UNIT 2
Multimodal Transport System

2.0 Unit Overview & Description:

- The unit is prepared to provide information about multi modal transport system, its features, advantages as well as different types of intermodal movements. The unit also helps to understand about intermodal relationships, multimodal carriers and international movements.

Knowledge and Skill outcomes:

The Unit is expected to impart the following Knowledge and skill:

- Understanding of multimodal transport system
- Awareness relating to features and advantages of multimodal transport system
- Enables to identify different types of intermodal movements
- Provides Exposure to intermodal relationships
- Understand advantages of multimodal carriers
- Emphasizes the importance of international movements

Resource Material:

1. Satish. C, Ailawadi, Rakesh Singh, "Logistics Management", Prentice Hall of India Pvt. Ltd. 2005.

2. Reji Ismail, "Logistics Management", Excel Books, New Delhi, 2008.

3. S.K. Bhattacharyya, "Logistics Management", S. Chand & Company Ltd., Ram Nagar, New Delhi, Second Edition (2008).

Duration: **Total Hours 20 (Theory 10 hrs. Practical 10 hrs)**

Learning Outcomes:

Unit-II	Multimodal Transport System	Outcomes
2.2	Multimodal Transport System	• Explain the meaning of multimodal transport system
2.3	Features of Multimodal Transport System	• Identifies the features of multimodal transport system
2.4	Advantages of Multimodal Transport System	• List advantages of multimodal transport system
2.5	Types of Intermodal Movements	• Distinguish between various types of intermodal movements
2.6	Intermodal Relationships	• Identify intermodal relationships
2.7	Multimodal Carriers	• Discuss about multimodal carriers
2.8	International Movements	• Explain the importance of international movements

Assessment Plan: (For Teachers)

Unit-1	Topic	Assessment Method	Time Plan	Remarks
2.2	Introduction Multimodal Transport System	Activity Exercise: Question & Answer		
2.3	Features of Multimodal Transport System	Exercise: True/False Statements		
2.4	Advantages of Multimodal Transport System	Exercise: Match the following Activity		
2.5	Types of Intermodal Movements	Exercise: Question & Answer		
2.6	Intermodal Relationships	Exercise: Question & Answer True/False Statements		

2.7	Multimodal Carriers	Exercise: Activity Question & Answer True/False Statements		
2.8	International Movements	Exercise: Question & Answer		

2.1 Introduction:

Transport of passengers or goods is an important aspect which facilitates the free flow of men or goods within the country or between the countries. The transport system can be considered as segmented (un–integrated) and multimodal (integrated). In segmented transport system, the consigner i.e., shipper has to contact different operators for his transport requirements. Thus, the consigner has to undergo multiple documentations with different operators, so as to transport the same consignment from the origin to the destination. The system also causes delay in transport and handling damages at various modes of transport. Thus, segmented transport system involves many formalities and more costs at different modes of transport. Against, the drawbacks of segmented transport system, multimodal transport system came into existence. Though, multimodal transport system deals with transport of passengers or goods, in the present lesson, multimodal transport system is discussed from the point of view of freight i.e., transport of goods or consignments.

2.2 Multimodal Transport system:

Multimodal transport system is an international through-transport combination with various combinations of modes. The modes may be related to transport vehicles or service operators. The modes of transport may be such as ship, rail, truck, aero plane, car, tram etc. The service modes may be such as public/private operating agencies. Thus, multimodal transport system relates to a single trip consisting of combination of modes between which the consignment has to make a transfer. The transportation of consignment from the origin i.e., shipper's door to the destination i.e., consignee's door will be taken up by a single contract. The Contractor manages and co-ordinates the total task and ensures responsibility for safe custody of consignment. The system also ensures continuous movement of the goods along the best route by the most efficient and cost-effective means. The system also involves simplified documentation. Further, the term 'Intermodal transport' is also used synonymously with 'multimodal transport' and thus, used in the context of movement of goods from origin to destination. These two terms have very similar meanings, i.e. the transportation of goods by more than one mode of transport and a through freight rate.

Figure 2.1 display multimodal transport system with several modes of transport.

