Chapter-1

INTRODUCTION

- **Introduction**
- **Concept of Transport**
- **Functions of Transport**
- **Means of Transport**
- **Transport in India**

1.1 INTRODUCTION

From the beginning of history, human sensitivity has revealed an urge for mobility leading to a measure of Society's progress. The history of this mobility or transport is the history of civilization. For any country to develop with right momentum modern and efficient Transport as a basic infrastructure is a must. It has been seen throughout the history of any nation that a proper, extensive and efficient Road Transport has played a major role. ‘Transporters' perform one of the most important activities, at every stage of advanced civilization. Where roads are considered as veins and arteries of a nation, passenger and goods transported are likened to blood in circulation. Passenger Road Transport Service (PRTS) is an essential connected to the economic development. Transport is the essential convenience with which people not just connect but progress. Throughout history, people's progress has been sustained on the convenience, speed and safety of the modes of transport. Road transport occupies a primary place in to-day's world as it provides a reach unparallel by any other contemporary mode of transport.

1.2 TRANSPORT

Transport (British English) or **transportation** (American English) is the movement of people and goods from one place to another. The term is derived from the Latin *trans* ("across") and *portare* ("to carry").

1.3 FUNCTIONS OF TRANSPORT

1. Transport contributes in **Growth of industries whose product requires quick marketing.** Perishable articles like fish and green vegetables are carried to various consumers quickly even in distant markets through transport.
2. Transport helps in **increase in the demand for goods**. Through transport newer customers in newer places can be easily contacted and products can be introduced to them. Today markets have become national or international only because of transport.

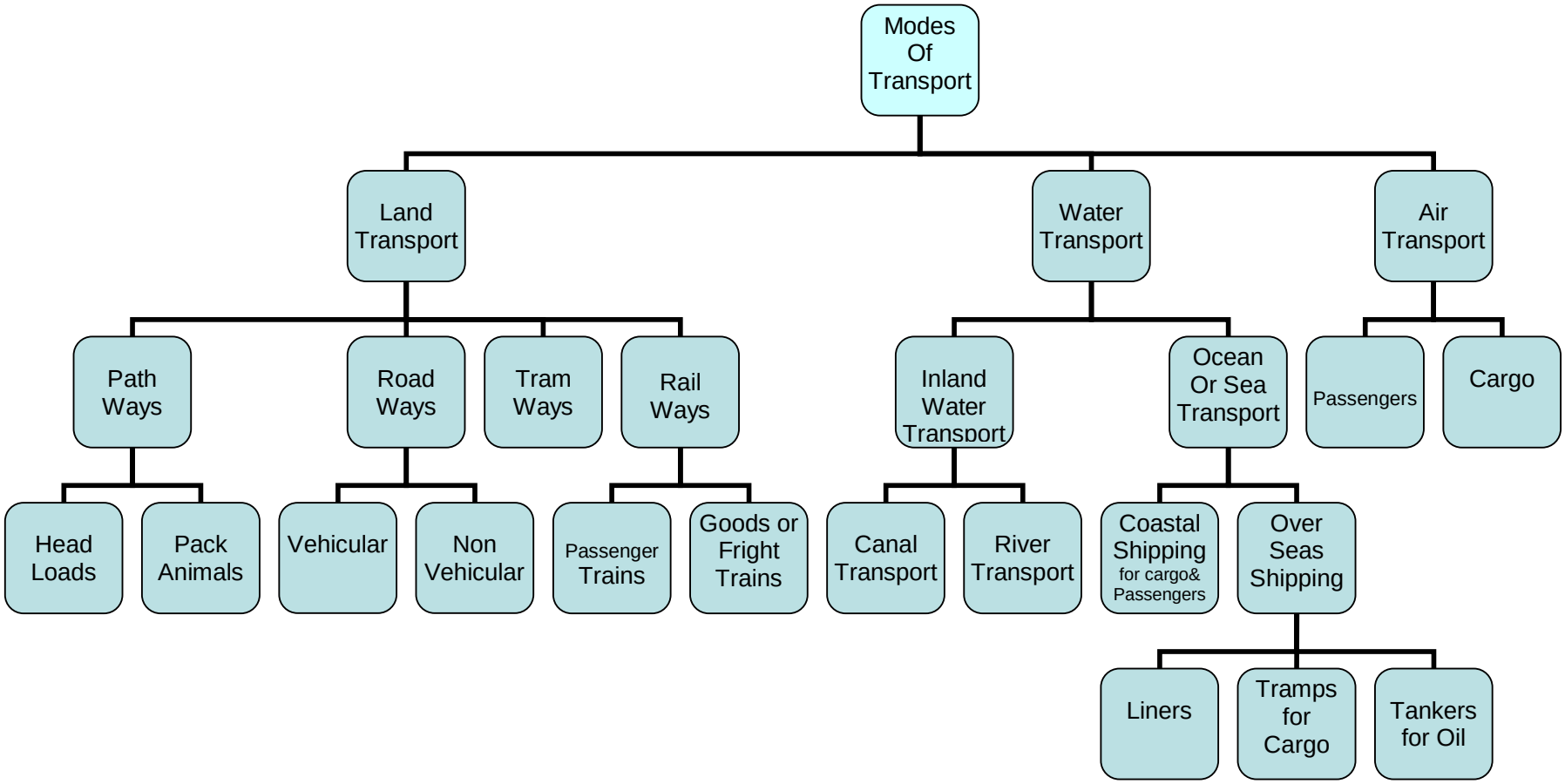
3. Transport **creates place utility**. Geographical and climatic factors force industries to be located in particular places far away from the markets and places where there may not be any demand for the products. Transport bridges the gap between production and consumption centers.
4. Transport **creates time utility**. Of late transport has started creating the time utility also. It has been made possible by virtue of the improvements in the speed of transport. It helps the product to be distributed in the minimum possible time.
5. Transport helps in **stabilization of price**. Transport exerts considerable influence upon the stabilization of the prices of several commodities by moving commodities from surplus to deficit areas. This equalizes the supply and demand factor sand makes the price of commodities stable as well as equal.
6. Transport **ensures even flow of commodities** into the hands of the consumers through out the period of consumption.
7. Transport **enables the consumers to enjoy the benefits of goods not produced locally**. This increases the standard of living, an essential factor for further development of marketing and economy.
8. Transport **identifies competition, which** in turn, reduces pries. Prices are also reduced because of the facilities offered by transport for large-scale production. Advantages op large-scale production is possible only due to transport.
9. Transport **increases mobility of labor and capital.** It makes people of one place migrate to other places in search of jobs. Even capital, machineries and equipments are imported from foreign countries through transport alone.

