

GS SCORE

Prelims 2016

REVISION NOTES

TRANSPORT SECTOR IN INDIA

For Civil Services Examination

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TRANSPORT SECTOR IN INDIA

Transport is the movement of people and goods from one place to another.

Functions of transport

- Transport contributes in Growth of industries whose product requires quick marketing.
- Transport leads in increase in the demand for goods.
- Transport creates place utility.
- Transport bridges the gap between the production and consumption centers.
- Transport helps in stabilization of price.
- Transport increases mobility of labour and capital.

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.

Road transport in India

Road Transport is a critical infrastructure for economic development of a country. It influences the pace, structure and pattern of development. The Ministry of Road Transport and Highways encompasses construction and maintenance of National Highways (NHs), administration of Motor Vehicles Act and Central Motor Vehicles Rules formulation of broad policies relating to road transport, environmental issues, automotive norms, fixation of user fee rate for use of National Highways etc. besides making arrangements for cross-border movement of vehicular traffic with neighbouring countries.

Data:

- *World's second largest road network - 4.87 million km.*
- *97,135 kms of national Highways.*
- *NHs are 2% but carry 40% of the total traffic.*
- *65% of freight & 80% passenger traffic are carried by roads.*

Source: MoRT&H

Organisations related to road sector

- **National Highways Authority of India:** It is responsible for development, maintenance and management of National Highways entrusted to it and for matters related or incidental there to.
- **Indian Academy of Highway Engineers:** It is a collaborative body of both Central and State Governments set up with the objective of fulfilling the long felt need for training of Highway Engineers in the country, both at the entry level and during the service period.
- **National Highways & Infrastructure Development Corporation LTD.:** It exclusively carry out the task of construction/ up-grading/ widening of National Highways in parts of the country which share

international boundaries with neighbouring countries so as to promote regional connectivity with neighbouring countries on a sustainable basis.

Classification of Roads

- **National Highways:** These roads are of prime importance for the country and connect large cities and big industrial centers. Their development and maintenance is the responsibility of the central government.
- **State Highways:** These roads connect all the important centers of industry, trade and commerce of the states and the national highways. Their responsibility of the development and maintenance lies with the state government.
- **District Roads:** These roads connect different parts of the district, important industrial centers and market centers and usually lead to local railway stations. The responsibility of development and maintenance lies with the local government.
- **Rural Roads:** These are roads found in the villages and are usually of two types; pukka (metal) and kacha (non metal). The responsibility of maintenance and development lies with the local government.

Major National highways of India

National Highway	Connects
NH 1	New Delhi-Ambala- Jalandhar -Amritsar.
NH 2	Delhi -Mathua -Agra-Kanpur -Allahabad -Varanadi -Kolkata.
NH 3	Agra-Gwalior -Nasik-Mumbai
NH 4	Thand and Chennai via Pune and Belgaun.
NH 5	Kolkata -Chennai
NH 6	Kolkata -Dhule
NH 7	Varanasi -Kanyakumari
NH 8	Delhi -Mumbai (Via Jaipur, Baroda and Ahmedabad)
NH 9	Mumbai -Vijaywada
NH10	Delhi -Fazika

Projects in road sector

- **National Highways Development Project:**

The NHDP is mainly being implemented by National Highways Authority of India (NHAI). It consists of following phases:

- NHDP Phase I and II** comprise of the development of National Highways to 4/6 lane standards of the following routes: (a) Golden Quadrilateral (GQ) connecting 4 major metropolitan cities viz. Delhi-Mumbai-Chennai-Kolkata. (b) North South & East West Corridors (NS-EW) connecting Srinagar to Kanyakumari and Silchar to Porbandar with a spur from Salem to Cochin.(c) Road connectivity of major ports of the country to National Highways. (d) Other National Highways stretches.

