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Introduction to Transport and Communication

In our daily lives, we use various goods and services, some available locally and others brought from distant places. The movement of these requires transport. Traders facilitate this movement, making products accessible to consumers. The pace of a country's development depends on the availability of goods and services. Therefore, efficient means of transport are essential for rapid development.

Transport occurs over three main domains of the earth: land, water, and air. Accordingly, transport is classified into land transport, water transport, and air transport. Land transport is used to move goods and services to small areas, but advances in science and technology have expanded their reach globally. Today, the world is interconnected like a large network, which complements each other.

India, despite its vast size and diversity, is well connected with the world through railways, airways, waterways, newspapers, radio, television, and the internet. This connectivity has accelerated India's socio-economic progress. Trade at local, national, and international levels adds vitality to the economy and improves amenities and services.

This chapter explores how modern means of transport and communication serve as lifelines of the nation and its economy. A dense and efficient network of transport and communication facilitates trade at all levels today.

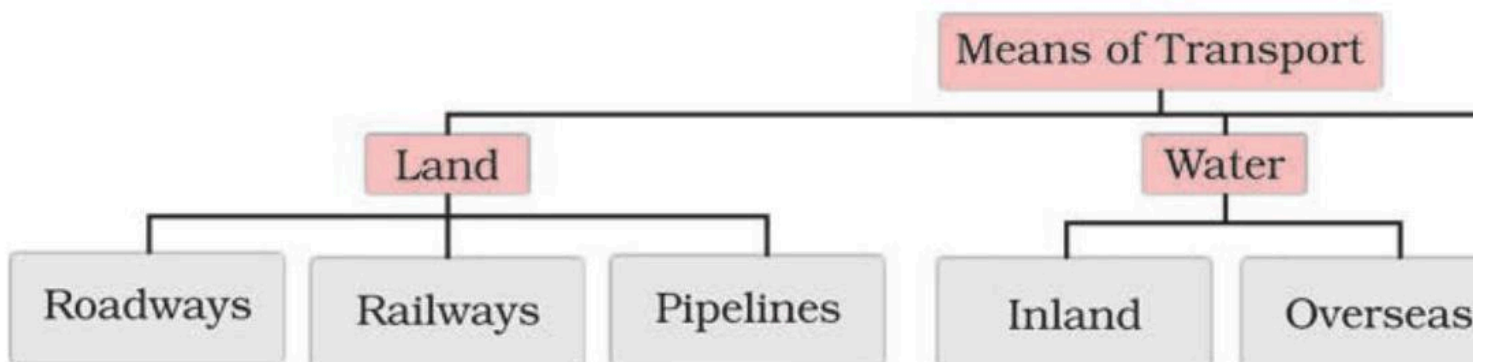


Fig. 7.1

The above chart classifies means of transport into three main categories: Land, Water, and Air transport. Land transport includes roadways, inland waterways, and air transport. Air transport includes domestic airways, public undertaking airlines, private airlines, and international airways.

Land Transport

Roadways

India has the second largest road network in the world, totaling about 62.16 lakh kilometers (2020–21). Roadways preceded railways in India and have been a major mode of transport. Roads can traverse difficult terrains, negotiate higher slopes, and provide economical transport for small groups and goods or act as feeders to other transport modes like railways, airways, and seaports.

Roads in India are classified into six categories based on capacity:

- **Golden Quadrilateral Super Highways:** A major project linking Delhi, Kolkata, Chennai, Mumbai, and back to Delhi with six-lane highways in all parts of the country, aiming to reduce travel time between major cities.
- **National Highways:** Primary roads linking extreme parts of the country, running mainly in North–South and East–West directions.
- **State Highways:** Roads connecting state capitals with district headquarters.
- **District Roads:** Roads connecting district headquarters with other places within the district.
- **Other Roads:** Rural roads linking villages with towns, developed under schemes like Pradhan Mantri Grameen Sadak Yojana.
- **Border Roads:** Constructed and maintained by the Border Roads Organisation (BRO) in strategic border areas, improving accessibility.

