

CURRENT AFFAIRS PROGRAM

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JULY 2023 - BOOKLET-1

INFRASTRUCTURE-2

TABLE OF CONTENTS

1. Syllabus:	1
2. Roadways	1
1) Types of Roads	1
2) Various Road Development Projects in India	2
3) Rural Road Connectivity	3
4) PPP Models for Roadways	5
5) Issue of Road Safety	7
3. Inland Waterways	9
1) Steps Taken to promote Inland Waterways:	11
A) Inland Vessels Act, 2021	11
B) Inland Waterways Authority of India Act, 1985	11
C) National Waterways Act 2016	12
4. Ports	13
1) Port and Shipping Sector: General Challenges and Way Forward	13
2) Major Port Authorities Act, 2021	14
3) SeaPort Development and PPP	15
4) Different Types of PPP models used in Port Sector	17
5) Sagarmala Initiative	18

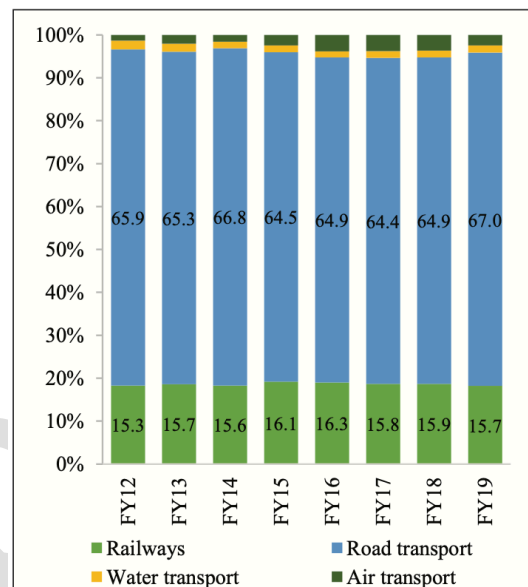
1. SYLLABUS:

- **INFRASTRUCTURE:** ENERGY, PORTS, ROADS, AIRPORTS, RAILWAYS ETC.
- **INVESTMENT MODELS**

2. ROADWAYS

- India has **2nd largest road network** in the world with **63.71 lakhs kms of rural-urban roads** and national state highways.
 - » **Note:** India is **next only to the USA** that has a road network of 66.45 lakh km.

- Road transport is the dominant mode of transport in India, both in terms of **traffic share** and in terms of contribution to **National Economy (3.08% of GVA (out of total 4.6% by Transport sector))**.



Source: Survey calculations based on MoRTH data.

- » According to the **National Transport Development Policy Committee Report**, as of 2011-12, road transport is estimated to **handle 69% of countrywide freight** and **90% of passenger traffic respectively**.
- » Apart from facilitating Indian **movement of goods and passengers**, road transport plays a key role in promoting **equitable socio-economic development** across regions of the country.
- » In line with the vision of monetisation of public sector assets, National Highways Authority of India (NHAI) launched its InvIT in FY22 not only to facilitate monetisation of roads but also to attract foreign and domestic institutional investors to invest in the roads sector.
 - So far, NHAI InvIT has raised more than ₹10,200 crore from high quality foreign and Indian institutional investors (up to December 2022).

1) TYPES OF ROADS

- Road are generally classified in the following categories
 - **National Highways -**
 - These are the primary roads of the country and connect large cities and big industrial areas.
 - Their development and maintenance are the responsibility of central government.
 - **Further need of development of National Highways:**
 - Out of the total roads **only 2.06% is national highway**, but it's carrying capacity is 40%.
 - Higher the density of National Highway -> Higher the inter-state trade (Export + Import) as percent of GSDP (ESI)
 - A positive relationship exists between density of NHs and the per capita income in Indian States.

- Presently, more than 70% of NHs are either **two lane or less**. Thus there is a lot of scope of improvement.
- **State Highways**
 - These roads link all the important centre of industry, trade and commerce of the state and National Highways
- **District Roads:**
 - These roads connect different parts of the district, important industrial centres and market centres and usually lead to local railways stations
- **Rural Roads:**
 - These roads are found in villages and usually are of two types - *Pucca (or metalled)* and *Kutcha* (or non-metalled)

2) VARIOUS ROAD DEVELOPMENT PROJECTS IN INDIA

- **The NHDP** was once the largest highways project undertaken (now Bharatmala) in the country since 2000. It included the Golden Quadrilateral and the North-South & East West Corridor.
- **Bharatmala Pariyojna:** It is the biggest ever road and highway development program taken by India.
 - Core idea is of a road built along India's vast west to east land border from Gujarat to Mizoram and linking that to a road network in coastal states, from MHA to Bengal.
 - **Scale**
 - Under this project highways of approximately 25,000 kms was to be constructed (also bridges) with an estimated cost of around 3.85 lakh crore in phase-1 (2017-19 - 2021-22)
 - In addition, Phase-1 included 10,000 km of balanced road works under NHDP. It would cost 1.5 lakh crore.
 - **Total Estimated outlay for phase-1** is Rs 5,35,000 crore.
 - The target was to complete the project in 2022.
 - **Funding**
 - To complete all the ongoing projects of the Ministry government estimates total expenditure of **about Rs 6.92 lakh crore (3.85 lakh crore for Bharatmala)**.
 - The funds are going to come from **fuel cess, budgetary allocation, TOT monetization and market borrowing**.
 - **Bharatmala is an umbrella scheme** which subsumes unfinished part of NHDP and also focus on new initiatives like
 - **Development of border and international connectivity roads**
 - **Coastal and port connectivity roads**
 - **Improvement in Efficiency of National Corridors**
 - **Development of Economic Corridors**
 - **Inter Corridor and Feeder Routes**
 - **Development of Greenfield Expressways**
 - **Significance/Advantages**
 - **Economic Development** - improvement in efficiency of freight and passenger

