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India's Ports Harbingers of Economic Prosperity

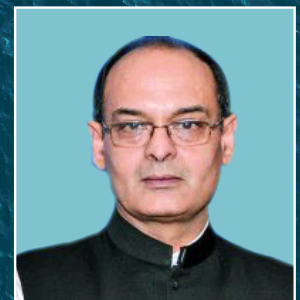
A special report published in association with Mumbai Port Trust

2019



Shri Nitin Gadkari

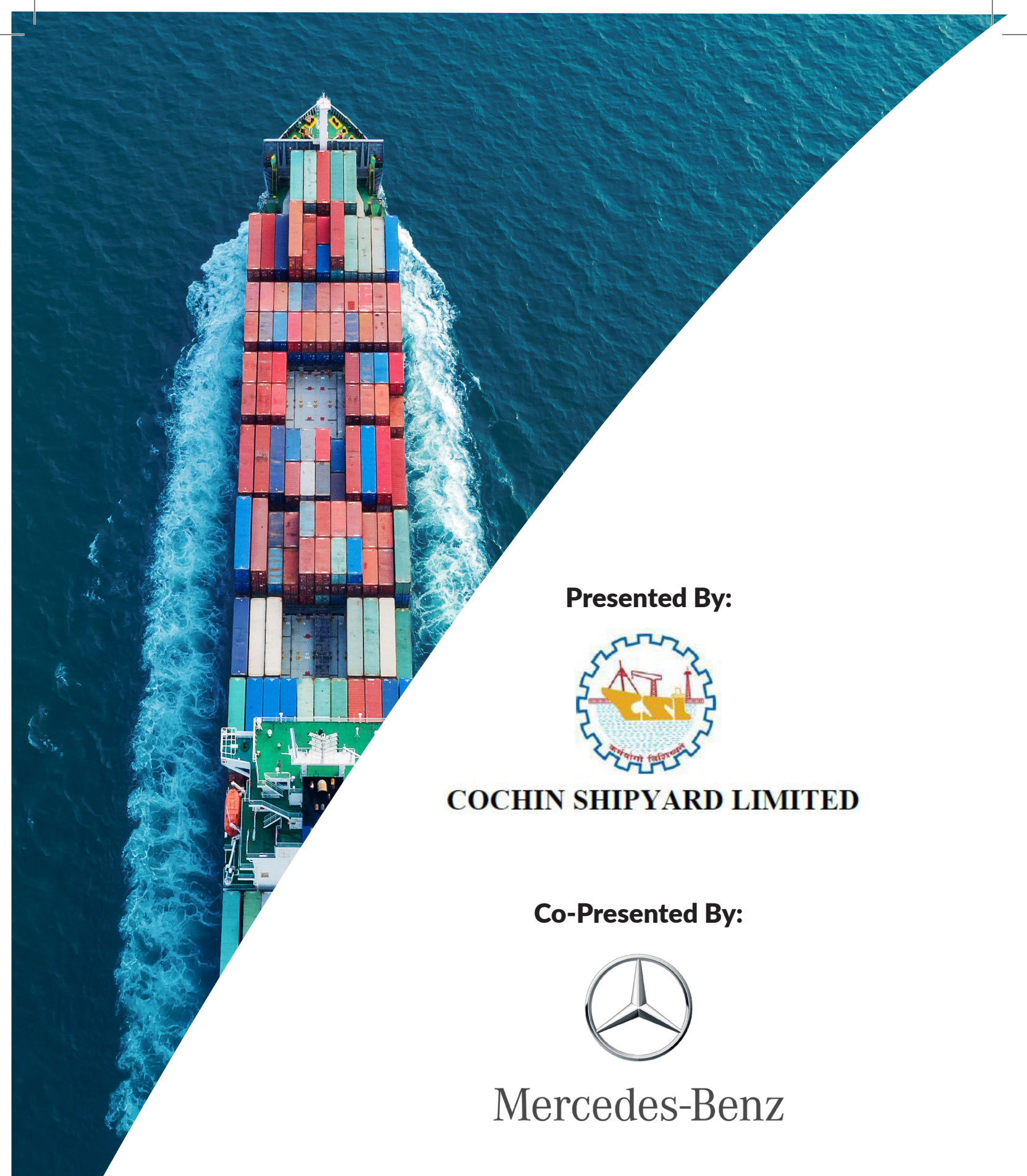
Minister of Road Transport & Highways,
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Government of India



Sanjay Bhatia

Chairman,
Mumbai Port Trust & President
Indian Ports Association





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Devendra Fadnavis

Chief Minister
Maharashtra



Mantralaya
Mumbai-400 032

MESSAGE

It gives me immense pleasure to know that Elets Technomedia is bringing out a Special Souvenir on Mumbai Port Trust to disseminate the greater awareness on the achievements, contributions and future vision of Mumbai Port Trust.

Mumbai Port Trust, the Principal Gateway of India, has played a pivotal role in the development of the National Economy, Trade and Commerce, and prosperity of Mumbai City in particular.

This Special Souvenir is launched, as a focused sector specific journal with a view to highlight the Mumbai Port's Plan and achievements while reimagining the Eastern Waterfront as a Sea Tourism and Water Transport Hub.

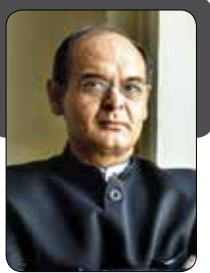
I take this opportunity to wish the Souvenir a great success!

(Devendra Fadnavis)

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संजय भाटिया भा.प्र.से.
अध्यक्ष
(समकक्ष सचिव, भारत सरकार)

Sanjay Bhatia IAS
Chairman
(Rank of Secretary, GoI)

मुंबई पोर्ट ट्रस्ट MUMBAI PORT TRUST

[पोत परिवहन मंत्रालय, भारत सरकार]
[Ministry of Shipping, Government of India]



MESSAGE

Mumbai Port Trust, the Principal Gateway to India, has played a stellar role in Government of India's vision of port-led prosperity and growth of logistics-intensive industries, thereby contributing to the development of national economy, trade, commerce and prosperity.

Mumbai Port Trust is reimagining Mumbai's Eastern Waterfront as a Sea Tourism and Water Transport Hub. In this direction, the port has already completed Domestic Cruise Terminal, Floating Restaurant, Ro-Pax Terminal and Mumbai-Goa Cruise on the Eastern Waterfront and is working on other initiatives like; International Cruise Terminal, Kanhoji Angre Lighthouse, Marina, Ropeway, etc.

On Cargo handling front, Mumbai Port Trust handles nearly 10% of India's total maritime transport, which in itself constitutes 95% of India's trading in volume terms. For a congestion-free Mumbai city, the Port is focusing on handling of Petroleum, Oil, & Lubricants (POL) and Chemicals through its specialised berths and sea-embedded pipelines from Jawardeep and Pirpau. The Port has resolved to handle only clean cargo considering city's environmental concerns and is a leading Automobile Export Terminal. It is taking further measures to emerge as a major Automobile Export hub on West Coast of India.

This Souvenir by Mumbai Port Trust is a focused endeavour to disseminate greater awareness on the achievements, contributions and future vision of Mumbai Port. It will also showcase the scope & opportunities, investment potential, new business avenues, and the transformational reforms being undertaken at Mumbai Port Trust to unlock its true potential.

I am happy that M/s Elets Technomedia - Asia & Middle East's premier media and technology research organization, is bringing out this quality publication. I hope this publication achieves its larger objective of highlighting the role of ports, shipping and maritime industry, with a special focus on Mumbai Port, in shaping of New India.

With Best wishes.


(Sanjay Bhatia)
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SUBSCRIPTION & CIRCULATION TEAM

Manager, Subscription: +91-8860635832, subscription@elets.in

DESIGN TEAM

Art Director: Om Prakash Thakur

Deputy Art Directors: Gopal Thakur, Shyam Kishore,
Raja Das, Shiva Vats

ADMINISTRATION

Director: Archana Jaiswal

EDITORIAL & MARKETING CORRESPONDENCE

eGov - Elets Technomedia Pvt Ltd: Stellar IT Park Office No: 7A/7B,
5th Floor, Annexe Building, C-25, Sector-62, Noida, Uttar Pradesh - 201301,
Phone: +91-120-4812600, Fax: +91-120-4812660
Email: info@elets.in

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Contact: Anuj Sharma; Mobile: +91-8076514979;

Email: anuj@egovonline.net



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> MAGAZINE

It compiles ICT-related advancements being introduced, exercised by various government organisations via eGovernance module.

> NEWS

Dealing with various key developments and policy-related decisions that define Indian governance style at large, this section throws light on the most important aspects.

> WEBSITE

With a reach of sixty lakhs, the website is pushing the Digital India campaign of the Government of India. It highlights various dimensions of anything and everything related to the changing trends of governance in India .

> EVENT REPORTS

This segment narrates the discussions and deliberations of participants at the occasional conferences held nationally or internationally.

> CASE STUDIES

It deals with in-depth detail of various projects being implemented in any part of the country, worth inspiring others in providing solutions.

> VIDEOS

The youtube channel 'EletsTV' deals with live recorded versions of tech-experts and key decision makers who participate in key debates or discussion of Elets knowledge conferences.

> INTERVIEWS

This section highlights various stakeholders, bureaucrats and policy makers influencing governance in the country.

Ports-Key to India's Prosperity

As India gears up to become a \$5 trillion economy within the next few years, the role played by over 15 major ports and 200 minor ports in India will be crucial to push the country on the path to prosperity. As India's ports handle 90 percent by volume and 70 percent by value the country's external trade, this sector would need some serious upgrades to handle a cargo of 2,500 MTPA by 2025, more than two times the current capacity of 1,000 MTPA. Keeping in view this projected increase in demand, Government of India has come up with 'Sagarmala project', an ambitious programme that seeks to reduce logistics costs for Exim as well as domestic trade by developing relevant infrastructure and using technology to modernise the existing ports, making them more efficient.

This special port souvenir is a unique initiative to highlight various innovations adopted across India's port sector in recent years to steer the sector on a growth path. The curated content, which includes interviews and articles of who's who from the port sector, also underscores the initiatives taken by the government for reducing cost of transporting domestic cargo through optimising modal mix; lowering logistics cost of bulk commodities by locating future industrial capacities near the coast; improving export competitiveness by developing port proximate discrete manufacturing clusters; and optimising time/cost of EXIM container movement.

