



PORT CONNECTIVITY: INDIA'S CONDUIT TO THE WORLD

"Whosoever commands the sea commands trade; whosoever commands the trade of the world commands the riches of the world and consequently the world itself".

-Sir Walter Raleigh, 17th Century

Introduction

The blockage of Suez Canal by the giant container ship had educated many about the necessity of state-of-the-art shipping and dependence of the world trade on modernized ports. To deal with the unprecedented shutdown, the Government of India chalked out four-point strategy. The alarm created by the shutdown raised fears of extended delays, goods shortages, and rising costs for consumers. Ministry of ports, shipping and waterways had assured to issue an advisory to JNPT, Mundra and Hazira ports so that they efficiently handle the situation once the blockage was over.

Besides these immediate measures, Government of India has also come up with the Major Port Authorities Act, 2021 to ensure ports in the country are managed efficiently using modern methods to support international trade and boost local economy. Among others, the Centre has already launched the 'SAR-OD-Ports' (Society for Affordable Redressal of Disputes - Ports) which is a dispute resolution mechanism for PPP Projects in the Major Ports. Despite these measures India's ports have been underperforming vis-à-vis the global standards and have seen very limited private participation.

Before we delve into this further, it is imperative to know- What are ports and how are they classified? What is the significance of port development and port connectivity for India? How India's port sector has been performing recently? What are the hurdles to be crossed for India's effective port connectivity? What steps have been taken by the government to enhance India's port connectivity? What more can be done to realize the potential of India's Port connectivity? In this edition, we will attempt to answer these questions.

What are ports and how are they classified?

A port can be defined as a harbor or an area that is able to provide shelter to numerous boats and vessels (transferring people or cargo) and can also allow constant or periodic transaction of shipment. The modern array of ports can be classified based on cargo handling capacity, location or the specialized functions that they may serve-

► Types of port according to cargo handled:

- **Industrial Ports:** These ports specialize in bulk cargo-like grain, sugar, ore, oil, chemicals, and similar materials.
- **Commercial Ports:** These ports handle general cargo-packaged products and manufactured goods and passenger traffic.
- **Comprehensive Ports:** Such ports handle bulk and general cargo in large volumes. Most of the world's great ports are classified as comprehensive ports.



► Types of port on the basis of location:

- **Inland Ports:** These ports are located away from the sea coast. They are linked to the sea through a river or a canal. Such ports are accessible to flat bottom ships or barges. For example, Manchester is linked with a canal; Rhine has several ports like Mannheim and Duisburg; and Kolkata is located on the river Hoogli.
- **Out Ports:** These are deep water ports built away from the actual ports. These serve the parent ports by receiving those ships which are unable to approach them due to their large size. Classic combination, for example, is Athens and its out port Piraeus in Greece.

► Types of port based on specialized functions:

- **Oil Ports:** These ports deal in the processing and shipping of oil. Some of these are tanker ports and some are refinery ports. Maracaibo in Venezuela, Esskhira in Tunisia, Tripoli in Lebanon are tanker ports. Abadan on the Gulf of Persia is a refinery port.

- **Ports of Call:** These are the ports which originally developed as calling points on main sea routes where ships used to anchor for re-fuelling, watering and taking food items. Later on, they developed into commercial ports. Aden, Honolulu and Singapore are good examples.
- **Entrepot Ports:** These are collection centres where the goods are brought from different countries for export. Singapore is an entrepot for Asia and Copenhagen for the Baltic region.
- **Packet Station:** These are also known as ferry ports. These packet stations are exclusively concerned with the transportation of passengers and mail across water bodies covering short distances. These stations occur in pairs located in such a way that they face each other across the water body, e.g. Dover in England and Calais in France across the English Channel.
- **Naval Ports:** These are ports which have only strategic importance. These ports serve warships and have repair workshops for them. Kochi and Karwar are examples of such ports in India.

It is evident that ports can potentially play very diverse roles, and both directly and indirectly aid a country's overall development. Some of the examples where ports have played a significant role in development have been highlighted below.

What is the significance of port development and port connectivity for India?

► Types of port on the basis of location:

- **Reducing Logistics cost:** India's logistics sector is highly defragmented. The World Bank Logistics Index released in 2018 ranked India 44th, far behind the US at 14 and China at 26. India aims to reduce the logistics cost from the present 14% of GDP to less than 10% by 2022. Several studies show that using coastal shipping and inland waterways would be 60 to 80 percent cheaper than road or rail transport. Port development is a pre-requisite for the development of the coastal shipping sector.
- **Blue Economy:** Blue Economy as a concept includes all the economic activities related to oceans, seas and coastal areas and emerges from a need for integrated conservation and sustainability in the management of the maritime domain. Development of ports provides the necessary infrastructure for operationalization of the Blue Economy.
 - India's blue economy supports **95% of the country's business through transportation and contributes an estimated 4% to its Gross Domestic Product (GDP).**
 - India is also **among the top 5 fish and aquaculture fish producing countries** in the world.