Fig.7.2: Ahmedabad–Vadodara Expressway





This expressway features divided carriageways separated by a median strip with greenery and streetlights, enhancing safety and visibility. T entry and exit. Such highways are designed considering speed, stopping distance, friction, and lighting to ensure safe and efficient travel.

Activity: Collect information on National Highway numbers (old and new) from the Ministry of Road Transport and Highways website. Identify the Suri Marg between Delhi and Amritsar.

Railways

Railways are the principal mode of transportation for freight and passengers in India, enabling business, tourism, and pilgrimage. Indian Railways play a vital role in the economic life of the country and accelerating industrial and agricultural development. The network is divided into 16 zones.

The first train in India ran from Mumbai to Thane in 1853, covering 34 km.

Activity: Find out the current Railway zones and their headquarters. Locate these headquarters on the map of India.

The railway network distribution is influenced by physiographic, economic, and administrative factors. The northern plains provide favorable conditions for railway development, while the hilly regions pose challenges. The Konkan Railway along the west coast has improved connectivity in an important economic region despite facing geographical constraints.

Table 7.1: India Railway Track Length by Gauge

Gauge in metres	
Broad Gauge (1.676)	
Metre Gauge (1.000)	
Narrow Gauge (0.762 and 0.610)	
Total	

The broad gauge (1.676 m) accounts for the majority of the network with 63,950 km, followed by metre gauge (1.000 m) with 2,402 km, and narrow gauge (0.762 and 0.610 m) with 1,204 km. The total length of the railway network is approximately 67,956 km.

Pipelines

Pipelines are a relatively new mode of transport in India, used to transport water, crude oil, petroleum products, and natural gas. They connect major oil and gas fields to industrial centers. They have high initial costs but low running costs and reduce trans-shipment losses.

Major pipeline networks include:

- Upper Assam to Kanpur via Guwahati, Barauni, and Allahabad.
- Salaya (Gujarat) to Jalandhar (Punjab) via Viramgam, Mathura, Delhi, and Sonapat.
- Hazira-Vijaipur-Jagdshpur (HVJ) gas pipeline linking Mumbai High and Bassein gas fields with industrial complexes.

Water Transport

India has a rich history of seafaring and water transport, which is the cheapest mode for carrying heavy and bulky goods. Inland waterways navigable by mechanized vessels. The government has declared several National Waterways for development.

Major National Waterways include:

- The Ganga river between Allahabad and Haldia (1620 km)
- The Brahmaputra river between Sadiya and Dhubri (891 km)
- West-Coast Canal in Kerala (205 km)
- Specified stretches of Godavari, Krishna, and East Coast Canal (1078 km)
- Specified stretches of Brahmani, Mahanadi, and East Coast Canal (588 km)

Other important inland waterways include Mandavi, Zuari, Sunderbans, Barak, and Kerala backwaters.

India's foreign trade is predominantly carried by sea, with 95% of trade volume moved through ports along the 7,516.6 km coastline. There are

Major Sea Ports

Key ports include Kandla (Deendayal Port), Mumbai, Jawaharlal Nehru Port, Marmagao (Goa), New Mangalore, Kochchi, Tuticorin, Chennai, and Visakhapatnam. These ports handle the majority of India's foreign trade and are strategically located to serve various hinterlands.

Fig. 7.6: Trucks being driven into the vessel at Mumbai port



This image shows trucks driving onto a cargo ship via a ramp, illustrating intermodal transport where road and sea transport are combined

Fig. 7.7: Tanker discharging crude oil at New Mangalore port



The image depicts an oil tanker leaking oil into the water, causing marine pollution. Oil floats on water due to its lower density, harming aquatic life and ecosystems. It is essential to protect marine environments.

Fig. 7.8: Handling of oversize cargo at Tuticorin port



This image shows a crane lifting an underwater vehicle onto a ship, demonstrating marine engineering operations and the role of buoyancy

Air Transport

Air travel is the fastest, most comfortable, and prestigious mode of transport, capable of covering difficult terrains such as mountains, deser

Fig. 7.9: Helicopter on landing pad



The image shows a small helicopter with ground crew inspecting it. Helicopters use rotating blades to generate lift and can hover and maneuver. They are used for maintenance and engine start without using onboard fuel.

