India-People and Economy

Chapter-10 Transport and Communication

The major means of transportation are -

1. Land transportation
2. Air transportation
3. Water transportation

Land Transport

- The three main forms of land transport in India are Road, Railway and Pipeline
- Road transport
- India has one of the largest road networks in the world with a total length of 42.3 lakh km (2008-09)
- About 85% of passenger and 70% of freight traffic are carried by roads every year
- After Independence i.e. in 1961 road plan was introduced to improve the conditions of roads in India
- For the purpose of construction and maintenance, roads are classified as National Highways (NH), State Highways(SH), Major District Roads and Rural Roads

National Highways

- The National Highways Authority of India (NHAI) was operationalised in 1995
- It is an autonomous body under the Ministry of Surface Transport
- It is entrusted with the responsibility of development, maintenance and operation of National Highways
- This is also the apex body to improve the quality of the roads designated as National Highways.
- The main roads which are constructed and maintained by the Central Government are known as the National Highways
- These roads are meant for inter-state transport and movement of defence men and

material in strategic areas

- These also connect the state capitals, major cities, important ports, Railway junctions, etc
- The length of the National Highways has increased from 19,700 km in 1951 to 70,934 km in 2008-09
- As on 31st March 2016, the total length of national Highways was 1, 01, 011 km
- The National Highways constitute only 1.67% of the total road length but carry 40 % of the road traffic

State Highways

- These are constructed and maintained by State governments
- They join the state capitals with district headquarters and other important towns
- These roads are connected to the National Highways
- These constitute 4% of total road length in the country
- As on 31st March 2016, the total length of state Highways was 176,166 km

District Roads

- These roads are the connecting link between District Headquarters and the other important nodes in the district
- They account for 14% of the total road length of the country
- As on 31st March 2016, the total length of district roads was approx 561,490 km of which 95% of the total length were surfaced

Rural Roads

- The rural roads in India forms a substantial portion of the Indian road network, constituting 70.23% of the total roads in India (as of March 2016)
- These roads are vital for providing links in the rural areas
- For the development of these rural roads, Pradhan Mantri Gram Sadak Yojana was introduced in 2000 by the Indian government to provide connectivity to unconnected rural habitations
- The scheme envisions that these roads will be constructed and maintained by the village panchayats

Other roads

- Other roads include Border Roads and International Highways
- The Border Road Organisation (BRO) was established in May 1960 for accelerating economic development and strengthening defence preparedness through rapid and coordinated improvement of strategically important roads along the northern and north-eastern boundary of the country
- It has constructed roads in high altitude mountainous terrain joining Chandigarh with Manali (Himachal Pradesh) and Leh (Ladakh).
- This road runs at an average altitude of 4,270 metres above the mean sea level
- Besides these, the BRO also undertakes snow clearance in high altitude areas
- The international highways are meant to promote the harmonious relationship with the neighbouring countries by providing effective links with India
- The distribution of roads is not uniform in the country
- Density of roads (length of roads per 100 square km of area) varies from only 12.14 km in Jammu and Kashmir to 517.77 km in Kerala with a national average of 142.68 km in 2011
- The density of road is high in most of the northern states and major southern states. This is mainly because construction of roads is easy and cheaper in the plain areas
- It is low in the Himalayan region, north eastern region, Madhya Pradesh and Rajasthan. This is because it is difficult to construct road in hilly and plateau areas

Rail transport

- Indian railways network is one of the longest in the world
- It facilitates the movement of both freight and passengers and contributes to the growth of economy
- Indian Railway was introduced in 1853, when a line was constructed from Bombay to Thane covering a distance of 34 km
- Indian Railways is the largest government undertaking in the country
- As of March 2017, the total length of Indian Railways network is 121,407 km
- It is the fourth largest railway network in the world
- In India, railway system has been divided into 16 zones

Railway Zone - Headquarters

a. Central- Mumbai CST
b. Eastern- Kolkata
c. East Central- Hajipur
d. East Coast- Bhubaneswar
e. Northern- New Delhi
f. North Central - Allahabad
g. North Eastern- Gorakhpur
h. North East Frontier- Maligaon (Guwahati)
i. North Western- Jaipur
j. Southern- Chennai
k. South Central- Secunderabad
l. South Eastern- Kolkata
m. South East Central-Bilaspur
n. South Western- Hubli
o. Western- Mumbai (Church Gate)
p. West Central - Jabalpur

On the basis of width of the track of Indian Railways, three categories have been made:

1. **Broad gauge:** The distance between rails in broad gauge is 1.676 metre. The total length of broad gauge lines was 55188 km in 2011.
2. **Metre gauge:** The distan ce between rails is one metre. Its total length was 6809 km in 2011
3. **Narrow gauge:** The distance between the rails in this case is 0.762 metre or 0.610 metres. The total length of narrow guage was 2463 km in 2011. It is generally confined to hilly areas.