Thus, a consignment stocked at warehouse say H carried manually by walk to truck located at A. The same is loaded on a truck and reaches airport say B. The consignment will be shifted in to flight at B and reaches airport C. On arrival at C, it will be transferred in to truck and reaches railway station D.

Thereafter, the consignment will be moved to E by train. Having unloaded at E, it reaches the destination F through manual carrying.

Figure 2.2 display multimodal transport with different agencies. Thus, the consignment is booked through private truck from A to B, thereafter moved through flight from B to C. At C, the consignment is moved on private truck to D and finally, it travelled through D to E on train.

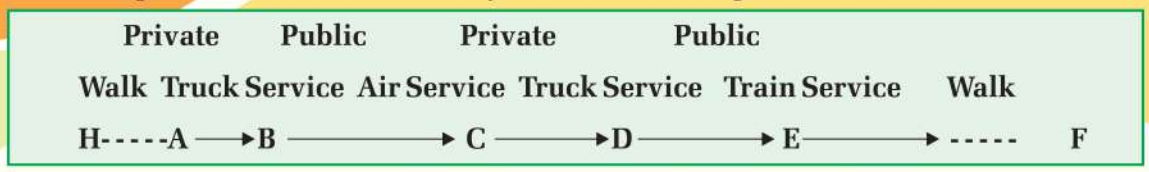

Figure 2.2: Multi Modal Transport Trip

Exercise:

1. **Activity:** Go to main road and observe the transport carriers. Take few photo snaps of transport carriers. Visit railway station and observe the transport wagons and take few photo snaps. Visit transport office in your town/city and discuss with transport operators for better understanding. Also identify the effectiveness of segmented and multimodal transport systems. Show the photo snaps in the class and then discuss the advantages and disadvantages of the two systems.
2. Distinguish between segmented and multimodal transport system.
3. Examine the need for multimodal transport system.

2.3 Features of Multimodal Transport System:

The following are some important characteristics of multimodal transport system.

1. Consignment or goods pass through more than one transport system.
2. Consignment or goods in international trade pass through more than one carrier.
3. Single operator or contractor completes the entire transportation of consignment.
4. Ensures responsibility for safe custody of consignment.
5. It involves simple documentation.

Exercise:

From the following statements, identify the TRUE/FALSE

1. In multimodal transport system, consignments pass through only one transport system.
2. In multimodal transport system, consignments pass through more than one carrier.
3. Many operators operate in multimodal transport system.
4. Multimodal transport system lacks safe custody of goods.
5. Multimodal transportation system involves multiple documentation.

2.4 Advantages of Multimodal Transport System:

The following are advantages of multimodal transport system.

1. **Minimizes Time Loss:** As multimodal transport system is planned and coordinated as a single operation, it minimises the loss of time and the risk of loss and damage to consignment or goods at trans-shipment points.
2. **Ensures Smooth and Safe Transport:** Multimodal transport operator not only maintains his own communication links, but also coordinates interchange and onward carriage smoothly at different trans-shipment points.
3. **Provides Faster Transport Service:** Multimodal transport system provides faster transport of goods. It reduces the disadvantages of distance from markets and the tying-up of capital.
4. **Saves Transport Costs:** Multimodal transport system helps in the reduction of transport costs as single operator completes the entire job of transhipment of goods. Further, the system also helps in the reduction of cargo insurance costs.
5. **Improves International Price Competitiveness:** As multimodal transport system helps in the reduction of transport costs, it will in turn result in reduced export costs and thereby improves international price competitiveness.
6. **Reduces Burden of Documentation and Formalities:** In case of traditional transport system i.e., segmented transport system there arises multiple documentation and other formalities at various stages. However, multimodal transport system reduces the burden of multiple documentation and other formalities as single operator completes the entire job of transshipment of goods.
7. **Establishes Unique Agency to deal with:** Unlike segmented transport system, multimodal transport system establishes unique agency to deal with the entire job of transportation. Thus, the consigner deals with only one operator relating to transport, insurance, loss and damage of goods.