- **Improvement in average speed of vehicle** will contribute to lower freight cost, efficient fuel utilization.
- **Employment Generation** due to the project is estimated to be around **10 crore man days** during construction phase and **22 million permanent jobs** driven by increased level of economic activities due to development of economic corridor network.
- **Promotion of border trade**
- Economic multiplier effect of better roads on many poorer border states.
- **Strong strategic component**
 - Bharatmala plan has a strong strategic component. It's India's attempted answer to improve reach and connectivity to border areas, right across a large part of which lies China's impressive road infrastructure.
 - Supplies to India's troops as well as military transport currently happen through poor quality road. Bharatmala is designed to address that.
- **Other Road Projects:** Char Dham Highway Project

3) RURAL ROAD CONNECTIVITY

- **Introduction**
 - Rural connectivity is a key component of rural development in India. The construction of rural roads brings various socio-economic benefits to the rural areas and result in forming a strong backbone for the agro-based economy.
- **Positive Impacts of better road connectivity in rural areas are multidimensional.** It results in diversified livelihoods' portfolio and improved quality of life for rural communities.
 - **Agriculture**
 - » Road connectivity leads to increase in the quality of inputs for agriculture in terms of better seeds, fertilizers, motorized agri-equipment, vehicles etc.
 - » Better connectivity to market also triggers increase in production of dairy, poultry and allied activities.
 - **Promotes local industries.**
 - » Better access to raw material and market for the sale of finished products.
 - **Improved Employment opportunities**
 - » Not only due to better agri-productivity and local industries, but also because of access to employment opportunities outside the village.
 - **Improved Health Access**
 - » Due to easy access to health centres which becomes more crucial during emergency situation.
 - **Improved educational opportunities.**
 - » Better connectivity leads to easy accessibility for both school and higher education facilities.
 - » It is expected to contribute to increase in attendance and enrolment of primary and middle school.
 - **Better law and order**

- » Police or other armed forces agencies improve their mobility and thus can reach the crime scene quickly.
 - » This also creates more deterrence among criminals.
- **Better implementation of government schemes/programs**
 - » For e.g. Pradhan Mantri Ujjwala Yojana which aims to provide LPG cylinders to BPL families will be more effective in those rural areas which are better connected.
- **Enhanced Disaster Management**
 - » Relief and rescue reaches more effectively
 - » Rehabilitation work can also be faster in better connected areas.
- **Pradhan Mantri Gram Sadak Yojana (PMGSY)**
 - PMGSY was launched in the year 2000, as a centrally sponsored program and a one-time special intervention by Ministry of Rural Development (**MoRD**).
 - The primary **objective** of the programme was to provide.
 - **Connectivity by way of all-weather roads** to unconnected habitations of designated population size of more than 500 in plain areas and 250 in north-east, hill, tribal and desert areas as per the census 2001.
 - **Upgradation of selected roads** to provide full farm to market connectivity.
 - **Connecting left wing affected areas Scheme:**
 - To improve rural road connectivity in the left wing extremism affected districts from security angle , the Cabinet had in 2016 approved the centrally-sponsored "Road Connectivity Project for Left Wing Extremism (LWE) Affected Areas" scheme.
 - The Project will be implemented as a vertical under PMGSY to provide connectivity with necessary culverts and cross-drainage structures of 44 worst affected LWE districts and adjoining districts, critical from security and communication point of view.
 - **Development of Major District Roads (MDRs):** PMGSY guidelines don't permit construction/upgradation of MDRs. However, keeping special circumstances of LWE area in view, MDRs would be taken up under the scheme as a special dispensation.
 - Government has taken up task of connecting habitations with more than 100 persons in LWE affected blocks under PMGSY.
- **Key challenges being faced by PMGSY.**
 - a. **Adequate Maintenance** of the existing 4.6 million km of road network is emerging as a major challenge.
 - Many parts of the existing road network is either vulnerable or have already suffered damage from climate induced events such as floods, high rainfall, sudden cloud bursts and land-slides.
 - Generating funds for road maintenance has become a crucial challenge.
 - b. **Wide variation in unit costs among states** leads to confusions and delays.
 - Further, the cost is very high in some states which hinders the project
 - c. **Delays in execution**
 - Adverse weather condition
 - Issues in land acquisition
 - Law and order problems

- d. **Non-availability of labor and material** especially in remote areas
- e. **Lack of technically trained staff** to execute and monitor road work
- f. **Providing public transport** in these roads.

- **Way forward**

- i. **Climate vulnerability assessment** during the design process to identify the critical locations affected by floods, waterlogging, submergence, cloud bursts, storms, landslides, poor drainage etc.
- ii. **Special treatment for flood affected areas** through adequate waterways and submersible roads. Use of environmentally optimized road designs.
- iii. **For reducing the cost**, the use of non-traditional but durable and less expensive material such as iron and steel slag, fly ash and lime that are locally and easily available may be adopted.
- iv. **Proper Scheduling**
 - Schedule work after monsoon to avoid delays and cost over-runs.
- v. **Build Operate and Transfer Model** can be considered to deal with the issue of lack of resources.
- vi. **Better Monitoring** can be achieved by giving the responsibility of monitoring and undertaking minor maintenance to Gram Panchayat.
- vii. **Skill development** of rural workforce should also focus on road construction and maintenance activities.