Air travel is especially important in the northeastern states of India due to difficult terrain, dense forests, and frequent floods. Helicopter services are essential in these areas.

Do you know? The UDAN (Ude Desh ka Aam Nagrik) scheme promotes regional air connectivity by making flying affordable and encouraging air travel.

Communication

Communication has evolved rapidly, enabling long-distance interaction without physical movement. Personal and mass communication in India is supported by the largest postal network globally, handling parcels and written communication with various mail channels for efficient delivery.

India has one of the largest telecom networks in Asia, with over two-thirds of villages covered by Subscriber Trunk Dialling (STD) telephone for every village, integrating space and communication technologies.

Mass communication provides entertainment and awareness about national programs through All India Radio, Doordarshan, newspapers, and magazines in various languages, with Hindi, English, and Urdu being the most common. India is also the largest producer of feature films globally.

International Trade

Trade is the exchange of goods among people, states, and countries. International trade occurs between countries via sea, air, or land routes, while domestic trade occurs between states. International trade is an indicator of economic prosperity.

Exports and imports are components of trade. A favorable balance of trade occurs when exports exceed imports; an unfavorable balance occurs when imports exceed exports.

India trades with major global trading blocks and regions. Exports include gems and jewellery, chemicals, agriculture, and allied products. Imports include electronics, machinery, and agricultural products. India is a global software giant, earning significant foreign exchange through IT exports.

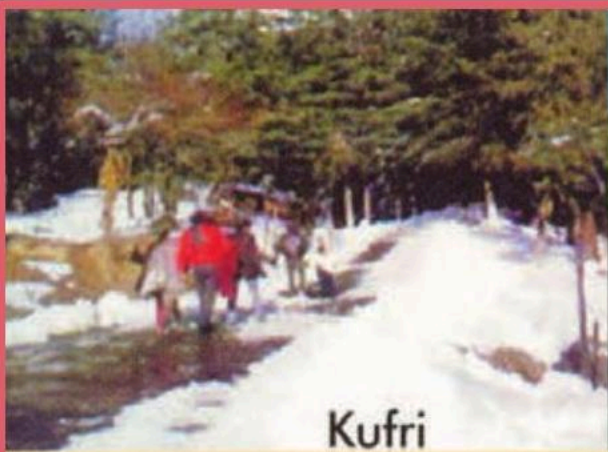
Tourism as a Trade

Tourism in India has grown substantially, employing over 15 million people directly. It promotes national integration, supports local handicrafts, and preserves heritage.

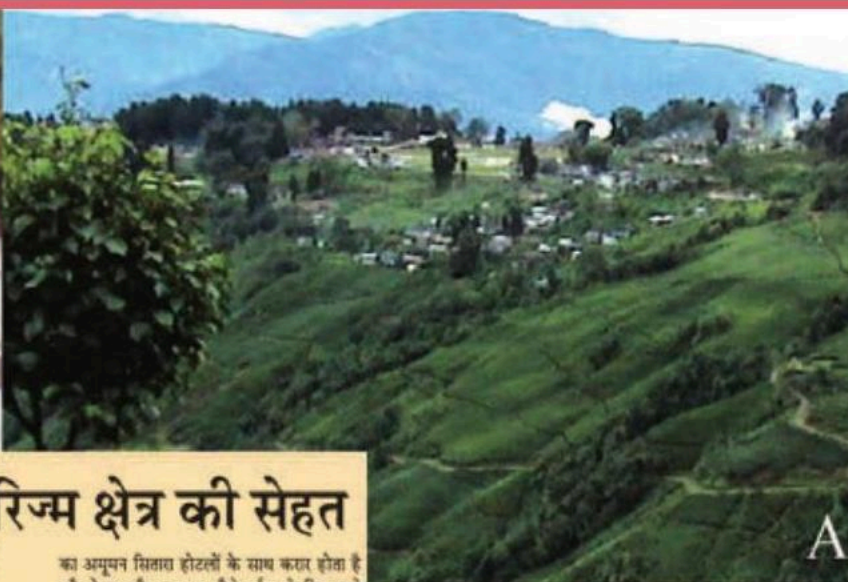
Foreign tourists visit India for heritage, eco, adventure, cultural, medical, and business tourism. There is vast potential for tourism development.