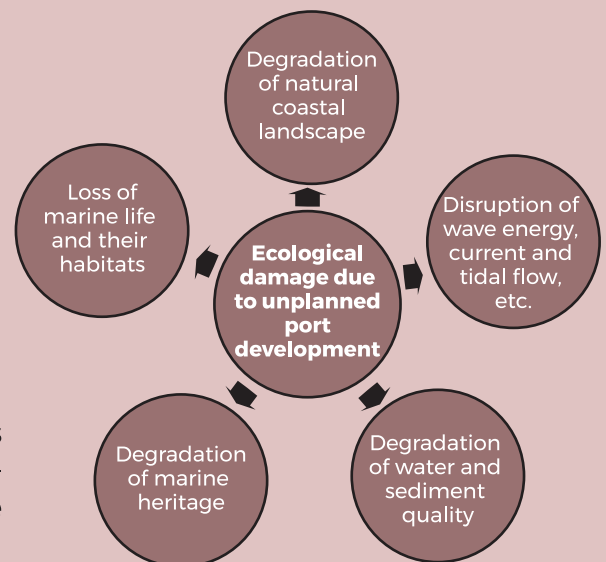
► Security:

- **Ensuring safety of strategic installations:** Port development would result in development of India's coasts that harbor several strategic installations such as naval bases, nuclear power plants, satellite and missile launching ranges.

- **Curtailing transnational organized crime at sea:** India is vulnerable to narcotic drug trafficking as it is located between two largest Opium producing regions of the world i.e. Golden Crescent (comprising illicit opium production areas in Iran, Afghanistan and Pakistan) in the west and Golden Triangle (the second largest opium production region in the world, covering Myanmar, Thailand and Laos) in the east.
 - The physical proximity of Indian coasts to **politically volatile gulf countries**, economically distressed Eastern African Countries add to India's vulnerability of smuggling and trafficking.
 - Criminal activity, such as **illegal, unreported and unregulated fishing (IUUF), trafficking in persons (TiP) and smuggling of migrants (SoM) and piracy is known to take place in these waters.**
 - **Port development and efficient management of port** resources would curtail such illegal practices and ensure safety of Sea Lanes of Communication (SLOC).
- **Keeping an eye on maritime traffic:** Indian Ocean Region (IOR) is also the busiest maritime trade route, with 11,000 to 12,000 ships present in it at any given time. Monitoring these vessels and regulating their movement is challenging but a necessity for prosperity of the country.

► International Relations:

- **Countering the influence of China from the strategic domain of India:** Through its Belt and Road Initiative, China has proactively exacerbated India's pre-existing Sri Lanka-linked trans-shipment problem. This has come about through both China's investment in, and the provision of services at, the countries' port and logistics sectors. Sri Lanka has already leased Hambantota port to China for 99 years. Therefore, port development and ensuring local trans-shipment facilities is a vital strategic necessity for India.
- **Regional integration:** India's eastern seaboard can help recreate an integrated hub and spoke model for regional connectivity in the Bay of Bengal. Such a comprehensive plan is now pitched as India's primary infrastructure focus, given that South Asia remains one of the least integrated areas.
- **Net Security Provider in the IOR:** Many western countries are hedging on India's ability to counter China in the IOR. India is seen as a lynchpin for the Indo-Pacific strategy by the UK, US, Australia, Japan, France among others. India could hedge on their support to realize its ambition of 'Net Security Provider' in the IOR by enhancing its coastal security and ensuring state of the art port modernizations and its connectivity with the hinterland.
- **Environment:** The Indian Ocean is warming three times faster than the Pacific Ocean. Overfishing, coastal degradation, and pollution are also harming the marine ecosystem. As ports are often located in sensitive environmental settings and can result in a range of environmental impacts, good design and sound environmental impact management of construction and operational activities of port is critical. Therefore, the Coastal Regulation Zone (CRZ) notification under the Environmental Protection Act (EPA), 1986, declared all coastal stretches up to 500 m from the high tide line as CRZ.



► Social:

- **Inclusive development:** Industries require a safe and cheap means of exporting finished goods and importing raw materials. Hence, most industries in the world are located in the coastal belts, in the vicinity of major ports. These industries in turn, influence the lives of the employees and indirect benefactors.

- **Sustainable livelihood development in the fisheries sector:** India is the second largest fish producer in the world with a total production of 13.7 million metric tonnes in 2018-19 of which 35% was from the maritime sector. By enhancing the capability to harness marine resources in a sustainable way and to ship them to foreign countries, India could raise the income of fisher folk and secure the food security and nutrition security.

Examples of Port-led Development

- ▶ **Singapore:** Singapore's natural deep-sea ports and the geographical location at the crossroads of important shipping channels makes its trade a major economic sector, next to production and services. Singapore attracts 130,000 vessel calls on an average per year, while the maritime industry accounts for 7% of Singapore's GDP and 170,000 jobs.
- ▶ **China:** According to the Liner Shipping Connectivity Index (LSCI), several of China's container ports rank among the most connected in the world. Furthermore, China aims to achieve significant progress on green, smart, and safe port development by 2025, develop the major ports with world leading levels by 2035, and to form several world-class port clusters by 2050.
- ▶ **UK:** The ports industry makes a macroeconomic contribution to the UK through the key macroeconomic indicators: business turnover, Gross Value Added (GVA), employment and the compensation of employees. It is estimated that in 2017 the ports industry directly contributed to 61% of turnover, 57% of GVA and 52% of employment.

How are ports governed in India?

Ports in India are classified as Major and Minor Ports according to the jurisdiction of the Central and State government as defined under the Indian Ports Act, 1908 i.e., Major Ports are owned and managed by the Central Government and Minor ports are owned and managed by the State Governments. India has **12 major and 205 notified minor and intermediate ports**.