Exercise:

1. Match the following left hand side words with appropriate words from right hand side

a.	Multimodal Transportation	1.	Multimodal transportation
b.	Reduced export costs	2.	Involves multiple documentation
c.	Segmented transport system	3.	Multimodal transportation
d.	Reduced cargo insurance	4.	Planned and coordinated single operation
e.	Faster transport of goods	5.	Improves international competitiveness

Activity: Discuss the advantages of multimodal transport system. How it differs from segmented transport system.

2.5 Types of Intermodal Movements:

Intermodal movement of goods or consignments involves the use of two or more modes of

transportation in a closely linked network for the continuous movement of goods. The following are different types of intermodal freight movements.

1. **Sea-Truck:** This intermodal involves the shipment of goods in containers, which are transported on trucks to (from) seaports from (to) their points of origin (destination) for international exports (imports).

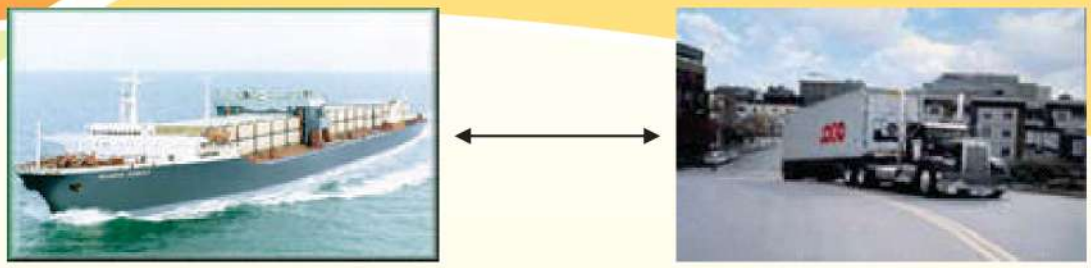

Figure: 2.3 Sea – Truck/Truck – Sea Intermodal

2. **Sea-Rail:** It involves the shipment of goods in containers on oceangoing vessels which are transported by rail on the surface leg line-haul movement. The modal transfer process for the exchange of containers between containerships and railroad flat cars depends on the location of intermodal rail yards.

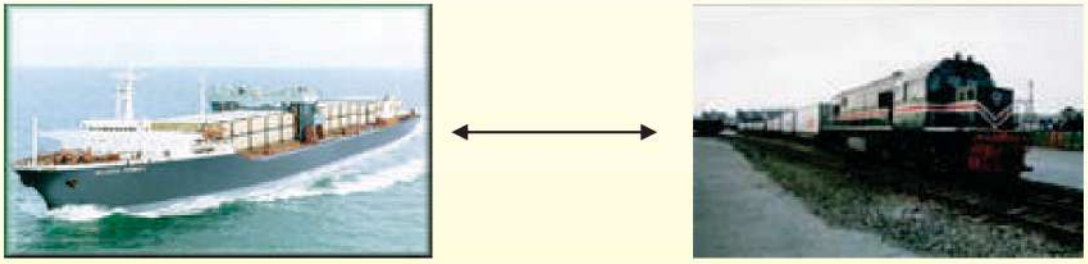

Figure: 2.4 Sea – Rail/Rail – Sea Intermodal

3. **Truck-Rail:** This intermodal involves the shipment of trailers on railroad flatcars, the trailers being transported by trucks between points of origin and destination and intermodal ramps.

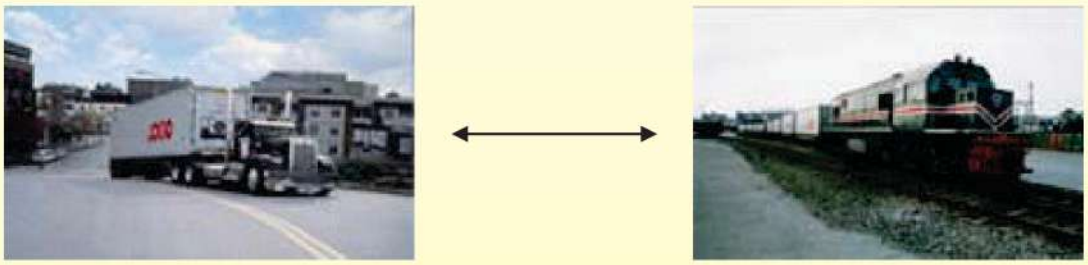

Figure: 2.5 Truck - Rail/ Rail -Truck Intermodal

4. **Air-Truck:** This intermodal involves the movement of goods in air freight containers, which are carried on trucks to/from air cargo terminals from/to their points of origin and destination.

