

Ports and Coastal Infrastructure Sectoral Review



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Introduction

This sectoral review attempts to look into the documents available in public domain related to development of port and coastal infrastructure projects in India and the pre-existing and emerging issues around it. The documents reviewed under this sectoral review include research papers, government agency reports, consultancy reports, academic studies, industry association reports, parliamentary committee reports, non-profit reports, civil society, multilateral and other financial institutions, etc.

These documents majorly deal with various aspects related to port and coastal infrastructure projects looking into the national programs for developing such projects, financing and investments required , the myriad kinds of projects and technologies needed to expand India's export and supply chain capacities in turn boosting the GDP growth, the impact of climate change caused by these projects, the implications for local communities, livelihoods, coastal ecosystems, coastal tourism, legislations, policies and guidelines that need to be put in place to boost the capacities and efficiencies of the port infrastructure. The use of the private sector in these projects also form an important part of the discussion through mechanisms like Public Private Partnerships (PPPs).

Brief overview of the port projects in India

With over 7,500 kms of coastline spread across nine coastal states, 12 major and 200 minor ports, India's blue economy supports 95% of the country's business through transportation and contributes an estimated 4% to its Gross Domestic Product (GDP). Under the National Perspective Plan for Sagarmala, 6 new mega ports will be developed in the country. More than 800 projects with a projected cost of approximately Rs 5.54 lakh crore have been shortlisted for implementation as part of the Sagarmala Programme between 2015 and 2035.¹ Additionally, the government has put up 14 Coastal Economic Zones (CEZs) that will connect coastal communities with ports. Out of the 35 projects, the Ministry of Shipping has plans to develop 17 projects on PPP basis, which will entail an investment of around Rs 10,277 crore. Among these 17 projects, the major ones would be the container terminal at Diamond Harbour of Kolkata Port (Rs 1,758 crore), the liquid terminal at Jawaharlal Nehru Port (Rs 2,496 crore) and the iron ore berth at Paradip port (Rs 681 crore).² Some of the other projects are – 36 ongoing projects undertaken for Port Development with total investment of Rs 70,178 crore, 32 ongoing projects undertaken for Port Modernisation with total investment of Rs. 9983 crore, 33 ongoing projects aimed at Port-led Development with a total investment of Rs. 1,50,657 crore and 4 ongoing projects related to green port initiatives with total investment of Rs. 419 crore. In order to connect Major and Non-Major ports, 190 road and rail connectivity projects costing Rs. 1.22 lakh crore have been identified for implementation under Sagarmala, out of which, 139 projects are in various phases of development and implementation, and 51 projects have already been completed. The Ministry of Roads, Transport and Highways, the Ministry of Railways, the Major Ports, and State organisations are carrying out these projects.

¹ <https://newsonair.com/2022/03/26/sagarmala-maritime-vision-2030-unlocks-indias-maritime-potential/#:~:text=The%20main%20vision%20of%20the,implementation%20during%202015%20to%202035>

² <https://www.briefindia.com/wp-content/uploads/2017/05/Bridging-Infrastructural-Deficits.pdf>

Financing

In the Union Budget 2022–23, the total allocation for the Ministry of Shipping was Rs. 1,709.50 crores (US\$ 223.31 million). The Government launched the Sagarmala Program after forming the Central Sector Scheme to give grants to major ports for the development or upgrading of coastal ports to boost coastal shipping. As part of the Sagarmala Program, the Ministry offers financial support to State Government port infrastructure projects, coastal berth projects, road and rail projects, fishery harbours, skill development projects, coastal community development, international standard cruise terminal, and distinctive and innovative projects like ROPAX (roll-on/roll-off passenger) ferry services (*describes a RORO vessel built for freight vehicle transport along with passenger accommodation*) among others. Seven projects totaling more than Rs. 2,000 crore (US\$ 274.31 million) are anticipated to be completed by the major ports in FY22 through public–private partnerships. Private sector investments in ports have steadily increased over the last five years, touching an all-time high of US\$ 2.35 billion by 2020. By 2035, India intends to invest US\$ 82 billion in port infrastructure. Indian ports received cumulative FDI inflow worth US\$ 1.63 billion between April 2000 and June 2021. As part of the Sagarmala project, more than 574 projects worth Rs. 6 lakh crore (US\$ 82 billion) have been planned for port modernisation, new ports development, port connectivity enhancement, port–linked industrialisation and coastal community development between 2015 and 2035. By September 2019, 201 projects totaling Rs. 3,09,048 crore (US\$ 42.18 billion) were in progress and 121 projects worth Rs. 30,228 crore (\$4.13 billion) had been completed.³

³ <https://www.ibef.org/industry/ports-india-shipping>

Impacts on local communities and environment

Due to its inherent toxicity, extensive sources, non-degradability, and other factors, the development of the shipping industry is likely to result in significant water pollution, particularly heavy metal pollution, which can have a detrimental effect on humans, animals, plants, and the environment. Solid containers and oil, petroleum and lubricants are the major contributors to the cargo traffic at major Indian ports; of which solid contributes total 48% to cargo traffic; oil, petroleum and lubricants contributes total 33% of total cargo traffic; and container contributes 19% of cargo traffic at major Indian ports. Major ports saw an increase in traffic from 2021 to 2022 of 6.94 percent. During FY 2021–2022, five major ports experienced their highest-ever traffic.⁴ Transporting commodities for commercial purposes damages the environment in both major and small ports. Major sources of maritime pollution are caused by ships and vessels at ports, such as oily water discharge from ships, tanker accidents, rubbish and other solid wastes, and ballast water discharge from ship ports. In addition to anti-fouling coatings, exhaust from marine machinery, and unintentional spills during terminal loading, coastal waters are also dangerously polluted by other sources. Lubricating oil, grease, and fuel oil flow from improperly installed oil–water separators and spill into the ocean. Sea risks like collision, grounding, fire or explosions cause massive oil spills that are near impossible to clean up entirely, and have severe consequences upon the ecological balance. Apart from oil spills, wastewater and black water are also discharged from ships and vessels. Ships and vessels also discharge effluent and black water in addition to oil spills. Anti-fouling paints slowly contaminate the waterways by leaching toxins that are hazardous to the marine environment. Further up the marine food chain, these have indirect effects. The local fishing industry suffers as well as the population of seafood, which is declining. The available seafood has high levels of toxic metal residues in them, making it ill-suited for public consumption. The devastating effects of these spills are often too large and difficult to assess.

⁴<https://www.livemint.com/news/india/major-indian-ports-registered-highest-ever-traffic-during-last-fiscal-11648824314047.html>

Trade and cargo capacities of ports

The Indian ports and shipping industry play a vital role in sustaining growth in the country's trade and commerce. Ports facilitate global commerce linkages and coastal transportation which are essential for economic growth. Ports in India are divided into two categories: major ports (managed by the Union Government) and non-major ports (controlled by State Governments/ Union Territories). Currently India has 12 main ports and 205 non-major and intermediate ports. According to the Ministry of Shipping, around 95% of India's trading by volume and 70% by value is done through maritime transport. The total cargo handling capacity of Indian ports is about 2400 mn tonnes per annum (MTPA). Major Indian ports handled 704.82 million tonnes (MT) of cargo volume in FY20, representing a CAGR of 2.74 percent from FY16 to FY20. In FY21, the capacity of India's major ports was 1,561 million tonnes per annum (MTPA). All of India's major ports handled 650.52 million tonnes (MT) of cargo traffic in FY22 (up until February) 2022. India's exports of goods was US\$ 417.8 billion in FY22, an increase of 40% from the previous year. In October 2021, India's merchandise exports grew 43.05% YoY to reach US\$ 33.65 billion. Due to a substantial transfer of freight from major ports to non-major ports, non-major ports accounted for 46% of all cargo traffic at Indian ports in FY21. The Ministry of Shipping strives to increase the overall port capacity to 3300+ mn tonnes per annum (MTPA) to cater to projected traffic of 2500 MTPA by 2025.⁵



Jawaharlal Nehru Port (Nhava Sheva), Maharashtra

⁵ <https://www.makeinindia.com/sector/ports>, <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1776428>

Brief overview of the National Port and Coastal Infrastructure Programs:

National Port and Coastal Infrastructure Programs:

Blue Economy, Sagarmala and Maritime India Vision programs are significant for India's port, coastal and marine development projects.

