CHAPTER

10

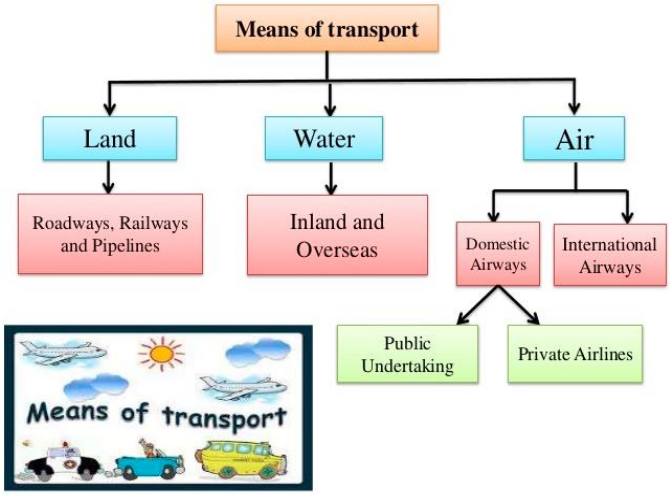
Transport and Communication

Introduction:

Transportation is defined as the process by which a person moves from one place to another. Example of a city bus transport. An example of a cargo ship transport. Transportation means moving an object from one place to another.

1. Transport Methods

There are different ways of transporting people moving goods, goods, ideas, etc. from one place to another. The main routes are:



1. Land Transport:

Transport of people and goods by road transport is nothing new in India. Since ancient times, roads and paved roads have been used for this purpose. With the advent of technology, there are now railroads, railroads, cable lanes, and pipelines.

2. Road Transport:

India has its share of countries with a network of highways around the world. India has a road length of 42.3 lakhs km which places it among the countries with a network of highways. Road transport carries about 85% of passengers and 70% of cargo traffic annually. Road transport is best for short distances. The first attempt to improve and modernize roads was in 1943 with the 'Nagpur Plan.' But due to a lack of cooperation between the major regions and British India, it was not implemented. A second attempt was made after independence with the 20-year plan (1961) to improve road conditions in India but roads continue to focus on urban and surrounding areas and rural and remote areas remained largely unpaved. For construction and maintenance purposes, roads are classified as National Roads (NH), Provincial Roads (SH), Regional Roads and Rural Roads.

1. National Highways:

1. NH refers to roads that are built and maintained by the central government.
2. National Roads are designed for inter-provincial transport and men's movement for security and goods in strategic areas.
3. In 2008-09, the length of the National Highways was 70934 km which was 19700 km in 1951.
4. These highways cover provinces, major cities, important ports, railways, etc. and carry 'about 40% of road traffic' despite covering only 1.67% of the total length of the road.
5. The National Highways Authority of India is an independent body, under the Department of Air Transport responsible for developing, maintaining, operating and improving the quality of national highways.

2. National Roads Development Projects:

1. Golden Quadrilateral 5846 km 4/6 long, very narrow tunnel. It was intended to connect four major Indian cities to Delhi-Mumbai-Chennai-Kolkata. It will draw the distance and travel costs between the major cities of India. Its construction helps the ip reduce the distance and travel costs between the largest cities.

2. North-South and east-west corridors the north-south corridor is a 4076 km long highway intended to connect Srinagar to Jammu and Kashmir and Kanyakumari in Tamil Nadu including Kochchi-Salem Spur. The East-West Corridor is a 3640 km long road that aims to connect Silchar in Assam with the port city of Porbandar in Gujarat.

3. State Highways:

These roads are connected to National Highways and include provincial officials and regional headquarters and other key cities. Their share of the entire length of the road is about 4%.

4. Districts Roads:

These roads connect the regional headquarters with other important areas in the region. They account for 60.83% of the country's total road length.

5. Rural Roads:

These roads connect rural areas. About 33.86% of all road lengths in India are classified as rural roads.