4) PPP MODELS FOR ROADWAYS

- **Practice Questions:**

- While the infrastructure financing gap is huge in the developing world, the potential for attracting private investment for infrastructure projects is also huge. In this light discuss the key advantages and limitations of different investment models used for PPP in Roadways sector in India. [15 marks, 250 words]

- **Introduction:** Explain PPP Model

- **Engineering, Procurement and Construction (EPC)**

- Under this format, the government authority that owns the project hires one or more private companies (or another public company) to construction the project.
 - » The private players bid for the project and build it within pre-specified time and cost. It doesn't have any role in the road's ownership, toll collection, or maintenance.
 - » Government with full ownership of the road, takes care of the toll collection and maintenance of the road.
- **Risk to companies?**
 - » Almost no risk, barring road construction risk. So margins were also low.
- **Limitations**
 - » **High Financial burden on government:** EPC was the preferred mode of highway project development in 2013-14 and 2014-15, it suffered from an inherent limitation - the financial resource available with the government.
- **How much is this model being used?**

- » One of the most common method still being used by government for construction of National Highways
- **Build Operate and Transfer Model (BOT):** In BOT the developer invests in the project. Here the private players owns the asset and recovers his investment through toll charges or collect a fixed annuity from the government for a contractually pre-specified period of time (typically 15 to 30 years).
 - A. **BOT (Toll)**
 - The private player is also responsible for operation and maintenance once the project is commissioned.
 - **Risk to private players**
 - » Private players are expected to own the traffic risk often considered the tie breaker for the success and failure of the project.
 - » The fundamental assumption here is that private player is equally capable of assessing economic conditions and offering better value for money, even in case of mammoth infrastructure road projects
 - **Number of takers are coming down** since 2012 due to associated risk involved.
 - B. **BOT (Annuity)**
 - Here the contracting authority (government) pays the pre-specified sum of money semi-annually or annually to the private player and the traffic risk (toll revenue risk) is completely borne by the government(contracting authority).
- **Hybrid Annuity Model (HAM)**
 - Approved by Cabinet in Jan 2016
 - **Main Provisions**
 - It is a mix of EPC models (40%) and BOT(Annuity) (60%).
 - This is the fourth PPP model (BOT(Toll), BOT(Annuity) and EPC) to be introduced in India for the execution of road projects and is intended to kick start stalled projects and accelerate highway construction.
 - Under this PPP model, the government invests 40% of the construction cost for building highways over a period and balance comes from the private developer. The government invest money in five equal instalments based on the targeted completion of the road project.
 - Bidding rolls out only after 90% land is available.
 - The government pays a semi annuity/annuity premium to the developer, thus shouldering the traffic risk.
 - Assured returns and insulation from revenue/traffic risk for private players makes the model attractive.
 - **Main objective** is to revive highway projects in the country by making one more mode of delivery of Highway Projects.
 - **Advantages**
 - **Revival of the projects -**
 - Private partner continues to bear the construction and maintenance risks as in BOT (toll) model, it is required only to partly bear financing risk.
 - **Attracting new contractors and return of old ones**

- **Stress Free Lending**
- **Speedy Completion of Project**
 - Project cost is allowed to increase with inflation; thus the developer can focus on execution of projects.

- **Conclusion**

- » Considering India's large infrastructure investment requirements, only the combination of resources of both private and public sector can ensure fulfilling of financial requirement. In developing countries, the contribution of private sector is still very low and successful PPP models can play a very significant role in enhancing this contribution.

5) ISSUE OF ROAD SAFETY

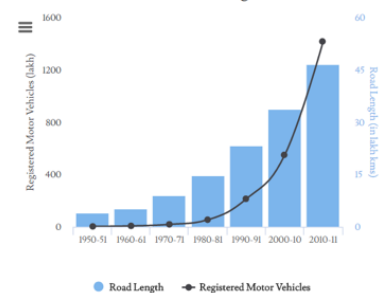
- **Why in news?**

- » After the 2020 COVID blip, road fatalities on the rise again in 2021 (Dec 2022: Source - PIB). In 2021, fatalities (1,53,972) from road accidents were 1.9% higher than 2019 levels, while road accident severity, or the number of people killed per 100 accidents, increased from 33.7% to 37.3%.

- **Introduction**

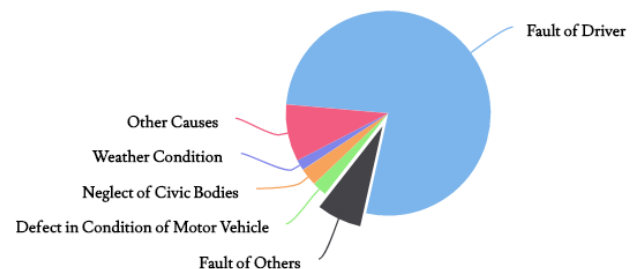
- For any country to make steady progress, safe roads are of paramount importance and India is no exception. But the current situation in India is dismal.
- Road accidents have become the **most dreadful killers in India.** According to the report by MoRT&H, **more than 1.5 lakh people die every year in road accidents.**
 - » **WHO's** estimate is much higher at more than 3,00,000 for the same period for India.
 - » In fact, a Gol study by the Registrar General and Census Commissioner, India ('The Million Death' Study) also reports at least 50% under-reporting of traffic fatalities and a higher share of pedestrian and motorized two wheelers as Road Traffic Collision victims when compared to the MoRT&H report.
 - » According to Geneva-based World Road Federation's World Road Statistics, India is most unsafe country in the world followed by China (63,000 deaths) and the U.S.A (37,000 deaths).

Rise in number of vehicles has outpaced increase in road length



- **As per MoRTH the main causes of road accident deaths are:**

- » Overspeeding (69.6%)
- » Wrong side driving (5.2%)
- » Use of mobile phones while driving (1.9%)
- » Traffic rules violations, drunken driving, no seat belts etc. were some other reasons.



