

CHAPTER 14 TRANSPORTATION

Objectives

After studying this chapter, students should be able to: (i) define transport and mention its modes. (ii) state the advantages and disadvantages of different types of transport. (iii) outline the contribution of transport to development. (iv) state the problems of transport and its solution.

Transport is the movement of people and goods from one place to another for a particular purpose. The demand for transport is a function of the demand in other sectors of the economy-agriculture, trade, industries etc. The provision of efficient transport systems is an important factor in the development of a country. This is because transport makes it possible for people to move from their residences to school, workplaces, markets, recreation centers etc. Human portage and animals such as camels, donkeys and horses were earliest means of transport. Later, railways, vehicles and more recently aeroplane were invented. The mode of transport used in a particular place is determined by several factors such as: (i) Level of technology of the people (ii) Distance to be covered (iii) Topography of the area (iv) Nature of the goods and number of people to be moved (v) Availability of fund for construction and maintenance of transport facilities.

On the basis of the surface on which they travel, transport modes can be classified into three basic types: land – road, rail, and pipelines and wire; water-inland and ocean waterways; and air. Each mode has technical operational and commercial characteristics which confer on it certain comparative advantages.

1. Land Transport

Road transport: This is the oldest mode of transport. It existed in the earlier years as bush paths on which people and animals moved. It is also the most universal form of transport as it is used in developed and less technologically developed areas. Cars, buses, motorcycles, bicycles, trucks and tankers are automobiles used in road transport. Roads can be classified according to their quality, capacity and functions. Expressways have multiple lanes and high vehicle capacity. Transcontinental highways connect countries together such as the road that links Nigeria with Ghana and Republic of Benin.

Advantages of Road Transport

- It is the only mode of transport that provides door to door services.
- Capital cost of vehicle is relatively small, hence it is easy for an individual to own a vehicle.
- It is suitable and cheap for short and medium distance travel.
- It is flexible as it is able to connect several places within a short time.
- It links other modes of transport · It can be constructed on any terrain for example across a river

Disadvantages of Road Transport

- Speed of vehicles may be restricted by other road users e.g. pedestrians · Limited carrying capacity of individual vehicles.
- Vehicles emit gases which pollute the environment · It is prone to accidents.

- It is associated with high traffic congestion and overcrowding · Increase in fuel cost increases the cost of road transport as it is highly dependent on oil consumption.

Railways

Railway is a product of industrial revolution. It is suitable for medium and long distance travel. The locomotives are either powered by steam, diesel or electricity. The speed of the railways is dependent on the width of the railway gauge. This is the distance between the two metal rails on which the wagons run. The standard gauge of 143cm or 1.435m is common and account for 60% of the world railways. It is common in North America and Europe. The fastest railways run on the standard gauge. Broad gauge of 160cm or 1.520m accounts for 17% of the world railways and is suitable for hilly areas where there are sharp bends. Narrow gauge is 107cm in width. There are specialized wagons used for the movement of goods e.g. livestock and petrochemical products. During the colonial periods, railways were used to open remote places with agricultural and mineral resources.

Advantages

- It is suitable for the movement of large number of passengers and heavy goods over long distances.
- No other mode of transport shares the tracks with the railways, hence it has easy access to inner parts of cities.
- Cost of transport is cheap.
- Specialized trains make it possible for specialized or perishable goods e.g. frozen food to be transported over long distances within a short time period.

Disadvantages

- It is not flexible as trains which follow fixed routes.
- It is relatively slower in speed than air transport · It is dependent on road transport for goods and passengers to get to their final destinations.
- Cost of construction and maintenance is high.
- Competition from roads for movement of goods over long distance has affected rail services in some countries especially Nigeria.

Pipelines

A pipeline may be defined as a line or conduit of pipe of variable length and diameter used for carrying a liquid or gas from a point of supply to a point of consumption. Pipelines are laid overground or buried underground and under water. They are used for transporting water, liquefied coal, natural gas, and mineral oil.

Disadvantages

- It is expensive to construct · It is not flexible · Expansion is difficult · It has limited carrying capacity.
- Geographical shifts in production or consumption renders existing pipelines idle.
- Laying of pipelines in areas subject to seismic disturbances like earthquake could be hazardous.
- Leakage of pipes may cause environmental pollution.