Other Roads:

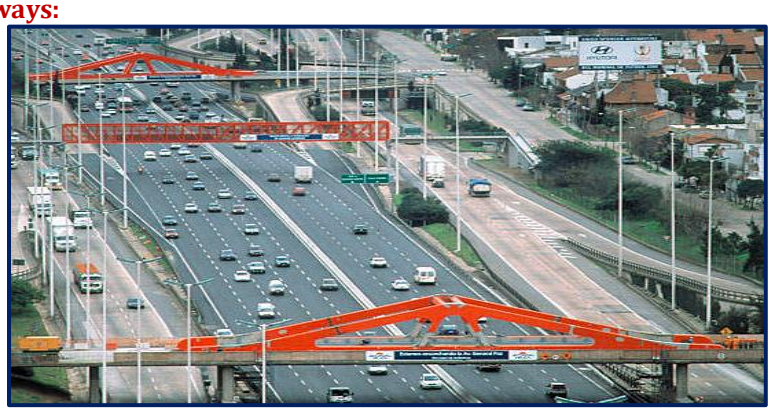
These include Border Roads and international highways:

6. Border Roads:

These are the most important roads along the North-North-East border of the country. The Border Road Organization (BRO) is responsible for the construction and maintenance of these roads. It was established in May 1960 with the aim of accelerating economic development and strengthening the readiness to protect through the rapid and systematic development of strategic border crossings.

The BRO's biggest success has been the construction of roads in the highlands that include Chandigarh and Manali (Himachal Pradesh) and Leh (Ladakh). This road is located at an altitude of 1,470 feet above sea level. The length of the border roads is 40450 km in 2005 built by BRO. Apart from the construction and maintenance of roads in the most critical areas. The BRO also removes ice at higher elevations.

7. International Highways:



International Highways are designed to promote harmonious relations with neighboring countries and provide effective communication with India.

2. Density of Road

1. The distribution of roads is not the same as the country. Road congestion (road length in area per 100 sq km) is a way of comparing road networks from one area to another. The national average is 125.02 km (2008).
2. Road congestion is influenced by the environment, as well as the level of economic development. With many Northern provinces and major Southern provinces having too many roads (e.g., Uttar Pradesh has too many roads of 532.27 km), the Himalayan region, the North-Eastern region, Madhya Pradesh and Rajasthan have smaller roads (e.g., Jammu and - Kashmir has a very low road (10.04 km).
3. The quality of roads, without congestion, is also better in the plains compared to the highlands, rainforests and forests.

3. Rail Transport:

1. India has the longest railway line in the world. On the one hand, it facilitates the movement of goods and passengers and on the other hand, contributes to economic growth. Mahatma Gandhi said the I ndian railways, "brought together people of different cultures to take part in the Indian liberation struggle".
2. In 1853, the first Indian railway from Bombay to Thane, a distance of 34 miles [34 km], was started.
3. As a major Government function in India, the Indian Railways network is 64460 km long (31th March, 2011).
4. To reduce the pressure of this major railway line from the central railway management system, the Indian Railway system is divided into seventeen sections.

These are as follows:

Zonal Railways	Headquarters
Central	Mumbai
Eastern	Kolkata
East Coast	Bhubaneshwar
East Central	Hajipur
Northern	New Delhi
North Central	Allahabad
North Eastern	Gorakhpur
Northest Frontier	Maligaon (Guwahati)
North Western	Jaipur
Southern	Chennai
South Central	Secunderbad
South Eastern	Kolkata
South East Central Railway	Bilaspur
South Western Railway	Hubli
Western	Mumbai
West Central Railway	Jabalpur
Metro Railway	Kolkata

Gauges on Indian Railways:

The Indian Railways is divided into three categories.
Based on the scope of the Indian railway track as follows:

1. Broad Gauge: In a wide gauge, the distance between rows is 1.676 meters. The length is 55188 km in 2011.
2. Meter Gauge: In meter gauge, the distance between rows is 1 meter. The length is 6809 km in 2011.
3. Narrow Gauge: In a narrow gauge, the distance between rows is 0.762 meters or 0.610 meters. The length was 2463 km in 2011. This section of railway lines is most common in hilly areas.

Indian Railways has taken significant steps to improve the efficiency of these modes of transport such as:

1. Turn the meter and small gauges into a wide gauge.
2. Steam engine replacements with diesel and electric engines that can help keep the environment clean.
3. Launch of the municipal railway line in Kolkata and Delhi, etc.

The development of railways in India was started by the British and after independence, the situation changed with the expansion of railways in some areas. The Konkan railway line along the west coast which provides a direct line between Mumbai and Mangalore has been a significant development in this regard.