- ▶ **Major Ports:** Major Ports are under the **Union list** of the **Indian Constitution** and are administered under the **Indian Ports Act 1908** and the **Major Port Trust Act, 1963**. Each major port is governed by a **Board of Trustees appointed by the Government of India**. The Trusts operate on the basis of policy directives and orders from the Government of India. Their functions include planning, management and operations of ports. The tariffs for major ports are fixed by the Tariff Authority for Major Ports (TAMP).



Ports on Western Coast	Ports on Eastern Coast
1. Kandla (formed after Karachi given to Pakistan, child of partition)	1. Kolkata-Haldia (riverine port, Indian coast guard base)
2. Mumbai (India's busiest and biggest)	2. Paradip (exports raw iron to Japan)
3. Jawahar Lal Nehru/ Nhava Sheva (largest container port)	3. Vishakhapatnam (oldest shipyard & natural harbour)
4. Marmugao (natural harbour)	4. Chennai (oldest and artificial harbour)
5. Mangalore/Panambur (Kudremukh iron-ore exports)	5. Ennore (most modern-in private hands)
6. Cochin (Natural Harbour)	6. Tuticorin (southernmost & artificial deep sea harbour)

► **Minor Ports:** Minor ports are managed at the State level by the department in charge of ports or the State Maritime Board, if created, as is the case in Gujarat, Maharashtra, and Tamil Nadu. The functions of the State maritime boards are similar to those of port trusts, and also include the authority to set tariffs. They also focus on attracting private investment by awarding concession contracts, providing incentives, exclusivity rights and assuring land acquisition.

► **Governance model:** Until the enactment of Major Port Authorities (MPA) Act, 2021, the 11 ports owned by the Indian government widely followed a hybrid format of the long obsolete service port model and the preferred landlord model of port management followed globally.

○ This has resulted in a **conflict of interest between the port trusts**

and the private sector, with the former acting both as port regulators and providers of commercial services in many instances.

○ The MPA, 2021 aims at **reorienting the governance model** in central ports to landlord port model in line with the successful global practice.

Service port model vs. Landlord port model

► **The service port model:** The port authority owns the land and all available assets—fixed and mobile—and performs all regulatory and port functions. Here, the **port trust is both the landlord and the cargo terminal operator**. While the service port model in India was consistent with a centralized economy, it **did not fit well in a market-oriented economy**.

► **The landlord port model:** The publicly governed port authority acts as a regulatory body and as landlord while **private companies carry out port operations**—mainly cargo-handling activities. Here, **the port authority maintains ownership of the port** while the infrastructure is leased to private firms that provide and maintain their own superstructure and install own equipment to handle cargo. In return, the landlord port gets a share of the revenue from the private entity.

How India's port sector has been performing recently?

Almost a quarter of India's maritime trade is shipped through ports in other countries and over 80 per cent of its trans-shipment cargo uses facilities at ports in Singapore, Colombo in Sri Lanka, and Klang in Malaysia. Trans-shipment costs are leading to Indian port industry losses of Rs 15 billion annually. Thus, India has huge potential to harness when it comes to port utilization.

Key Performance Indicator		Current (2020)	Target (2020)
1	Major Ports with > 300 MTPA cargo handling capacity	-	3
2	% of Indian cargo transshipment handled by India ports	25%	>75%
3	% of cargo handled at Major Ports by PPP/ other operators	25 hours	<20 hours
4	Average vessel turnaround time (containers)	51%	>85%
5	Average container dwell time	55 hours	<40 hours
6	Average ship daily output (gross tonnage)	16,500	>30,000
7	Global ranking in ship building and ship repair	20+	Top10
8	Global ranking in ship recycling	2	1
9	Annual cruise passengers	4,6800	>15,00,000
10	% share of Indian seafarers across globe	12%	>20%
11	% share of renewable energy at Major Ports	<10%	>60%

What are the hurdles in enhancing India's port connectivity?

► Infrastructure bottleneck:

- **Shallow ports:** The insufficient depths at Indian ports are a direct result of the country possessing deficient dredging capabilities. The thinness of this capability is because there are few new entrant dredging companies.
- **Subdued capacity utilization at ports:** In the past five years, India's total port traffic registered a meagre ~5% CAGR, while its port-cargo capacity clocked an 11% CAGR. This has resulted in a significant **drop in capacity utilization in certain ports to below 50%**.
- **Logistics bottleneck:** The port productivity and efficiency also depend on the quality and reliability of road and rail connectivity, and adequate storage and handling facilities. The lack of expressway connectivity between major ports as well as industrial clusters, and high fuel cost make hinterland transportation inefficient and slow.

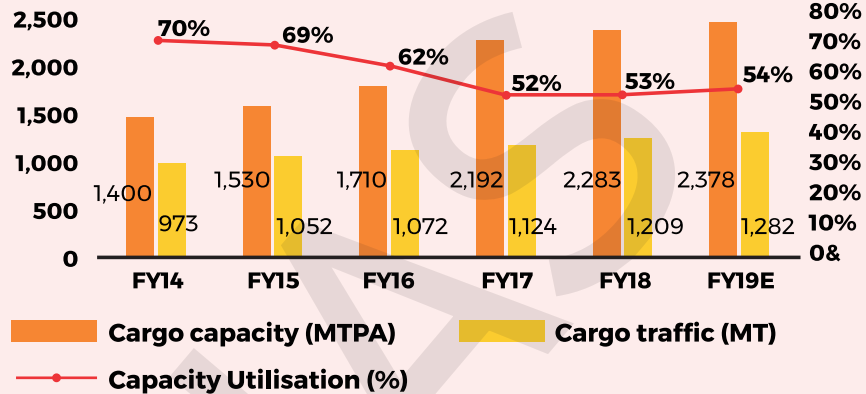
► Regulatory bottleneck:

- **Lack of level-playing field between major and minor ports:** The erstwhile Tariff Authority of Major Ports (TAMP) regulatory regime has prevented price parity between major and minor ports, as TAMP regulations are applicable only to the former. Due to this disparity, minor ports have enjoyed the distinctive advantage of fixing their own tariffs.
- **Bureaucratic challenges:** The custom procedures and regulations, and lengthy documentation process are the other areas where Indian maritime sector lags the pace when compared with its counterparts like Singapore, China, and Malaysia.