Sagarmala Program:

In order to accomplish the overarching goal of encouraging port-led development in India, the Sagarmala Programme was launched on March 25 2015, with the Union Cabinet's approval. The Sagarmala Scheme seeks to fulfill the general goals of increasing the capacity of major and non-major ports and upgrading them to make them efficient, enabling them to become engines of port-led economy. It is the flagship initiative of the Ministry of Ports, Shipping, and Waterways to support port-led growth in the nation by utilising India's 7,517 km of coastline, 14,500 km of potentially navigable waterways, and advantageous placement on important global marine trade routes. With little infrastructure investment, the Sagarmala Programme's major goal is to lower logistical costs for domestic and Export Import (EXIM) trade. Sagarmala projects cover a wide range of activities, including new ports, terminals, jetties for Roll-on, Roll-off (RoRo) and tourism, improved port connection, interior waterways, lighthouse tourism, industrialization near ports, skill development, technological centers, etc. These initiatives can be broadly categorised into Sagarmala's five pillars -- Port Modernization & New Port Development, Port Connectivity Enhancement, Port Led Industrialization, Coastal Community Development and Coastal Shipping. The Central Line Ministries, State Maritime Boards, Major Ports, and SPVs are responsible for carrying out the Sagarmala projects, preferably with the help of the private sector and Public Private Partnerships (PPP) whenever applicable.⁶

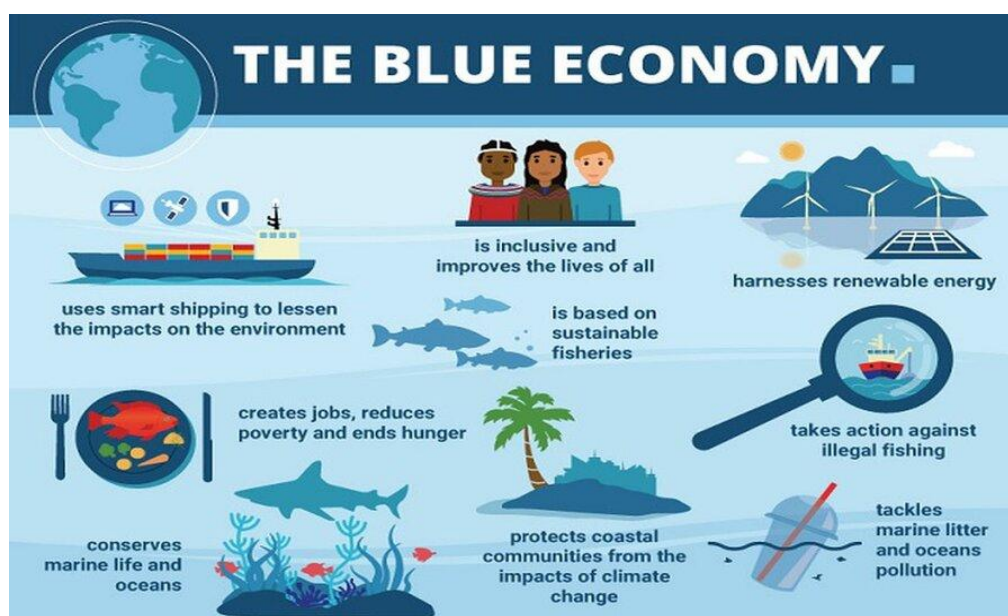


Blue Economy:

The Blue Economy is defined by the World Bank as the “sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ecosystem.” The term "blue economy" applies to all economic activities that are connected to oceans, seas, and coastal regions and was developed to address the need for integrated sustainability and conservation in the management of the marine sector. Two of the six established industries covered by the concept of blue

⁶ <https://pib.gov.in/PressReleasePage.aspx?PRID=1782678>

economy are maritime transport and port industries. Globally, the Blue Economy has expanded due to the surge in demand for ocean-related goods including seafood and energy production, with an estimated annual global turnover of US\$ 3–6 trillion. India's blue economy contributes about 4% of the country's GDP and is anticipated to grow if the system is strengthened. Despite the difficulties brought on by the Covid-19 pandemic, the sector managed to achieve exports worth Rs. 56,200 crore (US\$ 7.2 billion) between April 2021 and February 2022 .⁷



Maritime India Vision 2030 (MIV):

The Maritime India Vision (MIV) 2030, launched in March 2021, is a 10-year roadmap with the aim of overhauling the Indian maritime sector. A dedicated Maritime Development Fund (MDF) is created to oversee funding of the Maritime India Vision 2030. The vision envisages Rs. 3 lakh crore (US\$ 41.44 billion) investment in port projects that are likely to generate 20 lakh employment opportunities. The MIV 2030 vision outlines 10 key themes which are: develop best-in-class port infrastructure, drive end to end logistics efficiency and cost competitiveness, enhance logistics efficiency through technology and innovation, strengthen policy and institutional framework to support all stakeholders, enhance global share in ship building, repair and recycling, enhance cargo and passenger movement through inland waterways, promote ocean, coastal and river cruise sector, enhance India's global stature and maritime co-operation, lead the world in safe, sustainable & green maritime sector, become top seafaring nation with world class education, research & training. ⁸

⁷ <https://www.ibef.org/blogs/importance-of-india-s-blue-economy>

⁸ <https://sagarmala.gov.in/sites/default/files/MIV%202030%20Report.pdf>, <https://www.ibef.org/download/Indias-Maritime-Sector%28Revised%29.pdf>

Sectoral Review of Ports and Coastal Infrastructure Programs

'Blue Economy Vision 2025: Harnessing Business Potential for India Inc. and International Partners' report is a pioneering effort by Federation of Indian Chambers of Commerce & Industry (FICCI) to sensitise India Inc. about the growing global and regional emphasis on sustainability of harnessing the ocean resources. Initially led by the Small Island Developing States (SIDS), the global campaign for sustainable harnessing of the oceans has gained traction in favour of a stronger regulatory framework. This gave rise to the concept of the "Blue Economy," which advocates using the oceans without in any way compromising their sustainability. Port infrastructure development plays an important role in promoting developmental activities (for instance, trade). The sector includes a wide range of services that can be broadly classified into two groups: maritime logistics and the shipping industry. The private sector is not allowed to participate in a number of significant shipyards. Both Micro, Small and Medium Enterprises (MSMEs) and large enterprises may be permitted to operate in all Indian shipyards in order to create a more effective and efficient PPP type model. Private companies have come up with innovative floating port structures and floating cranes and barges in Jamnagar and Kandla ports. A number of ports have started operating on Build, Operate and Transfer (BOT) basis warehousing facilities, installation of cargo handling equipment, construction of dry-docks and ship repair facilities. The focus is to build cost-effective, innovative models like the one mentioned above. Additionally, the new foreign direct investment policy (FDI) has allowed automatic approval of up to 100% FDI for the construction and maintenance of ports and harbours since 2014. Minor ports may be brought in to help the major ports operate more efficiently. A total of Rs 7,414 crore has been invested in around 27 active projects for Indian coastal shipping and water transportation. These programmes might improve India's port and shipping industries.⁹