The compendium includes interviews of Sanjay Bhatia, Chairman, Mumbai Port Trust (MbPT); Satinder Pal Singh, Joint Secretary, Shipping, Ministry of Shipping; Kailash Kumar Aggarwal, Joint Secretary, Sagarmala; Madhu Nair, Chairman, Cochin Shipyard Ltd; Anoop K Agrawal, Managing Director, IPRCL; and Vikram Kumar, CEO, Maharashtra Maritime Board to help the readers get useful insights into the various initiatives and policy changes that are fast transforming the sector, especially in the last five years.

We hope this special issue will serve its purpose of being a comprehensive guide to India's port sector, representing views and thought processes of all leading voices from the port sector.

Designed to provide the readers a holistic view of the sector, the souvenir also includes comprehensive articles on Sagarmala, cruise tourism and inland waterways, which together have the potential to considerably boost the economic growth of the country.



रवि गुप्ता

DR RAVI GUPTA

Editor-in-Chief, eGov magazine, and
Founder Publisher & CEO,
Elets Technomedia Pvt Ltd



CAN INDIAN PORTS BE THE HARBINGERS OF ECONOMIC PROSPERITY?

Prime Minister Narendra Modi, while addressing Chief Ministers recently, declared that he wanted to see India become a \$5 trillion economy by 2024, nearly double its current size of \$2.8 trillion. This ambitious plan requires the country's GDP to grow at around 12 percent per annum for the next five years. To achieve this kind of double digit growth, what India would need is cheap and ample energy supply, world-class infrastructure that is far better than at present and a world-class manufacturing sector that is closely linked to the over 200-odd major and minor ports dotting India's 7,517-km coastline, and the capacity of ports fairly increased to handle cargo to and from the manufacturing hubs established close to the ports, besides reduced transshipment costs and enhanced use of technology to increase efficiencies at every level, among other measures.

By **Vivek Ratnakar**

The port-led development has been bolstered by progressive and pro-active policy interventions. A new Berthing Policy and Stevedoring Policy have been implemented, while the tariff guidelines were revised to provide flexibility to port operators to align the tariff closer to market tariff subject to achievement of certain performance standards.





Over all, the ports in India handle 90 percent by volume and 70 percent by value of India's external trade. It is expected that by 2025, ports in the country will be required to handle a cargo of 2,500 MTPA, a huge jump of 1,000 MTPA in a relatively short duration of around six years. Hence, it is given that significant capacity expansion will have to come from the port sector.

Port Development - A Five Year Perspective

As per the Ministry of Shipping, between FY15-16 and FY18-19, as many as 53 new projects with sanctioned amount of Rs 1,056 crores were approved, including six new port locations, under Sagarmala – the government's port-led development scheme. Besides that, 14 CEZs in eight states have been identified under the programme to boost manufacturing in close proximity to ports. These developments offer huge potential for investment and employment generation to help India realise its goal of port-led prosperity, which had been evading the country thus far despite being richly endowed with maritime advantages.

In terms of attracting tourists through cruise tourism, five major ports of the country namely Chennai (Tamil Nadu), Mormugao (Goa), New Mangalore (Karnataka), Cochin (Kerala) and Mumbai (Maharashtra) have been developed to attract cruise ships with dedicated cruise terminals and other related infrastructure for berthing of cruise vessels and embarking and disembarking of cruise passengers.

Policy Interventions Pragmatic Policy Approach

There has been a major shift in government's policy in the past few years. According to Satinder Pal Singh, Joint Secretary, Shipping, Ministry of Shipping, the new policy of the Ministry allows transportation of fertilisers, agricultural products, fisheries and animal husbandry products on foreign-flag vessels without the requirement of a license. It ensures availability of more vessels for transportation of cargo, thus offering more choices to the cargo transporters and incentives through lower tariffs to carry out the modal shift from rail/ road.

"Earlier, only Indian-flag ships were allowed to move this cargo, therefore, those who wanted to transport cargo had limited choice. Now, if you float a tender to ship cargo, any shipping company from around the world can bid for it. Shipping companies with large vessels moving along the trade routes in the vicinity of Indian coast can offer a good price to move the coastal cargo. Its cascading effect is reduced price for end consumers," Singh adds.

Another policy shift that has happened relates to the right of first refusal. "Earlier, if you floated a tender and a foreign bidder was the L1, an India-flag ship had the right to match that L1.

But now this policy has been tweaked to provide the right of first refusal to a company which offers a ship built in India, irrespective of the flag," he says.

This policy aims to incentivise big companies to invest in ship building in India.

"Our existing policy in ship building is to provide financial assistance to private as well as public sector shipyards. If they sign a shipbuilding contract between 2016 and 2026, they can claim financial assistance under this policy," Singh adds.

Ease of Doing Business

The port-led development has been bolstered by progressive and pro-active policy interventions. A new Berthing Policy and Stevedoring Policy have been implemented. "The Coastal Berth Scheme of the Ministry of Shipping aims to provide grant-in-aid



assistance for construction/up-gradation of coastal berths at Major/non-major ports, capital dredging of operational non-major ports, construction of breakwater for existing and green-field ports etc. Ministry of Shipping has sanctioned 87 projects worth Rs 5,501 crores," says Kailash Kumar Aggarwal, Joint Secretary, Sagarmala

The tariff guidelines were revised to provide flexibility to port operators to align the tariff closer to market tariff subject to achievement of certain performance standards. 100 percent FDI is being allowed in PPP projects in the port sector. The Model Concession Agreement was amended with a view to obviate the problems being faced in execution of PPP Projects on account of certain provisions of the present MCA, in order to make the investments in the Port Sector more attractive.

A new Major Ports Authorities Bill, 2016 to replace the existing Major Port Trusts Act, 1963 with a view to provide greater autonomy and modernisation of institutional structure was introduced in the Lok Sabha. This has led to capacity addition





and improvement of efficiency parameters of ports, especially in the past five years. If we see the cargo handling capacity of the major ports, it has been growing steadily. In 2013-14, major ports handled 800.52 MTPA which significantly increased to 1065.83 MTPA by 2016-17.

PPP is the way forward

Private sector participation has been identified as a key enabler in port-led prosperity. “Private sector role in the major port sector has been realised since early 1990s and 41 PPP projects involving an investment of about Rs. 20,000 crores are in operations, having created a capacity of 368 MT. Currently, 16 PPP projects entailing an investment of another Rs. 20,000 crores and 268 MT capacity are under implementation,” informs Kailash Kumar Aggarwal, Joint Secretary, Sagarmala.

Additionally, tariff guidelines for PPP projects at Major Ports were revised in 2018 to address the concerns of the private sector and to enhance private investment.

As per the consolidated FDI policy released in 2017, Foreign Direct Investment (FDI) of up to 100 percent under the automatic route for port and harbour construction and maintenance projects has been allowed by the government.

“In the ship building and ship repair sector, India has allowed 100 percent FDI through automatic route. Secondly, the financial assistance for shipbuilding provided by the Ministry provides the private shipyards leverage to invest in infrastructure. The global ship repair hub that the Ministry is planning to develop will be done through the PPP mode,” says Satinder Pal Singh, Joint Secretary, Shipping, Ministry of Shipping.

Augmenting Port Capacity through Infrastructure & Technology Development Sagarmala

Prime Minister Narendra Modi released the National Perspective Plan detailing the contours of Sagarmala, the government’s flagship programme to promote port-led development in the country, at the Maritime India Summit held in Mumbai in 2016.

The concept of “port led development” is central to the Sagarmala vision. It has four important pillars: port modernisation and new port development, port connectivity, port-led industrialisation and coastal community development.

Under this programme, a roadmap has been prepared for increasing the Indian port capacity to over 3,500 MTPA by 2025 to cater to the growing traffic.

1. Port modernisation and new port development:

“Project Unnati was launched for Operational Efficiency

Improvement. Under the project, 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 MTPA capacity just through efficiency improvement. Out of which, 91 initiatives have been implemented to unlock around 80 MTPA capacity,” says Vikram Kumar, CEO, Maharashtra Maritime Board.

2. Port Connectivity

Although water-borne transport is much safer, cheaper and cleaner, compared to other modes of transportation, it accounts for less than 6 percent of India’s modal split.

Under Sagarmala Programme, more than 213 connectivity projects at an estimated investment of more than Rs. 2.50 lakh crore have been identified.

Some of the types of connectivity projects considered are:

- Coastal Berths at various major and non-major ports
- National waterways prioritised for development in the first phase
- Heavy haul rail corridor from Talcher to Paradip



- Connectivity to Dedicated freight corridors
- Last mile rail and road connectivity projects
- Major rail connectivity projects
- Freight friendly Expressway projects connecting the major ports
- Development of Multi-Modal Logistics Parks
- POL Pipelines

3. Port-led industrialisation

The vision of Sagarmala Programme is to reduce logistics cost and time for the movement of EXIM and domestic cargo. Development of port-proximate industrial capacities near the coast, in future, is a step in this direction. In this regard, the concepts of Coastal Economic Zones (CEZs), Coastal Economic Units (CEUs), Port-Linked Industrial & Maritime Clusters and





Smart Industrial Port Cities have been introduced.

4. Coastal community development

Approximately 18 percent of India's population lives in the 72 coastal districts that comprise 12 percent of India's mainland. Development of coastal communities through Marine sector related activities like fisheries, maritime tourism and corresponding skill development is an essential objective of the Sagarmala Programme.

Inland Water Transport

India is endowed with an extensive 14,500 km network of waterways that comprises of rivers, canals, backwaters, creeks, etc. Of this, about 5,200 kms of major rivers and 485 kms of canals are suitable for operation of mechanised crafts. Currently, about 55 million tonnes of cargo is moved annually via Inland Water Transport (IWT). The government seeks to actively promote the IWT sector for it to take a reasonable share in the inter-modal mix of inland transport. So far, waterways namely, the Ganga, the Brahmaputra and the West Coast Canal have been declared as National Waterways and are being developed



for shipping and navigation. The potential of cargo movement by the declared National Waterways and other water ways is estimated to be 50 billion tonne kms, compared to the current level of less than one billion tonne kms.

Interlinking waterways and ports with coastal shipping holds good prospects in respect of several river systems in India. For instance, Ganga-Brahmaputra-Sunderbans river system has the potential to be integrated with Haldia-Kolkata ports, the Brahmani-Mahanadi river system with Paradip port, Krishna-Godavari-Buckingham Canal with Chennai Port, West Coast Canal with Cochin Port and the Mandovi-Zuari-Cumberjua Waterways with Mormugao Port.