Infrastructure deficit at ports

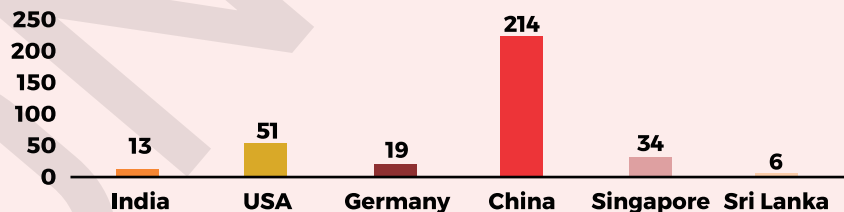
Subdued capacity utilisation at ports

Capacity utilisation at Indian ports



Note: Major port capacity re-rated by the ministry based on berthing policy as per International norms. Total re-rated capacity during FY17, was 1,359 MTPA.

30 Container port traffic (million TEUs) in 2017



Source: UNCTAD, World development Indicators- World Bank



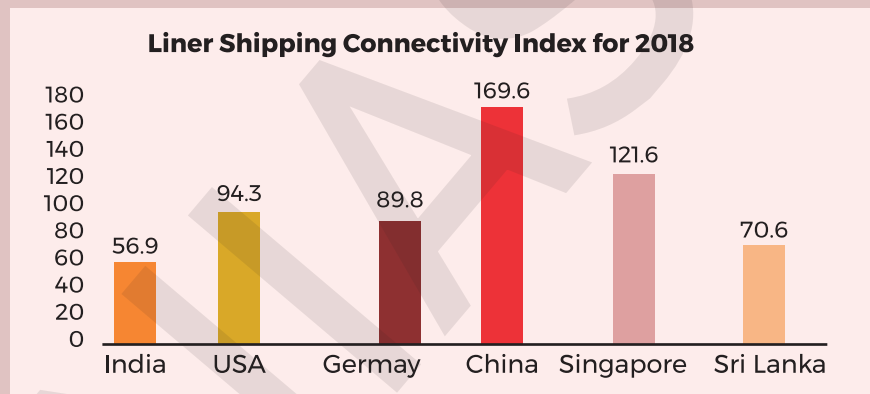
► **Issues related to investment:**

- **Lack of financing:** Port projects by their very nature have long gestation periods and therefore the developers have difficulty in accessing financing from banks and financial institutions.
- **Subpar private sector participation:** Private participation in this sector has been extremely cautious. The financial viability of port projects is a major deterrence for private developers as well as financiers. Greenfield port projects are usually in remote locations and considerable government level support is required to create basic infrastructure for site access.

► **Labour issues:** Most of the major ports are **overstaffed with unskilled and untrained labour** and the development of such ports may suffer due to frequent labour strikes, inefficiency, and low labour productivity. State agencies often fail to meet expected timelines for the development of access infrastructure, thereby making the developed port virtually unusable.

► **Less competitive on global front:**

- **Cargo throughput:** Cargo throughput at major Indian ports lags a few Asian peers significantly. The container port traffic considerably lags that of global majors, such as China, Singapore and the US.
- **Subpar connectivity with the global shipping network:** India also has low Liner Shipping



Connectivity Index score. The index captures how well countries are connected to global shipping networks.

What steps have been taken by the government to enhance India's port connectivity?

With the objective of propelling India to the forefront of the Global Maritime Sector, Ministry of Ports, Shipping and Waterways has formulated **Maritime India Vision 2030 (MIV 2030)**, a **blueprint to ensure coordinated and accelerated growth of India's maritime sector** in the next decade. In addition to this, the following steps have been taken-

► **Ease of doing business:**

- **Encouraging investments:** India currently permits **100 percent FDI** for the construction and maintenance of ports. The government also allows a **tax holiday for 10 years and up to 50 percent financial aid**.
- **Centralized web-based Port Community System (PCS):** It has been operationalized across all Major Ports which enables seamless data flow between the various stakeholders through common interface. To move towards complete paperless regime, E-DO (Electronic Delivery Order) through PCS made mandatory along with e-invoicing and e-payment.
- **Captive Policy for Port Dependent Industries:** It has been prepared to address the challenges of renewal of concession period, scope of expansion, and dynamic business environment.