The Konkan Railway is one of the key achievements of the Indian Railways built in 1998. It is a 760 km long railway line connecting Roha from Maharashtra to Mangalore in Karnataka. It is considered an engineering miracle. Railway remains a major means of transportation for many people. In the mountainous regions, the northeastern provinces, the central part of India and Rajasthan, the railway network is not overcrowded.

4. Water Transport:

Water transport is the cheapest way to transport heavy and bulky goods and passenger supplies. It is a fuel-efficient and eco-friendly mode of transportation. There are two types of water transport:

1. Inland Waterways

2. Oceanic Waterways

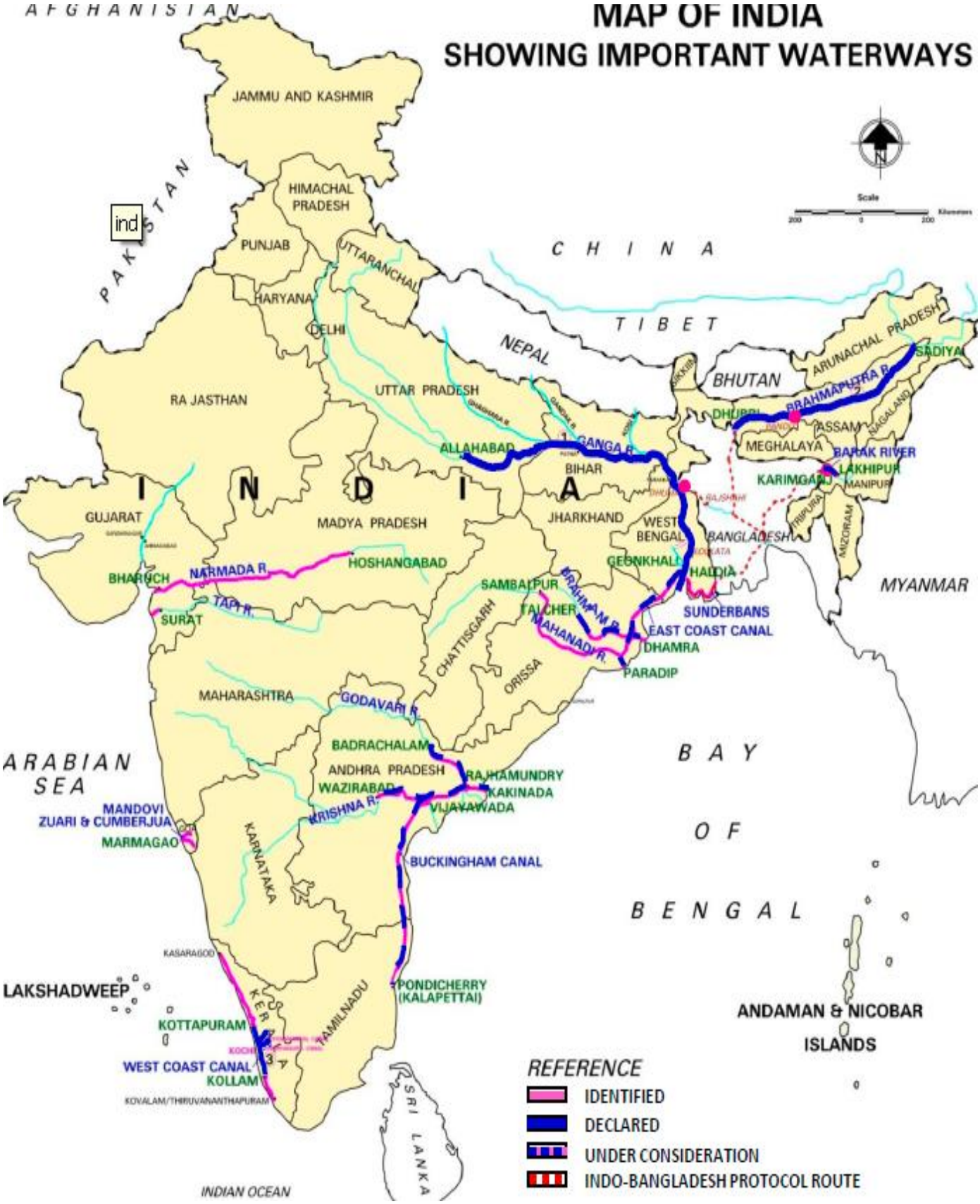
1. Inland Waterways:

Prior to the introduction of railroads, inland waterways were the main means of transportation. But, it is now losing its value because of:

1. Competitive competition for road and rail transport.
2. The diversion of water for the river for irrigation made it impossible for them to navigate most of their studies.
   India has 14500 km of waterways that cover about 1% of the country's transportation. Including rivers, canals, streams etc. Currently 3700 km of major rivers can travel on small flat flat vessels, but only 2000 are in use. Similarly, of the 4800 km of the canal network, only 900 km can be navigated by machine ships.

   The Inland Waterways Authority, established in 1986, oversees the development, maintenance and management of national waterways in the country. Currently, there are three inland routes that are considered national water routes by authorities. The descriptions of these channels are as follows:

2. National Waterways of India:



Waterways Stretch		Specification	Date of Declaration
NW1	Allahabad-Haldia Stretch (1620 km)	It is one of the most important waterways in India which is navigable by mechanical boats upto Patna and by ordinary boats upto Haridwar. It is divided into three parts for developmental purposes: (i) Haldia Farakka (560 km) (ii) Farakka Patna (460 km) (iii) Patna -Allahabad (600 km	27.10.1986
NW2	Sadiya-Dhubri Stretch (891 km)	Brahmaputra is navigable by steamers up to Dibrugarh (1384km), which is shared by India and Bangladesh.	26.10.1988
NW3	Kottapuram-Kollam Stretch (205 km)	It includes 168 km of west coast canal along with Champakara canal (23 km) and Udyogmandal canal (14 km).	01.02.1991
NW 4	Kakinada Puduchery (1995 km)	Stretch of canal and Kalurelly Tank stretches of river Godavari and Krishna.	2008
NW 5	Talcher Dhamra (623 km)	Stretch of river Brahmani Geonkhali Cherlatia stretch of East coast canal, Chertectia Dharma, stretch of Matai river alongwith Mahanadi delta river system	2008

3. Oceanic Routes:

Other than inland waterways have been identified by inland waterways authorities. The backwaters (Kadal) of Kerala have a special value that not only provides transport but also attracts tourists here. The famous Nehru Trophy Boat Race (Vallam Kali) is also held in the backwaters.

1. These play an important role in the transport sector of the Indian economy.
2. India's 7,517 km long coastline (including islands) facilitates this type of transportation. There are 12 large ports and 185 smaller ports that provide infrastructure support to these routes.
3. About 95% of India's foreign trade by volume and 70% by sea travel.
4. These routes provide international trade services and provide transportation between islands and the country.

5. Air Transport:

Air transport facilitates the speed of goods and passengers from one place to another. Suitable for long distances and areas with uneven terrain and weather conditions. Air travel to India was started in 1911 with a short distance, (10 km) airmail operation from Allahabad to Naini. The Airport Authority of India is responsible for the provision of safe, efficient air traffic and flight communications services in the Indian Air region. It now manages 126 airports including 11 international airports, 86 domestic and 29 air defences bases. There are two companies, Air India and Indian Airlines that control air transport in India. Both companies were incorporated in 1953.

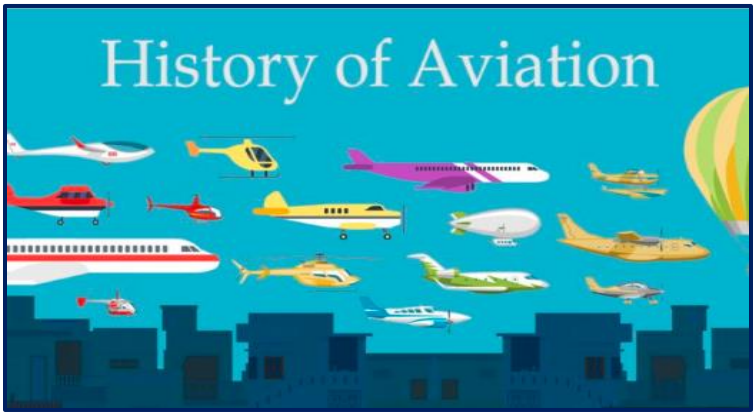
1. Air India:

It is an Indian company that provides International Air Service to both passengers and freight traffic. It connects all continents of the world with its services.