Railways

"Indian Port Rail and Ropeway Corporation Limited (IPRCL) was formed keeping in mind the objectives of Sagarmala project which has four verticals and one of them is port connectivity. To reduce logistics cost in India, which is around 14-15 percent of the Gross Domestic Product (GDP), the connectivity needs to be improved," says Anoop K Agrawal, Managing Director, IPRCL.

IPRCL and the Ministry of Railways have undertaken more than 50 projects worth Rs 44,000 crores. Additionally, 23 rail connectivity projects worth over Rs 24,500 crores have been identified under Sagarmala which have been taken up by the Ministry of Railways, out of these seven projects entailing Rs 2,491 crores investment have been completed.


Recently, Indian Railways commissioned the longest electrified tunnel in India having a total length of 6.6 kms. The newly-constructed tunnel will help reduce the travel time for freight trains from Krishnapatnam Port to Obulavaripalli by almost half to five hours. The construction of this tunnel has paved the way to operate freight trains in Obulavaripalli - Venkatachalam - Krishnapatnam Port new railway line for a distance of 113 kms.

Where are we heading?

Recently, Mansukh Mandaviya, Minister of State for Shipping (Independent Charge) and Chemical and Fertilizers, flagged-off a ship of the Inland Waterways Authority of India, carrying stone from Bhutan to be delivered in Bangladesh. It was for the first time that an Indian waterway was used as a channel for transport of cargo between two countries, using India for transit. The move helped reduce transportation cost by 30 percent.

Mandaviya said the historic development would take ahead the vision of Prime Minister Narendra Modi to promote cargo transportation through inland waterways. With at least 111 National Waterways being developed in phased manner for the purpose of shipping and navigation, in near future India is set to witness a considerable increase in the use of inland waterways and coastal shipping for greater cargo shipment.

In a reply to Lok Sabha, Mandaviya informed that cargo transportation on waterways rose from 55.2 mt in 2016 to 72.31 mt in 2018-19, highlighting the positive impact government initiatives have had on the shipping industry.

Initiatives like enhancing digital collaboration platform of Indian ports, talks with Japan to increase cooperation to develop port facilities, intensifying efforts to compete with South Asian hub ports for transshipment business, and computerisation of customs work, etc, will go a long way in ensuring port-led prosperity in India. 





Sanjay Bhatia
Chairman
Mumbai Port Trust (MbPT)

By **Kartik Sharma** and **Harshal Desai**

Mumbai port is persevering to transform the port area and redevelopment of 280 hectare of land in phase-I is going to give rise to new and recreated neighbourhoods, as seen in Manhattan and New York City, says **Sanjay Bhatia**, Chairman, Mumbai Port Trust (MbPT).

Please share Mumbai Port Trust's plan of revamping the eastern waterfront of Mumbai.

Mumbai city's eastern waterfront has largely been inaccessible to the public hitherto due to industrial, commercial and port activities. Mumbai Port Trust (MPT) has been appointed as the Special Planning Authority (SPA) for the 966.30 hectares of portland along the city's eastern waterfront, which stretches from Sassoon Dock to Wadala. Mumbai Port is reinventing its waterfront on the lines of port cities like London, Barcelona, Miami, Osaka and many others around the world. Mumbai port is persevering to transform the port area which got freed with discontinuation of coal,

dangerous goods and shipbreaking and is endeavouring to redevelop it to meet the city's needs. Redevelopment of 280 hectare of land in phase-I is going to give rise to new and recreated neighbourhoods, as seen in Manhattan and New York City. This mega project will bring many jobs in the service industry, incubation centres for nurturing early-stage startups besides new cultural attractions and all the hype that has wooed people to cities such as New York City and London. Mumbai Port waterfront will have a spectacular landscape, large open spaces, tree avenues, walking tracks and cycling paths along the whole stretch of roads in the plan.

Various projects, such as Marina,





Kahnoji Angre Island, floating restaurants, ropeway over the sea and 'RO-PAX' are being undertaken to promote sea-tourism and water transport by utilising the area under the port. Mumbai Port Trust has thus opened up its eastern waterfront to the public; offering cruise, entertainment, and recreation centered development.

The new domestic cruise terminal, with its accompanying tourist attractions like sea-side restaurants, cycling tracks, skating rink and amphitheater has become a major tourist hub for all. Projects like RO-PAX terminal and water taxis are envisaged to promote public-friendly water transport. An evacuation plan has been prepared for effective management of diverse range

sea. Proposed Marina on the eastern waterfront is planned with a capacity of around 300 yachts in phase-I and will be equipped with ancillary facilities such as repairing units, water supply, fuel, and waste disposal facility. Mumbai Port is also aiming to provide advanced healthcare services by upgrading its 241-bedded hospital in Wadala to a 600-bedded super specialty hospital through PPP mode for its employees and the people in the catchment area.

Aligned with your ambitious project of developing cruise tourism in India, recently Mumbai Port Trust has launched its domestic cruise terminal and is in the process

of completion of international cruise terminal. Can you please throw more light on it and the potential of cruise tourism in India?

A study entrusted to the top international consultant in the industry, Bermello & Ajamil Partners in its report indicated vast potential of 900 ship calls per annum and 4 million passengers in India by 2024-25. In this backdrop, special focus is laid by Mumbai Port on sea tourism and water transport. The port has made significant efforts in upgradation and modernisation of its domestic and international cruise terminals with more passenger amenities. In the year 2018-19,



of traffic including additional traffic to be generated on account of new developments. RO-PAX services from Mumbai to Mandwa and Nerul will reduce travel time by 2.5 hours, ease congestion on city roads and reduce pollution.

Similarly, water-taxis will ply between domestic cruise terminal and Karanja, Dharamtar, Kahnoji Angre and Belapur. It will provide ease of connectivity to the locals as well as tourists and will be a huge relief for daily commuters between Mumbai city and Navi Mumbai. The ropeway project between Sewree and Elephanta will be one of the world's longest ropeways over the

“Mumbai Port waterfront will have a spectacular landscape, large open spaces, tree avenues, walking tracks and cycling paths along the whole stretch of roads in the plan.”

108 cruise ships arrived in Mumbai carrying approximately 86,757 passengers. In 2019-20, Mumbai Port is expecting about 246 cruise vessels. International cruise terminal, which is under development at Ballard Pier extension berth at an estimated cost of Rs 350 crores, will not only be used by cruise ships and passengers but also by the city folks as it will have retails, restaurants, leisure areas, and many more facilities for other than cruise passengers. State-of-the-art facilities are also created at the domestic cruise terminal, which is the embarkation and disembarkation point for the recently started Mumbai-Goa cruises.





The new domestic cruise terminal, with its accompanying tourist attractions created on 1 km long Mumbai's new eastern waterfront offer more recreational avenues. Newly launched line Jalesh Cruise 'Karnika' is all geared up to commence its cruises from Mumbai Port from April 2019 offering weekly cruises to Goa. In future, domestic cruises are expected to go to many other tourist destinations of the country.

How do you view government's initiatives on port-led development in India? According to you, what other measures should be taken to augment the port sector in the country?

Ports play a pivotal role in the international trade of any country. In India, exports and imports account for almost 50 percent of the country's GDP. Maritime trade further contributes to a significant 90 percent of the total export-import trade volume of the country. India's port sector is at the brink of change and needs a transformational journey to improve the existing capabilities.

"A study entrusted to the top international consultant in the industry, Bermello & Ajamil Partners in its report indicated vast potential of 900 ship calls per annum and 4 million passengers in India by 2024-25."

Many projects are running in parallel for improving traffic, development of cruise and water tourism, enhancing the capacity of the port and enabling IT and automation for the ease of doing business. Government's initiatives of 'Make in India' resulted in the export of vehicles, metro coaches and various

engineering, electrical and electronic goods and machineries through Indian ports. The government's initiatives on various IT-enabled systems such as Port Community System, Access Control System and ERP for port-related activities will result in standardisation throughout the port community and establish ease of business for port users.

Mumbai Port, one of the pioneer ports, known for its excellence in handling project cargoes and heavy lifts of various types, shapes and sizes has handled 324 Metro coaches manufactured by M/s. Bombardier and exported to Australia during the period from January 2016 to December 2018. The port has also handled various heavy engineering goods, electrical goods, electronic goods, and machinery (3,134 packages weighing 17,196 metric tonnes) in the year 2017-18.

Although significant achievements and progress have been made in the last three years in the Maritime sector, many challenges still remain, which include -





- Providing last mile connectivity to all Ports.
- To handle large size vessels for achieving the economies of scale, sufficient draft is required at all Indian ports.
- Simplification of procedures to make things easy for the trade is another challenging area given the large number of Govt. and non-govt. players in the logistic chain. This requires induction of new technology, re-engineering of processes and working in very close coordination with other regulatory agencies like Customs, Health and private players like shipping lines, CFSs, etc.

How has the changing business environment due to emerging digital innovation and ICT impacted the port sector? How is Mumbai port adopting the changing scenario?

The maritime agenda for 2020 has recommended implementation of Enterprise Resource Planning (ERP) solution covering all functional areas within ports including port operations. The resulting ERP system is expected to interact with operational technology consisting of automated equipment and other systems such as VTMS, AIS, RFID, surveillance and other security systems. The Enterprise Business System Implementation project is a large turnkey project to implement Large Enterprise Business System which includes complex business process, information flow, provisioning of hardware systems, and others across six major ports of India including Mumbai.

In order to provide enhanced transparency, increased accountability, assured data security and data integrity, to transform the government work culture and ethics and to promote innovation by releasing staff energy and time from unproductive procedures the

Port has implemented eOffice through NIC, Delhi, Government of India.

MBPT has installed and commissioned Access Control System for management of visitors and cargo vehicles. The system comprises multiple applications, such as access control, visitor and vehicle permit, employee ID card, time and attendance monitoring, RFID tags for tracking vehicles, and smart cards to visitors.

“To be relevant and sustainable for many more decades, MbPT has dived deep into its role vis-à-vis city’s needs and realigned its vision accordingly.”

Mumbai Port is implementing Integrated Estate Operation Management System which will have an interface with Geographical Information System (GIS) for management of Port’s tenancies/leases.


Please apprise us about your future plans for Mumbai Port reflecting its cherished history as the principal gateway to India?