'Port infrastructure – synthesis and significance' article says that one of the key determinants of a country's external sector growth is port infrastructure. The sea route is a popular means of transportation for international trade and it is convenient for the export and import of heavy cargo. For the export of large amounts of merchandise, the air route is uncomfortable and expensive—even for the export of small things. Ports are crucial for the import and export of capital goods and commodities. The establishment of export units near ports is planned. It will lower the cost of transportation from the production to the port. The analysis of India's external trade flows, cargo handled at major ports, commodity-based cargo traffic, and Sagarmala Projects has been attempted in this article. The most crucial aspect to take into account while building and developing export infrastructure is hinterland connectivity to ports. Businesses focused on exporting should be placed close to ports. The price of

⁹ Title: 'Blue Economy Vision 2025: Harnessing Business Potential for India Inc and International Partners', published by FICCI (Federation of Indian Chambers of Commerce and Industry), dated: December 2019, source: <https://www.kas.de/documents/264392/264441/Blue+Economy+Business+Report.pdf/5af8d625-3c8f-6cac-21c4-087512aa6944?version=1.0&t=1578649257985>

logistics will go down. The cost of shipping is affected by factors like distance, the kind and value of the commodities, competition, economies of scale, port conditions, and infrastructure. World-class container ports include those in Shanghai, Singapore and Shenzhen in China. The turnaround time is measured in hours in these ports, however in Indian ports, it is measured in days. The performance of ports and lowering logistics costs in the global external sector are largely determined by hinterland connectivity and developments, mother vessel availability, technological advancement in documentation, modern container handling equipment, and the development and advancement of logistic infrastructure.¹⁰

In **‘Impact of Port Infrastructure Development and Operational Efficiency of Ports on Export Performance: a study of manufactured product exports from India’** report, port-specific data on India's exports of six major categories of manufactured goods from 2001–2002 to 2014–2015 is being utilized and econometric analysis is done to determine the impact of port infrastructure development and efficiency in port operations on export performance. The analysis makes use of information from 11 significant ports, which together handle around 84 percent of the cargo handled by Indian ports. The econometric analysis takes into account four port efficiency metrics, including turn-around time, berth occupancy rate, pre-berthing waiting time, and ratio of idle time at berth to time at working berth, with a focus on and larger emphasis on the first two. The outcomes of the econometric research show that port operating efficiency has a favorable impact on India's export performance for manufactured goods. Another empirical result is that increasing port capacity helps India's exports of manufactured goods grow, however the effect of port capacity growth on export growth is relatively limited in ports with low facility utilisation.¹¹

According to the **‘Blue economy: Global Best Practices: Takeaways for India and Partner Nations’** report, port-driven development is important for India and Kerala has enormous opportunities. Massive scope for development, expansion and up-gradation of ports to cater to growing traffic; improving efficiency and capacity of the existing ports could attract more trans-shipment traffic, currently using ports of neighboring regions. Important recommendations for further improvements in the shipping and ports sector, namely, a) developing bunkering facilities for international vessels and cruises and this could become more attractive by practical reforms to the existing taxation norms and rates; b) adapt inland waterways for barges to connect ports with hinterland, which would open new economic opportunities and reduce pollution on account of inefficient road transport; the waterways need regular maintenance and dredging; c) Kerala could evolve as a major destination for global and domestic cruises; last year Cochin Port handled 49 cruise vessels and with better port facilities and the new port at Vizhinjam, this number can grow several fold; and, d)

¹⁰ Title: ‘Port infrastructure- synthesis and significance’, published by International journal of research culture society, dated: November 2017, source: https://www.researchgate.net/profile/V-Palanisingh/publication/337110607_Port_Infrastructure_-_Synthesis_and_Significance/links/5dc56c144585151435f59f4b/Port-Infrastructure-Synthesis-and-Significance.pdf

¹¹ Title: ‘Impact of Port Infrastructure Development and Operational Efficiency of Ports on Export Performance: A study of manufactured product exports from India’ dated: August 2018, source: <https://www.isid.ac.in/~epu/acegd2018/papers/MahuaPaul.pdf>


there is a good potential for the development of coastal cargo movement and inland waterways of Kerala which is still underutilized.¹²

'India's Shipping Industry and Port Infrastructure: Ready for future' article talks about the existing infrastructure and port capacity in India. Today, India has the biggest ship breaking yard in the world.

India has 205 designated minor ports, 12 major seaports, and 6 big ports that fall within the purview of the national government. Six new mega ports with top-notch facilities are being built under the National Port Policy. These include the ports of Vadhavan (Maharashtra, Enayam (Tamil Nadu), Tajpur (West Bengal), Paradip Outer Harbour (Odisha), Sirkazhi (Tamil Nadu), Belekeri (Karnataka) . The largest cargo handling port in India is the Jawaharlal Nehru Port Trust in Mumbai. According to reports, its use rate is higher than the global average. Whereas, major Indian ports' average turnaround times have shrunk over time. In the 2019 fiscal year, it was 59.51 hours as compared to 87.81 hours in the previous year. The 12 major ports handled more than 704.9 million tonnes of cargo in the fiscal year 2018, surpassing the amount from last year. India's yearly total freight volume is anticipated to exceed 2,500 million tonnes by 2025. The nation's ports are preparing to increase their capacity to handle more than 3,300 million tonnes yearly in order to fulfill this demand. The 613 million tonnes of cargo handled by non-major ports in the fiscal year that ended on March 31, 2019, was more than the 575 million tonnes handled by large ports in the same time frame. This demonstrates that non-major ports, which have experienced a compound annual growth rate of 4.3 percent over the previous five years, now handle the majority of cargo traffic. An analysis of the cargo traffic at major ports revealed that solid cargo (41.9 percent) and liquid cargo (37.5 percent) made up the majority of the total cargo handled. In the past financial year, coal dominated the solid cargo category with a 23.1 percent share, followed by iron ore and fertilizers with a respective share of around 5.2 percent. The Merchant Shipping Bill, 2020, aims to promote the growth of India's maritime industry while also preventing air pollution. Jal Marg Vikas also oversees inland water transport projects aimed at improving navigation efficiency and safety. In addition, the government has reduced the Goods and Services Tax (GST) for foreign-flagged and coastal vessels. This will aid the marine industry.¹³

¹² Title: 'Blue economy: Global Best Practices: Takeaways for India and Partner Nations', published by FICCI (Federation of Indian Chambers of Commerce and Industry), dated: December 2019, source: <https://www.kas.de/documents/264392/264441/Blue+Economy+Business+Report.pdf/5af8d625-3c8f-6cac-21c4-087512aa6944?version=1.0&t=1578649257985>

¹³ Title: 'India's Shipping Industry and Port Infrastructure: Ready for future', published by CESCUBE, dated: February 2022, source: <https://www.cescube.com/vp-india-s-shipping-industry-and-port-infrastructure-ready-for-future>



The **Ports industry report of IBEF** (Indian Brand Equity Foundation) gives a broader overview of port infrastructure in India. Increasing trade activities and private participation in port infrastructure is set to support port infrastructure activity in India. India's key ports had a capacity of 1,561 million tonnes per annum (MTPA) in FY21. In FY22 (until February), all key ports in India handled 650.52 million tonnes (MT) of cargo traffic. In the Union Budget 2022–23, the total allocation for the Ministry of Shipping was Rs. 1,709.50 crore (US\$ 223.31 million). In November 2020, Prime Minister, Mr. Narendra Modi, renamed the Ministry of Shipping as the Ministry of Ports, Shipping and Waterways. **The Draft Indian Ports Bill 2021**, which was circulated in July 2021, aims to centralise the administration of minor ports that are currently managed by state governments. Out of India's 204 non-major ports, 44 are functional and strategically located on the world's shipping routes. In FY21, container traffic in India (for major ports) reached 9.61 TEUs. Infrastructural development will increase demand for iron and steel. In FY22, iron ore traffic at major ports reached 45.40 MT. In December 2020, DP World-operated International Container Transshipment Terminal (ICTT), at Cochin, achieved its all-time highest monthly throughput of >66,000 TEUs in November 2020, registering a 43% y-o-y growth. **The Inland Vessels Bill 2021** was approved by the Lok Sabha in July 2021. Instead of distinct regulations created by the states, the bill attempts to include a single legislation for the country. The registration certificate issued under the new law will be valid throughout the country and state approvals will not be necessary. The bill also establishes a single database for recording vessel and crew information on an Internet portal. As of September 2021, the government has allowed imported containers to stay in Indian ports for up to nine months. The key ports are expected to deliver seven projects worth more than Rs. 2,000 crore (US\$ 274.31 million) on a public private partnership basis in FY22.¹⁴