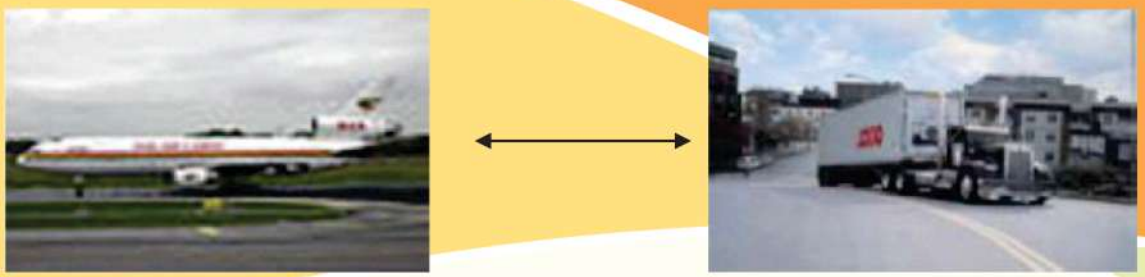

Figure: 2.6 Air – Truck/Truck – Air Intermodal

5. Barge-Truck: This intermodal involves the movement of goods in containers or trailers on barges that are transported on trucks for the surface leg of the shipment. Roll-on/roll-off barge transport is an example of barge-truck intermodal movement, in which wheeled containers or trailers are transported on barges, which are loaded and unloaded by the means of ramps, without the use of cranes.

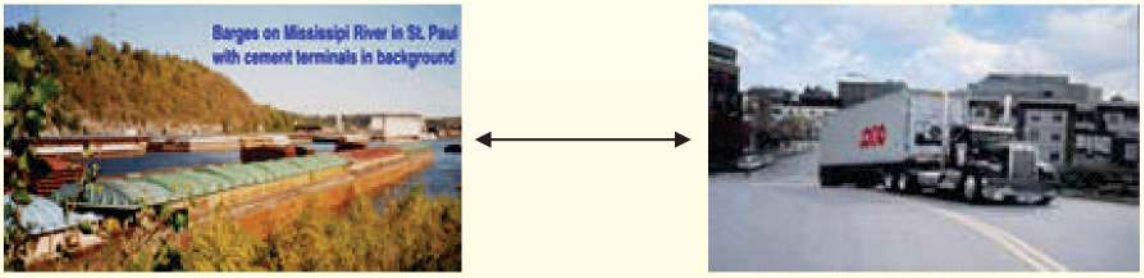

Figure: 2.7 Barge – Truck/Truck –Barge Intermodal

Exercise:

1. Discuss various types of intermodal freight movements

2.6 Intermodal relationships:

Intermodal transport system considers not only various modes of transport, but also involves different operators. All this has become essential, so as to gain competitiveness and to fulfil consignees requirements on costs and quality of the transports. Moreover, the intermodal transport system also calls for sharing of information systems. Thus, intermodal transport system is said to be an integrated system of transport operations, so as to create an efficient and responsive transport service throughout the international transport chain. There exists interrelationship between five parties which affect the transportation system. They are

1. The Shipper (Sending party or originating party)
2. The Consignee (Receiving party or Destination party)
3. The Carrier
4. The Government
5. The Public

There exists interrelationship among the above parties based on their role, perspectives and ownership aspects. The role and perspectives of each party can be outlined as follows:

Shippers and Consignees: The main objective is to transport the goods from origin to desired destination at least possible cost in a specified time limit.

The transportation service is expected to fulfil the characteristics such as (a) No loss or damage of goods, (b) Correct invoicing (c) Predictable transit time (d) Specified pickup and delivery times and (e) Accurate transit information.