Activity: On the map of India, mark important tourist places in your State/Union Territory and their connectivity by railways, roadways, and air.

- What types of tourism can be developed in your state and why?
- Which areas are attractive for tourism development and why?
- How can tourism contribute to economic development sustainably?



Kufri



बुलंद होती जा रही मेडिकल टूरिज्म क्षेत्र की सेहत

शशि झा

नई दिल्ली। पिछले कुछ वर्षों में चिकित्सा के लिए भारत आने वाले विदेशियों की संख्या में काफी तेज वृद्धि हुई है। विशेष रूप से केरल, महाराष्ट्र और आंध्र प्रदेश जैसे राज्य इससे खासे साभान्वित हुए हैं। आंकड़े बताते हैं कि पिछले पांच वर्षों में चिकित्सा पर्यटन की वृद्धि दर में 15 प्रतिशत से भी अधिक की वृद्धि हुई है। ऐसा अनुमान लगाया जा रहा है कि फिलहाल दो अरब डॉलर के बराबर का मेडिकल टूरिज्म उद्योग 2012 तक भारत के सबसे धम्कदार माने जाने वाले आईटी उद्योग के रूप में चमक उठेगा।

दो अरब डॉलर से अधिक का है मेडिकल टूरिज्म उद्योग

20 प्रतिशत कम है। यहाँ नहीं, अस्पतालों में बेड पाने की प्रवृत्ति सुची भी अन्य विकसित देशों की तुलना में भारत में काफी कम है।

भारतीय चिकित्सा खासकर शल्य चिकित्सा और भारत में उदरने का खर्च भी विदेशों में स्थित उनके अस्पतालों और होटलों की तुलना में काफी कम उदरता है। उदरना भी ऐसी-वैसी जगह नहीं बल्कि बेहतरीन और आरामगार होटलों में जहाँ उन्हें सबसे अच्छी सुविधाएँ मुहैया कराई जाती हैं।

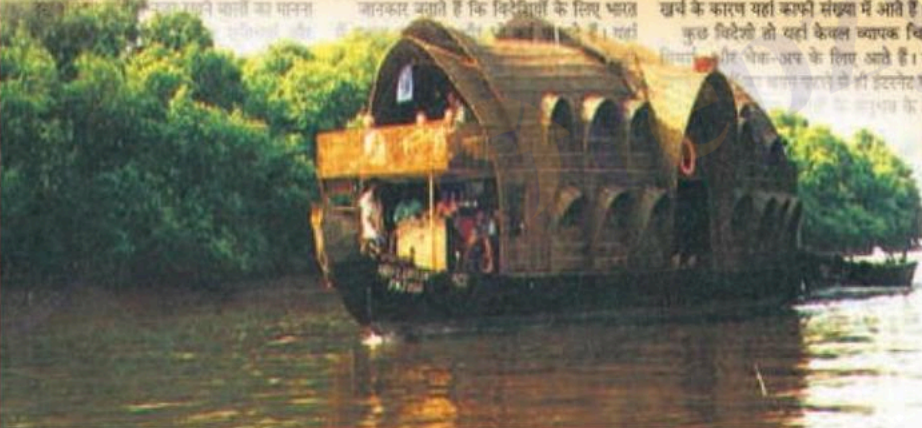
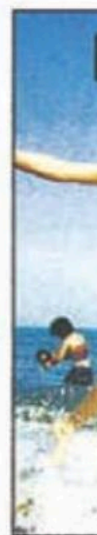
जानकार बताते हैं कि विदेशियों के लिए भारत का अमूमन सस्ता होटलों के साथ करार होता है और केरल और राजस्थान जैसे पर्यटन के हिसा-मेमिसाल रमानी पर अल्प चुट्टी मनाने का अफ-महज तीन वर्ष पहले तक भारत में इलाज व