'An Analysis on the Sectoral Dynamics in the Privatisation of Ports in India: The Way Ahead' article offers views on recent legislative changes and the government's strategy for modifying the transition to private sector participation in Indian ports during the past ten years. The authors explain the current dynamics between major government-owned ports and minor privately-owned ports. The report covers the current state of public-private partnership (PPP) agreements in India as well as the potential for further PPPs to determine the overall growth of economic development in the port sector. The report aims to determine India's fate in this sector by providing a sectoral analysis of PPP agreements, privatisation, and corporatization. The authors conclude by analysing India's 2030 strategy for managing best-in-class port infrastructure development, logistical modal-mix, and adopting changes to the country's current legal frameworks and PPP models in order to draw in the private sector and benchmark India as a global port hub. This study's goal and objective are to shed light on current advancements in the port industry and the most recent trade trends that are reshaping the competitive landscape for both the public and private

¹⁴ Title: 'Ports', published by India Brand Equity Foundation (IBEF), dated: February 2022, source: https://www.ibef.org/download/1650610627_Ports-Feb_2022.pdf

sectors. The study's first section focuses on current government initiatives and legislative advancements made over the past ten years to increase port productivity and private sector participation and identifies any flaws that might call for systemic reform. The section also describes how the necessary government action influenced the current state of the port industry. The second section places the trends that led to the growth of the commercial port industry in context and identifies the shortcomings that still remain at government-owned ports. In this section, the writers strive to develop their analysis using a study of two competing ports in the nation, namely JNPT and Mundra Port, which serve as the study's primary emphasis. The authors are discouraged from elucidating the potential influence of private ports in the current port structure due to the lack of empirical research. The final section focuses on the main challenges with port productivity that deter private firms from entering the port industry and the upcoming changes that India anticipates making by 2030. The analysis highlights the sectoral problems that are now occurring and makes suitable recommendations for how to close the system's gaps.¹⁵

Sagarmala Program

Several reports and articles talk about the Sagarmala program and its objective. According to the **'Ministry of Shipping: Launch of Sagarmala Program', 'India's Blue Economy Initiatives: Establishing New Growth Nodes and Helping to Address Regional Imbalances'** a total of 580 projects under the Sagarmala initiative have been selected for implementation over a 20-year period, with an estimated project cost of INR 8700 billion (USD 124 billion). By July 2018, projects totaling over INR 135 billion had been finished, while another 424 projects, totaling over INR 4100 billion, were in various phases of execution and development. Indirect investments encouraged by the program are not included in the aforementioned costs. Utilizing the inland waterways for commercial and passenger transportation as well as to promote tourism is another crucial aspect of this project.¹⁶ The projects identified under the Sagarmala Programme are anticipated to mobilise more than Rs. 7 lakh crore of infrastructure investment, double the share of domestic waterways (inland & coastal) in the modal mix and boost merchandise exports by USD 110 Billion.¹⁷

The **'Final report for sagarmala (Vol II)'** – (Nov 2016) puts forth port-based manufacturing as a solution for longer logistics lead time. This is because of the unreliable road, rail and port infrastructure that the time spent in goods transportation is more than the manufacturing time. Reducing the logistic time is even more important for the perishable goods. Thus port infrastructure and hinterland

¹⁵Title: 'An Analysis on the Sectoral Dynamics in the Privatisation of Ports in India: The Way Ahead', published by The Indian Journal of Projects, Infrastructure, and Energy Law, undated, source: https://ijpiel.com/wp-content/uploads/2022/02/6_An-Analysis-on-the-Sectoral-Dynamics-in-the-Privatisation-of-Ports-in-India-The.pdf

¹⁶ Title: 'India's Blue Economy Initiatives: Establishing New Growth Nodes and Helping to Address Regional Imbalances' published by National University of Singapore, dated: September 2018, source: https://www.researchgate.net/publication/327435616_India's_Blue_Economy_Initiatives_Establishing_New_Growth_Nodes_and_Helping_to_Address_Regional_Imbalances

¹⁷Title: 'Ministry of Shipping: Launch of Sagarmala Program' published by Ministry of Shipping, Indian Ports Association, undated, source: <https://archive.pib.gov.in/ndagov/Comprehensive-Materials/compr14.pdf>

connectivity are extremely important for export-oriented cargo. It proposes that the Mega Food Parks be port-based or have adequate linkages with ports-export orientation of the food processing sector. Possible locations of these mega food parks include Kakinada in AP and Southern Maharashtra as they have necessary factors for production and proximity to raw materials, ports, and industrial agglomeration. At present fishing vessels are taking shelter inside the New Mangalore Port during monsoon, causing inconvenience for the Port operation, creating security issues and hindrance for developing port infrastructure. Therefore, New Mangalore Port and Govt. of Karnataka have agreed to have an alternative of providing a fishing harbor at Kulai. This will help in addressing difficulties of displaced fishermen and providing them with a modern fishing harbor with allied facilities in hygiene conditions. This will also bring about improvement in the socio-economic condition of fishermen in the coastal region of Mangalore.¹⁸

'Final report for sagarmala (Vol III)'– Nov 2016 report talks about how a robust maritime logistics sector with modern and efficient port infrastructure can be a strong catalyst of economic growth. EXIM containers in India travel a distance of 700 to 1,000 km between production centres and ports, compared to 150 to 300 km in China. Lack of seamless connectivity across various logistics modes and complexity in procedures contribute to high variability in transit times. As a result, container exports take 7 to 17 days from the hinterland to vessel, compared to 6 days in China. One of the factors impeding the utilisation of non-major ports of southern Maharashtra is poor connectivity between industrial centres and ports. Inadequate road and rail linkages through the Western Ghats constrain North Karnataka's development. Major ports have 2.71 lakh acre of land, of which 2.35 lakh acre is underutilised. Raw material often travels a large distance from coastal areas to the hinterland and then finished products travel back from the hinterland to the coast for exports. This reduces the competitiveness of Indian exports compared to other exporting countries. Existing policies in India for usage of port land are focused on maximising rental yields, rather than the maximisation of overall economic value-add and job creation. Indian ports are often small, inefficient and lack the draft to accept larger sized vessels..¹⁹

'India's mega port development project "Sagarmala": an explainer for investors' article talks about the six new ports coming under the Sagarmala program. According to a research published in September 2016, the cost reductions that will result by 2025 might be between US\$5.2 billion (Rs 35,000 crore) and US\$5.9 billion (Rs 40,000 crore). At the end of the third quarter of 2018, 492 projects totaling US\$62 billion were in various phases of implementation, development, and completion. Additionally, the government has put up 14 coastal economic zones (CEZs) that will connect coastal communities with ports. Such CEZs are anticipated to reach 500 km (310 miles) along

¹⁸ Title: 'Final Report for Sagarmala (Vol. II)', published by Ministry of Shipping, Indian Ports Association, dated: November 2016, source: <https://www.chennaiport.gov.in/sites/all/themes/nexus/files/pdf/DOWNLOADS/frsb.pdf>

¹⁹ Title: 'Final report for sagarmala (vol III)' published by Ministry of Shipping, Indian Ports Association, dated: November 2016, source: <https://www.chennaiport.gov.in/sites/all/themes/nexus/files/pdf/DOWNLOADS/frsc.pdf>

the coastline and 300 km (186 miles) inland, making them far larger than India's Special Economic Zones (SEZs). They will have industrial plants in coastal economic units.²⁰