- b) **NHDP phase III:** Government has approved 4-laning of 4000 kms of National Highways on BOT basis.
- c) **NHDP phase IV:** This Phase envisage upgradation of about 20,000 km of National Highways to 2-lane paved shoulder under NHDP.
- d) **NHDP phase V:** Six laning of 6,500 km of existing 4 lane National Highways
- e) **NHDP phase VI:** NHDP Phase VI envisages development of 1,000 km of fully access controlled expressways under Public Private Partnership (PPP) model following Design - Build - Finance - Operate (DBFO) approach.
- f) **NHDP phase VII:** Government has approved construction of stand alone Ring Roads, Bypasses, Grade Separators, Flyovers, elevated roads, tunnels, road over bridges, underpasses, service roads etc on BOT (Toll) mode

- **Special Accelerated Road Development Programme for the North Eastern Region (SARDP-NE):**

It aims at improving road connectivity of district headquarters and remote places of NE region with state capitals. It envisages two / four laning of about 7530 km of National Highways and two laning / improvement of about 2611km of state roads. This will ensure the connectivity to 88 district headquarters in the North-Eastern states, to nearest NH by at least 2 lane road.

- **Development of roads in Left Wing Extremism (LWE) affected areas**

It will setup 2-lane at a cost of Rs.7300 crore in LWE affected 34 districts affected by LWE in the States of Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha and Uttar Pradesh for all inclusive growth of these areas. MoRT&H has been entrusted with the responsibility of developing roads in LWE affected areas of the country.

- **National Highways Interconnectivity Improvement Projects (NHIIP)**

Rehabilitation and Upgrading to 2-lanes/2-lane with paved shoulders configuration from single/intermediate lane and strengthening of stretches of various National Highways in the states of Bihar, Karnataka, Odisha, Rajasthan and West Bengal to be taken up with loan assistance of World Bank under Phase-I of National Highways Interconnectivity Improvement Projects (NHIIP).

- **National Highway Accident Relief Service Scheme (NHARSS)**

The scheme entails providing cranes and ambulances to States/ UTs/NGOs for relief and rescue measures in the aftermath of accidents by way of evacuating road accident victims to the nearest medical aid centre and for clearing the accident site.

- **Bharat Mala project**

It envisages construction of 25,000 km of roads along India's borders, coastal areas, ports, religious and tourist places as well as over 100 district headquarters.

- **SetuBharatam**

SetuBharatam programme aims to make all National Highways free of railway level crossings by 2019. This is being done to prevent the frequent accidents and loss of lives at level crossings. 208 Railway Over Bridges (ROB)/Railway Under Bridges (RUB) will be built at the level crossings at a cost of Rs. 20,800 crore as part of the programme.

Golden Quadrilateral

The Golden Quadrilateral connects the four metro cities, Delhi, Kolkata, Chennai and Mumbai. The maximum distance between two metros is between Kolkata and Chennai 1649 km. The maximum length of the Golden Quadrilateral passes through Andhra Pradesh 1014 km.

North South Corridor

Srinagar to Kochi (Total length 4000 km)

East West Corridor

Porbandar to Silchar (Total length 3300 km)

Jhansi is the junction of North-South and East-West Corridors.