Mumbai Port has been pivotal to the economy of the whole country. There are no two opinions about the great contribution of this port towards the growth of Mumbai city. During the last 145 years, Mumbai Port has held a leadership position by continuously transforming itself in adapting to the changing needs of ships and cargoes. However, with a large megapolis

surrounding it from all sides, there is an inevitable need to look at city’s needs as well. To be relevant and sustainable for many more decades, MbPT has dived deep into its role vis-à-vis city’s needs and realigned its vision accordingly. Megapolis is undoubtedly posing challenges to the city such as evacuation difficulties by road and environmental concerns and in this context Port land opens up many new opportunities, being a number one and prime urban space. Port has accordingly prepared Master Plan in this regard after long and intensive consultations with all stakeholders with following three distinct characteristics.

A. Cargo-related: Increase cargo by improving efficiency, cost reduction and using more of pipelines and waterways for evacuation while containing/ stopping the dusty/ polluting cargoes. Main projects undertaken by MbPT in its operational areas include enhancing of POL capacity by constructing new Fifth oil Berth, Bunkering Terminal, Upgradation of Indira Dock, MoU with CSL for upgradation and modernization of Ship repair facility, movement of containers from JNPT to Mumbai through barges amongst others.

B. Sea Tourism related: Here the focus has been to transform the waterfront which fell into disuse, redundancy and re-orient it for the new opportunities of tourism development. This includes projects like Mumbai Port Eastern Water-front, International Cruise Terminal (ICT), Domestic Cruise Terminal, Ro-pax terminal, Marina, Ropeway between Sewree to Elephanta.

C. City related: About 700 acres of land is identified for development of Eastern Waterfront areas of Mumbai Port. MbPT is notified as a Special Planning Authority by the Government of Maharashtra to enable a holistic development and has prepared a blueprint of possible development. 





Mumbai's **Eastern Waterfront** Going for Major Revamp

 By **Sreetama Datta Roy**

The Mumbai Port Trust has embarked upon the task of developing Eastern Waterfront into a sea and water transport hub. The Mumbai Port Trust has envisaged a lot of projects for the same.

The Mumbai Port Trust area, spanning about 15 kms along the Eastern Waterfront is located in the heart of Mumbai. Due to discontinuance of coal and dangerous goods handling, and of shipbreaking at the port, an area of 380 hectares has been released for redevelopment. The waterfront area is proposed as a tourist and recreational zone which will have features such as the Central Garden, tourist ferry services, cruises and ropeway connection to Elephanta Caves, among other things. The project will also preserve heritage structures like the Sewri Fort, Ghadiyal Godi (Clock Tower) as well as the environmentally sensitive mudflats and mangroves that attract





Located at Prince's Dock, the Mumbai Port Waterfront has been developed on an area of 17,000 sq.m. It will be like a little haven on the waterfront for the general public to have a leisurely time and to enjoy the beauty of the Arabian sea.

flamingos and other flora and fauna. The future development will also open up multiple east-west street connections to connect Mumbai to Eastern Waterfront.

RO PAX

The Ro Pax is a cruise which has the capacity for 120 cars and 18 buses or trucks. The passenger capacity of this cruise is about 2.5 to 3 lakh per annum.

MUMBAI PORT WATERFRONT

Located at Prince's Dock, the Mumbai Port Waterfront has been developed on an area of 17,000 sq.m. It will be like a little haven on the waterfront for the general public to have a leisurely time and enjoy the beauty of the Arabian Sea. A promenade with a scenic walkway/pathway for jogging, cycling and leisure walks will be opened to all. There will also be a seaside restaurant. Events can be

conducted in the paved areas for entertainment and fun.

The waterfront will have an amphitheater, skating rink, walkways/ joggers' path, cycling path, etc.

SKATING RINK

Skating rink will be built on an area of 2,500 sq.m. and will provide an opportunity to do skating near the sea.

AMPHITHEATER

With seating arrangement for more than 250 people, the amphitheatre has been planned at the waterfront.

MARINA

With a seashore length of 15 kms, the Mumbai Port Trust (MbPT) is situated on the Eastern front of the Mumbai. Presently, there is no facility of marina in and around Mumbai. The private boats are parked near the Gateway of India.

Considering the need of marina, MbPT has decided to develop the same, carving out a piece of land out of Princess Dock. The total area of the marina would be around 14 hectares. The marina will have two components. The first component will provide marina and its essential infrastructure and facilities. The second component will be development mainly for hotels, restaurants, clubs, food courts, etc.

The Marina area will have the capacity to host 200 small and medium-sized boats. The marina has excellent accessibility from Eastern expressway and from Central Harbour Suburban Railway. MbPT is also coordinating with MMRDA in planning a Metro parallel to the Expressway connecting Thane to Museum at Fort.

The Detailed Project Report (DPR) is expected to be ready soon.





The development plans include water body for yacht parking and shipyard facilities (dry docks, ship repairing facilities). The yacht parking will have the capacity to host 310 yachts in dry stacking. Yacht sizes from 5m up to 45m can be accommodated.

DOMESTIC CRUISE TERMINAL

The Domestic Cruise Terminal is located at 15 Victoria Dock. It serves as a hub for the growth of domestic cruise tourism in India. Cruise ships with 400 passengers capacity have started plying from DCT, Mumbai to Goa.

ICONIC BUILDING

An iconic structure overlooking the waterfront will be developed. Terminal building with state-of-the-art infrastructure and interiors will be constructed with a footprint of 2,000 sq.m. on land. This building will be ideal for business meetings, conventions, conferences, etc. At the ground floor, an amphitheatre will be built.

INTERNATIONAL CRUISE TERMINAL

This terminal will handle 200 cruise ships and can handle 7 lakhs passengers at one time. Operation and maintenance of the terminal will be carried out on a Public Private Partnership (PPP) model.

KANHOJI ANGRE ISLAND

Situated in mid sea off Thal, a fishing village near Alibaug, it has a lighthouse, mark entry point and acts as prime aid to navigation for ship entering Mumbai harbour.

FLOATING RESTAURANTS



MbPT and Cochin Shipyard Limited have planned to develop a world-class integrated ship repair facility at Mumbai. The project will be undertaken on a total area 43,000 sq.m. land.

The two Floating Restaurants have the capacity to accommodate 475 persons each. Licenses have been awarded for three floating restaurants – two at the sea off Gateway of India and one at the sea off Girgaum Chowpatty. These will be available for family functions, corporate or specialised events, public

meets, etc. The restaurants have been registered with Maharashtra Maritime Board (MMB) for safety and security. Sea-worthiness, life-saving appliances and fire fighting equipment have been surveyed and tested. The restaurants carry 500 life-jackets and 24 life-rafts and buoyant apparatus, and are equipped with 2 VHF, 1 Radar, eco-sounder, GPS and AIS for monitoring ship movements.

ROPEWAY BETWEEN HAJI BUNDER AND ELEPHANTA

World's longest Ropeway Over Sea (approx 8 kms) with all the necessary infrastructure at both the terminal ends is planned at a cost Rs 800 crores.

SEWAGE TREATMENT PLANT (STP) AT MBPT

MbPT intends to set up STP in its estate to treat sewage generated in Estate under Swaccha Bharat Abhiyan. The Consultant has recommended setting up of 3 MLD capacity STP to treat sewage generated in the MbPT residential colonies.





The two Floating Restaurants have the capacity to accommodate 475 persons each.

ECOLOGICAL AND CULTURAL PARK AT SEWREE

For the protection and enhancement of historical heritage of the project area including Sewree Fort, an Ecological and Cultural park has been planned. A consultant has already been selected to prepare the DPR.

SHIP REPAIR PROJECT

MbPT and Cochin Shipyard Limited have planned to develop a world-class integrated ship repair facility at Mumbai. The project has been undertaken on a total area 43,000 sq.m. land. CSL will also provide a floating Dry dock at berth no. 7. The Mbpt is expecting a revenue of Rs 17 crore per annum from this project.

JAWAHAR DWEEP TANK FARMS

This project will help in bringing containers to Mumbai Port by barges from JNPT. It will also help in deloading of cargoes in MbPT warehouses, distribution of cargoes in city for consumption.

Major benefits of the project are as follows:

- Daily about 400 trucks and trailers could be taken off the roads from JNPT to Bhiwandi.
- Daily about 600 trucks entering Mumbai City from Bhiwandi via Thane could be taken off roads.
- Thus, a road travel of 140 km from JNPT to Mumbai will be avoided.
- MbPT's facilities will be utilised for containers.


- Inland Waterways will be promoted.
- It will reduce traffic congestion and pollution and saving in transportation cost, fuel etc.

INDIRA DOCK UPGRADATION

The project consists of 22 works which aims to enhance the look of prime cargo handling area.

PAEDIATRIC CANCER PATIENT HOSTEL


Moved by the pitiable conditions of the patients coming from far-away places, the Mumbai Port Trust has given its three buildings consisting of 128 residential units and a portion of Welfare Centre located at Cotton Green to Tata Memorial Hospital under Corporate Social Responsibility (CSR) on a nominal fee for accommodating Cancer patients and the persons accompanying them. With this, the poorest of the poor families can avail of the vital healthcare services from the renowned Tata Cancer Hospital.

Mumbai Port Trust has taken the noble task on humanitarian grounds for the welfare of socially and economically backward people, keeping in mind Late Pandit Deendayal Upadhyaya's concept of Antyodaya. 





Transforming Mumbai Port Into Tourism Hub

 By **Poornima Bajwa Sharma**

In the next five years, the Mumbai Port Trust will complete one and half-century of its existence. The Port of Mumbai has existed for many centuries and has been pivotal to the economy of India, and now it is being transformed into a major tourism hub.

During the last 145 years, the Mumbai Port held a leadership position by continuously undergoing a transformation in its shape, facilities, technology by adapting to the changing needs of ships and cargoes. To ease its own burden, it gave birth to a whole new

port, i.e., Jawahar Lal Nehru Port which was initially planned as a satellite port, and has now become one of the top 30 container ports of the world. Given the excellent potential of the Mumbai Port to be developed as a tourism hub, the government has started a number of projects to attract tourists.