► **Dealing with infrastructural bottleneck:**

► Dealing with infrastructural bottleneck:

- **Sagarmala Programme:** It aims to promote port-led development in the country. The vision of the Programme is to reduce logistics cost of EXIM and domestic trade with minimal infrastructure investment. The Sagarmala programme has identified 504 projects under **four pillars: port modernization projects; port connectivity projects; port-led industrialization projects; coastal community development projects.**
 - To promote port-led industrialization, the Govt. has identified **12 major ports and 14 Coastal Employment Zones (CEZs) as part of the National Perspective Plan** under the Sagarmala program. Each CEZ comprises Coastal Economic Units (CEUs), with single or multiple industrial clusters where there will be manufacturing units.
- **Bharatmala programme:** It is an umbrella program for the highways sector that focuses on optimizing efficiency of freight and passenger movement across the country by bridging critical infrastructure gaps through effective interventions like development of Economic Corridors, Inter Corridors and Feeder Routes, National Corridor Efficiency Improvement, Border and International connectivity roads, Coastal and Port connectivity roads and Green-field expressways.
- **Project Unnati - Operational Efficiency Improvement:** Under Project Unnati, the global benchmarks were adopted to improve the efficiency and productivity KPIs for 12 major ports. Around 116 initiatives were identified across 12 major ports to unlock more than 100 million tonnes per annum (MTPA) capacity just through efficiency improvement. Out of which, 93 initiatives have been implemented to unlock more than 80 MTPA capacity.
- **Capacity Expansion of existing Major Ports:** For all the 12 major ports, master plans have been finalized. From the port master plans, 92 port capacity expansion projects have been identified for implementation over next 20 years.
- **New Port Development:** To fill the demand gap, 2 new major ports are planned which will bring in significant capacity expansion. The locations of these new ports have been identified based on the cargo flow for key commodities and the projected traffic. Greenfield ports are proposed to be developed at Vadhavan (Maharashtra), Paradip Outer Harbour (Odisha).

Trans-shipment Terminal (hub) at Great Nicobar Island

- The island straddles the **East-West Sea Route**, which is one of the busiest maritime trade routes in the world, and is located almost **equidistant from the existing trans-shipment hubs of Colombo, Port Klang and Singapore.**
- **It sits strategically near the mouth of the Malacca Strait**, which links the Indian and Pacific Oceans. Around 100,000 vessels, forming about one-quarter of the world's traded goods, pass through this narrow stretch of water every year.
- The Great Nicobar island forms the ideal site being a **nodal point, in the Australia, Japan and Korea navigational route** for creating a trans-shipment port.

○ **Development of a transshipment terminal (hub):**

Trans-shipment terminal is the terminal at the port which handles containers, stores them temporarily and transfers them to other ships for the onward destination. It brings about economies of scale and lower the cost of operations for shipping lines, which translates into lower freight rates for exporters and importers.

➤ **Vallarpadam Terminal of Cochin Port** is envisaged as first trans-shipment port of India.

➤ A trans-shipment terminal is also proposed **at Great Nicobar Island (refer box)**.

▶ **Legislative reforms:**

○ **Major Ports Authority (MPA) Act, 2021:** It has been passed to usher in a new era for administration of Major Ports in India in which the Major Ports will have much greater autonomy and contribute significantly to the economic growth and provide world-class port infrastructure by adopting Landlord Model of development.

▶ **Cooperation with neighboring countries:** India has been collaborating with various countries to enhance Maritime co-operation in past few years. Focused outreach programs to immediate neighbors have been underway such as SOP development on the use of Chittogram and Mongla ports, direct cargo services to Myanmar, etc. A feasibility study is already planned for Eastern Maritime Corridor between Indian Ports on East Coast and ports in Far East Russia. In addition, there is an on-going engagement with European Commission for attracting ships flagged in

member EU states to the shipbreaking yard at Alang, Gujarat. Several other Joint Maritime Commissions are being pursued for cooperation in shipping and port sectors (refer the box).

- ▶ Under the “**Act-East policy**”, the Andaman and Nicobar island’s role in India’s strong relations with East Asian countries and other countries connected to the sea is very high and is going to increase.
- ▶ Great Nicobar Island is the southernmost and the largest of the Nicobar Islands of India. **The floor of the bay is rocky.** This means that the port **will not require dredging** which is a recurring operating cost.
- ▶ The proposed port can **compete with the Port of Singapore for cargo originating and destined for Bangladesh and Myanmar.** Currently, nearly 70 per cent of cargo from Bangladesh and Myanmar is trans-shipped through Singapore.



India’s MoU with other countries to enhance co-operation

Country	Details of MoU
Myanmar	<ul style="list-style-type: none"> ■ Creating of Industrial Centre in Myanmar ■ Facilitate cooperation between Oil and Gas companies for development of petroleum products
Indonesia	<ul style="list-style-type: none"> ■ Blue Economy, Maritime security and Maritime Safety
Germany	<ul style="list-style-type: none"> ■ Cooperation in Inland, Coastal and Maritime Technology
Denmark	<ul style="list-style-type: none"> ■ Shipping dialogue, quality shipping and cooperation on port state control ■ Maritime training, education, research and development ■ Green Maritime technology and shipbuilding
Norway	<ul style="list-style-type: none"> ■ Development of a task force on blue economy for sustainable development
Australia	<ul style="list-style-type: none"> ■ Cooperation in the Indo-pacific region, IOR association, Indian Ocean Naval Symposium, Indian ocean Tuna commission and Indo-Pacific Oceans initiative ■ Supply of high quality mineral resources to India ■ Marine Pollution and climate change

What more can be done to realize the potential of India's Port connectivity?