Carriers: The important objective is to maximise revenue by minimising costs. The carrier tries to charge the maximum possible rate acceptable to shipper or consignee by minimising the operational costs such as labour, fuel and other incidental charges.

In order to achieve the said objectives, the carrier requires flexibility in pickup and delivery time, so as to consolidate the individual transport needs into bulk economic transport means.

Government: The government contemplates to have a stable and efficient transport system, so as to achieve rapid economic growth.

The government desires to have an efficient transport system, so as to ensure the availability of various goods at reasonable price.

The government affects the transport sector through regulation and promotion. Regulation can be done through controls, while promotion is possible through incentives.

Public: Public are more concerned with transport accessibility, efficiency, costs, pollution and safety measures.

Development of transport system to a large extent depends on demand for goods arising from public.

Though minimizing transport cost is important goal to consumers, yet trade – off associated with environmental and safety standards also require due consideration.

The above interrelationships can be shown diagrammatically (Figure 2.8)

The intermodal relationships are said to be complex, in view of interaction between the parties. It leads to often conflicts between parties with micro interests namely shippers, consignees and carriers as well as with a macro interest parties namely government and the public. Finally, conflicts have led to duplication, regulation and restriction of transport services.

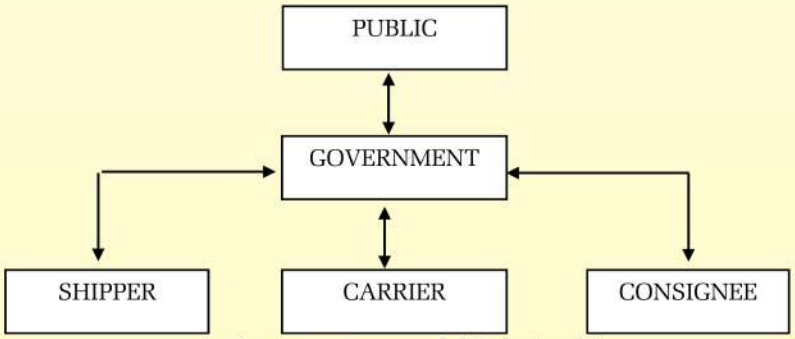

Figure: 2.8 Intermodal Relationships

Exercise:

1. Describe the intermodal relationships involved in transportation.
2. From the following statements, identify the TRUE/FALSE
   (a) Intermodal transport system does not consider cost and quality of goods.
   (b) Intermodal transport system involves only single operator.
   (c) Intermodal transport system provides accurate transit information.
   (d) Intermodal transport system maximises costs and minimises revenue.
   (e) Stable and efficient transport system helps achieve rapid economic growth.
   (f) Intermodal relationships are very simple.

2.7 Multimodal Carriers:

There are six basic modes of transport carriers namely rail, motor, water, pipeline air and rope ways. The relative importance of each mode depends on certain criteria such as system mileage, traffic volume, revenue and the nature of traffic composition. Let us understand about each mode of transport.

2.7.1 Rail (Carriers) Network:

Rail network is the largest mode of transport throughout the world. In many countries rail network is well established through connecting major cities and towns. Moreover, heavy industries are traditionally linked with rail transport systems. Containerization has improved the flexibility of rail transport by linking it with road and maritime modes. As a result, rail network has emerged as major mode of freight transport. Hence, rail network enjoyed the monopolistic position through transport of large shipments economically and frequent services. Thus, rail network used to derive huge revenue on account of efficient handling of large tonnage over long distances. However, railways incur high amount of fixed costs on account of construction of railway track, switching yards and terminals. At the same time, railways experiences low variable operating costs. Moreover, replacement of steam engines by diesel and in turn electrification by diesel also helped in the reduction of variable cost per ton – mile. However, after World War – II motor carriers emerged as competitors to railways and eroded both the tonnage and revenue.

Figure: 2.9 Pictures of Rail Freight Carriers

Railway freight structure in India depends on various factors such as 'Ability to Pay Principle', speed, distance, liability of risk, frequency of service, type of wagon.