Sea Tourism Related Main Projects:

- **International Cruise Terminal (ICT):** The most important and ambitious project for Cruise Tourism, not only for Mumbai but India, is the Mumbai International Cruise Terminal, which is under development at Ballard Pier extension berth at an estimated cost of Rs 350 Crores. This terminal shall not only be used for cruise ships, but also by the city folks as it will have retails, restaurants, leisure areas, and many more





facilities. This facility is approximately 4 lakh sq. ft. in size and when not in use by cruise ships shall be extensively utilised for the tourists and local citizens. The Mumbai Port is projected to handle, in a few years about 700 Cruises in a year and would eventually require five berths for handling this humongous traffic.

- **Domestic Cruise Terminal (DCT):** DCT is developed and a cruise ship between Mumbai and Goa is operating with high occupancy rate showing the demand for many more such services in future, not only connecting other Konkan Ports but also Gujarat Ports like Porbandar, Bhavnagar, etc. Going by the demand, a plan has been already made to develop one more Domestic Cruise Terminal towards the South of the existing terminal. An iconic building is proposed at the terminal on 2000 sq.m. of land which would be an ideal location for business meetings, convention, conferences, etc. besides being a terminal.
- **1 km long Mumbai Port Waterfront at Prince's and Victoria Dock Wall:** This integrated water transport hub shall have all modern requirements for the leisure and commuting for city folks. This facility will have Ro-Pax Terminal with sea side restaurants, Skating Rink and Cycling tracks, Amphitheatre, Domestic Cruise Terminal, Marina, Floating Restaurants, Harbour Cruises, etc.
- **Ro-Pax Terminal:** It is perfect example of harnessing waterways for commuting/tourist movements and reducing the road traffic. Ro-Pax services between Mumbai, Mandwa and Nerul will open up a new commuter/tourist transportation connecting these three important nodes which will also be able to connect to Navi Mumbai's new upcoming airport. The terminal facilities at Mumbai

and Mandwa are ready and the ship shall be deployed shortly to bring a huge relief for travellers.

- **Marina:** Mumbai's first modern Marina will have about 310 yachts parking capacity with 102 yachts in dry stack yard with all necessary facilities like water supply, fuel facilities, waste disposals for yachts and an exclusive Marina Hospitality Centre to cater to marina users. This shall be located at the Prince's Docks.
- **Evacuation Plan:** Vehicular traffic will increase substantially in this stretch and therefore a traffic evacuation plan covering an area of 70 hectares with new road links of 1.5 k.m. is being developed, providing parking facility for 500 cars, as also re-designing the traffic flows to Indira Dock and OCT terminal with independent entries.




Full new connectivity between P. D'Mello Road and MOD link road near Ganpati temple shall be a part of this project. Substantial work is completed and the new traffic flow shall be operational in three-four months.

- **Floating Restaurants:** Two Floating Restaurants have already started operating and third is shortly expected. Tourism and leisure business is growing and MbPT has developed this business on the revenue share model to take advantage of the growing demand. The facilities at Mumbai's new

waterfront shall open up more recreational options like Harbour Cruises, Dinner Cruises, etc.

- **Ropeway between Sewree to Elephanta:** The World's longest Rope way over the sea of approx. 8 Kms. shall be built in PPP mode costing about Rs 700 Crores. This project will open up new travel mode for the city population besides giving a beautiful view of marine facilities like ships, Jawahar Dweep island, and the upcoming MTHL, with flamingoes, etc. Tender for the project is already issued.
- **Kanhoji Angre Island Tourism:** Kanhoji Angre is a beautiful pristine island with a heritage lighthouse which arouses curiosity amongst all citizens and tourists alike. It is so

close to Mumbai but had no access. A jetty is built and internal facilities are being developed, so that this can become truly a new venue for the day trip picnic, heralding new opportunities of leisure and adventure.

- **Jetty at Marine Drive:** This will open up access not only for Floating Restaurants and other water sport facilities at the Girgaon Chowpatty stretch, but also to the seaplanes that would use Chowpatty water areas of Mumbai Port. It can also be used for access to Shivaji statue. 





Mumbai Port Driving Indian Automobile Exports



 By **Elets News Network**

The Mumbai Port handles more than two lakh vehicles per annum. The Mumbai Port Trust is soon planning for a terminal dedicated for the Ro-Pax ships which handle the movement of automobiles. The port offers a wide range of services for the automobile sector.

The Mumbai Port is a major automobile hub on West Coast. The port has 150,000 sq. mtrs. dedicated storage area on its premises and has Pre Delivery Inspection (PDI) storage facilities for export vehicles. The port also has pre-shipment storage facility of 30 free days for automobiles.


The port offers best services in terms of port-related charges for movement of vehicles on the coastal route. It is a very good option for the transporters - saving diesel, wear and tear of the trucks. Transporting automobiles Mumbai to Southern Ports has a potential cost saving of nearly 10 percent. Auto rickshaw and mini trucks movement can also be explored. The last year saw an increase of 21.55 percent in handling the automobiles as compared to the last year. In 2017-18,

the port handled 1,73,806 vehicles rise by 13 percent as compared to the previous year. It also handled more than 85 Ro-Ro ships - increase by 8 ships (77 in 2016-17).

The port has an approximately 1,50,000 sq. mtrs. dedicated area for car park in outlying and docks. There is a pre-dispatch inspection/repairs facility prior to the export of the vehicles. Volkswagen has been permitted by the port to install charging facilities in the docks. The OCT berth is able to park about 1,500 cars, enabling quick loading into the ship. The efficiency and cost-effective solution has enabled the manufacturers in Pune-Nashik belt to aggressively export their automobiles to worldwide market.

Coastal Trade Initiatives

- Vehicles loaded Railway wagon till berth - ensuring safety of vehicles

- Offshore container terminal can be used for vehicles loading in RO-RO vessel
- Discount of 40 percent on the vessel-related and cargo related charges
- Offshore container terminal can be used for vehicles loading in RO-RO vessel
- Special discount of 80 percent on the vessel related and cargo related charges for coastal transportation of vehicles through RO- RO ships
- Incentive for the coastal shipping is being considered by the Ministry of Shipping
- Dedicated berths in Indira Docks 9, J/EN, 10, 11 for coastal cargo
- Berthing on arrival - priority for coastal vessels
- Awareness programs and workshops for bringing together various stakeholders. 



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SAGARMALA – *A Giant Leap towards Port-led Development*

 By **Vivek Ratnakar**

The Sagarmala programme, anchored by the Ministry of Shipping, aims to achieve the broad objectives of enhancing the capacity of major and non-major ports and modernising them to make them efficient, thereby enabling them to become drivers of port-led economic development in the country.

India, which is richly endowed with natural maritime advantages like 7,500 km long coastline, 14,500 km of potentially navigable waterways and strategic location on key international maritime trade routes, has embarked on an ambitious programme to reduce logistics cost for export-import and domestic trade with minimal infrastructure investment.

Given that approximately 95 per cent of India's merchandise trade (by volume) passes through sea ports and the country's trade is growing strongly over the years, the Sagarmala Programme, which was launched in 2015, is a vital step towards ensuring sustainable future economic growth.





The programme has four important components: reducing cost of transporting domestic cargo through optimising modal mix; lowering logistics cost of bulk commodities by locating future industrial capacities near the coast; improving export competitiveness by developing port proximate discrete manufacturing clusters; and optimising time/cost of EXIM container movement.

As per a report by McKinsey & Company and AECOM, the companies which were entrusted by the Ministry of Shipping to prepare “the most appropriate strategy” for the Sagarmala project, India’s port-led development constitutes four important pillars: port modernisation and new port development, port connectivity, port-led industrialisation and coastal community development.

National Perspective Plan (NPP)

Prime Minister Narendra Modi released the National Perspective Plan detailing the contours of Sagarmala, the government’s flagship programme to promote port-led development in the country, at the Maritime India Summit held in Mumbai in 2016.

NPP was prepared after detailed consultations with key stakeholders in the central and state governments, public sector companies as well as private players from shipping, ports, ship-building, power, cement and steel sectors.

It has identified a range of projects and enablers under the four pillars identified in the McKinsey & AECOM report to unlock the opportunities for port-led development. Over 150 projects have been identified across these four pillars. The programme could lead to annual logistics cost savings of close to Rs 35,000 crore and boost India’s merchandise exports to \$110 billion by 2025. About one crore new jobs are estimated to be created, of which 40 lakhs will be direct employment.

Port Modernisation & New Port Development:

India has 12 major ports and approximately 200 non-major ports administered by Central and State Governments respectively. As per the studies conducted under the Sagarmala Programme, it is expected that by 2025, cargo traffic at Indian ports will be approximately 2,500 MMTPA while the current cargo handling capacity of

Indian ports is only 1,500 MMTPA. A roadmap has been prepared for increasing the Indian port capacity to over 3,500 MMTPA by 2025 to cater to the growing traffic.

This includes port operational efficiency improvement, capacity expansion of existing ports and new port development. Indian ports need to address infrastructural and operational challenges before they graduate to the next level. For example, operational efficiency of Indian ports has improved over the years but still lags behind the global average.

Turnaround time (TAT) at major ports was approximately four days in 2014-15, whereas global average benchmark is 1-2 days.

Project Unnati was launched for Operational Efficiency Improvement. Under the project, 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 MTPA capacity just through efficiency improvement. Out of which, 91 initiatives have been implemented to unlock around 80 MTPA capacity.





For all the 12 major ports, master plans have been finalised for capacity expansion of existing major ports. From the port master plans, 106 port capacity expansion projects (cost: Rs. 67,697 Cr) have been identified for implementation over next 20 years and are expected to add 785 MTPA to the capacities at major ports.

To fill the demand gap, six new major ports are planned which will bring in significant capacity expansion. The locations of these new ports are deliberated after detailed origin-destination study of cargo commodities and there are mainly three levers that propel the need for building new ports. New port locations 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)
- Tajpur (West Bengal)
- Paradip Outer Harbour (Odisha)
- Cuddalore/Sirkazhi (Tamil Nadu)
- Belikeri (Karnataka)
- Enayam (Tamil Nadu) – Transshipment Port

Port Connectivity

Connectivity is one of the critical

Under Sagarmala programme, more than 213 connectivity projects at an estimated investment of more than Rs. 2.50 lakh crore have been identified.

enablers for ports and the end-to-end effectiveness of the logistics system drives competitiveness for the maritime industry as well. In India, smooth connectivity to ports is even more important as the cargo generating centres are mainly in the hinterland instead of in the coastal region.