A revival in the sector's fortunes hinges on supportive reforms and private investment in infrastructure which include:

► Regulatory reforms:

- **Opening up the dredging market:** Efforts should be made so that bigger ships can ply while creating economies of scale and reduction in cost of port handling, including provisions for early environmental clearances to all major ports to create draft range between 15-20 meters. It is necessary to attract foreign players with superior dredging capabilities and technology. This would go a long way in creating hub ports. A roadmap can be prepared to develop major Indian ports as trans-shipment hubs.
- **Coordinated efforts for last-mile connectivity to ports:** At present, the ministries of shipping, road and railways are individually responsible for their respective sectors. To enhance connectivity and improve the turnaround time, there needs to be a more coordinated approach to handle traffic and evacuation, especially hinterland connectivity. Specific SPVs may be set up by state governments for planned industrial development, establishment of logistics hubs, improvement of connectivity around ports and monetization of development for re-investment into infrastructure.

► Dealing with the issues of financing:

- **Enhancing global competitiveness:** Increased investment in modernisation to boost operational efficiency of ports to enhance the global competitiveness which in turn would attract more global investment.
- **Cruise tourism as a revenue source:** Existing major ports such as Kolkata and Mumbai, which have been engulfed by cities, need to be converted into cruise tourism hubs.
- **Investment opportunities in bunkering:** As the current capacity of ports is under-utilized, it is imperative to bring in more reforms and greater involvement of private players in bunkering infrastructure.

► Improving infrastructure:

- **Prioritisation of projects under Sagarmala:** It is important to speed up the completion of various projects under Sagarmala, especially those aimed at improving port connectivity and establishing new ports. Setting up of a single-window facility for cargo clearance and putting in place fully mechanised cargo-handling infrastructure is critical to increase the throughput.
- **Multimodal connectivity:** Indian ports need to implement efficient and modern multimodal systems, not just at the policy level but also on the ground.
 - On the rail front, the DFCs need to be commissioned on a timely basis. The railway network also needs to be ramped up considerably. Currently, rake availability is a problem even when connectivity exists.
 - On the road front, the NHAI has given an impetus to port connectivity, but many crucial projects suffer from implementation delays.
 - As for other means of intermodal transport, coastal shipping and inland waterways transport need to be key focus areas as cargo evacuation by water is cheaper and cleaner, reduces cost and port congestion, and brings in efficiency.
- **Smart ports and blockchain logistics:** Investments are needed to enhance port infrastructure in areas, such as modernizing equipment to handle large volumes, navigational aids and IT systems and developing blockchain for logistics. This involves several agencies and inter-departmental co-ordinations.
 - **The idea of a smart port can be explored.** It is an automated port that uses advanced technologies, such as big data, Internet of Things (IoT), blockchain solutions and other smart-technology based methods to improve performance and economic competitiveness.
 - **Major ports are in the process of installing large container scanners** to obviate the need for manual examination of individual containers. Radio Frequency Identification (RFID) system is implemented at all major ports.
 - **Introduction of IT and automation needs to be fast-tracked at all major ports of India.** Real-time decision-making and IT/automation adoption across processes with manual oversight need to be ensured to increase efficiency and reduce dwell time and logistic costs.

► Policy interventions to promote inland waterways:

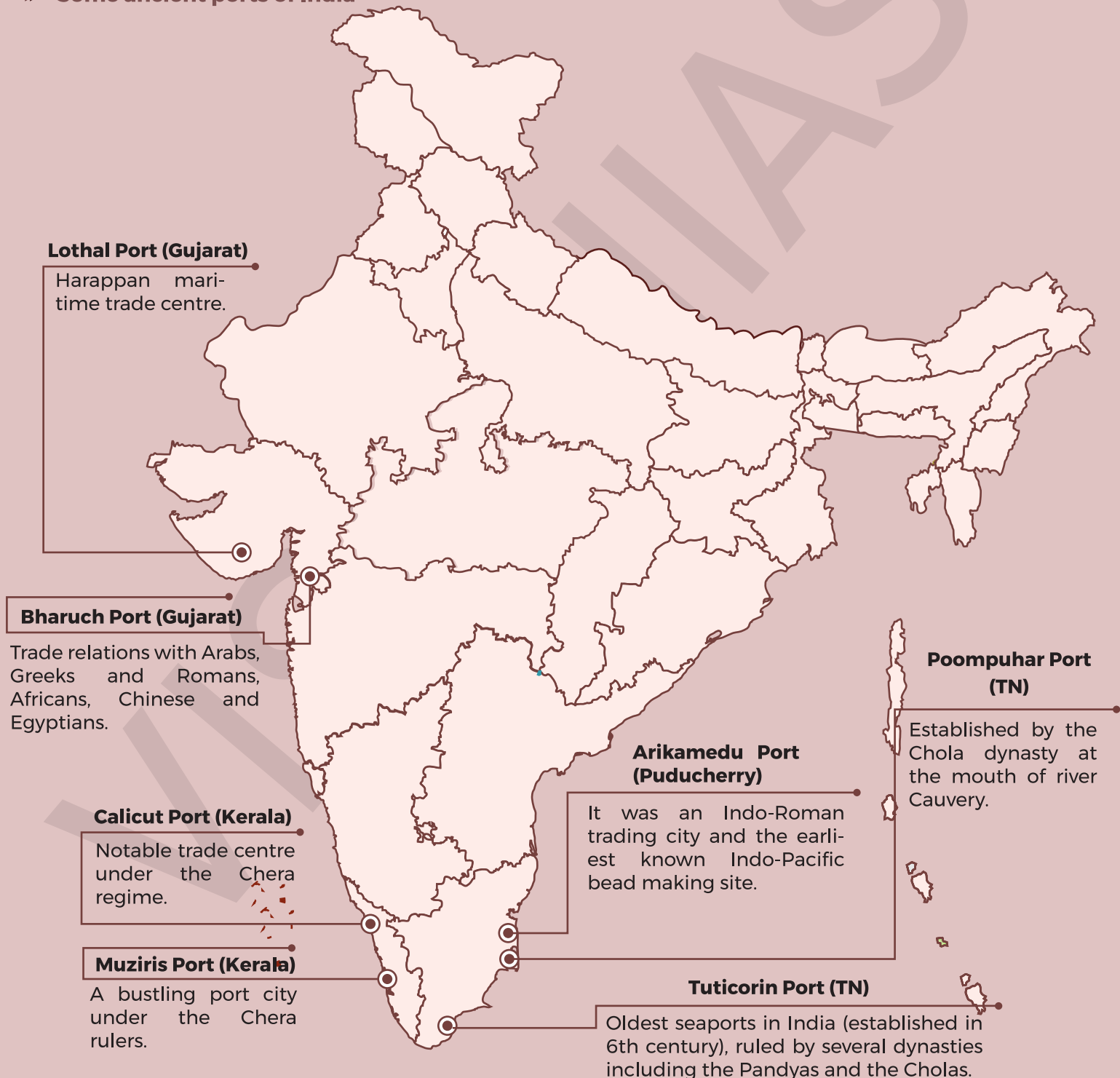
- **Navigable route development:** For greater private sector participation in inland waterways, the government and Inland Waterways Authority of India need to take full responsibility of route navigability and ensuring adequate depth of rivers.
- **Enhancing last-mile connectivity:** Inland water transport (IWT) should be integrated with multi-modal/intermodal connectivity. This will enable efficient use of inland terminals having proper road and/or rail connectivity for seamless transfer of goods that will provide an efficient logistics supply chain.
- **Development of industrial corridors:** There is a need to promote green industrial corridors and logistics hubs alongside waterway terminals and foster waterways that run parallel to transportation corridors and urban centres.
- **Promoting passenger transportation:** Ferry services operating on national waterways are mostly unorganised country boats. Both Central and state governments can collaborate to promote river tourism in a big way by investing in passenger terminal development and improving safety of ferries. Private players should be encouraged for developing river tourism.
- **Ensuring adequate air clearance:** On many sections of some waterways there are multiple bridges with low vertical clearance, which obstructs the passage of bigger vessels. The Centre can work closely with state governments to ensure sufficient vertical clearance for smooth passage of bigger vessels.