1. According to 'Ability to Principle', the commodity carried should be able to bear the transportation costs. For example, transportation cost of common consumption goods such as food grains, coal etc., will be low compared to transportation of industrial goods such as plant and machinery and finished products.
2. Transport cost also includes premium relating to speed. Freight through faster trainscost relatively more than that of carried by slow trains.
3. Transport cost also depends on distance. The longer the distance, the greater will be charges of freight.
4. Transportation cost also includes the premium relating to liability of risk.
5. The lesser the frequency of trains in a specific route, the greater will be the demand for wagons and thus attracts more costs.
6. Transport cost also depends on the types of wagons such as flat, closed, refrigerated etc.

Advantages:

The advantages of rail transport are (1) Economy, (2) Reliability (3) Efficiency of Energy

1. Railway freight charges are relatively low compared to other modes of transport, particularly for transportation of goods at bulk over long distances.
2. Rail transport is highly reliable as it is independent of weather conditions.
3. Rail transport is energy efficient compared motor transport.

Disadvantages:

1. Rail transport is uneconomical in case of small shipments and for short distances.
2. Terminal handling costs are high and also such handling facilities may not available at certain terminals.
3. Time schedules are not flexible.

2.7.2 Motor Carriers:

After World War – II, high ways were developed in many countries connecting not only cities and towns but also villages. Further, door to door operating flexibility available with motor carriers is said to be major advantage of motor carriers compared to rail transport. Moreover, motor carriers have the advantage of operating on not only high ways but also on all types of roadways. Terminal handling costs are relatively low in case of motor transport as compared to railway transport. However, variable cost per kilometer for motor carrier is high as separate driver and cleaner is required for each carrier. India has the largest road network in the world with more than 3 million kilometers. National Highways with nearly 58 thousand kilometers in the country cater to the extent of 45 per cent road freight demand. However, the quality of roads is not good enough to meet the demand for efficient and quick movement of freight.

Figure: 2. 10 Pictures of Motor Freight Carriers

Advantages:

1. Time schedules are highly flexible as one can arrange one's own schedule.
2. Capital costs are relatively less, so that private fleet can be established.
3. Motor carriers are best suited to handle small shipments and for short distances.
4. Motors carriers avoid the excessive handling charges and theft of goods as it is quite often possible to transport goods from the origin (consigner) to destination (consignee) directly.

Disadvantages:

1. Not suitable to transport bulky loads and for long distances.
2. Transport through motor carriers may be much affected by road conditions and weather conditions.

2.7.3 Water Transport:

Water transport is the oldest mode of transport. Water transport is generally classified into three types namely inland water ways (rivers, canals, big lakes), domestic coast ways and sea ways. Water transport is more suitable for mass movement of bulk shipments and low value commodities. It is because, water transport cost per tonne per kilometre is very much low. Thus, water transport is preferred to reduce the costs when speed of delivery is not important. Water transport is used to transport bulk wood, iron ore, coal, chemicals, petroleum products etc. Fixed costs relating to water transport are relatively less compared to rail network, but relatively when compared to motor carriers. Some important inland water ways are (1) Ganga and Brahmaputra rivers and their tributaries, (2) Godavari and Krishna rivers and their canals, (3) Back waters and canals in Kerala and (4) Buckingham canals in Andhra Pradesh and Tamilnadu.


Figure: 2.11 Pictures of Water Freight Carriers

Advantages:

1. Suitable for mass movement of bulk shipments.
2. Transport cost per tonne per kilometre is very much low.

Disadvantages:

1. Not suitable for quick transport of goods.
2. If the origin and destination of movement are away from water way, it needs more handing charges and also requires supplementing with rail or motor trucks.

2.7.4 Air Transport:

It is the new mode of transport, which can be serves the purpose of speedy and urgent transport of shipments. However, air transport freight charges are very much expensive. The fixed cost of air transport is relatively low when compared to rail and water transport modes. However, Air transport fixed costs are relatively high compared to motor carriers. Air transport variables costs are extremely high on account fuels, maintenance and labour requirements. Airways and airports are generally developed and maintained with public funds. Air freighting is used, where the benefits of fast delivery out weight the higher transport costs. Generally, perishables such as strawberries and cherries may be air lifted to distant markets. Similarly, emergency products such as lifesaving drugs and live animals are air lifted to save human and animal lives.