Presently, around 87 percent of Indian freight uses either road or rail for transportation of goods. A significant

share of this cargo experiences “idle time” during its transit to the ports due to capacity constraints on highways and railway lines connecting ports to production and consumption centres. It is, therefore, important that connectivity of major ports with the hinterland is augmented not only to ensure smooth flow of traffic at the present level but also to meet the requirements of projected increase in traffic.

Although water-borne transport is much safer, cheaper and cleaner, compared to other modes of transportation, it accounts for less than 6 percent of India’s modal split. By comparison, coastal and inland water transportation contribute to 47 percent of China’s freight modal mix, while in Japan and US, this share is 34 percent and 12.4 percent respectively.

Significant savings can be achieved by shifting movement of industrial commodities like coal, iron ore, cement and steel to coastal and inland waterways.

It is estimated that coastal shipping traffic of about 180-200 MMTPA can be achieved from current and planned capacities across coal, cement, iron and steel, food grains, fertilizers, POL by 2025. Additionally, about 135 MMTPA of cargo is expected to be moved via inland waterways by 2025.

Under Sagarmala Programme, endeavour is to provide enhanced connectivity between the ports and the domestic production/consumption centres. More than 213 connectivity projects at an estimated investment of more than Rs. 2.50 lakh crore have been identified. Some of the types of connectivity projects considered are:

- Coastal Berths at various major and non-major ports
- National waterways prioritised for development in the first phase
- Heavy haul rail corridor from Talcher to Paradip





- Connectivity to Dedicated freight corridors
- Last mile rail and road connectivity projects
- Major rail connectivity projects
- Freight friendly Expressway projects connecting the major ports
- Development of Multi-Modal Logistics Parks
- POL Pipelines

The optimised modal mix using inland waterways and coastal shipping would not only reduce logistics cost but also cut down emissions, reduce energy and fuel consumption. It is estimated that reduction of 12.5 MT in total CO₂ emission (2.5% of current emission through transport sector) and 1 Million KL in liquid fuel consumption (1.5% of current liquid fuel consumption by transport sector) can be achieved via modal mix optimization. Reduction in logistics cost will give impetus to our manufacturing sector and enhance export competitiveness.

Port-led Industrialisation

Vision of the Sagarmala Programme is to reduce logistics cost and time for the movement of EXIM and domestic cargo. Development of port-proximate industrial capacities near the coast, in future, is a step in this direction. In this

regard, the concepts of Coastal Economic Zones (CEZs), Coastal Economic Units (CEUs), Port-Linked Industrial & Maritime Clusters and Smart Industrial Port Cities have been introduced.

Coastal Economic Zones (CEZs): CEZs could be spatial economic regions comprising of a group of coastal districts or districts with a strong linkage to the ports in that region. CEZs are also envisaged to tap synergies with the planned industrial corridor projects. An Inter-Ministerial Committee (IMC) was constituted under the aegis of NITI Aayog for development of CEZs in India. As recommended by IMC, the institutional framework for development of CEZs would be similar to the institutional framework adopted by DMICDC for development of industrial corridors and industrial nodes.

Coastal Economic Units (CEUs): CEUs will be specific industrial estate projects with a demarcated boundary similar to the DMIC nodes. The CEUs will house the industrial clusters / projects proposed within the CEZ.

Each CEZ will consist of multiple CEUs and more than one industrial cluster can be housed within a CEU. Within each industrial cluster there can be several manufacturing units.

For promoting port-led industrialisation, 14 Coastal Economic Zones (CEZs) covering all the Maritime States and Union Territories have been proposed.

Coastal Community Development

Approximately 18 percent of India's population lives in the 72 coastal districts that comprise 12 percent of India's mainland. Development of coastal communities through Marine sector related activities like fisheries, maritime tourism and corresponding skill development is an essential objective of the Sagarmala Programme. Development of cruise tourism and lighthouse tourism are other activities which are being actively considered under Sagarmala Programme.

Skill Development: Under Sagarmala Programme, an integrated approach is being adopted for improvement in quality of life with focus on skill building and training, upgrading of technology in traditional professions, specific and time bound action plan for improving physical and social infrastructure in collaboration with the coastal states. On the skill development front, the skill gap study of 21 coastal districts has been completed and domain ministries & concerned state governments have been asked to implement the district action plans.





Under coastal district skilling programmes in convergence with DDU-GKY, 1,987 candidates have been trained.

Ministry is also funding the fire safety training project for workers at Alang-Sosiya Shipyard. Since February 2017, when the programme was launched, 5,745 workers have been freshly trained and 9,722 workers have been given refresher training. It is now mandatory for a worker to undergo a 12 day skills training program before he can begin work in any shipyard.

A world class, state of the art Centre of Excellence in Maritime and Shipbuilding (CEMS), first of its kind in Asia, a start up in skill development


NTCPWC at IIT Madras is being set up to study engineering issues related to ports, waterways and coasts and in the country.

technical arm of the Ministry of Shipping. It will be a state of the art facility and one-of-its-kind in South Asia. It will cover the following 5 domain areas:

- Ship Design for Coastal/Inland waterways
- Shipbuilding Technology and Structural Design
- Transport Systems & Logistics
- Cryogenic Cargo Handling
- Green/Renewable Energy harvesting from Coastal and Inland waters

Fisheries: Sagarmala Programme in coordination with related Central Ministries and State Governments would fund capacity building, infrastructure, and social development projects related to value addition in fisheries, aquaculture and cold chain development. As part of the coastal community development component of the Sagarmala Programme, Ministry is part-funding fishing harbour projects in convergence with Department of Animal Husbandry and Dairying (DADF).

Coastal Tourism: For promoting tourism in maritime states under Sagarmala, projects have been identified in convergence with Ministry of Tourism and tourism development departments of maritime state governments. Key coastal tourism projects include:

- Development of Coastal Circuits under Swadesh Darshan Scheme of Ministry of Tourism
- Development of infrastructure for promoting Cruise tourism
- Development of lighthouses
- National Maritime Heritage Museum Complex at Lothal
- Underwater viewing gallery and restaurant at Beyt Dwarka
- Sagarmala has conducted skill gap studies for 21 coastal districts in India. Skill Development programmes in these 21 districts is being undertaken in convergence with DDU GKY programme of the Ministry of Rural Development. 



for maritime and shipbuilding sector with campuses at Vishakhapatnam and Mumbai was launched by Minister of Shipping on November 17, 2017. Besides this, a multi-skill development centre linked to Jawaharlal Nehru Port Trust (JNPT) is being set up in coordination with Ministry of Skill Development & Entrepreneurship.

The National Technology Centre for Ports, Waterways and Coasts (NTCPWC), at IIT Madras is being set up

to study engineering issues related to ports, waterways and coasts and in the country. NTCPWC will act as a technology arm of Ministry of Shipping for providing the needful technological support to Ports, Inland Waterways Authority of India (IWAI) and all other related institutions.

Centre for Inland and Coastal Maritime Technology (CICMT) at IIT Kharagpur has also been proposed. The total cost of the project is estimated at Rs. 76.20 crore. The centre will serve as a





Kailash Kumar Aggarwal
Joint Secretary
Sagarmala



“Foreign Direct Investment (FDI) of up to 100 percent under the automatic route for port and harbour construction and maintenance projects as per the consolidated FDI policy released in 2017.”

Harnessing India’s Coastline for Blue Economy

 By **Souvik Goswami**

The concept of “port led development” is central to the Sagarmala vision. Port-led development focuses on logistics intensive industries. These industries can be structurally competitive if developed proximate to coasts/waterways, says **Kailash Kumar Aggarwal**, Joint Secretary, Sagarmala.





Please give us an overview and blueprint of the Sagarmala programme.

Sagarmala is the flagship programme of the Ministry of Shipping to promote port-led development in the country through harnessing India's 7,500 km long coastline, 14,500 km of potentially navigable waterways and strategic location on key international maritime trade routes. Sagarmala's vision can have a potentially transformative impact on India's logistics competitiveness and the wider economy.

The concept of Sagarmala was approved by the Union Cabinet in March 2015. As part of the programme, a National Perspective Plan (NPP) for

comprehensive development of India's coastline and maritime sector has been prepared which was released by the Hon'ble Prime Minister in April 2016.

Vision of the Sagarmala programme is to reduce logistics cost for EXIM and domestic trade with minimal infrastructure investment. This includes:

- Reducing cost of transporting domestic cargo through optimising modal mix

“Logistics cost to GDP ratio in India (13-14 percent of the GDP) is very high in comparison to developed countries (USA- 9-10 percent, Europe- 10 percent, Japan- 11 percent) and the sector is highly unorganised.”

- Lowering logistics cost of bulk commodities by locating future industrial capacities near the coast
- Improving export competitiveness by developing port proximate discrete manufacturing clusters
- Optimising time/cost of EXIM container movement

The concept of “port led development” is central to the Sagarmala vision. Port-led development focuses on logistics intensive industries. These industries can be structurally competitive if developed proximate to coasts/waterways. They would be supported by efficient and modern port

infrastructure and seamless multi modal connectivity. The population in adjoining areas would be sufficiently skilled to participate in economic opportunities on offer. The synergistic and coordinated development of the above four components, namely logistics intensive industries, efficient ports, seamless connectivity and requisite skill-base leads to unlocking of economic value.

As part of the Sagarmala programme, 601 projects worth Rs.8.8 lakh crores have been identified for implementation, during 2015-2035.

What are the policy and institutional interventions to attract investments in the sector?

A number of policy, regulatory, fiscal and financial initiatives have been taken up. These include:

- Foreign Direct Investment (FDI) of up to 100 percent under the automatic route for port and harbour construction and maintenance projects as per consolidated FDI policy released in 2017
- 10-year tax holiday to enterprises that develop, maintain and operate ports, inland waterways and inland ports.
- Relaxation of cabotage laws for promoting coastal shipping for Ro-Ro vessels and special cargo vessels since 2016 and extended to 2020, for fertilizers, agriculture products, empty containers and trans-shipment containers since 2018
- Model Concession agreement for ports modified in January 2018
- Policy guidelines for management of land under the control of Major Ports have been revised recently to settle long pending disputes on the land and to unlock value of land.
- Tariff guidelines for PPP projects at Major Ports have been revised in





2018 to address the concerns of the private sector and to enhance private investment.

