi- modal logistics parks (MMLPs) b) mega food parks (MFPs) and c) FTWZs must be allied with the improvement of main infrastructure ventures connected to port, highway, and rail ventures. 3. Services connected to value added to be offered with store houses like cross docking, quality verification and repackaging. 4. Improvement of free trade store housing zones. 5. Improve the operations in the areas of Elevated Transfer Vehicle (ETV) or else the Automatic warehouse and retrieval system (ASRS) at the relevant terminals.

11.7.6 Other challenges with remedies

A. Extreme paperwork: Even though the intermodal as well as the multimodal improvements are definite in terms of the numerous agreements one has to hassle with, multimodal transport can still be troublesome in connection to paperwork. For example, you've settled on a carrier company that handles multimodal transport for you. As a firm spends more and more time towards each paper invoice, the total



shipping charges keep growing. This is an indication for the shipping and logistics segment to go paperless.

a. Challenge: These paper invoices are required for specific services individually.

b. Solution: The paperless distribution management structures can support a firm in creation of e-sign and photo proof of distribution.

B. Deprived tracking & coordination: In vast-haul freight, tracking a single consignment can desire a mixture of resources even when shipping boils down to one exporter and one carrier. Even the inland improvement can be tricky to scrutinize, such as the air consignment and port-to-port Ocean transports.

a. Challenge: Shortage of tracking system and the requirement of constant updates.

b. Solution: Track and trace and automatic transport notifications.

C. Distribution chain disruptions: During the year 2021, no exporter is immune to distribution chain disruptions. The pandemic has created several challenges to both intermodal as well as multimodal transport structures, and the shipping industry is still taking a drive to this day. Especially with specific modes of transport concerned, exporters require to have security that in realism requires being prepared for distribution chain disruptions and having specific intermodal and multimodal remedies as alternatives.

a. Challenge: Security concerns, disrupted service, and inflated transport cost.

b. Solution: Improvement in safety division like contact of less distribution

D. Recap: Every exporter requires knowing their merits when it arrives at intermodal and multimodal shipment. To ship commodities over long distances, a mixture of parts of shipment will be concerned anyway. The exporter should know whether to move with a single agreement service or move towards the intermodal way.



INTEXT QUESTIONS 11.7

1. The next-generation warehouse mode is _____ logistics parks.
2. _____ bring down the handling charges and enhance the multi modal shipment.
3. The initiative of _____ that focuses on port development will be an immense move and will harmonize the Golden Quadrilateral venture.
4. The _____ distribution management structures can support a firm in creation of e-sign and photo proof of distribution.



Notes



WHAT YOU HAVE LEARNT

- Multimodal transport is a mode of transport which it involves more than one form of transportation to ship the commodities from the exporter to the importer. Further, it can be a mixture of two or more modes of transport, such as road, train, ocean or air freight.
- Due to the different cargoes availability in many countries, and the tastes and preference of the consumers, a single mode of shipment is sometimes not enough. Constantly, multimodal transportation provides customers and traders to search for a shipping line that helps them select the right transit method for their freight.
- Multimodal Transport is the blend of definite modes of transport, to enhance the development of commodities, i.e. making it quicker and more efficient. When it comes to this form of transportation, there is more than one type of means of shipment that is essential to take the cargoes to their final location, by utilizing the trailers, rail, vessels, airplanes or some other mode of shipment for the delivery.
- Multi-modal shipment refers to where more than one method of transport is utilized in a distribution chain. A multi-modal shipment structure may consist of road, train, sea and air shipment which is a definite location among the network.
- The Multimodal Transportation of Goods Act, 1993 (MMTG) offers for the regulation of Multimodal Transportation of cargoes from any location in India to any destination outside India by comprising two or more type of Transport on the basis of single contact of Multimodal Transport. This act came into existence on 2.4.1993 and it offers the Registration of a person to become a Multimodal Transport operator.
- A multimodal transport operator is a person one who handles the shipment of goods from the manufacturing unit to the port of destination or importer premises by specific modes of transport. The goods that are shipped will commonly move under a single transport agreement or bill of lading.



KEY TERMS

Transport	Multimodal	Intermodal	Combined
Operator	ICD	Supply chain	Warehousing
Document	Cargoes	Goods	Shipment



TERMINAL EXERCISE

1. What is Multimodal transport?
2. Note on Inland Container Depot.
3. What is Supply chain management?
4. Who is a Multimodal transport operator?
5. What is a Combined transport document?
6. Discuss the prospects of multimodal transportation
7. State the benefits of multi-modal transport optimization
8. Explain the standard conditions governing multimodal transport
9. Spotlight the merits of multimodal transport operators
10. Bring out the challenges in warehousing.
11. Explain the role of multimodal transportation in a supply chain
12. Discuss the Multimodal Transportation of Goods Act,
13. Sketch the multimodal transport document in detail
14. Bring out various types of shipment used by Multimodal Transport Operators
15. Spotlight the challenges and opportunities in connection to road movement



ANSWER TO INTEXT QUESTIONS

11.1

- | | |
|-------------------------|------------------------------|
| 1. Multimodal transport | 2. Private Freight Terminals |
| 3. Parliament | 4. Small |

11.2

- | | |
|-----------------|--------------|
| 1. Single | 2. Distances |
| 3. Door to door | 4. Roll off |



Notes



Notes

11.3

- | | |
|-------------|---------------------------------------|
| 1. Combined | 2. Multimodal transportation operator |
| 3. Multiple | 4. Feeder |

11.4

- | | |
|--------------|-----------------------|
| 1. Co -modal | 2. Three |
| 3. Suitable | 4. Distribution chain |

11.5

- | | |
|---------|---------------------------------|
| 1. 1993 | 2. Bill of Lading |
| 3. One | 4. Director General of Shipping |

11.6

- | | |
|--------------|---------------------------------|
| 1. Expertise | 2. Director General of Shipping |
| 3. Dry ice | 4. Ocean |

11.7

- | | |
|----------------|---------------------|
| 1. Multi-modal | 2. Containerization |
| 3. Sagarmala | 4. Paperless |



DO AND LEARN

Learners can undertake their activity work in the areas of different multi modal transportation / warehouse /distribution organizations.