Major Policy Initiatives in 2015

- **Exit Policy** - This is aimed at improving the availability of equity in the market. The Exit Policy framework permits concessionaires/developers to divest 100 percent equity and exit all operational BOT projects two years after completion of construction. This would help unlock equity from completed projects making it potentially available for investment into new infrastructure projects across the country.
- **Fund Infusion To Salvage Languishing Projects** - This initiative authorizes the National Highways Authority of India (NHAI) to intervene in projects that are in the advanced stage of completion but are stuck due to lack of funds. NHAI has been authorized to provide funds to such projects from within its overall budget/corpus on a loan basis at a pre-determined rate of return. This loan is to be recovered along with interest as the first charge from the toll receipts immediately after completion of construction.
- **NHAI Issues Tax Free Infrastructure Bonds** - National Highways Authority of India is raising funds through public issue of tax free, secured, redeemable non-convertible bonds with Face Value of Rs 1,000 each for an amount of Rs 1,000 crore with an option to retain over subscription of upto additional Rs 9,000 crore, aggregating upto a total of Rs 10,000 crore.
- Steps are being taken to **identify black spots on highways** and take remedial measures to reduce accidents at these spots
- **Integrated Vehicle Registration and Driving License System** - Government had developed applications VAHAN for vehicle registration and SARTHI for driving licence.
- **The Government has launched the Green Highways (Plantation, Transplantation, Beautification and Maintenance) Policy.** The vision of the Policy is to develop eco-friendly National Highways with the participation of community, farmers, NGOs and private sector. The policy will help to improve aesthetics of the project corridors and places of importance by planting selective ornamental trees, landscaping and turfing with grasses and ornamental shrubs. The plantation along the highway will help to reduce the impact of air pollution and dust and will check soil erosion at the embankment slopes.
- Ministry of Road Transport & Highways has decided to **leapfrog from BS-IV to BS-VI emission norms** directly by completely skipping BS-V norms. New BS-VI norms will come into effect from 01.04.2020.
- **e-Pace - (Project Appraisal and Continuing Enhancement)** is a tool that captures all information about projects being executed by Ministry of RT&H, NHAI and NHIDCL across its entire lifecycle.. The information will be in public domain. The tool will help in monitoring of the projects and accelerating their speed.

- **BBIN Motor Vehicle Agreement - (India, Nepal, Bhutan and Bangladesh (BBIN))** signed a landmark Motor Vehicles Agreement (MVA) for the Regulation of Passenger, Personnel and Cargo Vehicular Traffic among the four South Asian neighbours in Thimpu,. The MVA agreement between sub-grouping of four SAARC nations, Bangladesh, Bhutan, India and Nepal (BBIN) will pave the way for a seamless movement of people and goods across their borders for the benefit and integration of the region and its economic development.
- Recently the National Highways Authority of India (NHAI) has signed memoranda of understanding with the Indian Space Research Organization's National Remote Sensing Centre and the North East Centre for Technology Application and Research for use of **spatial technology for the use of satellite data and geospatial technology which will be useful in providing inputs in highway and infrastructure projects for preparation of DPR**, prefeasibility status in new alignment, upgrade/road widening, monitoring of road segments under construction and Road Asset Management System. The unmanned aerial vehicle technology will be useful in monitoring, construction progress, Road Asset Management, feasibility report and DPR preparation, immediate assessment and remedy of problematic spots etc.

Road Transport and Safety Bill, 2015

- The bill proposes strict penalties and heavy fines for violating signals. The proposed fine varies from Rs. 5,000 to 50,000.*
- It proposes fine of Rs. 5 lakh per vehicle, as well as imprisonment, for faulty manufacturing design, besides cancellation of licenses for rash and negligent driving and holds both the manufacturer and the user liable. In case of using vehicle in unsafe conditions such as using a vehicle which as prior defects, violates the safety standards; a penalty of Rs. 1 lakh or imprisonment for six months, which may extend to one year or both, is proposed.*
- It proposes the creation of three lead agencies: National Authority for Road Safety, National Transport and Multimodal Coordination Authority and State Transport Authority.*
- It has set targets to reduce the number of fatal road accidents.*
- Strict penalties for offences involving children.*
- Unified vehicle registration system and registration to be linked with insurance, vehicle offences, and vehicle fitness.*
- Vehicle fitness testing and worthiness road tests for all cars and two-wheelers every five years.*
- Multi-modal integration of bus rapid transport and intra-city transport.*
- Provisions for NMT and pedestrian bicycle infrastructure.*
- Emphasis on safety of schoolchildren/women/persons with disability.*

Different forms of PPP model in India

- **Build Operate and Transfer (BOT) Toll basis:** The concessionaire (private sector) is required to meet the upfront cost and the expenditure on annual maintenance. The concessionaire recovers the entire upfront cost along with the interest and a return on investment out of the future toll collection.
- **Build Operate and Transfer (BOT) Annuity basis:** In BOT (Annuity) Model, the Concessionaire (private sector) is required to meet the entire upfront/construction cost (no grant is paid by the client) and the expenditure on annual maintenance. The Concessionaire recovers the entire investment and a pre-determined cost of return out of the annuities payable by the client every year. The selection is made based on the least annuity quoted by the bidders (the concession period being fixed).The client (Government/NHAI) retains the risk with respect to traffic (toll), since the client collects the toll.