'Smart ports, digitization and more! Sagarmala programme to boost India's coastal economy' says the digitalization of numerous systems onto a single platform under the Sagarmala programme has improved productivity and efficiency. The introduction of smart ports in India, transparency and clarity of work, streamlined communication via a web-based system and a paperless regime, the Port Community System, a single digital platform for all interactions, decreased transaction time and costs, uninterrupted communication, the end of wasteful document duplication, and the easy access to data provided by biometric systems are just a few of the major initiatives of digitization. The Modi administration projects that the Sagarmala scheme will save about Rs 40,000 crore annually. There will be a 2% increase in GDP. According to the government, the infrastructure revolution will open up employment prospects for more than 1 crore people.²¹

Impacts of Port Development

According to the **'Impact of port development on the coastline and the need for protection'** report, the construction of coastal structures including breakwaters, jetties, groynes, and reclamation bunds is a component of the development of major and minor ports as well as fisheries harbours. To maintain the necessary depths for navigation, dredging and disposal activities are also a part of port development. The region's coastal processes are impeded by these coastal buildings and the dredging operations. The shoreline is significantly impacted by changes to the coastal processes. In the coastal zone with a high rate of longshore littoral drift²² there is a significant morphological influence. In these areas, sedimentation on the updrift side and erosion on the downdrift side are unavoidable. One of the best ways to lessen this issue is through sand bypassing. Any port development project should include sand bypassing as part of the design process.²³

'Measuring impact of Indian ports on environment and effectiveness of remedial measures towards environmental pollution' study attempts to ascertain the environmental effects of an expanding port industry in India and evaluates the efficacy of actions made to reduce the rising pollution brought on by port operations. It is critical to consider the environmental impact that the booming external trade has on

²⁰ Title: 'India's mega port development project "sagarmala": an explainer for investors' published by India Briefing, dated: August 2018, source:<https://www.india-briefing.com/news/sagarmala-developing-india-ports-aid-economic-growth12980-12980.html>

²¹ Title: 'Smart ports, digitization and more! Sagarmala programme to boost India's coastal economy' published by Financial Express, dated: December 2021, source: <https://www.financialexpress.com/infrastructure/smart-ports-digitization-more-sagarmala-programme-to-boost-indias-coastal-economy/2393063/>

²² "Littoral drift is the name given to the longshore transport of material, under the action of waves and currents: the movement occurring along or near the foreshore. It is deliberately treated separately from marine sediment transport" source: https://link.springer.com/chapter/10.1007/978-1-349-00424-9_4#:~:text=Littoral%20drift%20is%20the%20name,separately%20from%20marine%20sediment%20transport

²³ Title: 'Impact of port development on the coastline and the need for protection' published by Central water and power research station, Indian journal of geo-marine sciences, dated: December 2010, source: [http://nopr.niscair.res.in/bitstream/123456789/10808/1/IJMS%2039\(4\)%20597-604.pdf](http://nopr.niscair.res.in/bitstream/123456789/10808/1/IJMS%2039(4)%20597-604.pdf)

the Indian port industry, which is flourishing at the expense of the coastal seas. Researchers have provided a comparison of the environmental performance of major and minor ports. The current paper gathers its source data from six different groups of port industry stakeholders for the 15 busiest major and minor ports in India. It was discovered that port operations significantly harmed the environment in terms of water pollution, wastewater disposal, harmful pollutants, and more. The present study examines the opinions of all stakeholders in major and minor ports to determine the efficacy of common remedial measures against environmental damage. It makes no attempt to presuppose that the difficulties hindering the effectiveness of the measures are not specific to the physical location and operational limitations of each port. The size and geographic diversity of the ports included in this study prevented the researchers from confidently recommending a unified operational model that could be used in the development of all ports. This study gives readers a glimpse of the activities that lead to pollution in India's major and smaller ports and evaluates the efficiency of the environmental protection measures that have been put in place. The study was based on a questionnaire that considered the perspectives of all parties involved in the port industry, including port officials, port workers, shipping firms, traders, and members of the local community, in addition to previous research on the subject. This study would aid the Indian port authorities in assessing their green performance card, identifying and defining the areas that require development, and finally allocating funding to create and enhance a greener performance of the ports.²⁴

The Comptroller and Auditor General of India (CAG) report on '**Conservation of Coastal Ecosystems**' published on 08th August, 2022 talks about the findings of pre-audit investigations that were carried out to comprehend the risks in managing coastal zones. It shows that there were widespread CRZ violations along the coast. Numerous data sources have documented the prevalence of unlawful construction operations (which reduce coastal space), effluent emissions from local authorities, businesses, and aquaculture farms. In order to control operations in coastal areas and safeguard the coastal environment from various human activities, the government has issued notifications under Sections 3 and 5 of the Environment Protection Act of 1986. To ensure the livelihood security of fishermen and other local communities living in coastal areas, the Central Government issued the Coastal Regulation Zone (CRZ) Notification in 1991. This was done in an effort to preserve and protect coastal stretches as well as to encourage development in a sustainable way. Additionally, the Notification established restrictions on the establishment and growth of industries that may operate within the CRZ regions.²⁵

²⁴ Title: 'Measuring impact of Indian ports on environment and effectiveness of remedial measures towards environmental pollution' dated: August 2019, source: https://www.researchgate.net/publication/335060357_Measuring_impact_of_Indian_ports_on_environment_and_effectiveness_of_remedial_measures_towards_environmental_pollution

²⁵Title: ' Report of Comptroller and Auditor General of India on Conservation of Coastal Ecosystems', published by CAG, dated: August 2022, source: file:///C:/Users/Admin/Downloads/Report%20No.%20of%202022_CCE_English_PDF-A-062f0f908256ef0.76318631.pdf

Climate Change impacts on ports in India

‘Introducing climate resilience as the fifth pillar of the Sagarmala programme’ article claims that there is a need to have the fifth pillar– climate resilience. Ports are critical nodes in the supply chain.. There have been a number of cases of severe climate–induced damage and disruption to ports around the world. When it comes to India, there have been adverse effects of extreme weather events on the eastern coastline, even before the manifestation of climate change (increase in frequency and intensity). Even a marginal increase in the sea level in the Indian Ocean is claimed to be enough to threaten millions of livelihoods and billions of dollars’ worth of infrastructure. The World Bank has estimated that the adverse impacts of extreme weather events, under a worst–case scenario, could cost India about 2.8 percent of its GDP by 2050. Thus the report puts forth the fact that climate resilience is a critical factor to be considered in port development projects, for safeguarding long–term investments in the same.²⁶

‘Climate change affects ports in India’ article puts forth the simulation of the future state of shorelines on Paradip port of Odisha. The researchers of the study used a climate model resulting from the ‘Coordinated Regional Climate Downscaling Experiment (CORDEX), developed by the World Climate Research Program. They make it clear that climate change is highly site–specific and measures should be taken as per the regional needs. It also talks about how future climate (due to the effects of climate change) should be kept in mind while planning for the coastal ecosystem. Researchers propose alternative strategies to minimize the effects of climate change on our shorelines. Restricting human intervention in these areas to the minimum, balancing the need for developmental activities and conservation, and following the coastal zone regulation norms would help in safeguarding the coasts. ²⁷

Marine Tourism

‘Blue Economy Vision 2025: Harnessing Business Potential for India Inc and International Partners’ report also talks about marine tourism, leisure and employment opportunities. Numerous tourism and recreation activities are offered by the coast, including swimming, sunbathing, boating for pleasure, snorkeling, surfing, reef walking, whale and dolphin watching, and SCUBA diving. In addition to traditional tourism, the Blue Economy places a lot of emphasis on coastal (or marine) tourism. Coastal countries have launched a number of programmes to encourage marine tourism in various national and regional locales. These efforts exclusively focus on cruise shipping and lighthouse tourism. Marinas might be built around the Indian coast in an effort to draw more foreign tourists. A number of employment options includes jobs in hotels, restaurants serving, housing and residential pursuits, as well as vending, beach hawking, agriculture, and fishing activities. The country's expanding tourism