1.4 MEANS OF TRANSPORT

The means of transport are classified on the basis of the way, the vehicle, the motive power used and terminals.

Chart 1.1

Means of Transport

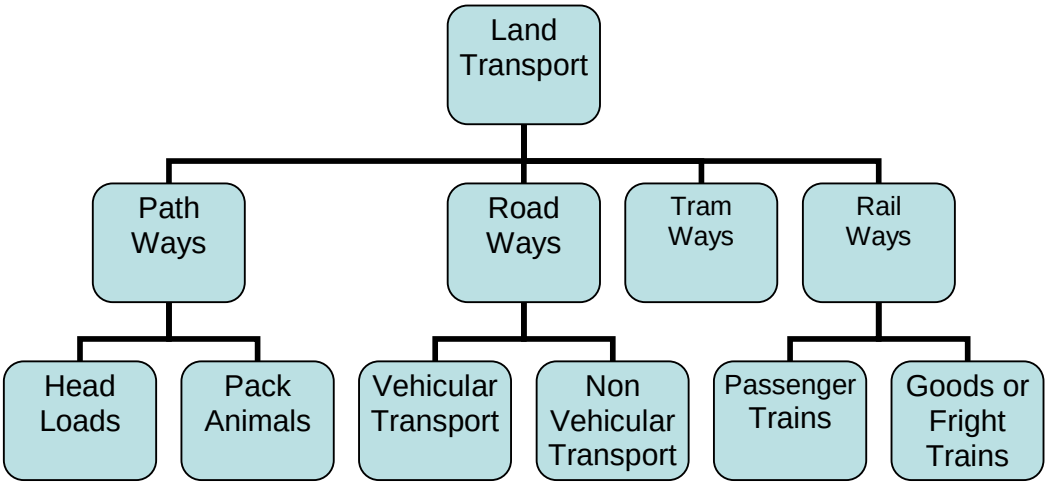


1. LAND TRANSPORT

Land Transport may be classified as

Chart 1.2

Modes of Land Transport



Pathways:

In remote villages, forest and hilly areas pathways are still an important amongst the different modes of transport. It further be subdivided into Head loads (is also known as human transport. It is used in the hilly areas where even animals cannot reach) and Pack animals (is also known as animal transport. It is used in the backward areas. The animals like horse, pony, donkey, ass, buffaloes, camel, elephant, yak, sheep etc. are used for this purpose.

Roadways:

Road Transport is one of the most important modes of transport. The history of Road Transport started from ancient civilizations. Gradually it becomes more and more polpular means of transport. Road Transport further subdivided into Vehicular Transport (Cars, Trucks, Buses, Lorries, Autoricksaws, Bullock Carts, Tongas, Tumtums, and Hand Carts etc.) and Non-vehicular Transport (Hamals, Animals like Camel, Dogs, Elephant, Horse, Mules etc.)

Tramways:

Tramway is one of the cheaper, longer, quicker and safer modes of Land Transport which is suitable in large cities. However due to certain limitations like slowly ness, huge investment, inflexibility etc. gradually it replaced by other means of Land Transport.