वाले लोगों में फिटेसियों की संख्या केवल प्रतिशत थी जबकि आज यह संख्या 10 प्रति तक पहुँच चुकी है। यहाँ आने वाले लोगों अधिकांश संख्या यूएसए, इंग्लैंड, ऑस्ट्रेलिया, जर्मनी, यूएन और ब्रिटेन के लोगों की होती है। यह एक दिलचस्प तथ्य है कि यहाँ इलाज करने वाले ब्रिटेन या अमेरिका के रोगियों को वहाँ के मेडिकल बीमा के कवर के तहत नहीं रखा जाय, फिर यहाँ के रोगी बेहतरीन चिकित्सा सुविधाओं और खर्च के कारण यहाँ अपनी संख्या में आते हैं। कुछ विदेशी तो यहाँ केवल व्यापक चिकित्सा और थैक-अप के लिए आते हैं। उन

India ranked 4th best holiday destination

TIMES NEWS NETWORK

New Delhi: India seems to have made its mark on the world travel map. Overseas holidayers and travellers have put India in the big league, ranking it as the fourth most attractive and satisfying holiday destination in the world. It stands ahead of several developed and traditional hot spots like US, France, Singapore, Thailand and South Africa. According to the 2006 Conde Nast Readers' Trav-



Ecotourism along the mangrove forests in Goa

India is ranked as the 4th best holiday destination worldwide, surpassing many developed countries. The images show mountain tourism in Medical tourism is also growing due to affordable and quality healthcare.

Solved Examples

Example 1: Why are roads considered more flexible than railways in India?

Answer: Roads are easier and cheaper to construct and maintain, can traverse difficult and undulating terrain, negotiate higher slopes, provide various modes, making them more flexible than railways.

Example 2: What is the significance of the Golden Quadrilateral project?

Answer: The Golden Quadrilateral connects four major metros (Delhi, Mumbai, Chennai, Kolkata) with six-lane highways, reducing travel time across India.

Practice Set

Easy

- Define transport and explain its importance in economic development.
- List the three main categories of means of transport.

Moderate

- Explain the classification of roads in India.
- Describe the role of Indian Railways in national integration.

Challenging

- Discuss the advantages and challenges of pipeline transport in India.
- Explain how air transport benefits the northeastern states of India.

Answer Key

Easy

- Transport is the movement of goods and services from supply to demand locations; it is vital for economic development as it facilitates trade and commerce.
- The three main categories are land transport, water transport, and air transport.

Moderate

- Roads are classified as Golden Quadrilateral, National Highways, State Highways, District Roads, Other Roads, and Border Roads based on their importance and funding.
- Indian Railways connect diverse regions, promote economic activities, and have been a unifying force for over 150 years.

Challenging

- Pipelines offer efficient transport of liquids and gases with low running costs but have high initial investment and limited flexibility.
- Air transport overcomes difficult terrain, provides quick access, and supports economic and social development in the northeast.

Quick Reference

- Transport types: Land (Roadways, Railways, Pipelines), Water (Inland, Overseas), Air (Domestic, Public, Private, International)
- Golden Quadrilateral connects Delhi, Mumbai, Chennai, Kolkata
- Indian Railways: 16 zones, broad gauge predominant
- Major ports: Mumbai, Kandla, Chennai, Kolkata, Tuticorin
- Communication: Largest postal network, mass media includes radio, TV, newspapers
- International trade: Exports include gems, chemicals; imports include petroleum, machinery

- Tourism: Heritage, eco, adventure, medical tourism growing sectors

Glossary

Transport

Movement of goods and services from supply to demand locations.

Golden Quadrilateral

A highway network connecting four major metros of India.

Broad Gauge

Railway track gauge of 1.676 meters, the most common in India.

Pipeline Transport

Transport of liquids and gases through pipes over long distances.

Inland Waterways

Rivers, canals, and lakes used for transportation within a country.

Mass Communication

Dissemination of information to large audiences via media like radio, TV, and newspapers.

International Trade

Exchange of goods and services between countries.

Tourism

Travel for pleasure, business, or other purposes, contributing to the economy.