2. Indian Airlines:

Indian Airlines, the country's largest domestic holding company changed its name to 'Indian by dropping' to 'Airlines' on December 8th, 2005. The new brand name 'Indian' now appears on both sides of the fuselage. The IA logo that used to be displayed on the orange tail is now being replaced by a new logo. The new logo is a blue wheel that looks different and is inspired by the Sun Temple in Konark (Odisha), symbolizing timeless movement, merging and separation. It also represents the strength and trust that has stood the test of time.

3. History of Indian Airlines:



1. 1911-Air Transport in India was introduced between Allahabad and Naini.
2. 947-Air transport was provided to four major companies namely Indian National Airways, Tata Sons Limited, Air Services of India and Deccan Airways.
3. 1951-Four more companies joined the services namely Bharat Airways, Himalayan Aviation Limited, Airways India and Kalinga Airlines.
4. 1953-Air Transport was nationalized and two companies were established, Air India international and Indian Airlines. Now, Indian Airlines is known as Indian.
5. Pawn Hans is the largest organization in India that provides helicopter services in hilly areas, tourism in the North-East sector and especially in the petroleum and tourism sectors.

3. Oil and Gas Pipelines

Pipes are the simplest and best way to transport long-distance liquids and gasses. These can also transport solids after turning them into mud. Oil India Limited (OIL) is responsible for the testing, production and transport of crude oil and natural gas. One of its major achievements is the construction of the first pipeline across the Asian continent. The pipeline runs 1157 km from the Naharkatiya oil field in Assam to the Barauni refinery in Bihar. In 1966, the pipeline was expanded to Kanpur, Uttar Pradesh.

In the West India region, OIL also built a large pipeline network - Ankaleshwar-Koyali, Mumbai High-Koyal and Hazira-Vijaipur-Jagdishpur (HVJ) pipelines. Recently, a pipeline was constructed from Salaya (Gujarat) to Mathura (Uttar Pradesh). 1256 km long pipeline transporting crude oil from Gujarat to Punjab (Jalandhar) via Mathura. Construction of a 660-kilometer pipeline from Numaligarh to Siliguri is also underway.

4. Communication Networks

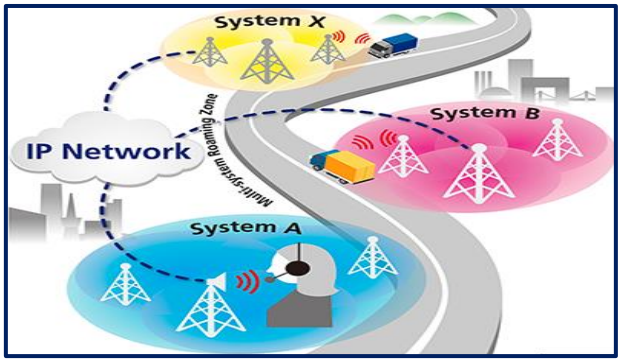
Many cum-transportation communication methods have been used since human history, e.g. messages are delivered by hitting a hollow drum or tree trunks, giving a clue to smoke or fire or with the help of runners. Advances in the field of science and technology have brought many technological innovations such as mail, telephone, printing press, telephone, satellite, etc.

Based on scale and quality, the communication method can be divided into the following categories:

1. Personal Communication System:

1. The most advanced and effective methods for all social networking systems are the most widely used internet in urban areas.
2. E-mail is a major source where the user is able to communicate directly with others and can access the world of information and knowledge.
3. The use of the Internet is increasing the number of online commerce and financial transactions.
4. The Internet is like a huge data warehouse, with detailed information on a variety of things.
5. It is a cheap means of communication that provides effective access to information at relatively low cost.
6. Letters, telephone, fax are also used for personal contact.