Advantages:

1. It is quick movement mode of transport.
2. Broad service range.

Figure: 2.12 Pictures of Air Freight Carriers

Disadvantages:

1. Freight costs are high.
2. Air traffic is affected by flight schedules

2.7.5 Pipeline Movement:

Pipelines are ideal means of transporting liquids and gasses over long distances. However, pipelines are also being used to transport solids such as coal, iron ore, copper etc.

Pipelines can be operated throughout the 24 hours and seven days per week without any interruption. The basic advantage of pipeline transport is, there arises no need of returning the empty carrier/vehicle. Pipeline incurs higher fixed costs for the purpose of right – of way, construction, requirements of control stations and pumping capacity. However, variable operating costs are extremely low on account of low amount of labour requirement.

Advantages:

1. Transportation costs are least for large volume over long distances.
2. Ensures safe transport of inflammables.
3. No need of returning empty container.
4. Transportation loss of petroleum products is least compared to other modes.
5. Pipeline transportation is eco-friendly compared to other modes.

Disadvantages:

1. Fixed costs of pipeline are very high.
2. Pipelines are not flexible i.e., they are useful to transport only certain products.

Figure: 2.13 Pictures of Pipelines

2.7.6 Rope Ways:

Rope ways are ideal means of transport to reach from one place to another with a large differential of altitude. A ropeway is a system for transporting materials and/or passengers in carriers suspended from or controlled by ropes. The rope way reduces the distance between two attitudes through the horizontal path. Rope way can transport bulk materials over short distances. Rope way is more useful means of transport in case of hilly and otherwise inaccessible areas. Rope ways are suitable to transport coal, iron ore, limestone etc., in the vicinity of mining areas, steel plant locations and thermal power stations. However, construction cost of rope ways very high.

Figure: 2.14 Pictures of Ropeways

Advantages:

1. Rope ways are useful means of transport in case of hilly and other inaccessible area.
2. Rope way is useful means of transport of bulk materials over short distances.

Disadvantages:

1. Construction of rope way requires massive investment.

I Exercise:

1. Examine advantages and disadvantages of rail network.
2. Explain the advantages of motor carriers compared to rail transport.
3. Point out the merits and demerits of water transport compared to motor carriers and rail transport.
4. Examine the advantages and disadvantages of air transport.
5. What is pipeline movement? Point out the merits and demerits.
6. Explain how rope ways are useful in the transportation of goods.

II Identify TRUE/FALSE from the following statements:

1. Railways experiences high variable operating costs.
2. Replacement of steam engines by electrification helped in the reduction of variable cost per ton – mile.
3. Rail transport is energy efficient compared motor transport.
4. Railway time schedules are flexible.
5. Terminal handling costs are relatively low in case of motor transport when compared to railway transport.
6. Variable cost per kilometer for motor carrier is high.
7. Motor carriers are best suited to handle small shipments and for short distances.
8. Motor carrier time schedules are not flexible.
9. Motor transport not affected by road conditions and weather conditions.
10. Water transport cost per tonne per kilometre is very much low.
11. Water transport is suitable for mass movement of bulk shipments.
12. Water transport is suitable for quick transport of goods.
13. Fixed cost of air transport is relatively low when compared to rail and water transport modes.
14. Air freighting is used, where the benefits of fast delivery out weight the higher transport costs.
15. Perishables may be air lifted to distant markets.
16. Air traffic is not affected by flight schedules.
17. Pipelines are ideal means of transporting liquids and gasses over long distances.
18. Variable operating costs of pipelines are extremely low.

19. Pipeline transportation is eco-friendly compared to other modes.
20. Rope way is useful means of transport of bulk materials over short distances.

Activity:

Discuss about multi modal carriers comparing their costs, advantages and disadvantages.