- **Hybrid Annuity Mode of Delivery:** A new mode of delivery under Public-Private Partnership (PPP) mode, namely Hybrid Annuity Model, is being promoted for awarding road projects for implementation under which 40% of project cost is being provided by the Government to the concessionaire. Remaining 60% is to be arranged in form of debt and equity to be compensated over 15 years as bi-annual annuities. There is separate provision for O&M payments by the Government to the concessionaire. The private party does not have to bear the traffic risk. All the payments have been inflation indexed by a Price Multiple Index which is a weighted average of WPI and CPI (IW) on 70:30 bases. This mitigates the inflation risk for the developer.

Road Sector in Budget 2016

- *The Budget allocated INR19,000 crore to the, Pradhan Mantri Gram Sadak Yojna, (PMGSY) and a total of INR27,000 crore to be spent on developing rural roads in 2016?17 with an additional investment from the respective states.*
- *About 85 per cent of the 70 road projects that were the languishing in uncertainty due to legacy factors have been put back into focus for development.*
- *The government has allocated INR97,000 crore for developing roads and highways in the country (including allocation for PMGSY).*
- *The government plans to approve 10,000 km of national highways in 2016?17. Additionally, 50,000 km of existing state highways are to be upgraded to national highways.*
- *Along with the capital expenditure for railways, the total outlay on roads and rails to be INR 2.18 lakh crore for 2016?17. The total outlay for infrastructure is INR2.21 lakh crore in the same year.*
- *The Motor Vehicles Act is to be amended to enable entrepreneurship in the passenger segment of the road transport sector. Entrepreneurs may be able to operate buses on various routes, subject to certain efficiency and safety norms.*

Railways

Indian Railways is the lifeline of the nation. It traverses the length and breadth of the country providing the required connectivity and integration for balanced regional development.

Committees related to Railway Reform

1. High level committee for "Mobilization of Resources for Major Railway Projects and Restructuring of Railway Ministry and Railway Board" - Bibek Debroy Committee
2. National Transport Development Policy Committee - Rakesh Mohan Committee
3. High Level Safety Review Committee - Anil Kakodkar
4. Committee on Railway Modernisation - Sam Pitroda

Dedicated Freight Corridor

The Dedicated Freight Corridor is a project for new railway lines exclusively for carrying freight isolated from normal Indian Railway traffic and passenger trains.

The Eastern DFC will start from Ludhiana in Punjab passing through the states of Haryana, Uttar Pradesh, Bihar and finally ending in Dankuni, West Bengal. The Western Corridor will start from Dadri to Mumbai and pass through the states of Delhi, Haryana, Rajasthan, Gujarat and Maharashtra. The two corridors are estimated to span a route length of 3300 kilometers and expected to be completed by 2017.

Railway Zones in India

S.No	Name	Abbr.	Headquarters	Date of Establishment
1.	Northern Railway	NR	Delhi	April 14, 1952
2.	North Eastern Railway	NER	Gorakhpur	1952
3.	Northeast Frontier Railway	NFR	Maligaon (Guwahati)	1958
4.	Eastern Railway	ER	Kolkata	April 14, 1952
5.	South Eastern Railway	SER	Kolkata	1955
6.	South Central Railway	SCR	Secunderabad	Oct' 2, 1966
7.	Southern Railway	SR	Chennai	April 14, 1951
8.	Central Railway	CR	Mumbai	Nov' 5, 1951
9.	Western Railway	WR	Mumbai	Nov' 5, 1951
10.	South Western Railway	SWR	Hubli	April 1, 2003
11.	North Western Railway	NWR	Jaipur	Oct' 1, 2002
12.	West Central Railway	WCR	Jabalpur	April 1, 2003
13.	North Central Railway	NCR	Allahabad	April 1, 2003
14.	South East Central Railway	SECR	Bilaspur, CG	April 1, 2003
15.	East Coast Railway	ECOR	Bhubaneswar	April 1, 2003
16.	East Central Railway	ECR	Hajipur	Oct' 1, 2002
17.	Konkan Railway	KR	Navi Mumbai	an' 26, 1998