2. Water Transport

This is the movement of goods and people on water with the use of canoes, ships and other water-going vessels. Although water ways occurs naturally, however, construction of ports attracts huge fund. Water transport can be classified into two : inland waterways and ocean transport.

a) **Inland waterways:** This involves the movement of goods and people on rivers, lagoons and creeks. It is a very old mode of transport. Before the invention of the automobile and railways, rivers were used to transport logs of wood, goods and passengers along river channels.

Advantages

- It is cheap for the movement of low value goods such as coal, timber and iron ores.
- Rivers provide the only routes in mountain or forest region.
- It provides cheap transport for bulky goods.

Disadvantages

- The volume of water in river fluctuate with the seasons which hampers navigation.
- Some rivers are shallow, hence large vessels cannot move on them.
- The rivers get frozen during winter in temperate regions.
- Dredging of rivers filled with silting is expensive.
- Construction of canals is expensive.
- Rivers have waterfalls and rapids which hinder navigation.
- Some rivers do not flow along areas with high traffic of goods and passengers.
- Presence of water weeds, hinders effective water transport.
- It is slow for the movement of perishable.

Ocean Transport

This involves the movement of people and goods over the sea and oceans using ships, ocean vessels and oil tankers. It is the oldest and cheapest means of moving bulky goods from one country to another. The sea is a free gift of nature; hence do not attract construction cost. However, constructions of ports involve huge investment. There are well defined routes along which ships travel on the seas and oceans called world shipping routes such as the North Atlantic route. Development in ocean transport has led to the use of vessels designed for specific cargoes.

Advantages

- It is the cheapest means of transport between countries.
- It is suitable for the movement of bulky goods over long distance.
- It is safe.
- Ocean and Sea route do not require construction.

Disadvantages

- It causes sea sickness to passengers on board · It is highly subjected to the vagarious of weather and climate.
- It is not flexible.
- Only countries with ports and coastline can use sea and ocean transport.
- It is affected by the problem of technical knowledge in ship maintenance.
- Presence of dangerous aquatic animals such as sharks, whales which impedes its smooth operations.

3. Air transport

Air transport is the fastest and most expensive mode of transport. It is not hindered by any physical obstacle such as mountains, forests and oceans. It can reach remote and inaccessible places. There are two types of air services,

namely, domestic and international flights. Domestic flights may be scheduled or charter flights.

Advantages of Air Transport

- a. It uses direct routes such as great circle routes
- b. It is the fastest mode of transport
- c. It is used effectively in emergencies for distributing relief materials, search and rescue operations.
- d. It is more comfortable than other means of transport
- e. It is suitable for the movement of perishable goods due to its fast nature.
- f. Suitable for the movement of high value goods which are not heavy
- g. Air routes do not require construction and maintenance
- h. Planes can fly over any physical barriers such as mountains, swamps, rivers.
- i. Remote areas can easily be assessed.
- j. It is used for military operations during war.

Disadvantages of Air transport

- 1. Construction of airports is expensive.
- 2. Cost of purchase and maintenance of aircrafts is high.
- 3. Accidents are very fatal.
- 4. Cost of travel is high; hence few people can afford it.
- 5. Its operations are often affected by political considerations such as prohibition of the use of countries airspace, air blockades especially during wars.

Contribution of transport to development

- 1. Movement of people: Transport makes it possible for people to move from one place to another for various activities.
- 2. Movement of good: Transport connects points of production of goods to locations where they are consumed. Similarly, raw materials are moved from their source region to industries where they are processed and utilized.
- 3. Generates employment: transport creates employment for people involved in the construction of roads, rail tracks, airports; manufacturing of vehicles, planes etc, drivers, and administrative staff in the ministry of transport and other parastatals.
- 4. Generates revenue to the Government: Transport is a major source of revenue to the government through registration of vehicles and issuance of documents to transport operators etc.
- 5. Promotes trade: Transport makes it possible for goods to be exchanged from one region to another in a country and across countries.
- 6. Promotes tourism: Places with tourist attraction are made accessible to visitors through the provision of efficient modes of transport.
- 7. Enhances military movement: that is, the movement of military staff during war.
- 8. National integration is achieved when people move from one region to another.
- 9. It promotes the diffusion of innovations and ideas as it encourages movement over long distances which enhance the exchange of ideas.