Conclusion

The growth and development of ports leads to greater trade activity, increased supply, greater foreign reserves, and reduced prices for commodities. Improvement in the port infrastructure has shown very good reflections in the GDP. In this context, it becomes important to realize this potential and act accordingly. To enable this, both public and private sector participation should be encouraged to modernize the Indian Infrastructure. Efforts like single window clearance, multi modal operations, and an efficient custom process would increase the competitiveness of Indian ports in the global maritime market.

Appendix

► Some ancient ports of India



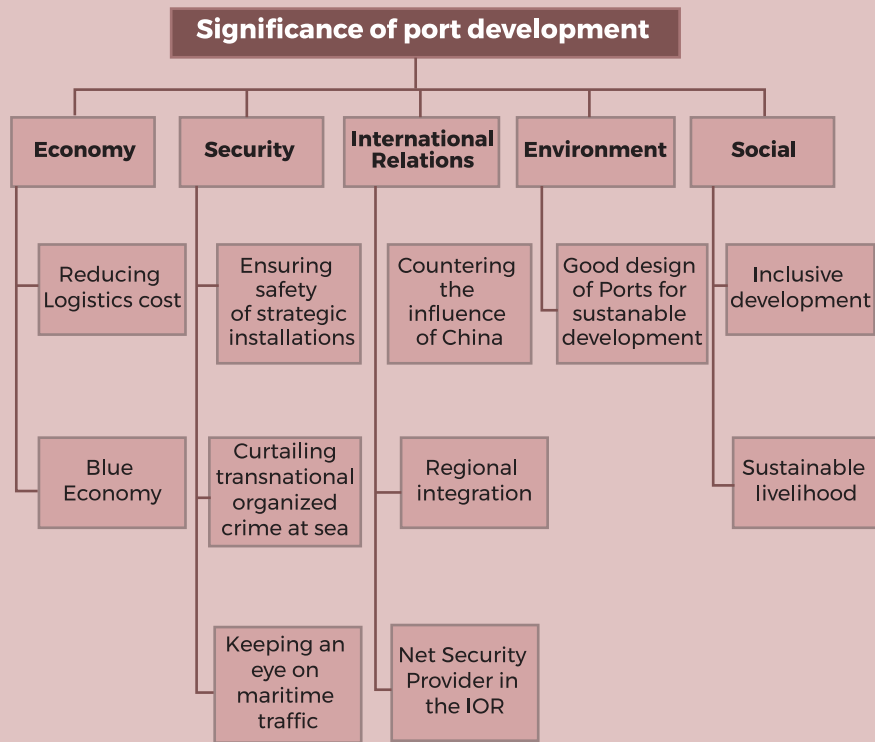
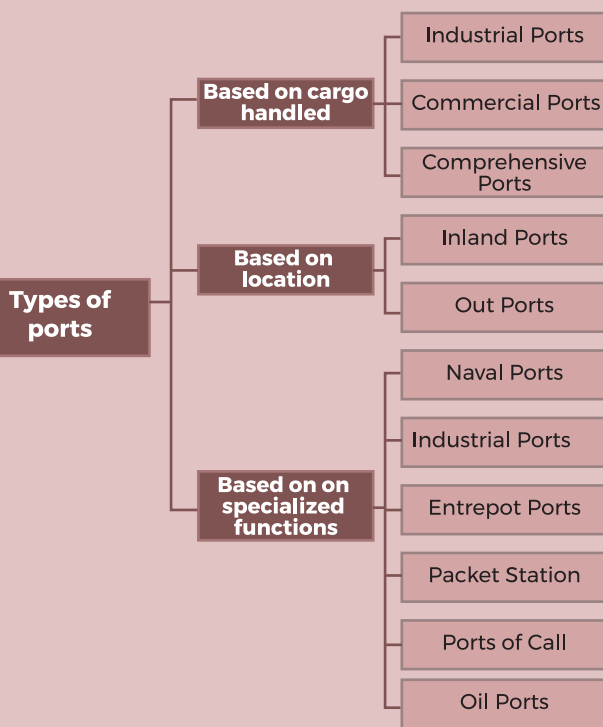
The Major Port Authorities (MPA) Act, 2021