Railways:

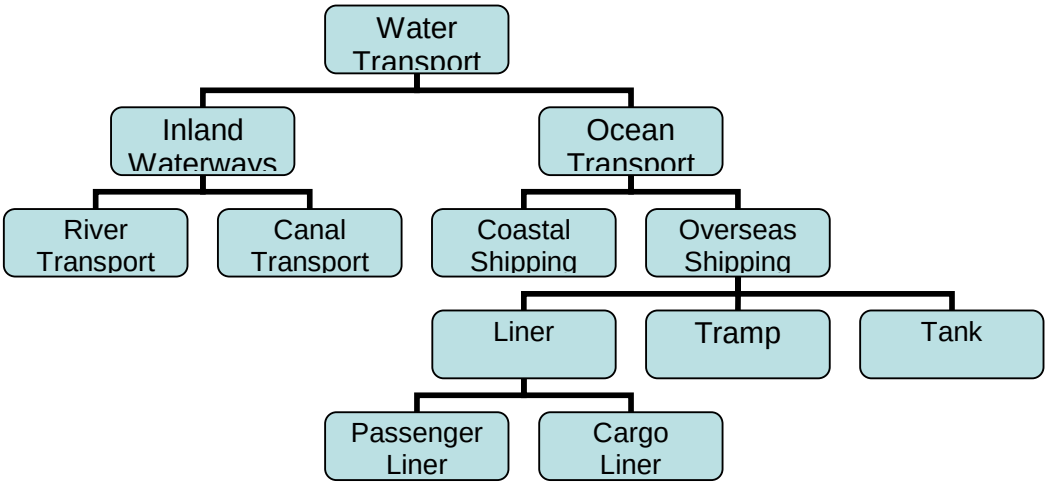
Railway has been the pioneer of modern mechanical transport. It has brought the greatest revolution in transport. It accelerated commercial and industrial development of various countries. Until the introduction of Motor Transport, Railway had the monopoly as the Land Transport. In India, it is the principal means of transport. It carries over 80 per cent of goods traffic and over 70 per cent of passenger traffic. It provides for more than 60000 kilometers of railways all over the country.

2. WATER TRANSPORT

Water transport is the cheapest and the oldest form of transport for heavy goods and bulk cargoes. Waterways are the natural gifts, hence it does not required large amount of capital expenditure for the construction of road and railway tracks, except canal transport, as in the case of land transport. In addition to that the cost of running is also very less. Water transport may be classified as under:

Chart 1.3

Modes of Water Transport



A INLAND WATERWAYS

Inland waterways may be subdivided into

River Transport:

Rivers are the water highways given by nature. River Transport is suitable for small boats and steamers. It was highly developed in the pre-railway days. But with the development of railways, river transport was neglected and decayed gradually.

Canal Transport:

Canals are the artificial waterways constructed for the purpose of navigation and irrigation.

B OCEAN TRANSPORT

Ocean Transport or shipping may be subdivided into

Coastal Shipping:

Coastal shipping is a cheaper, speedy, flexible and economical form of transport for the movement of bulky and heavy cargoes. Usually coastal shipping trade is reserved for the national shipping. In India also from 1951 and onwards the coastal shipping trade is extremely reserved for the national ships.

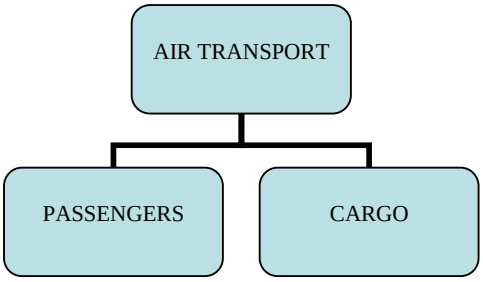
Overseas Shipping:

On the basis of their working, overseas shipping may be divided into The Liner (those ships which follow defined routes with fixed places and fixed time table), The Tramps (those ships which have no set routes or fixed time table) and The Oil Tanker (special sea carriers of crude oil in very large quantity). The Liners may again be subdivided into Passenger Liners and the Cargo Liners.

3. AIR TRANSPORT

Air transport is the gift of twentieth century to the world. It is the latest means of transport. The first flight in the air was made in 1903.only for twelve seconds. Successfully it was used as a means of transport after the First World War (1914-1918). The first air service was started in 1919 between London and Paris. Since then it has made notable progress and provide tough competition to Railways. Air Transport can again be subdivided into passenger and cargo.

Chart 1.4
Means of Air Transport



1.5 TRANSPORTATION IN INDIA

A well–knit and coordinated system of transport plays an important role in the sustained economic growth of a country. The transport system in India comprises a number of distinct modes and services, notably railways, roads, road transport, ports, inland water transport, coastal shipping, airports, and airlines. Railways and roads are the dominant means of transport carrying more than 95% of total traffic generated in the country. Although other modes such as coastal shipping and inland water transport would play a greater role, the railways and roads would continue to dominate the transport landscape in the foreseeable future.