2. Multi-Communication System Radio:



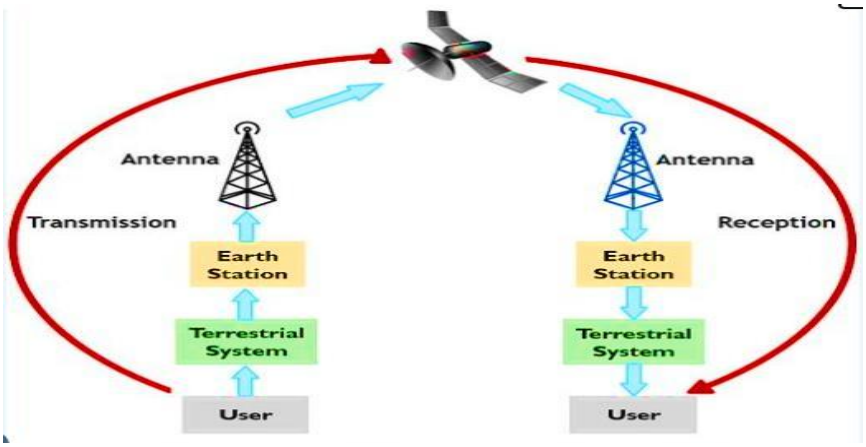
1. Radio broadcasting was started in 1923 by Bombay Radio Club. In a short time, it gained great popularity and became part of every home in India.
2. After realizing its popularity, the Indian government, in 1930 took control of this mode of communication under the Indian Broadcasting System.
3. Converted to All India Radio in 1936 and Akash-Wani in 1957.
4. Disseminates various programs related to information, education, entertainment and special issues of the special session of parliament and the state legislature.

3. Television (TV):

1. Television (TV) has emerged as the most effective audio and visual means for disseminating information and educating more people.
2. The first television broadcast was launched in the National Capital in 1959. Until 1972, it was the only urban area where television equipment was available.
3. After 1972, many other institutions became operational. In 1976, TV broadcasting equipment was split by All India Radio and acquired a separate patent as Doordarshan (DD).
4. Its transformation development began after the launch of INSAT-IA (National Television –D1) when Common National Programs (CNP) were launched across the network and its resources spread to the back and remote rural areas.

4. Satellite communications:

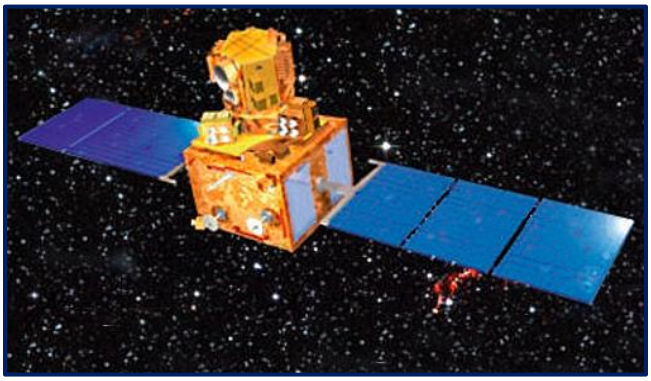
Satellite is an improved communication method. They also control the use of other means of communication. From an economic and strategic point of view, satellite use is very important in the country as this provides a continuous vision and a large area. Various tasks can be performed with satellite imagery, e.g. weather, natural disaster monitoring, border monitoring, etc. There are two satellite systems in India on the basis of configuration and objectives:



5. Indian National Satellite System (INSAT)

This was established in 1983. It is a multi-purpose satellite system for telecommunications, weather monitoring and other information and systems.

6. Indian Remote Sensing Satellite System (IRS)



The IRS satellite system launched in India with the launch of the IRS-IA in March 1988 from Vaikanor in Russia. India rebuilt its own native car that introduced the PSLV (Polar Satellite Launch Vehicle). These remote sensing satellites collect data from several spectral bands and transmit them to substations which is very useful for natural resource management and various other purposes. The National Remote Sensing Agency (NRSA) in Hyderabad is responsible for facilitating data acquisition and processing.