Operational Metro lines in India

Kolkata	Kolkatta Metro
Chennai	Chennai MRTS
Delhi NCR	Delhi Metro
Bangalore	Namma Metro
Gurgaon	Rapid MetroRail Gurgaon
Mumbai	Mumbai Metro
Jaipur	Jaipur Metro
Chennai	Chennai Metro
Hyderabad	Hyderabad Metro
Kochi	Kochi Metro

Highlights of Railway Budget 2016

Theme of the Budget

- *Overcoming challenges - Reorganize, Restructure Rejuvenate Indian Railways: 'Chalo, Milkar Kuch Naya Karen' .*
- *Three pillars of the strategy i.e. Nav Arjan - New revenues, Nav Manak - New norms, Nav Sanrachna - New Structures.*

Objectives:

- *To Improve Customer Service,*
- *Regain The Lost Modal Share, and*
- *To introduce a new way of working by relooking the processes and structures.*

3 pillars of the strategy:

- *Nav Arjan or New revenues (focus on new sources of revenue),*
- *Nav Manak or New norms (optimising outgo on each activity), and*
- *Nav Sanrachna or New Structures (revisiting all processes, rules, and structures).*

Initiatives for the common man

- *Introduction of Antyodaya Express, a long-distance, fully unreserved, superfast train service, to be operated on dense routes.*
- *Deen Dayalu coaches in some long distance trains for unreserved travel with facility for potable drinking water and a higher number of mobile charging points.*
- *E-ticketing facility to foreign debit/credit cards for foreign tourists and NRIs.*
- *'Vikalp' (Alternative Train Accommodation System) scheme to be expanded to provide choice of accommodation in specific trains to wait-listed passengers.*
- *Passenger amenities and beautification on stations at pilgrimage centres including Ajmer, Amritsar, Bihar Sharif, Chengannur, Dwarka, Gaya, Haridwar, Mathura, Nagapattinam, Nanded, Nasik, Pali, Parasnath, Puri, Tirupati, Vailankanni, Varanasi and Vasco.*
- *Aastha circuit trains to connect important pilgrim centres.*
- *Porters to have new uniforms and train them in soft skills, to be henceforth called sahayak.*
- *Wi-Fi at 400 stations in next two years.*

Initiatives for the farmers

- *Encouraging development of cold storage facilities on vacant land near freight terminals. Local farmers and fishermen would be given preferential usage of the facility. A policy in this regard would be issued in the next 3 months.*
- *Allowing floriculture/horticulture along tracks.*

Initiatives for the industry

- *Starting a time-tabled freight container, parcel and special commodity trains on a pilot basis.*
- *Container sector to be opened to all traffic barring coal and specified mineral ores and part-loads during the non-peak season.*

- Review of tariff policy to evolve a competitive rate structure vis a vis other modes, permit multi-point loading/unloading and apply differentiated tariffs to increase utilization of alternate routes.
- To develop Rail side logistic parks and warehousing in PPP mode.
- Inaugurating soon India's first rail auto hub in Chennai to capture automobile traffic.
- Exploring feasibility of opening up leasing of general purpose wagons.
- Appointing Key Customer Managers to liaison with our major freight stakeholders.
- Rs. 50 crore earmarked for Innovation Fund for encouraging innovations and start-ups.

Measures for environmental conservation

- To reduce energy consumption in non-traction area by 10% to 15%; all new light provisions will be LED luminaire only.
- More than 2,000 locations provided with Rain Water Harvesting (RWH) facility; RWH systems will be provided in a phased manner in all establishments having rooftop areas of more than 200 square metres.