- India has only about 2% of the world's motor vehicles but account for over 12% of its traffic accident deaths, making Indian road network the most unsafe on the planet.
- **3rd Global Ministerial Conference on Road Safety**
 - Feb 2020, Stockholm
 - **Key Highlights**
 - » **Theme: Achieving Global Goals 2030**
 - » **Stockholm Declaration** calls for new global target to reduce road traffic deaths and injuries by 50% by 2030.
 - » In addition, it invites **strengthened efforts on activities in all five pillars of the Global Plan for the Decade of Action:**
 - better road safety management.
 - safer roads, vehicles and people;
 - and enhanced post-crash care.
 - » It also calls for speeding up the **shift to safe, affordable, accessible, and sustainable modes of transport** like walking, cycling and public transport.
 - » **WHO is asked to continue to produce the series of global status reports**, as a means of monitoring progress towards achievement of the 12 Global Road Safety Performance Targets.
- **Why so many accidents?**
 - i. **Rash Driving**
 - ii. **Increasing Congestion** on India roads. The rise in number of vehicles have outpaced increase in road length.
 - iii. **Poor engineering** (both of roads and vehicles)
 - Presence of black spots on Indian roads
 - Almost all vehicles in India fail the crash test under European standards leading to more injuries and deaths during accidents.
 - iv. **Poor traffic management** in India
 - v. **Poor enforcement of Traffic rules**
 - This allows people to violate these rules and increase the chances of accidents.
 - vi. **Harassment of good samaritans**
 - This has led to people not being enthusiastic in helping an accident victim.
 - vii. **Lack of strong laws on road safety**
 - While globally countries have succeeded in reducing road accident deaths by enacting strong laws for road safety, India have been trying this strengthening its road safety legislation for three decades, to no avail.
- **Steps Taken by Government:** The MoRTH is undertaking various measures to improve road safety as detailed under:
 - » **MVA amendment, 2019** -> Higher fines, more insurance, focus on golden hour treatment, reduces harassment of good Samaritans.
 - » **National Road Safety Policy:**
 - The policy includes measures like promoting awareness, encouraging safer road infra including application of intelligent support, enforcement of safety laws trauma care etc.

- » The Ministry has formed a **multi-pronged strategy** based on 4-E's viz. **Education, Engineering, (both of roads and vehicles), Enforcement and Emergency Care**. Based on this, a draft action plan has been shared with states.
- » **Training:** Setting up of model driving training institutes in states and refresher training to drivers of Heavy Motor Vehicle in the unorganized sector.
- » **Publicity campaign** on road safety through the electronic and print media.
- » **Tightening of safety standards**
 - Seat belts, anti-lock braking system etc.
- » **Improving the quality of roads**
 - Road safety has been made integral part of road design at planning stage.
 - Road Safety Audit of selected stretches of NHs has been taken up.
 - High priority has been accorded to identification and rectification of **black spots** (accident prone spots) on National Highways. At total of 789 such black spots have been identified for improvement.
 - **India Road Assessment Program (IndiaRAP)** launched by MoRTH in Nov 2007. The aim to is tackle high risk roads around the country.
- **Steps that needs to be taken**
 - i. Government needs to put **more emphasis on public transport** to reduce road congestions. It will be an important step towards ensuring road safety.
 - ii. **Improvement in Road Design:**
 - Increase road safety audits for new projects (especially in the EPC project where the audit process is not without any conflict of interest)
 - iii. Move from **piece meal approach to an integrated approach**; improve inter-departmental coordination; focus on traffic signal/signage especially in tier-2 and tier-3 cities; improve traffic management in smaller towns;
 - iv. **Focus on Engineering Aspects** of the road to increase road safety. India requires establishing a system or institutional structure which enables the generation of new knowledge-new road standards thereby ensuring safe highways and urban roads.
 - v. **More accurate estimation of road accident numbers**.
 - vi. **Creating awareness among all stakeholders** - to make our roads safer, dedicated efforts must be made to create awareness among motorists, police, local administration, and judiciary.
 - An ideal way of increasing awareness would be launch of a nationwide Surakshit Bharat Abhiyan, a campaign to educate all stakeholders about the far reaching benefits.

3. INLAND WATERWAYS

- **Why in news?**
 - Union Minister of Port, Shipping & Waterways, Shri Sarbananda Sonowal reviewed various developmental works on Barak River (NW16) (Nov 2022)
- **Example Questions**
 - "Inland waterways in India may contribute immensely towards sustainable, inclusive and rapid economic growth" Elaborate. [10 marks, 150 words]

- What are the key factors hindering the development of Inland Water Transport in India? Discuss how a consultative, inter-disciplinary approach, as opposed to a techno-centric one, would keep the negative consequences of National Waterways development to its minimum [15 marks, 250 words]