1. Road Transport in India

A good road network is a critical infrastructure requirement for rapid growth. It provides connectivity to remote areas; provides accessibility to markets, schools, and hospitals; and opens up backward regions to trade and investment. Roads also play an important role in inter-modal transport development, establishing links with airports, railway stations, and ports.

India has one of the largest road networks in the world, of 33.14 lakh km, consisting of (i) national highways (NHs), (ii) State highways (SHs), (iii) major district roads (MDRs), and (iv) RRs that include other district roads and village roads. NHs with a length of 66590 km comprises only 2.0% of the road network but carry 40% of the road-based traffic. SHs with a length of about 137000 km and MDRs with a length of 300000 km together constitute the

secondary system of road transportation which contributes significantly to the development of the rural economy and industrial growth of the country. The secondary system also carries about 40% of the total road traffic, although it constitutes about 13% of the total road length. RRs, once adequately developed and maintained, hold the potential to provide rural connectivity vital for generating higher agricultural incomes and productive employment opportunities besides promoting access to economic and social services. The map follows:

Table 1.1
Status of National Highways as on 31st March, 2008

No.	Roads/Ways	Length (Km.)
1	Expressways	200
2	National Highways	66,590
3	State Highways	1,31,899
4	Major District Roads	4,67,763
5	Rural and Other Roads	26,50,000
6	Single Lane/Intermediate Lane	32%
7	Double Lane	56%
8	Four or more Lanes	12%

Source: National Highways Authority of India

The transport demand for freight and passenger movement within the country is met mainly through road transport and railways. Between these two modes, road transport has steadily expanded its scope of operation and is now not merely a mode for the last haul but is also handling freight over long distances. It also plays a complementary role to railways in moving freight from and to railheads vis-à-vis the Origin-Destination movements of cargo. Its intermodal share in carrying freight, which was around 14% in 1950–51, had increased to around 61% in 2004–05. The share of road transport in passenger movement has also witnessed a quantum jump from 15% in 1950–51 to an estimated 87% of the total traffic by the end of the Tenth Plan.

ROAD NETWORK IN INDIA

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[1] www.mapsofindia.com

2. Rail transport in India:

Railways are ideally suited for long distance travel and movement of bulk commodities. Regarded better than road transport in terms of energy efficiency, land use, environment impact and safety it is always in forefront during national emergency.

Indian Railways, a historical legacy, are a vital force in our economy. Spanning nearly two centuries Indian Railways has been serving the country with utmost pride. It was only in 1851 when the first train ran in the country for hauling construction material in Roorkee and by 16th April 1853 the first passenger train service became operational running between Bori Bunder, Bombay and Thane. Fourteen railway carriages carried about 400 guests from Bombay to Thane covering a distance of 21 miles, thus marking the formal birth of rail network in India. Since then there has been no looking back. It is interesting to note that though the railways were introduced to facilitate the commercial interest of the British it played an important role in unifying the country.

The **Railways in India** are the principal mode of transportation for freight and passengers. The railways have played an important role in the development of industries and agriculture. Indian railways consist of a vast network of 7031 stations spread over a route length of 63221 km, of this 13,000 km is electrified, with a fleet of 7817 locomotives, 5321 passenger service vehicles, 4904 other coaching vehicles and 228170 wagons 300 yards, 2300 goodsheds, 700 repair shops, and 1.54 million work force. Indian Railways runs around 11,000 trains everyday, of which 7,000 are passenger trains as on 31st March 2004.

Indian railways, the largest rail network in Asia and the world's second largest under one management are also credited with having a multi gauge and multi traction system. The track kilometers in broad gauge (1676 mm) are 86526

kms, meter gauge (1000 mm) are 18529 kms and narrow gauge (762/610 mm) are 3651 kms.

Indian Railway has the distinction of being one of the biggest and busiest rail networks in the world carrying more than 16 million passengers and 11 Lakh tones of goods on a daily basis. In terms of headcount again **Indian Railway** scores as it employs more than 1.6 million employees that are only second to the Chinese Army in terms of people employed.