²⁶ Title: ‘Introducing climate resilience as the fifth pillar of the Sagarmala programme’, published by National Maritime Foundation, dated: January 2021, source: <https://maritimeindia.org/introducing-climate-resilience-as-the-fifth-pillar-of-the-sagarmala-programme/>

²⁷ Title: Climate Change affects ports in India’, published by Industrial Research and Consultancy Centre, undated, source: <https://rnd.iitb.ac.in/research-glimpse/climate-change-affects-ports-india>

industry has a long-lasting effect on the coastal environment in terms of urban sprawl, urbanisation, garbage generation, and social environment.²⁸

‘Occupation of the Coast: Blue Economy in India’ report talks about Coastal Tourism in India and how India's coastline tourism policy is being ineffective. It says the government does nothing important to ensure the livelihood of the population or the environmental stability; coastal tourism is just considered as a source of income for the government. The local communities have found that they are harmed by the continued unchecked growth along the coast. Traditional coastal livelihoods include fishing, subsistence farming, and horticulture, all of which require sufficient land and labour. However, all of the traditional livelihoods are at risk as tourism takes over the coasts. The beaches that fishworkers rely on to dock and repair their boats and nets, as well as to dry and clean their catch, are being taken away. Traditional small boats still use the same regions for fishing in the close-by seas that are used for water sports. Due to the land-intensive nature of tourism and the tiny scale of subsistence farming in this area, it is easy to swallow land for tourism infrastructure, which has a direct impact on local food security as well as livelihoods. Financial institutions significantly contribute to pushing tourism toward the beaches while ignoring local interests, capabilities, challenges, and aspirations of the population. In addition to being unsustainable, this type of tourism actively alienates the unorganised sector, which is vital to the local economy. Taxi drivers, owners of shacks, and owners of small and medium-sized businesses are in charge of providing services to a huge proportion of tourists, but they are rarely given any room in planning and policy-making that would ensure that their voices, aspirations, and opinions are taken into consideration. Benefits like tax holidays and subsidies are therefore only given to the formal tourism industry. The tourism lobby put pressure on the government to change the Coastal Regulation Zone (CRZ) Notification for the first time. The tourism sector claimed that the required 200 metres of "No Development Zone" (NDZ) prevented them from competing with beach hotels in nations where there were no such limitations. In 1994, the Ministry of Environment and Forests (MoEF) modified the CRZ Notification to reduce the NDZ area around tidal water bodies in response to public outcry. Since then, the CRZ has undergone 21 amendments between 1994 and 2005, each of which significantly weakened the regulatory framework and were frequently requested by the tourism sector. Today's average tourist experiences many changes in the tourism industry that are directly tied to dilutions and violations of regulatory processes. Public governance and the means through which the administration is held accountable to the people have altered recently. The transition from a welfare state to a market-driven neo-liberal state is one of the key causes weakening the standards of public accountability. Most governments, both at the federal level and in the states, are abandoning the practice of participatory planning and decision making in favour of investing in investment-oriented massive development goals. Additionally, by

²⁸ Title: ‘Blue Economy Vision 2025: Harnessing Business Potential for India Inc and International Partners’, published by FICCI Task Force, dated: April 2017, source: <https://ficci.in/spdocument/20896/Blue-Economy-Vision-2025.pdf>

grouping tourism projects under the category of industry, the Environment Impact Assessment (EIA) Notification from 2006 weakened environmental clearance requirements for projects in the tourism sector. Therefore, the democratic spaces that communities would have had to decide on the tourism development taking place in their own backyards or even voice their opposition/agreement to such projects under the relevant Environmental Clearance regulations are being reduced.²⁹

Challenges in Port Infrastructure

‘Maritime capacity of India: Strengths and Challenges’ reports talks about the infrastructural hurdles being faced in maritime capacity building. India's ports and harbours are currently subject to a number of laws, which prevents standardisation and poor administration. Additionally, the definition of ports is unclear. For instance, a port's classification as a major or minor port depends more on when it first became a legal body than on how much cargo it can handle or how much money it makes. The **Major Ports Act of 1963** currently governs the classification of all major ports. Ennore Port in Tamil Nadu, however, is governed by the **Companies Act**. Additionally, coastal states are permitted to establish their own port systems under the **Indian Ports Act of 1908**. Capt. S. Narula claims that India's port infrastructure's overall administrative structure is incoherent. Indian ports are less effective than ports overseas. This is not necessarily a result of a lack of competence, but rather of poor management, particularly in terms of administration and human resources. Another issue is the lengthened turnaround times in Indian ports. The current onshore infrastructure must be coordinated with the current fleet of commercial ships. To increase the effectiveness of Indian ports, more information technology (IT) needs to be used and transshipment facilities need to be upgraded.³⁰

‘Bridging infrastructural deficits at select trade ports in India’ report talks about the need for overall improvements in port infrastructure and hinterland connectivity. It also emphasizes the importance of assessing India's port infrastructure. The report reviews the current scenario at selected trade ports in India and identifies the key challenges which need to be addressed. The major challenges that affected the majority of the selected ports included congestion at the approach roads, low draft, inadequate mechanisation, lack of testing facilities and labour issues. Other issues such as those associated with self-sealing and RMS for exports were observed to be unique to some ports like V.O. Chidambaranar Port and Cochin Port. The paper also provides recommendations and potential courses of action to address these issues. These plans call for suggestions such as diversifying the type of cargo carried, buying the necessary machinery for proper mechanisation, installing fixed type scanners, encouraging containers to self-seal, resolving land difficulties, and optimising

²⁹ Title ‘Occupation of the Coast: Blue Economy in India’, published by Programme for Social Action (PSA) dated 2017, source: https://in.boell.org/sites/default/files/occupation_of_the_coast_-_the_blue_economy_in_india.pdf

³⁰ Title: ‘Maritime capacity of India: Strengths and Challenges’, published by Observer Research Foundation, New Delhi, dated: 2012, source: https://www.orfonline.org/wp-content/uploads/2012/12/Maritime_Capacity_of_India.pdf

logistics-based processes. Accordingly, it talks about how the current focus is on developing port infrastructure and improving port connectivity as against capacity augmentation, which used to be the thrust area in the earlier years. Out of the 35 projects, the Ministry of Shipping has plans to develop 17 projects on PPP basis, which will entail an investment of around INR 102.77 billion. Among these 17 projects, the major ones would be the container terminal at Diamond Harbour of Kolkata Port Trust (INR 17.58 billion), the liquid terminal at JNP (INR 24.96 billion) and the iron ore berth at Paradip port (INR 6.81 billion).³¹


Policy amendments in Port Infrastructure

‘India's Shipping Industry and Port Infrastructure:Ready for future’ article talks about what Policy amendments have been made for private cargo terminals to renew the concession period. The **Major Port Authorities Act, 2021** was passed to unify these ports' governance frameworks with global best practices. In order to increase uniformity and transparency in the contracts between investors and port operators, the government has recently released an updated version of the **Model Concession Agreement**. Concerns about the transparency of the business have been raised due to the growing privatisation of India's ports. The Ministry of Public Service established a platform for dispute redressal in 2020 to address this problem. In the same year, the Ministry also unveiled a software programme for the sector of vessel traffic services. By enabling operators to readily monitor and communicate with vessel traffic services, the introduction of this system represented a significant advancement for the sector. The model concession agreement for private cargo-handling terminals has undergone revision by the Ministry of Ports, Waterways, and Ports Authority. The terminals can extend their contract for a new period according to this new feature. This policy will also apply to current cargo handlers whose concession periods are coming to an end, such as PSA-Sical Terminals Ltd. and Nhava Sheva International Container Terminal. When the terms of a new contract are modified, the terminal assets return to the port authority. The private terminal operators can then renew their contract by requesting approval from the port authority. The private terminal operator should express its willingness to participate in the competitive bid process for the new term when approaching the port authority. The concerned authority will make the final decision on whether or not to renew or extend the concession period. It has also facilitated a 10-year tax holiday to enterprises that develop, maintain and operate ports, inland waterways and inland ports.³²