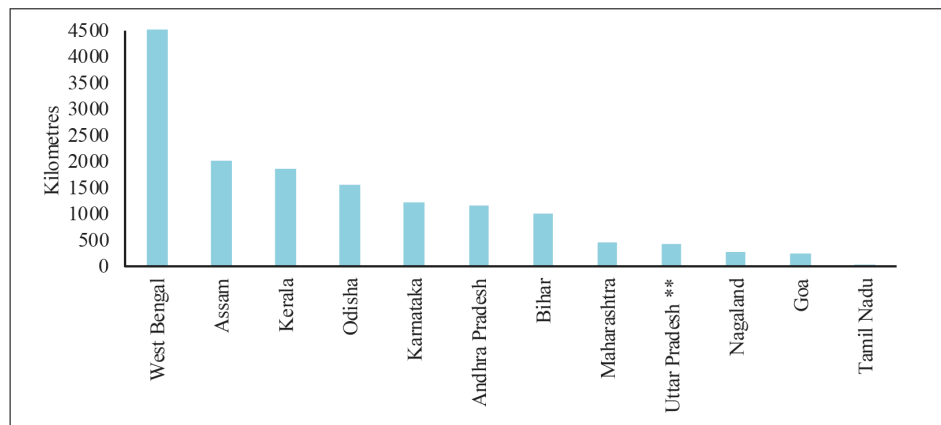
- Introduction

- Inland Water Transport was an important means of trade and communication in ancient India. But, with the development of roadways and railways in 19th and 20th century, it got sidelined. In recent years, Govt has again started emphasizing on the need of developing Inland Waterways because of its inherent advantages like fuel efficiency, competitive potential and thus ability to promote economic development and growth.

- Inland Waterways Potential in India

- Inland water transport holds great untapped potential as a means for the transportation of goods and passengers. India has a large endowment of rivers, canals, and other waterways. The total navigable length of waterways in India is around 14,850 kilometres.

Figure XII.9: Navigable Length of Waterways in Different States



Source: Statistics of Inland Water Transport 2020-21, Ministry of Port, Shipping and Waterways

Note: Data pertains to 2020-21. **Data for Uttar Pradesh pertains to 2016-17

- Need for improving and Inland waterways and ports

- Contribution in trade** Only 3.5% of trade in India is done through the mode of Inland waterways, which is 47% in China, 40% in Europe, 44% in Japan and Korea and 35% in Bangladesh.
- Fuel Efficient -> Cost Effective**
- Less Polluting:** Environment friendly as the emission per unit distance per unit weight is lesser.
- Economic growth and jobs:** It will boost economy and provide more jobs especially in inland regions which needs desperate boost to economies.
- Reducing Pressure on Road -> less congestion**
- Fewer accidents** - when compared to any other mode of transport
- Less Land Acquisition Problems and Less Deforestation:** As land capital required in case of water transport is minimal when compared to road and rail transport.

- Challenges faced by Inland Waterways development in the country

- Finance:** According to Ministry of Shipping, India needs Rs 80,000 crores to develop 20,000 km of inland waterways.

- ii. **Who will use inland waterways:** For e.g., there is not a lot of industries situated along the Ganga river. So, the waterways may not be used a lot.
- iii. **Seasonal Variation in Navigable depth**
- iv. **Most river transport routes are short:** River transport routes should run uninterrupted for at least 300 km at a stretch so that desired logistics cost saving might be achieved.
- v. **Dams and Barrages interrupt the water supply:** Tussle between states would lead to unviability of some of these projects.
- vi. **Environmental Concerns** (e.g. how EN Ganges river dolphins are being affected by NW-1)
- **Other Concerns** -> low transport speeds, limited areas of operation etc.

1) STEPS TAKEN TO PROMOTE INLAND WATERWAYS:

A) INLAND VESSELS ACT, 2021

- Purpose:
 - Making legislative framework user friendly and promote ease of doing business.
- **Background: Inland Vessels Act, 1917**
 - The Inland vessels Act of 1917 was conceived to be a pure consolidating legislation having limited applicability and purposes. Though the act has had several amendments, but it still suffered from a number of limitations.
 - Separate rules by different states.
 - Provisions for restrictive movement of mechanically propelled vessels
 - Non-uniform standards, limited applicability and validity of certificates.
 - Variable regulations - varied from one state to another -> led to hurdles in a seamless navigation across states and development sector.
- The **new act** is expected to solve the above problems:
- **The new act provides for harmonized and effective regulation** of the inland vessels and their seamless and safe navigation across the states. The benefits include:
 - i. **Uniformity of rules and regulations** across the states -> seamless, safe and economical transportation. .
 - ii. **Standards for classification and categorization of mechanically propelled vessels, standards and processes** involved in registration of vessels.
 - iii. **Preserving the statuses of authorities** established by the respective State Governments and thereby ensuring the effective administration of the provisions of the proposed legislations.
 - iv. The act provides for a Central database/E-Portal which will include all information about registration of vessels, vessel crew, and certificates issues.
 - v. A **Development Fund** will be set up for various purposes such as emergency preparedness, containment
 - vi. **Stipulating higher standards** regarding safety, navigation, environment pollution, trade practices, accountability, training of workforce etc.

B) INLAND WATERWAYS AUTHORITY OF INDIA ACT, 1985

- Empowers the government to declare waterways with potential for development of shipping and navigation as National Waterways and develop such waterways for efficient shipping and navigation.
- For development and regulation of inland waterways in the country the Inland Waterways Authority of India (IWAI) was set up in October, 1986
 - IWAI is the nodal agency under the Ministry of Shipping to make National Waterways commercially navigable. It aims to increase the cargo transportation through IWT.
 - Currently, it is developing the National Waterways for commercial navigation, including with assistance from the World Bank.
- It is **headquartered** in **Noida** and have regional offices at Patna (Bihar), Kolkata (WB), Guwhati (Assam) and Kochi (Kerala) and sub offices at other places throughout India.