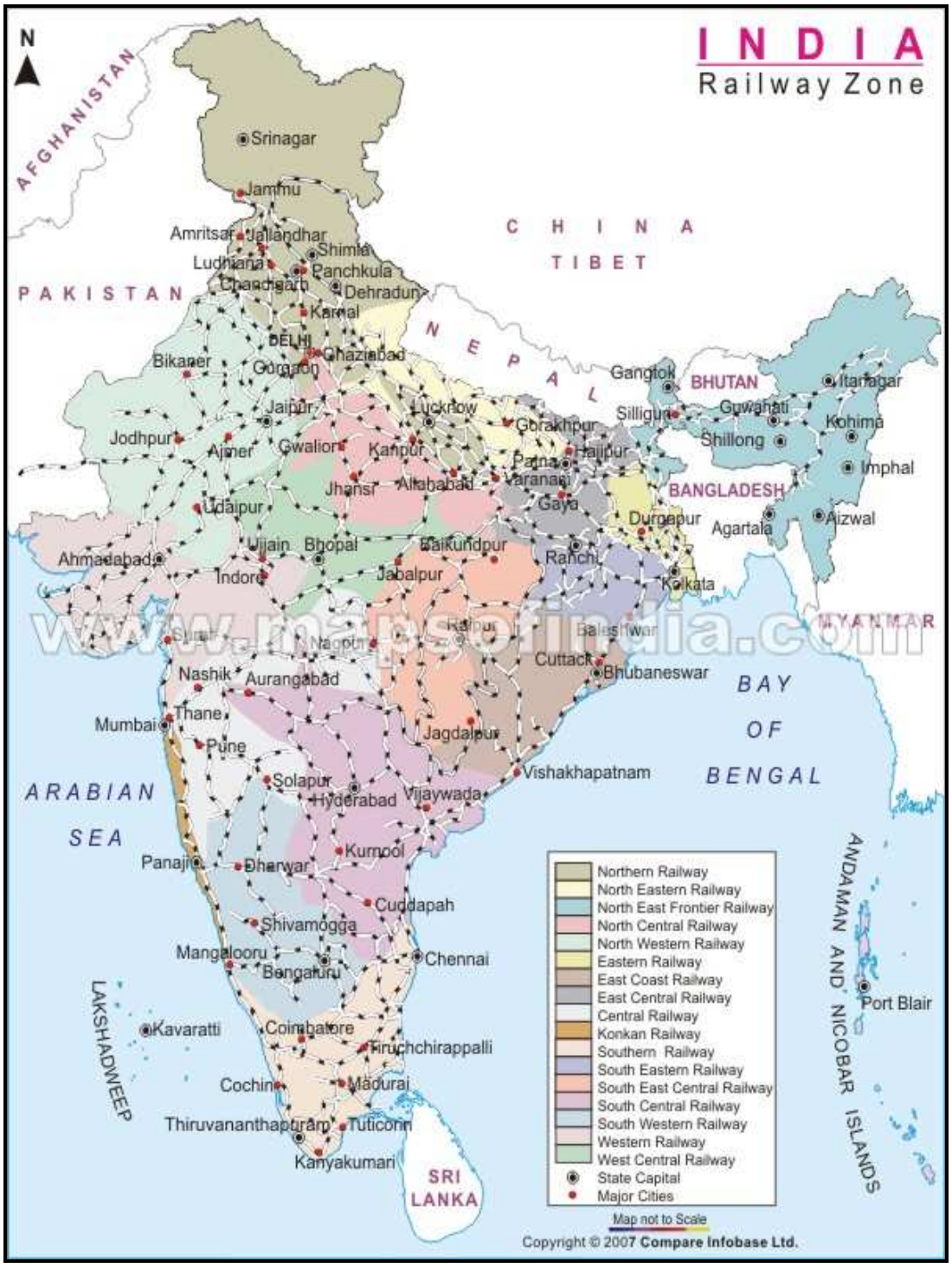
The Indian Railways have been a great integrating force for more than 150 years. The **Indian Railways** network binds the social, cultural and economical fabric of the country and covers the whole of country ranging from north to south and east to west removing the distance barrier for its people. The railway network of India has brought together the whole of country hence creating a feeling of unity among the Indians. It has helped the economic life of the country and helped in accelerating the development of industry and agriculture. The map follows:

Table 1.2

Status of Indian Railway as on 31st March 2007

Indicators	Unit	Data
Total Route	**km**	**63,327**
By Gauge	route-km	
Broad Gauge (1.676m)		49,819
Meter Gauge (1.000m)		10,622
Narrow Gauge (0.762)		2,886
By Type	route-km	
Single Track		45,961
Double Track		16,555.09
Electrified		17,786
Three/Multiple Tracks		810.73
Total Track	**km**	**109,996**

RAIL NETWORK IN INDIA



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[2] www.mapsofindia.com

3. Water Transport in India:

India has a long coastline, about 90% of sea borne trade is handled via major ports of Kandla, Mumbai , Nhava Sheva, Marmagao, Cochin, Tuticorin, Chennai, Vishakapatnam, Paradwip, Haldia, Goa and Kolkata.