‘India developing Green Freight Corridor along western coast’ article talks about the major steps taken to promote coastal shipping which includes Licenses for foreign flag vessels carrying transshipment containers, empty containers, fertilisers,

³¹ Title: ‘Bridging infrastructural deficits at select trade ports in India’, published by BRIEF empowering growth, dated: March 2016, source: <https://www.briefindia.com/wp-content/uploads/2017/05/Bridging-Infrastructural-Deficits.pdf>

³² Title: ‘India's Shipping Industry and Port Infrastructure:Ready for future’, published by CESCUBE, dated: February 2022, source: <https://www.cescube.com/wp-india-s-shipping-industry-and-port-infrastructure-ready-for-future>



agricultural, fisheries, animal husbandry, and horticultural commodities on coastal routes are being relaxed. Major ports offer a minimum 40% discount on vessels and cargo related charges to coastal vessels; priority in berthing of coastal ships at major ports; subsidy to Indian flagged vessels carrying cargo for Public Sector Units; and GST reduction on bunker fuel from 18% to 5%.³³

In the World Bank's report '**Regulation of the Indian Port Sector**', numerous proposals for regulatory reform of the Indian port industry are presented. The author is required by the terms of reference from the World Bank to make recommendations to the Ministry of Finance (Department of Economic Affairs) regarding alternative institutional and legal options for regulation of the port sector in India as well as analyze important factors in the regulation. The issues facing Indian ports (especially those related to the Tariff Authority for Major Ports (TAMP) tariff regulation) have received extensive attention, in-depth analysis, detailed descriptions, and public discussion. The restructuring of the industry still lacks a conclusive solution. The purpose of this report is to present multiple alternatives that can assist the responsible authorities in deciding on a new or improved regulatory framework for the port industry of this sector and how they are addressed in the recently drafted **Indian Ports (Consolidated) Act, 2010**. This research emphasises realistic solutions to the ongoing issues with Indian port management. In this report, a number of suggestions have been made regarding the laws and structure which will determine the regulation of the Indian ports. According to the report a new Ports Act that distinguishes between National Ports and Regional Ports should be established. A Board of Directors for a National Port shall be appointed by the Central Government, the State Government of the State in which the concerned port is located, and, if applicable, the concerned Port City, in proportion to their respective shareholdings. It is time to do away with the outdated system of interest group representation on port boards. A **Landlord Port Authority** must be a neutral organisation with the advancement of the public interest as its primary goal in a business environment. A Regional Port's administration should be handled by the relevant Maritime State. The new **National Ports Act** should include provisions allowing the States to maintain the Maritime Boards system, giving the States complete discretion to choose the port administration model that best suits their needs in light of the local conditions. The Trust operated terminal/ stevedoring services should be corporatized under the **Companies Act, 1956**, as part of the corporatization process that unifies all Major Ports. It is obvious that this deregulation is a challenging problem, particularly for the older ports. Since each Major Port has a unique scenario, the new Ports Act should give this transition process an appropriate amount of time. It is important to completely take into account the interests of the affected port workers. On the basis of a new **Port Competition Act** that is applicable to all commercial ports in the nation, TAMP should be changed from a Tariff Regulator to a Competition Regulator. It is advised to provide the new Port Competition Regulator

³³ Title: 'India developing Green Freight Corridor along western coast', published by Offshore energy, dated: December 2021, source: <https://www.offshore-energy.biz/india-developing-green-freight-corridor-along-western-coast/>

the authority to look into complaints about alleged anti-competitive behaviour or abuse of a dominant position and to issue orders in response. The responsible port authorities, terminal operators, and marine service providers shall each set their own tariffs. Any concession agreement should include a tariff regulation, with the concerned Grantor/Port Authority enforcing its obligations. For the concerned Port Trust/Authority, the Model Concession Agreement (MCA) is a beneficial management tool. The MCA for the Major Ports should be established in the following three key areas and the following recommendations should be made: (1) the use of revenue share in concession agreements should be prevented; alternative royalties, preferably a unit (TEU) fee; (2) the new Port Authorities for the existing Major Ports should have the same choices for PPP agreements as the Minor Ports currently do (aside from BOOT); and (3) the MCA does not allow termination compensation at the expiration of the concession, which is unusual and reduces its bankability.³⁴

The report “**Reforming the Indian Ports Sector**” has been prepared by the World Bank South Asia Transport Group and funded by the AusAID–World Bank South Asia Infrastructure for Growth Initiative. This report analyses the current state of the Indian port industry, points out potential roadblocks to ports' capacity to meet India's development demands in the future, and suggests a series of policy measures to improve the sector's effectiveness and efficiency. Despite a very commendable track record of growth in volume and performance over the past 20 years, India's port sector faces numerous obstacles that could hinder its ability to satisfy future demand and compete with larger and more effective ports in the area. The report highlights five major challenges: the ability to handle the largest vessels; transport infrastructure linkages to ports; private sector participation; port governance structures; and the legal and regulatory framework within which ports operate. In conclusion, India must build more ports, invest in large vessel capability, and keep looking for ways to increase the effectiveness and competitiveness of port and terminal operations as well as their connectivity with the hinterlands in order to support trade and economic growth. To pursue these objectives the report recommends that:

Sector Governance

- i. The ports industry should be liberalised to promote competition between ports and, where practical, between terminals within ports.
- ii. To the maximum extent possible, public policies and regulations should be harmonised to level the playing field for Major and Non-major Ports. This will ensure that each port's ability to draw trade and investment will be based on its unique comparative market advantages and the ability of its owners and managers to fully utilise those advantages.

³⁴ Title: 'Regulation of the Indian Port Sector', published by World Bank, dated: May 2011, source: <https://openknowledge.worldbank.org/handle/10986/12814>

Corporate Governance

- i. Current port authorities should be incorporated under a legal framework (such as The Companies Act, 1956) and with corporate charters that clearly outline their commercial orientation while also acknowledging their public ownership and duties.
- ii. The corporate governance and management of such entities are supported by independent and professionally qualified boards of directors, merit-based manager hiring practices, management accountability based on formal business plans, commercial management structures, more latitude in pricing, application of commercial accounting and auditing standards, and openness about operational and financial performance.

Ports Business Model

- i. These port corporations gradually adopt the landlord model, modifying it to fit their unique needs and port growth strategies.
- ii. Wherever it is anticipated that contracting out parts of the port's own common and support services will increase efficiency and competitiveness, they encourage private sector investment and participation in the port terminal's activities through lease and/or concession.
- iii. In order to connect all the businesses and other stakeholders using, operating in, or impacted by the port and to facilitate the smooth and secure flow of cargo through ports and along the supply chain, they place a high priority to investment in state-of-the-art information technology and information exchange.

Private Sector Participation

- i. To speed up the implementation of PPP projects and lower the occurrence of unforeseen or intangible regulatory risks, processes should be optimised using methods mentioned in the Report and others.
- ii. Private terminal operations' tariffs are often defined by the terms of concession agreements, which permit the adoption of flexible rates to address inter- and intra-port competition.

Economic Regulation

- i. To encourage and safeguard fair competition between ports and among competing terminals within ports, an independent agency will be established to regulate ports.
- ii. The regulatory body should no longer employ TAMP to determine rates and instead be given the authority to only evaluate port-set tariff schedules in light of anti-competitive or market-power abuse criteria.