C) NATIONAL WATERWAYS ACT 2016

- **Commenced in 2016**
- **Provisions**
 - The act has thus **declared 111 rivers or river stretches**, creeks, estuaries as National (inland) Waterways (including the five older ones)
- **Other details**
 - These 111 waterways pass through 24 states and two UTs with an approximate length of 20274 km². These will pass through nearly 139 river systems, creeks, estuaries and related canal systems of India.
 - Assam (17) and WB (16) will have the highest number of waterways.
- **Other steps taken to promote National Waterways Recently**
 - i. Sagarmala Project
 - ii. Declaration of 106 new waterways as National Waterways (total 111) through an act in 2016.
 - iii. Implementation of Jal Marg Vikas Project (JMVP) to augment capacity of NW-1 with the technical and financial support of the WB.
- **Way forward**
 - Increased budgetary allocation to Ministry of Shipping which can be used for more allocation to inland waterways project.
 - Simultaneous focus on development of industries in the inland water ways region to ensure that waterways get used more and more and are economically viable.
 - Dams and diversion of water for agriculture can be reduced by focusing on newer dam technologies which limit the amount of water that needs to be stored and promoting efficient utilization of water in agriculture.
 - In undertaking this paradigm shift towards inland transport, India should implement the sustainability practices in Europe.
 - A consultative, inter-disciplinary approach, as opposed to a techno-centric one, would keep the negative consequences to a minimum.

1) PORT AND SHIPPING SECTOR: GENERAL CHALLENGES AND WAY FORWARD

- **Introduction: Basic Information**
 - » For ages, the sea has been source of opportunity and seashores have acted as the gateway to prosperity for India. The development of ports and shipping sector is crucial for the economy given that most of the international trade is handled through ports (around 90% of international trade cargo by volume and 79.9% by value).
 - » The capacity of major ports, which was 871.5 million tonnes per Annum (MTPA) at the end of March 2014, has increased to 1534.9 MTPA by then end of March 2022. Cumulatively they handled 720.1 MT traffic during FY22.
- **Shipping and Port Sector has a lot of potential in India:**
 - » **India's Geography:** India is endowed with a rich coastline of ~7500 km and has a strategic location on key international maritime trade routes.
 - » **India's fleet** is just 1.2% of the world's fleet and carries only 8% of India's Exim trade.
- **Some challenges faced by India's Shipping Sector:**
 - i. **High Average Turnaround time** vis-a-vis ports of other countries. Most of this delay is caused due to port inefficiency. This undermines the competitiveness of Indian ports.
 - ii. **Inadequate linkage of ports with hinterlands** - The evacuation of cargo is slow, leading to congestion.
 - iii. **Declining share of Indian ships** in the carriage of India's overseas trade (from about 40% in 1980s to 7% in 2015-16). This leads to a lot of forex outflow.
 - iv. **Ageing Indian fleet:** The average age increased from 15 years in 1999 to 19.3 years as on Jan 1, 2017. In fact, around 45% of the fleet is more than 20 years of age.
 - v. **Competition from neighbouring countries** like China and Sri Lanka is also impacting India's port and shipping sector.
- **Steps Taken:**
 - **Maritime India Vision 2030 (MIV 2030)**, released in March 2021
 - Objective of propelling India to the forefront of the global maritime sector.
 - It will act as a blueprint to ensure coordinated and accelerated growth of India's maritime sector.
 - Develop World class mega ports, transshipment hubs, and ensure infrastructure modernization.
 - **Scheme to provide subsidy support to Indian shipping companies** (announced in July 2021) in global tenders floated by Ministry and CPSEs over five years to promote flagging of merchant ships in India.
 - **Expansion of port capacity** has been accorded highest priority by the government through various infra-development projects like Sagarmala, and various PPP initiatives etc.
 - **Various steps are being taken to enhance efficiency of ports:**

- Improving Port Governance; addressing low utilization; modernization of ports with new technologies; etc.
 - **For streamlining the port compliances and for reducing the Turn Around Time (TAT) for vessels**, long strides have been taken at major ports towards **digitization of key Exim processes**.
 - For e.g., the Port Community System (PCS 1x) has digitized processes such as Electronic Invoice (e-Invoice), Electronic Payment (e-payment), and Electronic Delivery Order (e-DO) for the physical release of cargo by custodians, in addition to the process of generating electronic Bill of Lading (e-BL) and Letter of Credit (LC).
 - **RFID solution** has been implemented at all major ports to enable seamless movement of traffic across port gates, including substantial reduction in documentation check.
 - **Other initiatives:**
 - Major Port Authorities Act 2021
 - New **Captive Policy for Port Dependent Industries** has been prepared to address the challenges of renewal of concession period, scope of expansion, and dynamic business environment.
- **Way Forward:**
- i. **Improved investments** for ensuring enough funds for MIV 2030
 - ii. **Incentivize private investment** in port and shipping sector through tax breaks, subsidies and loans.
 - iii. **Operation has to become more efficient.**
 - iv. **Domestic Ship Building Industry** needs to be encouraged to reduce the cost of ships.
 - v. Focus on **niche areas** like coastal shipping and cruise shipping.
 - vi. **Work towards sustainability:** The shipping sector is a major polluter, and there is a need to promote greener fuel and technology in shipping sector.
 - vii. **Promote Cooperation with neighbouring countries** - the government should promote cooperation with neighbouring countries in the shipping sector. This could include joint ventures, sharing of resources, and harmonization of regulations.
- **Conclusion:**
- » The ports and shipping sector is a vital part of the Indian economy. By taking further steps to develop the sector the government can help boost the economic growth and create jobs.

2) MAJOR PORT AUTHORITIES ACT, 2021

- **The need of this act?**
- » Major Ports Trust Act of 1963 was very restrictive which made it difficult for major ports to function in highly competitive environment and respond to market challenges.
 - » The Board of Trustees was considered too large and disparate to allow efficient decision making.