India is bordered by Bay of Bengal, Arabian Sea and Indian Ocean and has a coastline of more than 7,000 kms. It has an extensive network of inland waterways and seaports. The inland waterways include rivers, canals, backwaters and creeks. The total navigable length of inland waterways is 14,500 km. Inland Waterways Authority of India (IWAI) is the statutory authority in charge of the waterways in India. There are three national waterways in India: Allahabad Haldia stretch of the Ganga Bhagirathi Hooghly river, Sadiya Dhubri stretch of the Brahmaputra river system and Kollam Kottapuram stretch of West Coast Canal along with Champakara canal and Udyogmandal canal. These waterways also attract tourists from all parts of the world, thus promoting Indian travel & Tourism. There are also many hotels and resorts in these areas to cater to the lodging needs of the tourists. There are 12 major ports and about 180 minor and intermediate ports in India. With the ports handling more than 95% of the trade in India, they act as the major gateway for trade. The major ports in India are Calcutta, Haldia, Paradip, Visakhapatanam, Ennore, Chennai, Tuticorin, Cochin, New Mangalore, Mormugao, JNPT, Mumbai and Kandla. The map follows

Table 1.3

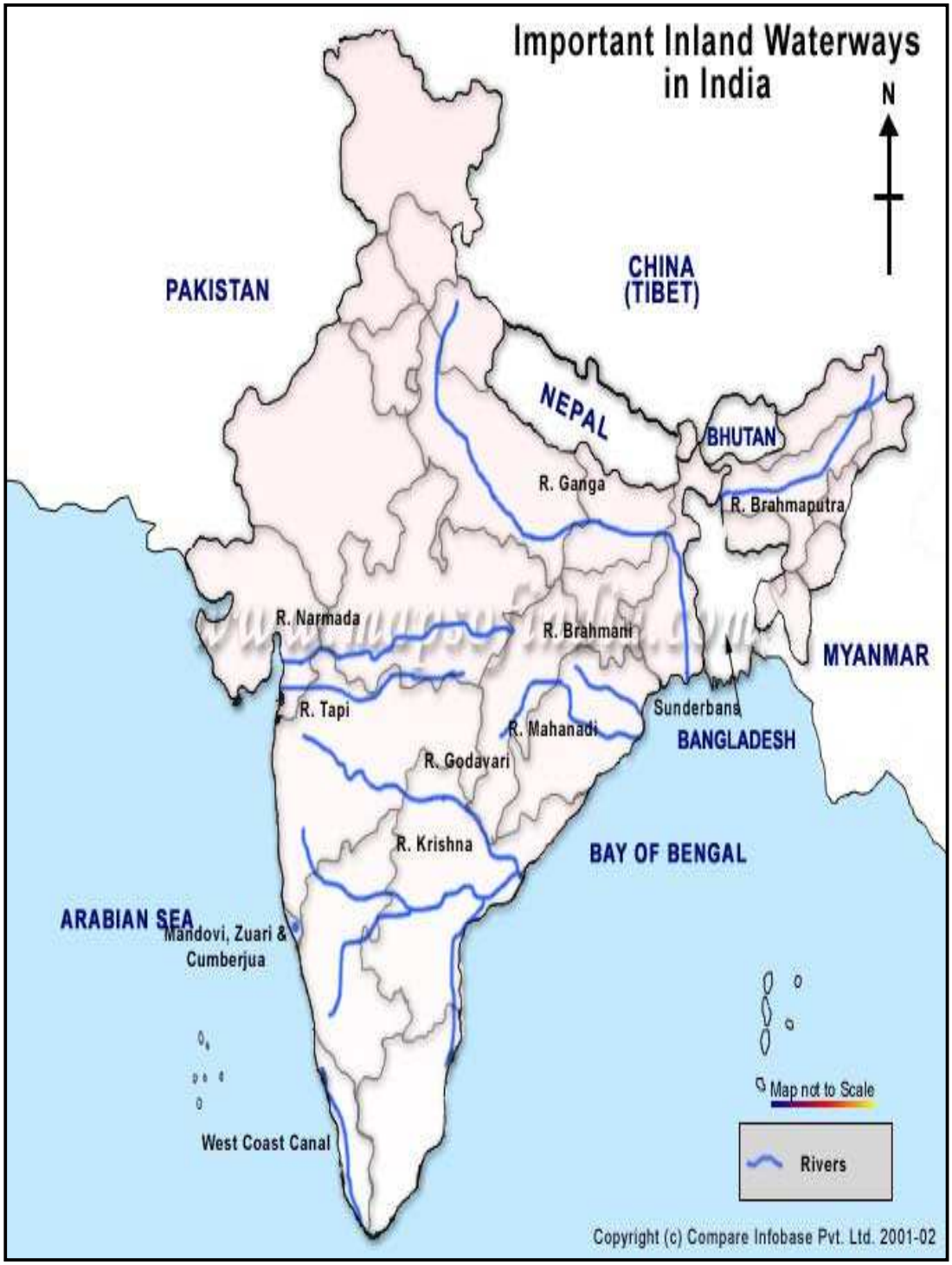
Status of Indian Waterways as on 31st March 2000

National Waterways	Distance (kms.)	Cargo Moved (Lakh Tons)
National Waterway 1	1620	7.31
National Waterway 2	891	0.06
National Waterway 3	205	11.12
Total	**2716**	**18.49**

Source : Inland Waterways Authority of India

Note: NW-1, Allahabad-Haldia stretch of the Ganga-Bhagirathi-Hooghly river system, NW-2, Sadiya-Dhubri stretch of the Brahmaputra river, NW-3, Kottapuram-Kollam stretch of the West Coast Canal along with Champakara Canal (23 kms) and Udyogmandal Canal (14 kms).