2.8 International Movements:

The ability to transport goods safely, quickly and cost-efficiently to markets is important for international trade, national distributive trades, and economic development. Needless to emphasize that increased volume of domestic as well foreign trade improves the industry, national income and employment opportunities. Increased incomes and improved employment opportunities in turn not only promote savings and thereby investment, but also pushup the aggregate demand for goods. Thus, trade is identified as engine of economic growth. Hence, transportation sector plays an important role in the promotion of domestic as well as international trade.

As per the available statistics, in 2009, world GDP fell by 2.3%, while in the European Union GDP fell by 4.2%, and in the United States and Russia GDP dropped by 2.4% and 7.9% respectively. As a result, world trade volume dropped by 12%. Thus, the global economic crisis and the collapse of world trade in 2009 had major impact on the transport sector. As a result, world container traffic dropped by 26%, while air freight ton-km fell by 10%. The data also indicate that a 23% reduction in rail T-km and over 21% fall in road T-km in the EU. At the same time, rail data for the United States and Russia reports a decline of nearly 14% and 12% respectively.

Exercise:

1. Examine the importance of international freight movement in economic development of a country.

2.9 Summary:

The transport system can be considered as segmented (un–integrated) and multimodal (integrated). In segmented transport system, the consigner i.e., shipper has to contact different operators for his transport requirements. Thus, the consigner has to undergo multiple documentations with different operators, so as to transport the same consignment from the origin to the destination. However, multimodal transport system relates to a single trip consisting of combination of modes between which the consignment has to make a transfer. The transportation of consignment from the origin i.e., shipper's door to the destination i.e., consignee's door will be taken up by a single contract. The Contractor manages and co-ordinates the total task and ensures responsibility for safe custody of consignment. The system also ensures continuous movement of the goods along the best route by the most efficient and cost-effective means. The system also involves simplified documentation. Some of the important advantages of multimodal transportation are, it minimizes time loss, ensures smooth and safe transport, pprovides faster transport service, saves transport costs, improves international price competitiveness, reduces burden of documentation and formalities

Different types of intermodal freight movements are Sea-Truck,Sea-Rail, Truck-Rail, Air-Truck and Barge-Truck. There exists interrelationship between five parties which affect the transportation system. These are the shipper (sending party or originating party), the consignee (receiving party or destination party), the carrier, the government and the public.There are six basic modes of transport carriers namely rail, highway, water, pipeline, air and rope ways. The relative importance each mode depends on certain criteria such as system mileage, traffic volume, revenue and the nature of traffic composition.

The ability to transport goods safely, quickly and cost-efficiently to markets is important for international trade, national distributive trades, and economic development. Needless to emphasize that increased volume of domestic as well foreign trade improves the industry, national income and employment opportunities. Increased incomes and improved employment opportunities in turn not only promote savings and thereby investment, but also pushup the aggregate demand for goods. Thus, trade is identified as engine of economic growth. Hence, transportation sector plays an important role in the promotion of domestic as well as international trade.

2.10 Test your Understanding

1. Examine the distinction between segmented and multimodal transport system.
2. Explain the features of multimodal transport system.
3. Discuss the advantages of multimodal transport system.
4. Describe various inter modal freight movements.
5. Discuss the intermodal relationships in transport.
6. Compare advantages and disadvantages of rail carriers and motor carriers.
7. Compare advantages and disadvantages of water carriers and motor carriers.
8. Examine the advantages of pipeline transport.
9. Discuss the use of rope ways in freight transportation.
10. Draw a chart of advantages and disadvantages and costs of multimodal carriers.
11. Point out the role of international freight movement in the promotion of economic development.

2.11 Practical:

1. Identify the national level route map of rail network connecting important stations.
2. Identify the national level high ways with distances.
3. Identify the air route map connecting various air ports in India.
4. Identify the important ship ports in India and their distances.
5. Identify some important international freight movement routes of air ports and ship ports.
6. Visit railway station nearest to your town and prepare a note on details of freight movement over first quarter of the preceding year and present year. (Report should contain comparison over the respective quarters considering value of freight in rupee terms and physical terms, onward freight to different stations, freight received from different stations, revenue earned, the type of freight moved, the safety methods in the yard, the staff working in the freight movement etc.)