Questions For Practice

1. Which channels are connected to the North and South tunnel?
(a) Srinagar – Kanyakumari
(b) Delhi - Chennai
(c) Jaipur - Salem
(d) Patna - Coach

2. When did the first railway line in India begin?
(a) 1833 (b) 1843
(c) 1853 (d) 1863

3. What is the role of National Highways inroads of India?
(a) 1% (b) 2%
(c) 3% (d) 4%

4. How many railway stations are there in India?
(a) 9 (b) 12
(c) 14 (d) 17

5. What is the situation with the highest roads in India?
(a) Punjab (b) Kerala
(c) Tamil Nadu (d) Karnataka

6. What is the length of the Golden Quadrilateral highway?
(a) 3,846 km (b) 4,846 km
(c) 5,846 km (d) 6,846 km

7. What is the length of the inland roads in India?
(a) 14,000 km (b) 14,200 km
(c) 14,300 km (d) 14,500 km

8. When was the first pipeline built in India?
(a) 1957 (b) 1958
(c) 1959 (d) 1960

9. Which river and which is between the two areas National Water-Way No. 1?
(a) Brahmaputra, Sadiya-Dhubri
(b) Ganga, Haldia-Allahabad
(c) West Coast Canal, Kottapuram to Kollam
(d) None of these

10. How many zones is the Indian Railways system divided into?
(a) 9 (b) 12
(c) 16 (d) 14

11. What is the length of the Golden Quadrilateral highway?
(a) 3,846 km (b) 4,846 km
(c) 5,846 km (d) 6,846 km

12. Which body started radio broadcasting in India in 1923?
(a) Doordarshan
(b) Radio Club of Bombay
(c) Indian Broadcasting System
(d) Common National Programme

13. How many Rail zones are there in India?
(a) 9 (b) 12
(c) 14 (d) 17

14. Which of the following is not the purpose of the INSAT?
(a) Telecommunication
(b) Meteorological
(c) Observation for various data and programme
(d) All of these

15. What is the length of the broad-gauge railway?
(a) 1.5 metres (b) 1.6 metres
(c) 1.7 metres (d) 1.8 metres

16. Where is the National Remote Sensing Centre located?
(a) Hyderabad (b) Pune
(c) Jaipur (d) Bengaluru

17. In how many zones has the Indian Railways system been divided?
(a) 9 (b) 12
(c) 16 (d) 14

18. In which year was the Inland Waterways Authority set up?
(a) 1880 (b) 1986
(c) 1996 (d) 2006

19. In which of the following year, the first radio programme was broadcast?
(a) 1911 (b) 1936
(c) 1927 (d) 1923

20. What is the length of India's coastline, including islands?
(a) 7000 km (b) 7500 km
(c) 7501 km (d) 7517 km

21. When did air transport in India make a beginning?
(a) 1911 (b) 1900
(c) 1929 (d) 1919

22. Which element is not sent through communication?
(a) Views (b) Ideas
(c) Messages (d) Passengers

23. What is the length of inland waterways in India?
(a) 14,000 km (b) 14,200 km
(c) 14,300 km (d) 14,500 km

24. In which year was the Indian Broadcasting System changed to All India Radio?
(a) 1920 (b) 1930
(c) 1936 (d) 1956

25. When was the first Railway run in India?
(a) 1833 (b) 1843
(c) 1853 (d) 1863

26. In which year was the National Highways Authority of India (NHAI) operationalised?
(a) 1880 (b) 1885
(c) 1990 (d) 1995

27. Which stations are joined by the North-South corridor?
(a) Srinagar – Kanyakumari
(b) Delhi – Chennai
(c) Jaipur – Salem
(d) Patna – Kochi

28. Which of the following rulers built the Grand Trunk Road?
(a) Humayun (b) Shah Jahan
(c) Sher Shah Suri (d) Akbar

29. Which is the longest National Highway in India?
(a) NH-1 (b) NH-7
(c) NH-5 (d) NH-3

30. What is the length of India's coastline, including islands?
(a) 7000 km (b) 7500 km
(c) 7501 km (d) 7517 km

Solutions

1. (a)	**4. (d)**	**7. (d)**	**10. (c)**	**13. (d)**	**16. (a)**	**19. (d)**	**22. (d)**	**25. (c)**	**28. (c)**
2. (c)	**5. (b)**	**8. (c)**	**11. (c)**	**14. (d)**	**17. (c)**	**20. (d)**	**23. (d)**	**26. (d)**	**29. (b)**
3. (d)	**6. (c)**	**9. (b)**	**12. (b)**	**15. (b)**	**18. (b)**	**21. (a)**	**24. (c)**	**27. (a)**	**30. (d)**