WATER NETWORK IN INDIA



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[3] www.mapsofindia.com

4. Air Transport in India:

Air travel is a fastest means to reach in any part of the world. Domestic air services are looked after by Indian airlines and private airlines while the international airport service is looked after by Air India. Mumbai, Chennai, Kolkata and Delhi are the four major international airports of India

Air transport being the most modern and the quickest mode of transport has been gaining popularity. However, the exorbitant rates have made it the mode of travel of the rich or of the business community for whom time is more expensive than air travel. But the entry of private Airlines and their various schemes have reduced airfare drastically. The recent tax relaxation on air fuel and such sops will further make air travel within the reach of a greater section of the Indian Populace.

India had bilateral air services agreements with 93 countries as on May 31, 1999. Air India Limited is the major international carrier of the country. It operates services to USA Europe, the Russian Confederation, the Gulf/Middle East, East Asia, Far East and Africa. Air India owns a fleet of 26 aircraft consisting of six B-747-200, two B747-300 (Combi), seven B747-400, three A 300-B4 and eight A 310-300 aircraft. During 1998-99, Air India carried 3.15 million passengers as against 3.06 million in 1997-98.

Indian Airlines is the major domestic air carrier of the country. It operates to 57 domestic stations (including Alliance Air operations) and 17 international stations in 14 countries, viz., Pakistan, Maldives, Nepal, Sri Lanka, Malaysia, Bangladesh, Thailand, Singapore, UAE, Oman, Myanmar, Kuwait, Qatar and Bahrain. Its operations, including Alliance Air cover 76 destinations including 16 abroad. The Airlines owns a fleet of eleven A-300, thirty A-320, twelve B-737 and three Dornier -228 aircraft. All Boeing B-737 aircrafts are being operated by its wholly owned subsidiary Alliance Air.

The domestic scene is now dotted with private airlines as the government has now very wisely ended the monopoly of Indian Airlines. The International service is however, still the monopoly of Air India as the private operators are

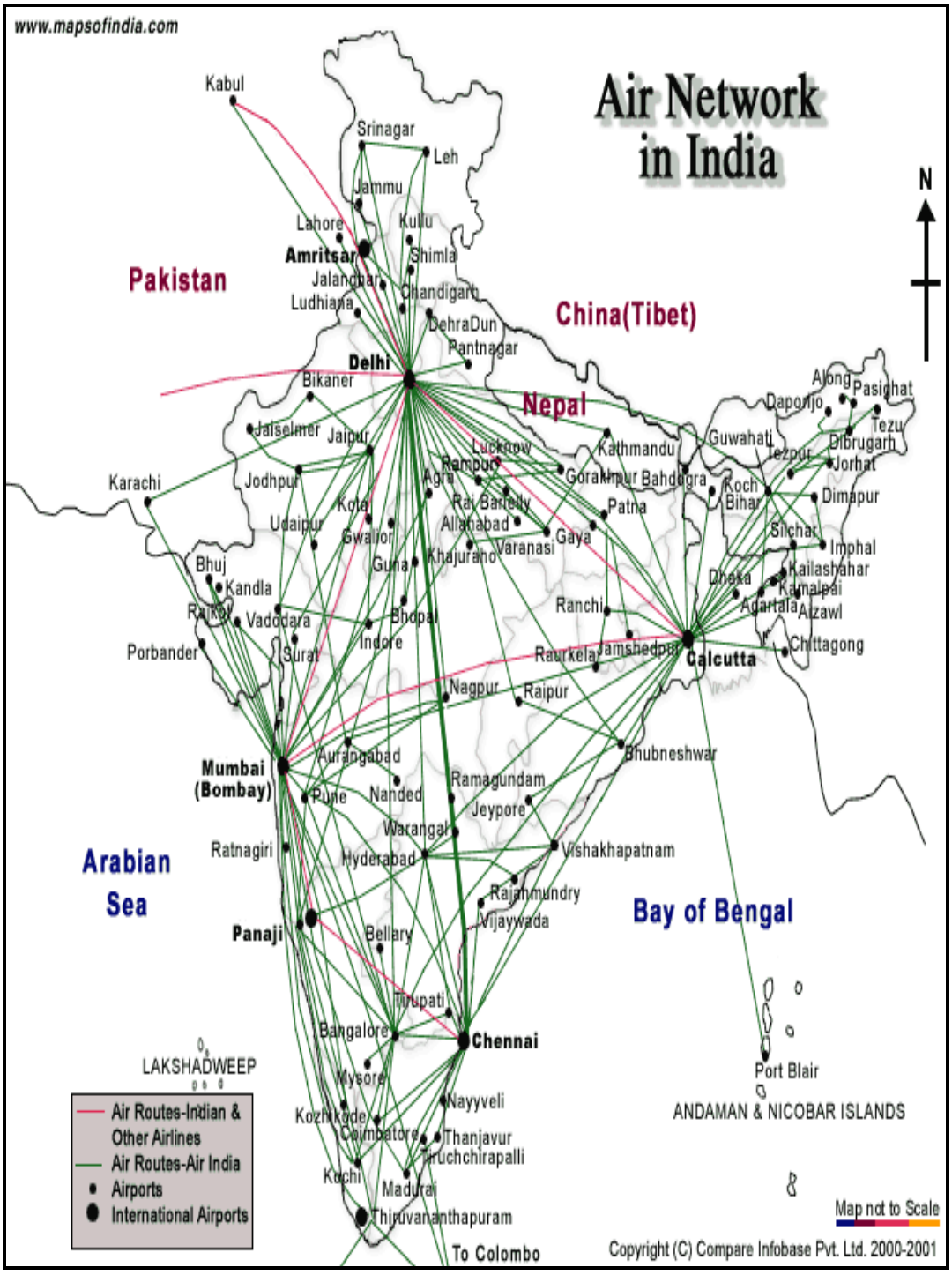
only allowed to operate within the country. Some of the leading domestic private airlines are Air Sahara, Jet Airways and Air Deccan. The government has been in the process of disinvestment of both Indian Airlines and Air India for the betterment of services.