- Part financing by Ministry of Shipping for promoting coastal berths to enhance share of water transport in the transportation modal mix

Some other initiatives are:

- In November 2017, the government granted infrastructure status to logistics sector, enabling the logistics sector to avail infrastructure lending at easier terms with enhanced limits.
- The government has allowed 100 percent FDI in the storage and warehousing sector under the automated route.
- Multimodal Logistic Park (MMLP) Policy is a key initiative of Government of India to improve the country's logistics sector by lowering overall freight cost, reducing vehicular pollution and congestion and cutting warehousing costs. In July 2017, the government has approved a plan to build 34 mega multi-modal logistics parks at an investment of Rs. 2 trillion. Logistics parks will act as freight aggregation and distribution hubs

and will enable long haul freight movement between hubs on larger sized trucks, rail and waterways.

How will funds be mobilised to implement this ambitious programme?

Projects under Sagarmala are being implemented by relevant Central Ministries (Ministry of Railways, MoRTH, Ministry of Electronics, Ministry of Food Processing, Department of Animal Husbandry Dairy and Fisheries), State Governments and its agencies (industrial development corporations, maritime Boards, port departments), Ports and other agencies (NHAI, CONCOR, IWAI etc, through their own budgets as well as through private participation or PPP mode.

Sagarmala Development Company Limited (SDCL) was incorporated in 2016, for providing equity funding support to project SPVs and residual projects under Sagarmala. SDCL has identified projects for the purpose of equity investment in-line with Sagarmala objectives. Additionally, SDCL is also in process of preparation of DPRs for specific projects that could

provide avenues for future equity investment by the company.

Indian Port Rail Corporation Limited (IPRCL) was incorporated in 2015 to undertake port-rail connectivity projects under Sagarmala programme.

The Coastal Berth Scheme of the Ministry of Shipping aims to provide grant-in-aid assistance for construction / up-gradation of coastal berths at Major / non-major ports, capital dredging of operational non-major ports, construction of breakwater for existing and green-field ports etc. Ministry of Shipping has sanctioned 87 projects worth Rs. 5,501 crores.

Private participation plays a key role. Private sector role in the major port sector has been realized since early 1990s and 41 PPP projects involving an investment of about Rs. 20,000 crore are in operation having created a capacity of 368 MT. Currently, 16 PPP projects entailing an investment of another Rs. 20,000 crores and 268 MT capacity are under implementation.

How do we compare on global benchmarking and what is the way forward?





Logistics cost to GDP ratio in India (13-14 percent of the GDP) is very high in comparison to developed countries (USA- 9-10 percent, Europe- 10 percent, Japan- 11 percent) and the sector is highly unorganised. India has a skewed modal mix with road movement accounting for 60 percent of total freight movement. Freight movement by road is typically 25-30 percent more expensive than railways for long haul routes. Waterways are the cheapest mode of transport. Both coastal and inland waterways have not realised their full potential in spite of India having a 7,500-km coastline and around 20,000-km of navigable waterways. In USA, road, rail and water transportation of freight is 37 percent, 48 percent and 14 percent respectively,

productivity of major ports in India against international standards and define key performance indicators for the ports and terminals. A total number of 116 new initiatives for 12 major ports have been identified which would increase the volume of traffic significantly and also avoid capital expenditure. The roadmap for improvement has been suggested along with timelines, approach and methodology for implementation. Of the 116 initiatives, 91 initiatives have been implemented unlocking 80 MTPA of capacity.

The turnaround time for container ships in Indian ports has shown a steady downward trend – from around 41 hours in 2015-16 to around 36

The vision of Sagarmala is to reduce logistics cost for both domestic and EXIM cargo. It aims to double the share of domestic waterways (inland & coastal) in the modal mix from 6 percent to 12 percent, generate logistic cost savings of Rs. 35,000-40,000 crores per annum, boost merchandise exports by \$110 billion and enable creation of one crore new jobs, including 40 lakh direct jobs, by 2025.

- Indian ports to become major transshipment hubs to shift away Indian cargo being transshipped at ports in Middle-East, Sri Lanka and Far East.
- Indian ports to achieve international standards on major



whereas, in China, only 22 percent of freight is transported through road, 47 percent is transported through rail and water movement accounts for 31 percent. So India has to enhance share of rail and water transport to reduce logistic costs.

Quantitative benchmarking of Indian ports with international ports was undertaken which covered operational, financial, human resources and efficiency related parameters for benchmarking of efficiency and

hours in 2017-18. This improved efficiency, inter alia, has helped India improve its ranking on “trade across borders” from 143 in 2017 to 80 in 2018. However, these port statistics need to aim for international benchmarks for container ships – which are currently around 1.5 days at Antwerp, Colombo, Singapore and less than a day at Shanghai, Jebel Ali and Rotterdam.

What is your vision for India's port-led prosperity?

parameters (turnaround time, dwell times, moves per hour) by adopting international best practices.

- Coastal trade with neighbouring countries like Bangladesh, Myanmar, Thailand, Malaysia, etc, in the Bay of Bengal, to reduce the cost of transport through main line ships.
- Development of inland waterways in a big way to enhance cargo movement from 55 MMT to at least 150 MMT by 2023. e.t.gov





MARITIME CLUSTERS & CEZ BOOSTING INDIA'S SHIPPING GROWTH

✦ By Vivek Ratnakar

Under Sagarmala programme of the Ministry of Shipping, Maritime clusters and Coastal Economic Zones (CEZ) are being developed. Two such CEZs have been planned in Tamil Nadu and Gujarat.





China, Korea and Japan are currently the market leaders of the shipbuilding industry. They dominate 90 per cent of this sector.

However, India accounts for only 0.45 per cent of the global shipbuilding market and could target 3–4 million Deadweight Tonnage (DWT) of the global shipbuilding capacity by 2025.

The Government is trying to bolster this industry through its various policies and initiatives. The growth in coastal shipping and replacement of existing vessel fleet is expected to drive growth of the

shipbuilding industry in India. According to a report by the Ministry of Shipping, India is targetting a 0.2 share of the maritime services in overall Grodd Domestic Product (GDP) by 2025.

Indian maritime industry is expected to reach \$6 billion by 2025 with a service share of 50 per cent. The report also states that India can target to achieve a 0.2 per cent share of maritime services in overall GDP by 2025. India also boasts of an ancillaries market for maritime cluster worth Rs 500 crores. Now the Government is focussing on developing two CEZin Gujarat and Tamil Nadu. Various components of the maritime cluster like ship building and

ancillary services, maritime services, promoting maritime tourism and marine products.

In Gujarat, the potential marine cluster could leverage the existing ecosystem and steel supplies from Hazira. It can also utilise existing shipyards at Pipavav, Dahej and Hazira ports and ship breaking yard at Alang.

The cluster will consist of existing shipyards, ancillary cluster at Bhavnagar with retail and leisure components, services cluster in Ahmedabad / Gujarat International Finance Tec-City (GIFT) and existing fish landing centres as





identified by the Gujarat Maritime Board (GMB).

The maritime cluster in Tamil Nadu is proposed to be developed near Chennai due to enabling conditions like existing shipyards, major ports, steel cluster, automotive and engineering industry, universities and colleges. A 100-acre land parcel owned by Kamrajjar Port Limited has been identified for cluster development in Tamil Nadu. This site is also in proximity to Kattupalli Port and shipyard.

Both these sites are expected to boost the maritime industry in India. The port

In Gujarat, the potential marine cluster could leverage the existing ecosystem and steel supplies from Hazira. It can also utilise existing shipyards at Pipavav, Dahej and Hazira ports and ship breaking yard at Alang.

linked industrial clusters proposed in CEZs are expected to provide an approximate logistic cost saving of Rs. 5,500-6,500 crore per annum and boost export by approximate to Rs7.432 lakh crore and generate an employment of 1 crore new jobs including 40 lakh direct jobs and 60 lakh indirect jobs by the year 2025.

The Government is also keen on developing marine tourism, aquariums, water parks, marine museums, cruise tourism and water sports.

Maritime clusters have also been proposed at GIFT city in Gandhinagar and Goa. [govt.gov](https://www.govt.gov)





Taking Bold Decisions for a Bright New Future



✦ By **Gopi Krishna Arora**

Taking many bold initiatives on policy front in the past few years, the Ministry of Shipping has removed several bottlenecks to bring in efficiency for smooth, quick and cost-effective movement of cargo through coastal shipping as well as inland waterways, says **Satinder Pal Singh**, Joint Secretary, Shipping, Ministry of Shipping.





What are the major policy shifts that have taken place in the shipping sector in the past few years?

Over the past few years, though our tonnage has grown at a fairly conservative pace, the share of Indian flagged ships in Exim trade has steadily fallen. At present, the share of Indian-flag ships in India's Exim trade is barely 6-7 percent. The policy of the Ministry of Shipping is to ensure that there is wider choice of vessels available for transportation of cargo so that the freight rates are

competitive. It is with this aim that the Ministry has taken a major policy decision of relaxing some of the cabotage laws.

Let us take the case of container cargo. Most of our own container cargo is being trans-shipped from Colombo or Singapore rather than from our own ports. This is happening because India does not have enough container cargo vessels in its own fleet and we were not allowing liners from outside by putting restrictions on them.

The Ministry therefore took a decision to allow relaxation in Indian cabotage laws to allow trans-shipment of containers by foreign flagships also. The aim is to attract big vessels, which can call on the Indian ports so that our cargo can be trans-shipped from Indian ports rather than from nearby foreign ports. This decision was taken last year and the results that have started coming in are encouraging.

Earlier, if you had to ship an empty container from Chennai to Visakhapatnam, then it would usually be transshipped through Singapore. But now the container is going directly to Visakhapatnam, thus significantly reducing the time taken for this movement. For moving Exim containers foreign ships now don't require a license. This ensures revenue for ports and more earnings for the manpower at ports.

What are the major benefits of moving cargo through water ways and which initiatives have you taken in this regard?

Moving cargo on waterways,

whether it is coastal shipping or through rivers, is comparatively much cheaper. Indian roads and railways are already under tremendous stress. The Ministry is therefore keen to initiate a modal shift. The aim is to reduce pollution level, decongest our roads and reduce accidents by incetivising the movement of cargo along the coastal line and on inland waterways.

“The ministry took a decision to allow relaxation in Indian cabotage laws to allow trans-shipment of containers by foreign flagships also. The idea is to attract big vessels, which can call on the Indian ports so that our cargo can be trans-shipped from Indian ports rather than from foreign ports.”