Problems of Transport

(a) *Problems Associated with Physical Factors*

- 1. Rugged highlands makes the development of roads and railways difficult and expensive.

2. Climatic factors like rainfall washes away roads.
3. Poor visibility caused by fog and harmattan affect air transport.
4. Swampy areas hinder the construction of roads and railways.
5. Rapids and waterfalls hinder river navigation.

(b) Problems Associated with Human Factors

1. Poor management by transport officials and planners.
2. Poor construction of roads, airports and seaports.
3. Inadequate fund.
4. Lack of skilled personnel for the construction of vehicles.
5. Spare parts are expensive and inadequate.
6. Emissions from vehicles pollute the environment.
7. May cause loss of lives during occurrence of accidents.

Solutions to problems of transport

1. Proper training of transport personnel.
2. Monitoring of construction projects to ensure use of good materials.
3. Public-private partnership to ensure efficiency.
4. Collection and creation of data such as number of vehicles, travel pattern, that will enhance the planning and management of transport services.
5. Use of mass transit vehicles will reduce emissions and congestion on roads.

Effects of poor transportation on development

1. Poor transportation hinders the movement of goods from one part of the country to another.
2. It reduces specialization in production since goods cannot be moved from one area to another.
3. It lowers economic development due to lack of linkage between production and consumption centers.
4. It reduces internal trade.
5. It lowers international integration.
6. It hinders diffusion of ideas and innovations.
7. Revenue from transport will be lowered.

Summary

- Transport is the movement of people and goods from one place to the other.
- The mode of transport used in a particular place is determined by factors such as level of technology, distance to be covered, topography of the area, nature of goods and number of people to be moved.
- On the basis of the surface on which they travel, three modes of transport can be identified: land, sea and air transport.
- Transport has contributed to human development through the movement of people and goods, revenue generation to the government, provision of employment, trade promotion, diffusion of innovations and ideas, promotion of tourism, promotes national integration and enhances the movement of military staff during wars.
- Problems affecting transport include rugged topography, climatic factors (rainfall), poor visibility, rapids and waterfalls along river courses, inadequate funding, inadequate spare parts, inadequate skilled manpower and environmental pollution.

Revision Questions

Objective Questions

1. Transport can be defined as the involvement of A. people and goods B. industries C. buildings D. markets 2.

Which of the following is the oldest mode of transport?

A. hand portage B. railways C. air transport D. pipelines 3. The major advantages of road transport over

other modes is its A. low cost B. speed C. ability to carry bulky goods D. flexibility 4. The use of water transport

is limited by all the following except A. wide valleys B. waterfalls C. floating vegetation D. narrow gauges 5.

Which mode of transport is most suitable for international trade?

A. Road B. Ocean transport C. Air transport D. Railways 6. The term gauge in railway transport refers to the

A. weight of vehicle that the rails can bear B. amount of rainfall experienced C. distance between the two rails in

a track D. length of the rails in a country 7. Which of these modes is most suitable to the movement of

petroleum?

A. Railways B. Pipelines C. Ship D. Tankers 8. The standard railway gauge is A. 134cm B. 143cm C. 150cm

D. 153cm 9. Which of these countries has the densest road network?

A. Nigeria B. Ghana C. United States of America D. Brazil 10. One relative advantage of water transportation

over road transport is its A. capacity for passenger traffic only B. ability to link all parts of any country C.

suitability for bulky and heavy cargo D. great speed over long distances.

Answers

1. A 2. A 3. D 4. D 5. B 6. C 7. B 8. B 9. A 10. C

Essay Questions

1. With the aid of specific examples, describe the use of road transportation in the promotion of national integration in your country. (SSCE 1989) 2. Show the similarities and differences between road and railway as major means of transportation. (SSCE 1990) 3. In what ways can transportation contribute to the economic development of a country SSCE 1991

4. State the problems of railway transport in African countries.

5. Highlight the advantages and disadvantages of: (a) Road (b) Railways (c) inland waterways