- The 2021 act provides for regulation, operation, and planning of major ports in India. It was enacted in Sep 2021 and replaced the Major Port Trusts Act, 1963.
- **Key Provisions:**
 - » It vests the administration, control and management of major ports in the **Boards of Major Port Authorities (MPAs)**. It will replace the existing port trusts.
 - **Responsibility:** The boards are responsible for overall planning, development, and operation of the port. They are also responsible for fixing the scale of rates for port services and assets.
 - » **Greater autonomy to MPAs in decision making:**
 - MPAs are now free to enter into public-private partnership (PPPs) for the development and operation of port facilities.
 - **Significance:** This will allow the ports to be more responsive to the needs of their users and to make decisions that are in the best interest of the port community.
 - » They are also responsible for fixing the tariffs for port services based on market conditions.
 - **Significance:** This will allow ports to be more competitive and to attract more traffic.
 - » **Reorient the governance model** in the major ports to landlord port model in line with the global practices.
 - » **Improved grievance redressal mechanism:** The act provides for creation of an adjudicatory board to resolve disputes between MPAs and stakeholders.
- The above changes are also expected to increase investment in the port sector.
- **Key Criticisms/Opposition:**
 - » **No accountability to public:** The act doesn't provide for any specific mechanism to ensure that major ports remain accountable to the public. This could lead to increased corruption.
 - » Critics also argue that the act is the first step towards privatization and can thus be a backdoor for crony capitalism.
 - » Interests of state governments have not been kept in picture
- **Conclusion:**
 - » The MPAA act is a positive step towards the development of India's port sector. It is expected to make Indian ports more competitive and efficient, and to attract more investment in the sector.

3) SEAPORT DEVELOPMENT AND PPP

- **Example Questions:**
 - "PPP projects in the ports sector are of great significance in making Indian ports more competitive and strengthening India's position in international trade" Discuss.
 - Evaluate the impact of the PPP model on the efficiency and performance of ports in India. Provide examples of successful PPP projects and their outcomes. [15 marks, 250 words]
- **What is PPP and different models of PPP** (Already done in the basic's class)

- **PPP Model in Port Sector**
 - It has been 25 years since the PPP model was first introduced in India's major ports. In July 1997, the Jawaharlal Nehru Port entered into first agreement with the private player Nhava-Sheva International Container terminal within the Jawaharlal Nehru Port
 - When the PPP started, there was nothing like a **Model Concession Agreement**. Government came up with various templates and through learning along the way, these agreements are being suitably modified to take care of the concerns of the government sector and private sector.
- **Various PPP Models used in the port sector:**
 - Landlord Port Model
 - Build Operate Transfer (BOT)
 - Build Own Operate Transfer (BOOT)
 - Build Own Lease Transfer (BOLT)
- **How PPP has contributed over the years in port sector?**
 - **Problems:** Before PPP was introduced, the port sector was constrained by limited capacity, traditional infrastructure, and poor equipment levels. These were resolved by roping in the private sector to make ports globally competitive.
 - **Improved Port Infrastructure:** PPP model has hastened the economic growth by introducing international level infrastructure in the port. It has enabled national ports to compete with international ones.
 - **Operational models** has enabled efficient port monitoring.
 - **Port business has become more competitive** with more terminals chasing users.
 - **World Bank** too has praised India's PPP Model, saying the country witnessed considerable growth in PPPs in the last one and a half decade. India has emerged as one of the leading PPP markets in the world, due to several policy and institutional initiatives taken by central as well as many state governments.
- **Scale of PPP Projects:**
 - The PPP investment numbers are quite huge in the port sector with nearly 300 PPP projects costing around 3.5 lakh crores taken up as of Dec 2019.
 - The Sagarmala program has identified 123 PPP projects at an estimated investment of Rs 2.63 lakh crore.
 - Of this around 30 have been completed and around 30 additional are currently under implementation.
- **Some successful examples:**
 - **Mundra Port (BOT Model):** Adani Ports and Special Economic Zone (APSEZ) entered into a BOT agreement with Gujarat maritime board to develop and operate Mundra Port.
 - The port has emerged as one of the largest and most efficient ports in the country. It has seen a substantial cargo handling growth, established strong connectivity, and implemented state of art technology and infrastructure.
 - **Kandla Port** (Joint Venture): Kandla International Container Terminal (KICT) was developed through a JV between ABG port and Deendayal Port Trust.

- Kandla International Container Terminal (KICT) was developed through a JV between ABG Ports and the Deendayal Port Trust. This has significantly enhanced the container handling capacity at Kandla Port.
- **Some challenges:**
 - **Risk Allocation** between public and private sector.
 - **Evolving Regulatory Framework:** The regulatory framework for PPPs in India is still evolving. This can create uncertainty for private investors and make it difficult to attract investment.
 - **Lack of competition:** The huge size and complexity of PPP projects can discourage smaller contractors from bidding, so reducing competition, which may also affect the final cost.
- **Conclusion:**
 - These successful PPP projects demonstrate how private sector participation has positively impacted the efficiency, capacity, and overall performance of ports in India. However, it is important to be aware of the limitations of this approach and to take steps to mitigate the risks involved.