Hinterland Connectivity

- i. Improvements to hinterland connectivity must be made in accordance with the standards outlined in the Maritime Agenda 2020 for Major Ports, including double-track links to the trunk rail network (and, when feasible, to DFCs) and minimum four-lane highway connections.
- ii. To ease the strain on hinterland connectivity caused by the road and rail networks, opportunities are investigated for increasing the role of coastal shipping and inland canal transport.
- iii. National and regional transportation plans call for integrating port investment with upgraded hinterland transportation and using those axes to construct industrial growth poles and development corridors.³⁵

‘Reforming Port Processes in India for Logistics Efficiency’ is a brief report drafted by Asian Development Bank that presents a thorough mapping of all port processes, identifies the major issues after a close examination of each process and its subprocesses. In order to increase efficiency, facilitate conducting business, and lower total logistics costs at export–import gateways, the Indian Ministry of Commerce and Industry's Logistics Division is receiving support from the Asian Development Bank (ports and airports). To accomplish this, thorough port–process mapping was carried out at two important gateways, the Jawaharlal Nehru Port (JNPT) and the Visakhapatnam Port (VPT), in order to comprehend the transactions and documents exchanged between various stakeholders, identify variations in on–ground processes across ports, terminals, cargo categories, and movement type, and identify areas of intervention to achieve business procedure simplification and process efficiencies. This report makes policy recommendations, such as the adoption of a self–audit toolkit for authorities and institutions to continuously monitor and strengthen port procedures. A toolset like this is essential to the wider agenda for facilitating trade and logistics. While a traditional time release study (TRS) carried out in a port can map inefficiencies within the system and identify the processes that cause delays or congestion, it requires micro–level analysis of process design and the actual way business is conducted around it to pinpoint the precise challenges that need to be addressed. To that purpose, the TRS generally carried out by customs authorities in ports is supplemented by the mapping study and recommendations that result from it. The basic framework presented in this paper can be customized for the particular port in question to enable regular TRS and routine mapping of processes at the micro–level, which will enable ports to conduct thorough stock takes and gain the insights necessary to drive extensive reforms in both operations and processes. It also recommends establishing reliable digital systems with better user interfaces for bill of entry, shipping bills, filing cargo, etc., for timely approvals by reducing delays due to frequent failures. It was also evaluated whether processes at different ports could be streamlined to remove redundant steps and paperwork. Also it suggests to determine

³⁵ Title: ‘Reforming the Indian Ports Sector’, published by World Bank, dated: June 2013, source: <https://openknowledge.worldbank.org/handle/10986/20445>

problem areas and make plans for ongoing logistics handling improvement at the port.³⁶

‘Enhancing Port and Coastal Infrastructure: A Primer on Potential Areas’ is a background note prepared by the Ministry of Finance in collaboration with Asian Infrastructure Investment Bank (AIIB). This note examines the Sagarmala project's potential for port-led development, investment opportunities in coastal regions, the opportunity to promote the blue economy, maritime support infrastructure, including containerization, bunkering, and dredging, inland waterways, coastal shipping, ship repair, dry docks, and related regulatory issues. Along with creating physical infrastructure, the Sagarmala project should concentrate on "software" elements, i.e., the legal framework necessary to support the anticipated rise of freight. One regulation that requires the government's attention is "cabotage," or the rules that regulate the passage of foreign ships along the shore. A modal shift from road and rail to coastal shipping would be encouraged by allowing the trans-shipment of containers through foreign-flagged boats. The note also provides a summary of the programmes being implemented to promote inland waterways. Operations should be set up in favorable locations, and efficiency should be increased, for successful ship repairs. Infrastructure that is appropriate, as well as tax and duty policies that are favourable for ship parts and repair-related services, could be helpful. Regarding the bunker sector (which provides fuel for ships), it has been discovered that in order to enhance volumes, facilities must be situated along a major trade route or close to a busy port, as this will reduce ship divergence. Additionally, a bunkering site close to the refinery helps cut down on transportation expenses. For foreign-bound ships, the Goods and Services Tax (GST) rate may be lowered to a minimum of 0.5% in order to increase bunkering volumes. The creation of an Indian Bunker Industry Association, a National Standard Code of Practice for Bunkering, and the avoidance of a single supplier's monopoly may be highlighted among the reforms on the wish list. As shipping activity increases, it is equally crucial to address the problems associated with environmental sustainability. Naval and ocean space sectors are expected to boost technology in the marine industry due to commercial shipping. To make the best use of the Blue Economy, these sectors will need to be connected through the development of an appropriate legislative framework, global technical standards, and stakeholder collaboration. Also, regulations must make sure that greener, more efficient ships are more economical than those that emit more greenhouse gases. For better outcome, investment planning of ports and coastal infrastructure must go hand-in-hand with a policy structure that relaxes the cabotage rules to boost inward investment through FDI in port and vessel capacity; facilitates greener technology by making it easier and cheaper to adopt them; enables

³⁶ Title: ‘Reforming Port Processes in India for Logistics Efficiency’, published by Asian Development Bank (ADB), dated: April 2018, source: https://www.ris.org.in/sites/default/files/2021-08/Background%20Note_03-04%20April.pdf

operational business models for ship repair and bunkering by helping entrepreneurs in site selection and getting clearances.³⁷



The Mundra port, Gujarat

³⁷ Title: 'Enhancing Port and Coastal Infrastructure: A Primer on Potential Areas', published by Ministry of Finance in collaboration with Asian Infrastructure Investment Bank (AIIB), dated: September 2021, source: <https://www.adb.org/sites/default/files/publication/730481/adb-brief-187-reforming-port-processes-india.pdf>

Conclusion

India has a coastline of more than 7500 kms that is serviced by 12 major ports and 187 notified minor and intermediate ports. The government has undertaken a number of steps in recent years to promote investment by creating new ports, expanding existing ones, mechanising ports, and enhancing connectivity and logistics. The Maritime Agenda was introduced as one of the initiatives the government took to expand the port industry, bringing Indian ports up to level with foreign ports in terms of performance and capacity. The government is currently providing a special tax incentive for investments through a 10 year tax break to businesses who engage in developing, operating, or maintaining ports, inland waterways, and inland ports in order to promote investment prospects in the port sector. For the purpose of building and maintaining ports and harbours, the government has approved 100% FDI using the automatic route as a means of bringing in foreign capital. The Sagarmala Programme which was launched in March 2015 with the objectives to achieve port modernization and new port development, port connectivity enhancement, port-led industrialization and coastal community development is the government's most significant effort. It aims to enhance the performance of the country's logistics sector. The programme envisages unlocking the potential of waterways and the coastline to minimize infrastructural investments required to meet these targets. Despite these government measures, India's port industry has not been able to compete with ports around the world. This sector has faced a number of challenges that have proven to be detrimental to its expansion. Inadequate dredging capacity, a lack of technical know-how, and a lack of equipment for handling large volumes are some of the difficulties faced by existing ports. Other difficulties include insufficient navigational aids, facilities, and IT systems, inadequate road networks within the port area, inadequate cargo-handling equipment and machinery, inefficiency due to poor hinterland connectivity through rail, road, highways, coastal shipping, and inland waterways. This in turn increases the cost of transportation and cargo movement. Private investment in this area has been very cautious. For both private developers and lenders, the financial sustainability of port developments is a significant barrier.

Centre for Financial Accountability (CFA) engages and supports efforts to advance transparency and accountability in financial institutions. We use research, campaigns and trainings to help movements, organisations, activists, students and youth to engage in this fight, and we partake in campaigns that can shift policies and change public discourse on banking and economy.

We monitor the investments of national and international financial institutions, engage on policies that impact the banking sector and economy of the country, demystify the world of finance through workshops and short-term courses and help citizens make banks and government more transparent and accountable, for they use public money.