Key provision

- ▶ This Act replaces Major Port Trusts Act, 1963.
- ▶ **Constitution of Board of Major Port Authority:** One such board shall be constituted in respect of each Major Port. This board shall replace the Board of Trustees constituted under section 3 of the Major Port Trusts Act, 1963.
 - **Composition of Board:** The Board will comprise of a Chairperson and deputy Chairperson, both of whom will be appointed by the Central government on the recommendation of a selection committee. Further, it will include, apart from a Government Nominee Member and a Member representing the employees of the Major Port Authority, one member each from:
 - the respective state governments
 - the Defence Ministry
 - the Railways Ministry
 - the Customs Department
 - **Functions of the board:**
 - **Fixing of rates:** Currently, the Tariff Authority for Major Ports (TAMP), established under the 1963 Act, fixes the scale of rates for assets and services available at ports. Under the 2021 Act, the Board or committees appointed by the Board will determine these rates. Such fixing of rates will not be with retrospective effect and must be consistent with the provisions of the Competition Act, 2002, or any other laws in force, subject to certain conditions.
 - **Financial powers of the Board:** Under the 1963 Act, the Board has to seek prior sanction of the central government to raise any loan. Under the 2021 Act, to meet its capital and working expenditure requirements, the Board may raise loans from any: (i) scheduled bank or financial institution within India, or (ii) any financial institution outside India that is compliant with all the laws. However, for loans above 50% of its capital reserves, the Board will require prior sanction of the central government.
 - **Corporate Social Responsibility:** The Board may use its funds for providing social benefits. This includes development of infrastructure in areas such as education, health, housing, and skill development. These benefits could be provided for the Board's employees, customers, business partners, local communities, environment and the society at large.
 - **Public Private Partnership (PPP) projects:** The Act defines PPP projects as projects taken up through a concession contract by the Board. For such projects, the Board may fix the tariff for the initial bidding purposes. The appointed concessionaire will be free to fix the actual tariffs based on market conditions, and other conditions as may be notified. The revenue share in such projects will be on the basis of the specific concession agreement.
- ▶ **Adjudicatory Board:** It shall be constituted by the Centre. This board shall replace the TAMP constituted under the 1963 Act.
 - **Functions of the Adjudicatory Board:**
 - certain functions being carried out by the TAMP
 - adjudicating on disputes or claims related to rights and obligations of major ports and PPP concessionaires
 - reviewing stressed PPP projects



TOPIC AT A GLANCE



Hurdles in enhancing India's port connectivity

- **Infrastructure bottleneck:** Shallow ports, subdued capacity utilization at ports, logistics bottleneck.
- **Regulatory bottleneck:** Lack of level-playing field between major and minor ports, bureaucratic challenges.
- **Issues related to investment:** Lack of financing, subpar private sector participation.
- **Labour issues:** Overstaffed, unskilled and untrained labour.
- **Less competitive on global front**

Governance of ports

- **Major Ports:** They fall in the Union list of the Constitution and are administered under the Indian Ports Act 1908 and the Major Port Trust Act, 1963.
- **Minor Ports:** Minor ports are managed at the **State level**.
- **Governance model:** Until the enactment of MPA Act, 2021, the 11 ports owned by the Indian government widely followed a hybrid format of the service port model and the landlord model.

Steps taken to enhance India's port connectivity

- **Ease of doing business:** Encouraging investments, Centralized web-based Port Community System (PCS), Captive Policy for Port Dependent Industries.
- **Dealing with infrastructural bottleneck:** Sagarmala Programme, Bharatmala programme, Project Unnati - Operational Efficiency Improvement, Capacity Expansion of existing Major Ports, New Port Development, Development of a transshipment terminal (hub).
- **Legislative reforms:** MPA Act, 2021.
- **Cooperation with neighboring countries**

Way ahead

- **Regulatory reforms:** Opening up the dredging market, coordinated efforts for last-mile connectivity to ports.
- **Dealing with the issues of financing:** Cruise tourism as a revenue source, investment opportunities in bunkering.
- **Improving infrastructure:** Prioritisation of projects under Sagarmala, multimodal connectivity, smart ports and blockchain logistics.
- **Policy interventions to promote inland waterways:** Navigable route development, enhancing last-mile connectivity, development of industrial corridors, promoting passenger transportation, ensuring adequate air clearance.