Water Transport

Water transport is the cheapest and the oldest form of transport for heavy goods and bulk cargoes. Water transport may be classified as under:

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.

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.

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.

Initiatives for development of Inland Waterways

A. Passage of the National Waterways Act, 2016

- The enactment of this Act (Central legislation) will pave way for the inclusion of 106 additional inland waterways. Thus the total number of national waterways numbers will go up to 111 from existing five national waterways.

- Declaration of these National Waterways would enable Inland Waterways Authority of India (IWAI) to develop the feasible stretches or Shipping and Navigation.
- The Inland water ports will be developed in line of Airports.
- A river traffic control system has been introduced in line of air traffic control system.

B. Jal Marg Vikas Project

- The Jal Marg Vikas Project envisages to achieve Least Available Depth (LAD) of 3.00 meters on the National Waterway-1 to enable movement of vessels of 1500 - 2000 DWT ton capacity on the 1620 km Allahabad- Haldia stretch of the National Waterway-1.
- The Project's objective is to provide an environment friendly, fuel efficient and cost-effective alternative mode of transportation, especially for bulk goods, hazardous goods and over dimensional cargo.

C. Launch of River Information Services

- River Information Services (RIS) are combination of modern tracking equipment related hardware and software designed to optimize traffic and transport processes in inland navigation.
- This would facilitate:
 - a) Enhancement of inland navigation safety in ports and rivers.
 - b) Better use of the inland waterways
 - c) Environmental protection
- RIS enables achievement of safe and efficient inland water transport by avoiding the following risks: Ship-to - Ship collisions; Ship - Bridge collisions and Groundings.

Benefits of Inland Waterways:

(i) Cost savings:

- *1 HP moves 150 kg on road, 500 kg on rail and 4000 kg on water.*
- *1 litre of fuel moves 24 t-km on road, 85 on rail and 105 on IWT.*
- *Cost of developing waterways is much lower than rail & road.*
- *Reduces transportation and transition losses.*

(ii) Environment friendly:

- *Least fuel consumption per tonne - km.*
- *CO2 emission is 50 percent that of trucks.*
- *Negligible land requirement.*
- *Safe mode for hazardous and over dimensional cargo.*

(iii) Supplementary mode:

- *Reduces pressure on road and rail.*
- *Reduces congestion and accidents on road.*

This will create a logistic supply chain with intermodal (Rail, Road and Waterways) connectivity. It would positively contribute to the GDP by opening up business opportunities in the area of dredging, barge construction, barge operation, barge repair facilities, terminal construction, terminal operation, storage facilities, providing modern aids to day and night navigation, tourist cruise, consultancy, training of manpower for manning barges, hydrographic survey, etc. Investment in all these business areas will create numerous opportunities for employment and economic development and reduce pressure from the already over-loaded, congested and costlier other surface modes of transport.

Initiatives for development of Shipping transport

The growth in international trade due to removal of trade barriers has made the developing countries to concentrate more on the improvement of their infrastructure, like roads, airports, seaports, which play a vital role in the development of the economy.

Shipping plays an important role in the transport sector of India's economy. Almost 98% of India's overseas trade in terms of volume is moved by sea. Coal and petroleum products constitute the bulk of the cargo.

The coastline of India is dotted with 12 Major Ports and about 200 Non-major Ports.