- The most significant deveilopment has been the development of Konkan Railway along the western coast providing a direct link between Mumbai and Mangalore
- Areas around towns, raw material producing areas and of plantations and other commercial crops, hill stations and cantonment towns were well-connected by railways from the British colonial era

Water transport

- Waterways is an important mode of transport for both passenger and cargo traffic in India
- It is the cheapest means of transport and is most suitable for carrying heavy and bulky material
- It is a fuel-efficient and eco-friendly mode of transport
- The water transport is of two types– (a) inland waterways and (b) oceanic waterways

Inland waterways

- It was the chief mode of transport before the advent of railways
- India has 14,500 km of navigable waterways, contributing about 1% to the country's transportation.
- It comprises rivers, canals, backwaters, creeks, etc
- At present, 3,700 km of major rivers are navigable by mechanised flat bottom vessels, out of which only 2,000 km are actually used
- Out of 4,300 km of the network of navigable canal, only 900 km is navigable by mechanised vessels
- The Inland Waterways Authority was set up in 1986 for the development, maintenance and regulation of national waterways in the country

The authority has declared three inland waterways as National Waterways -

1. NW 1- Allahabad-Haldia stretch (1,620 km) - It is one of the most important waterways in India, which is navigable by mechanical boats up to Patna and by ordinary boats up to Haridwar. It is divided into three parts for developmental purposes– (i) Haldia-Farakka (560 km), (ii) Farakka-Patna (460 km), (iii) PatnaAllahabad (600 km).
2. NW 2 - Sadiya-Dhubri stretch (891 km)- Brahmaputra is navigable by steamers up to Dibrugarh (1,384 km) which is shared by India and Bangladesh
3. NW 3 Kottapuram-Kollam stretch (205 km)- It includes 168 km of west coast canal along with Champakara canal (23 km) and Udyogmandal canal (14 km)

- The backwaters (Kadal) of Kerala has special significance in Inland Waterway
- The famous Nehru Trophy Boat Race (VALLANKALI) is also held in the backwaters

Oceanic Routes

- India has a vast coastline of approximate 7,517 km, including islands
- Oceanic routes play an important role in the transport sector of India's economy
- Approximately 95 % of India's foreign trade by volume and 70 % by value moves through ocean routes
- These are also used for the purpose of transportation between the islands and the rest of the country

Air Transportation

- Air transport is the fastest means of movement from one place to the other
- It has reduced distances by minimising the travel time
- It is very essential for a vast country like India, where distances are large and the terrain and climatic conditions are diverse
- Air transport in India made a beginning in 1911 but its real development took place in post-Independent period
- The Airport Authority of India is responsible for providing safe, efficient air traffic and aeronautical communication services in the Indian Air Space
- The authority manages 126 airports including 11 international, 86 domestic and 29 civil enclaves at defence air fields
- The air transport in India is managed by two corporations, Air India and Indian Airlines after nationalisation

Air India

- Air India provides International Air Services for both passengers and cargo traffic
- It connects all the continents of the world through its services
- In 2005, it carried 12.2 million passengers and 4.8 lakh metric tonnes of cargo
- About 52 % of the total air traffic was handled only at Mumbai and Delhi airports
- In 2005, domestic movement involved 24.3 million passengers and 20 lakh metric tonnes of cargo
- Pawan Hans is the helicopter service operating in hilly areas and is widely used by tourists in north-eastern sector
- Pawan Hans Limited mainly provides helicopter services to petroleum sector and for tourism

Oil and Gas Pipelines

- Pipelines are the most convenient and efficient mode of transporting liquids and gases over long distances
- Oil India Limited (OIL) under the administrative set up of the Ministry of Petroleum and Natural Gas is engaged in the exploration, production and transportation of crude oil and natural gas which was incorporated in 1959 as a company
- Asia's first cross country pipeline covering a distance of 1,157 km was constructed by OIL from Naharkatiya oilfield in Assam to Barauni refinery in Bihar which was further extended up to Kanpur in 1966
- Another extensive network of pipelines has been constructed in the western region of India of which Ankleshwar-Koyali, Mumbai High -Koyali and Hazira-Vijaipur-Jagdishpur (HVJ) are most important

Communication Networks

- The means of communication were also the means of transportation
- Invention of postoffice, telegraph, printing press, telephone, satellite, etc has made the communication much faster and easier
- Development in the field of science and technology has significantly contributed in bringing about revolution in the field of communication
- On the basis of scale and quality, the mode of communication can be divided into following categories :
- a) Personal communication system; b) Mass communication system

Personal Communication System

- **In**ternet is the most effective and advanced personal communication system
- It is widely used in urban areas
- It enables the user to establish direct contact through e-mail to get access to the world of knowledge and information
- It is increasingly used for e-commerce and carrying out money transactions
- The internet is like a huge central warehouse of data, with detailed information on various items.
- The network through internet and e-mail provides an efficient access to information

at a comparatively low cost
- It enables us with the basic facilities of direct communication

Mass Communication System

1) Radio

- Radio broadcasting started in India in 1923 by the Radio Club of Bombay.
- In 1930 it came under the control of Indian Broadcasting System
- It was changed to All India Radio in 1936 and to Akashwani in 1957
- All India Radio broadcasts a variety of programmes related to information, education and entertainment
- Special news bulletins are also broadcast at specific occasions like session of parliament and state legislatures

2) Television (T.V)

- Television broadcasting has emerged as the most effective audio-visual medium for disseminating information and educating masses
- In 1976, TV was delinked from All India Radio (AIR) and got a separate identity as Doordarshan (DD)
- After INSAT-IA (National Television-DD1) became operational, Common National Programmes (CNP) were started for the entire network and its services were extended to the backward and remote rural areas

3) Sattelite Communication

- Satellites are mode of communication in themselves as well as they regulate the use of other means of communication
- Satellite communication play a very vital for the country due to the economic and strategic reasons
- Satellite images can be used for the weather forecast, monitoring of natural calamities, surveillance of border areas, etc
- On the basis of configuration and purposes, satellite system in India can be grouped into two:
    - Indian National Satellite System (INSAT) - The INSAT was established in

1983,is a multipurpose satellite system for telecommunication, meteorological observation and for various other data and programmes.

- Indian Remote Sensing Satellite System (IRS) - These satellites collect data in several spectral bands and transmit them to the ground stations for various uses. The National Remote Sensing Agency (NRSA) at Hyderabad provides facilities for acquisition of data and its processing. These are very useful in the management of natural.