Pawan Hans Helicopters Limited has been providing helicopter support services to the petroleum sector including ONGC, Oil India Limited and Hardy Exploration at Chennai. Apart from these, it also provides services to certain state governments and public sector undertakings and in the northeastern states.

Foreign airlines carrying international passenger traffic to and from India existed long before Independence. Their operations are governed by bilateral agreements signed from time to time between the Government of India and the governments of respective countries. In 1980-81, the number of such airlines was 35. It rose to 49 in 1996-97.The share of foreign airlines in India's scheduled international traffic has increased. In 1971, their share was 55.58 per cent, which went up to 65 per cent and declined to 58 per cent during 1972-75. It fell to 55.72 per cent in 1976 and further to 55.02 per cent in 1977. Between 1978 and 1990 it gradually increased and rose to 75.93 per cent. In 1996, the share was nearly 72 per cent.

The development of airports is no longer solely under the public sector; instead private participation is allowed and encouraged. An International green field airport has been developed in Cochin, Kerala, with contributions from NRIs and loans from financial institutions. Approval for the reconstruction of four Metro Airports (Delhi, Mumbai, Kolkata and Chennai) has been given to make them world class. New International airports are to be set up in Banglore, Hyderabad and Goa with the help of the private sector.In the past few years, several investments have been made in the Indian air industry to make use of its vast unutilized air transport network. Many low cost air carriers have also entered the Indian market in the past two to three years.

AIR NETWORK IN INDIA



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[4] www.mapsofindia.com

Thus, Road transport is vital to the economic development and social integration of the country. Road transport fulfils a major role in the Indian economy involving a wide range of industries and services from vehicle manufacturers and suppliers to infrastructure builders, services, energy providers, public authorities, insurance and many others. Road transport, together with the other modes of transport, provides indispensable mobility for all citizens and goods and contributes to the economic prosperity of a nation. It is a key factor to social, regional and economic cohesion, including the development of rural areas. However, the impact of road transport on the environment and health remains a major challenge in many aspects. Easy accessibility, flexibility of operations, door-to-door service and reliability have earned road transport an increasingly higher share of both passenger and freight traffic vis-à-vis other transport modes. In addition to these factors, transit time, availability of capacity on alternative modes, quality and reliability of the service, associated costs like warehousing and demurrage etc. all influence the choice of the mode of transport. The alternative modes of transport viz. roadways, railways, waterways, airways, mass transit etc., each contribute to the transportation requirements of the economy. Transport sector accounts for a share of 6.4 per cent in India's Gross Domestic Product (GDP). The composition of various sub-sectors of the transport sector in terms of GDP is given in Table 1.4 as under:

Table 1.4

Share of Different Modes of Transport in GDP

Sector	**1999-2000**	**2000-01**	**2001-02**	**2002-03**	**2003-04**	**2004-05**	**2005-06**	**2006-07**
	As percentage of GDP (at factor cost and constant prices)							
Transport of which:	5.8	**6.0**	**5.9**	**6.2**	**6.3**	**6.6**	**6.5**	**6.4**
Railways	1.2	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
Road Transport	3.8	**3.9**	**3.8**	**4.1**	**4.3**	**4.5**	**4.5**	**4.5**
Water Transport	0.2	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
Air Transport	0.2	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
Services	0.5	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**

Source: Central Statistical Organisation