- **Kandla** - It is a tidal port located at the eastern end of Gulf of Kutch
- **Mumbai** - It is situated on SALSETTE ISLAND on the western coast. It is a natural harbour and the largest port of India handling about 1/5th of India's foreign trade.
- **Jawaharlal Nehru port** - It has been built at Nhava Sheva Island across the Elephanta caves, about 10 km from Mumbai. Main objective is to relieve the pressure on the Mumbai Port.
- **Marmagao** - It is a natural port located at the entrance of Zuvari estuary in Goa.
- **New Mangalore** - Located at the southern tip of Karnataka coast north of Gurpur River.
- **Kochi** - A natural harbour on the western coast of Kerala (in Vembanad Lake)
- **Tuticorin** - It is an artificial deep sea harbour in Tamil Nadu, north of Adam Bridge and east of Sri Lanka.
- **Chennai** - It is the oldest artificial port on the eastern coast of India.
- **Ennore**: Recently developed to reduce pressure of traffic on Chennai port. It is located slightly north of Chennai on T.N. coast. It is country's first corporate port.
- **Vishakhapatnam** - It is the deepest land-locked and protected port at the coast of Andhra Pradesh.
- **Paradeep** - It is a deep-water & all weather port on Orissa coast in Mahanadi delta region.
- **Kolkata-Haldia** - It is a riverine port located on the west bank of the Hooghly River.

Recent Initiatives

- **Sagarmala Project** will lead to large scale employment generation of skilled and semi-skilled manpower in industrial clusters and parks, large ports, maritime services, logistics services, and other sectors of the economy that will be directly and indirectly impacted by port-led development under Sagarmala.
- Government has recently approved **incentives to promote domestic shipbuilding industry**. These include (i) financial assistance to domestic shipyards for any vessel built by them subsequent to its delivery and (ii) relaxation of eligibility criteria for procurements or repair of vessels done by Government departments or agencies including PSUs for government purpose or for their own purpose to grant Right of First Refusal to domestic shipyards.

- **The Government has relaxed cabotage norms** for special vehicles. Cabotage refers to transportation of goods or passengers between two places, usually along the coast. The cabotage relaxation will enable shipping lines to consolidate Indian EXIM and empty containers at transshipment ports in India for onward transportation to destination ports by main shipping lines.
- Ministry of Shipping has prepared a **vision for coastal shipping, tourism and regional development to increase the share of coastal/IWT mode from 7% to 10% by 2019-20**. An action plan to achieve the objective has also been prepared and is being implemented. The key elements of the initiative include development of coastal shipping as an end-to-end supply chain, integration of IWT and coastal route, development of regional centers to generate cargo for coastal traffic, development of domestic cruise industry and promotion of lighthouse tourism.
- **India signed an agreement on coastal shipping with Bangladesh**. This agreement would allow River Sea Vessels (RSV) to carry cargo between the two neighbours.
- The Union Cabinet has approved the **Ratification of the International Labour Organisation (ILO) Convention on the Seafarers Identity Document (SID)**. A biometric based seafarer's identity document will be developed, mainly, to ensure a foolproof security system to ward off the potential risk of breach of security and possible terrorist attacks. India's ratification of this Convention will benefit Indian seafarers, who may otherwise find a threat to their job opportunities, in the near future, in the global maritime sector if India doesn't ratify the Convention.
- International bodies have agreed to India's efforts to **push back the High Risk Area (HRA) from 78 degrees East longitude to the 65 degrees East longitude**. This will result in huge savings for India's EXIM trade and consumers on account of reduced insurance premium and consequently freight costs.

Aviation Sector

India is the 9th largest aviation market in the world with a size of around US\$ 16 billion and is poised to be the 3rd biggest by 2020. India aviation industry promises huge growth potential due to large and growing middle class population, rapid economic growth, higher disposable incomes, rising aspirations of the middle class and overall low penetration levels.

Civil aviation industry in India is experiencing a new era of expansion driven by factors such as low cost carriers, modern airports, foreign direct investments in domestic airlines, cutting edge information technology interventions and growing emphasis on regional connectivity. Civil aviation sector has been growing steadily registering a growth of 13.8% during the last 10 years. The air transport in India has attracted FDI of over US\$ 569 million from April 2000 to February 2015.

Organisations attached to civil Aviation in India

- **Directorate General of Civil Aviation:** It is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations, air safety, and airworthiness standards.
- **Bureau of Civil Aviation Security:** The main responsibilities of BCAS include laying down standards and measures with respect to security of civil flights at international and domestic airports in India.
- **Air India:** It is owned by Air India Limited, a Government of India enterprise and operates a fleet of Airbus and Boeing aircraft serving 84 domestic and international destinations.
- **Airports Authority of India:** It aims at accelerating the integrated development, expansion, and modernization of the operational, terminal and cargo facilities at the airports in the country conforming to international standards.