4) DIFFERENT TYPES OF PPP MODELS USED IN PORT SECTOR

- **Example Question:** Highlight the advantages and limitations of the different types of PPP models used in the development of ports in India [10 marks, 250 words]
- **Introduction:**
 - » Write about need of PPP in Ports sector.
- **Different types of PPP models used in Port development include:**
 1. **Landlord Port Model**
 - The landlord port model is a port management model in which the **port authority acts as a landlord, leasing the port infrastructure to private companies that operate the port**.
 - **The port authority** retains the ownership of the port infrastructure and retains the responsibility of the strategic port function, such as planning, regulation, and safety.
 - **The private companies** are responsible for the day-to-day operations of the port, such as cargo handling, stevedoring, and terminal management.
 - **Advantages:**
 - **Port Authorities** can focus on core competencies, while the private companies bring in their expertise in operations and management. This leads to a more efficient and effective port operations.
 - **Investment:** The model also attracts private investment, which can help to improve the port's infrastructure and facilities.
 - **Limitations:**

- Private sector may not be willing to invest in the construction and operation of the superstructure if the revenue risk is very high.
- E.g.:
 - **Jawaharlal Nehru Port** (India) became India's first 100% landlord port in July 2022.
- 2. **Build Operate and Transfer (BOT) Model**
- 3. **Build Own Operate Transfer (BOOT) Model**
 - Here, a private player is responsible for financing, constructing, owning and operating the port facility for a specified period before transferring it to the government.
 - **Advantages:** During concession period, private players have greater control over operations
 - **Limitations:** The private sector may not be willing to take on the risks associated with the project if the returns are not attractive.
- 4. **Build Operate Own (BOO) Model**
 - The private sector builds a new port or terminal, operates it indefinitely, and own it outright.
 - Unlike BOT and BOOT, the private sector party owns the project and doesn't have to transfer it to the government entity at the end of the term.
 - **Advantages:**
 - Efficiency gains associated with private sector.
 - Private sector has incentive to invest in long term infra.
 - **Limitations:**
 - Private sector may not be interested if there is no guarantee of long term return.
- 5. **Management Contract Model**
 - Private sector manages the port or terminal on behalf of the public sector. They bring their expertise and resources to bring efficient operation.
 - **Advantages:**
 - Government benefits from private entity's expertise in port management
 - Reduced financial risks for the private entity compared to other models.
 - **Limitations:**
 - Limited incentives for the private players to invest in infrastructure upgrade.
- **Landlord port** model is the most common type of PPP model used in India. It is because it offers a good balance between risks and rewards for both the public and private sector.
- The choice of PPP model will depend on a number of factors, including the size and complexity of the project, the risks involved, and the objectives of the public and private sectors. It is important to carefully evaluate all these factors before selecting the PPP model.

5) SAGARMALA INITIATIVE

- **Example Questions:**
 - Explain the vision and objective of the Sagarmala initiative in India's maritime sector. How does it contribute to the country's economic development and coastal community welfare?

- **Background: Need of Sagarmala Program:**
 - **Institutional Challenges:**
 - » Involvement of multiple agencies in development of infrastructure to promote industrialization, trade, tourism and transportation.
 - » Presence of dual institutional structure that had led to development of major and non-major ports as separate, unconnected entities.
 - **Infrastructure challenges:**
 - » India lags behind in port and logistic sector.
 - » Lack of requisite infrastructure for evacuation from major and non-major ports leading to sub optimal transport modal mix
 - Limited hinterland linkages that increases the cost of transportation and cargo movement
 - » Lack of scale, deep draft and other facilities at various ports in India.
 - » Limited mechanization.
 - **Poor Manufacturing sector** - Low cargo availability for shipping sector.
 - **High cost of logistics in India** hampers India's export competitiveness.
 - **Low penetration of coastal and inland shipping** in India
 - **Procedural bottlenecks**.
- **Sagarmala is envisaged to solve the above problems.** It was approved by Union Cabinet in 2015.
- The objective of the Sagarmala program is to bring Indian ports at par with the best global ports and promote port led development through port modernization, hinterland connectivity, port-led industrialization, and coastal community development along with development of Coastal Economic Zones.
- The initiative has **following main objectives:**
 - The **main vision** of the program is to **reduce logistic cost for international and domestic trade** with minimal infrastructure investment.
 - **Optimizing the cost of transporting domestic cargo** through optimizing modal mix.
 - **Optimizing time/cost of EXIM** container movement.
 - **Lowering logistics cost of bulk commodities** by locating future industrial capacities near the cost.
 - **Improving export competitiveness** by developing port proximate discrete manufacturing clusters.
- The **prime objective** of the Sagarmala project is to:
 - **Develop world class Ports and Terminals:** It aims to develop 100 new ports and terminals by 2025.
 - **Promote port-led direct and indirect development;**
 - **Provide infrastructure to transport goods** to and from ports quickly, efficiently and cost effectively.
 - Developing new lines linkages for transport (including roads, rails, inland waterways and coastal routes)
 - **Create new infrastructure for coastal shipping:** It will include development of new waterways, the construction of new jetties, and the dredging of existing channels.

- **Simplifying Procedures** used at ports to ensure quick, efficient and hassle free and seamless cargo movement.
- **Establishing Industries and manufacturing centres** to be served by ports in EXIM and domestic trade.
 - It involves development of Coastal Economic Zones.
- **Improvement in quality of Life:**
 - **Coastal Community Development Plan** includes skill development, coastal tourism etc.
 - **For Human Resource development**, two Centres of Excellence in Maritime and Shipping (CEMS) with campuses in Vizag and Mumbai has been envisaged.
 - In collaboration with other ministries, there would also be focus on improving capacity development and social development through fishery, cold chain and aquaculture development.
 - **Promoting Tourism** in convergence of with Ministry of Tourism and state governments. The coastal tourism projects include: Development of coastal tourism, cruise tourism, lighthouses etc.
- **Significance:**
 - Sagarmala will thus contribute to increased trade, improved connectivity, new Industries, more jobs and social improvement of coastal community.

Conclusion: The success of the Sagarmala initiative will depend on a number of factors, including the availability of funding, the cooperation of state governments, and the participation of private sector. However, if the initiative is successful, it will have a significant impact on India's economic development and coastal community welfare.