- **Pawan Hans Helicopters Ltd.** : Its objective is to provide helicopter support services to the Oil Sector for its off-shore exploration operations, services in remote and hilly areas as well as charter services for promotion of travel and tourism.

International Airports of India

Name of the Airport	City	State
Rajiv Gandhi International Airport	Hyderabad	Telangana
Sri Guru Ram Dass Jee International Airport	Amristar	Punjab
Lokpriya Gopinath Bordoloi International Airport	Guwahati	Assam
Biju Patnaik International Airport	Bhubaneswar	Odisha
Gaya Airport	Gaya	Bihar
Indira Gandhi International Airport	New Delhi	Delhi
Veer Savarkar International Airport	Port Blair	Andaman and Nicobar Islands
Sardar Vallabhbhai Patel International Airport	Ahmedabad	Gujarat
Kempegowda International Airport	Bengaluru	Karnataka
Mangalore Airport	Mangalore	Karnataka
Cochin International Airport	Kochi	Kerala
Calicut International Airport	Kozhikode	Kerala
Trivandrum International Airport	Thiruvananthapuram	Kerala
Raja Bhoj Airport	Bhopal	Madhya Pradesh
Devi Ahilyabai Holkar Airport	Indore	Madhya Pradesh
Chhatrapati Shivaji International Airport	Mumbai	Maharashtra
Dr. Babasaheb Ambedkar International Airport	Nagpur	Maharashtra
Pune Airport	Pune	Maharashtra
Zaruki International Airport	Shillong	Meghalaya
Jaipur International Airport	Jaipur	Rajasthan
Chennai International Airport	Chennai	Tamil Nadu
Civil Aerodrome	Coimbatore	Tamil Nadu
Tiruchirapalli International Airport	Tiruchirappalli	Tamil Nadu
Chaudhary Charan Singh Airport	Lucknow	Uttar Pradesh
Lal Bahadur Shastri International Airport	Varanasi	Uttar Pradesh
Netaji Subhash Chandra Bose International Airport	Kolkata	West Bengal

Recent initiatives in Civil Aviation sector

- **Government has scrapped 5/20 Rule** hence all airlines can now commence international operations (irrespective of 5 years of functioning) provided that they deploy 20 aircraft or 20% of total capacity (in term of average number of seats on all departures put together), whichever is higher for domestic operations.
- **Government has passed Civil Aviation Policy** which aims at providing safe, secure, affordable and maintainable air travel with access to various parts of India and the world with an objective of enhanced regional connectivity, ease of doing business and promoting entire aviation sector chain from cargo, general aviation, aerospace manufacturing to skill development.
- **Government has allowed FDI by foreign airlines up to 49% in scheduled air transport service/domestic scheduled passenger airline/regional air transport service, 100% in non scheduled air transport services and 100% helicopter services/seaplane service requiring, DGCA approval has been permitted subject to certain sectoral regulations.**
- **GPS- Aided Geo Augmented Navigation (GAGAN) system** has been fully operationalized and is capable of providing navigation services to departure, en-route and landing operations to suitably equipped aircrafts. The GAGAN System provides very accurate and high level of integrity satellite signals for precision air navigation over the entire Indian airspace.
- **The Centre has proposed a regional connectivity scheme (RCS) by offering concessions to the airlines,** incentivising them to fly on regional routes. The government has also proposed a fare cap at Rs 2500 for an hour's flight on regional routes. As per the scheme, the Centre will fund 80% of the airline's losses and the rest will come from the states.

Committees associated with Aviation Sector

- *Justice DM Dharmadhikar Committee: To look into various issues related to pay/wage rationalisation and restructuring in the post merged entity of Air India.*
- *Ashok Kumar Committee: Rights of Passengers with Disabilities and Reduced Mobility'.*