The new policy of the Ministry allows transportation of fertilisers, agricultural products, fisheries and animal husbandry products on foreign-flag vessels without the requirement of a licence. It means that we are providing more vessels for transportation of cargo, which in turn gives more choice to the cargo





transporters, providing them an incentive through lower tariffs to carry out the modal shift from rail/road.

So, there is a major shift in the policy. Earlier, only Indian-flag ships were allowed to move this cargo, therefore, those who wanted to transport cargo had limited choice. Now, if you float a tender to ship cargo, any shipping company from around the world can bid for it. Shipping companies with large vessels moving along the trade routes in the vicinity of Indian coast can offer a good price to move the coastal cargo. Its cascading effect is reduced price for end consumers.

What other policy changes have taken place to help the growth of Indian shipping sector?

One major policy shift has happened recently. Earlier if you floated a tender for the purpose of chartering, Indian

“Cochin shipyard has collaborated with Hooghly Dock and Port Engineers Ltd (HDPEL) to form a joint venture company which will build river vessels in India.”

vessels had the right of first refusal. For example, if you floated a tender and a foreign bidder was the L1, an India-flag ship had the right to match that L1. But now this policy has been tweaked to provide the right of first refusal to a company which offers a ship built in India, irrespective of the flag. So, even if it is a foreign-flag ship

but it was built in India, then it will also get the first right to match the L1 price. Through this policy we are incentivising big companies to invest in ship building in India.

Our existing policy in ship building is to provide financial assistance to private as well as public sector shipyards. If they sign a shipbuilding contract between 2016 and 2026, they can claim financial assistance under this policy. Currently the financial assistance is to the extent of 20 percent. But over the 10 years it will reduce periodically by three percent every three years. Till now, around 13 crores have been disbursed under this policy. Similarly, if a government department or a government company seeks to procure a new ship or get its ship repaired, then they have to give the first right of refusal to an Indian ship builder. This is the other scheme for supporting the shipbuilding industry in India.





Which new major initiatives have been undertaken in the ship repair sector?

The situation in ship repair sector is not good. Currently, we are able to meet only around 20% of the repairing requirements of our own ships.

The Ministry therefore plans to establish a world-class ship repairing hub in the country. For this, we have engaged a consultant who is studying our shipyards to identify one of them for developing a ship repair hub. The Cochin Shipyard Ltd. has recently taken the Indira Dock of Mumbai Port Trust and Kolkata Dock on long lease in order to carry out ship repairs.

The Cochin Shipyard is also constructing an International Ship Repair Facility with an investment of around 970 crores, on land taken on lease from the Cochin Port Trust.

What are the new developments taking place in India's ship breaking sector?

In the ship breaking sector, we have the largest market share globally. We have ship breaking hubs in Alang and Sosiya where most of the ship breaking activities are taking place. To upgrade the facilities there, the Ministry, along with the Gujarat Maritime Board has initiated a project worth \$111 million in collaboration with the Japan International Cooperation Agency to upgrade the ship breaking facilities. This project aims to upgrade the ship recycling facilities in order to ensure environmentally sound recycling of ships. There is also a provision for enhanced safety and training for the workers. The Indian Government has also committed to accede to the Hong Kong International Convention for Safe and Environmentally Sound Recycling of Ships. For this, we have

drafted the Recycling of Ships Bill, 2019, which will be introduced in parliament in due course.

Some of the ship breaking shipyards are making their own efforts to upgrade to the standards set by the Hong Kong Convention. These recycling facilities are getting certificates of compliance with the Hong Kong Convention from the international classification societies.

The ship breaking sector has a lot of potential in times to come. Since there is a glut of ships in the market, many of these vessels, not very long from now will be ready for recycling and therefore would require world class facilities for doing so. For example, the oil and gas sector has nearly 300 vessels that need to be

leveraged to invest in infrastructure. The global ship repair hub that the Ministry is planning to develop will be done through the PPP mode. Its potential is being studied by our consultant and expressions of interest will be sought after it is completed.

What are your major future plans?

Our target is to encourage trans-shipments at our own ports. If we are able to attract trans-shipments in the near future it will be a major achievement. But to attract big vessels we would need to have adequate draft at our ports. It is a matter of port capacity, which is being looked into by the port authorities. Mechanisation and automation are among other major requirements to




discarded but it can be done only if the ship breaking industry has the required capacity.

What are the major opportunities for private players in the shipping sector?

In the ship building and ship repair sector, India has allowed 100 percent FDI through automatic route. Secondly, the financial assistance for shipbuilding provided by the Ministry provides the private shipyards

attract the major players to our ports.

Having a world-class ship repair hub is another target that we are looking to achieve in times to come.

The Cochin Shipyard has made huge investments in building a new dry dock, which will be one of the largest in the country. Cochin Shipyard is also investing in an international ship repair facility. Both these projects are worth around Rs. 2,800 crores. 





MAHARASHTRA MARITIME BOARD EXPANDING WATER TRANSPORT SERVICES



Vikram Kumar
CEO, Maharashtra Maritime Board

By **Harshal Desai**

After derivation and reformation of port policies in the year 2000, Maharashtra has witnessed huge investments in terms of the development of greenfield ports as well as in captive jetties. There is a huge scope of business opportunities lying in the field of cargo handling, shipbuilding industries, passenger transport and coastal tourism in the state, says **Vikram Kumar**, CEO, Maharashtra Maritime Board.





With a vast coastline of about 700 km and major ports in the State, what is the maritime outlook in Maharashtra in terms of investments and business opportunities?

Maharashtra is blessed with a coastline of about 720 km where two major ports (namely Jawaharlal Nehru Port Trust and Mumbai Port Trust) and 48 minor ports are located. Out of these 48, there are 16 ports which are capable of handling cargo. They have been either developed as private ports

under the policies of Maharashtra Maritime Board (MMB) such as Jaigad, Dighi, Angre, etc or captive jetties which handle cargo for their own consumptions such as Ambuja Cements, JSW at Dharamtar and Salav, etc. These cargo ports include handling of Exim cargo as well as coastal goods.

After derivation and reformation of port policies in the year 2000, Maharashtra has witnessed huge investments in terms of the development of greenfield ports as well as in captive jetties. Still, there is a

huge scope of business opportunities lying in the field of cargo handling, shipbuilding industries, passenger transport and coastal tourism.

Please apprise us about the initiatives taken by Maharashtra Maritime Board (MMB) in positioning Maharashtra as the leading State in maritime activity in India. Please share policies and regulatory frameworks of MMB to attract investments.





MMB is continuously working towards facilitating investors in multiple ways like by providing them incentives, ensuring transparency, for the viability of projects and by providing necessary aid while development of connectivity infrastructure and many more. Also, as and when required, we have transformed port policies to give more comfort to private players as PPP is key for ensuring speedy growth and better execution of projects.

Currently, keeping investors in mind, we have issued Maharashtra Maritime Development Policy, 2016. As per policy, we are providing the exemption from payment of royalty, payment of electricity duty, stamp duty as a part of incentives. Also keeping locals and fishermen in focus, we have included guidelines for Corporate Social Responsibilities (CSR) in policy.

Clearance of such projects will be taken care by the concept of single window clearance where committee under the chairmanship of Chief Secretary will be formed to speed up the process of port development.

In FY 2017-18, passenger traffic and cargo volume at all minor ports of Maharashtra was 19.1 Million and 37.4 Million Tonnes Per Annum (MTPA) (22 per cent of total volume of Maharashtra) respectively. Looking into the quantum of passengers we have introduced many projects related to passenger transport in place. Moreover, we are in process of developing a marina at Belapur with a capacity of 50 boats, which will be the second marina in India and the largest all over the nation. Project is expected to be completed by the end of this year. Projects of water transportation, development of marina, shipbuilding industries will be our top priorities which will establish Maharashtra as a leading state in terms of maritime activities. Simultaneously, we are



“Developments of coast with cargo ports, coastal shipping & inland water transportation, and coastal cruise tourism are the core agenda points of MMB in the coming years.”

working on enhancing capacities of existing cargo ports to compete for other operational ports across the west coast.

What are your views on Government of India's flagship "Sagarmala" project which aims to enhance the port-led development and logistics sector in India?

The Sagarmala project is a very ambitious project where Government of India is planning the utilisation of long coastline and navigable waterways for transportation of goods within the country. We are very optimistic about this project and looking forward to the reduction in logistics costs for Exim as well as domestic trade.

Around 24 projects of MMB have been





approved under Sagarmala. These projects are under different stages of development. Another set of 22 projects have been submitted to the Ministry of Shipping for approval. Currently, we have almost completed the development of Ro-Pax ferry project between ferry wharf at Mumbai port and Mandwa. The construction of terminal, marine structures and facility for allied services at Mandwa jetty have already been completed and we are actively working to kickstart operations. Over a period of time, service will be extended to Belapur also.

The Maharashtra Government has planned a big way to develop coastal and sea tourism, along with water transportation, in the State. Can you please apprise us about MMB's plans in this regard.

Water transportation is a very efficient way of transportation with which we can significantly reduce congestion on inland transport mediums and in eco-friendly manner. Our country has been doing water transportation through ferries since decades but there is a need of upgrading to attract tourism. We are planning to develop water sports activities, marinas, cruise terminals, coastal cruise and sea plane operations. Studies related to these projects are underway and projects will be on ground in the coming few years.

Apart from these, we are working on coastal cruise tourism projects which can ultimately result in the promotion of tourism activities and generation of local employment. Few spots have been identified are Dabhol, Jaigad, Ratnagiri & Vijaydurg, Malvan. Routes will be Ferry wharf to Kashid and Ferry wharf to Goa via Ratnagiri and Malvan.

Many waterways also have been identified where we can see a significant reduction in distance and



time of travelling. We are in plans to develop passenger transport along with Passenger Carrying Vehicles (PCVs) such as cars and buses. Routes are Ferry wharf at Mumbai Port – Mandwa (Road – 109 Km, Waterway – 18.5 Km), Vasai – Bhayandar (Road – 30 Km, Waterway – 3.5 Km), Gorai – Boriwali (Road – 26 Km, Waterway – 0.5 Km), Narangi – Khawadeshwari, Marve – Manori, etc.

MMB has been undertaking various CSR projects. Some of the major activities are focused on the cleanliness of the coastline (under Nirmal Sagar Tat Abhiyan Scheme). MMB has made the provision of Rs 40 million (USD 0.6 million) in its annual budget as its commitment towards this project. MMB has also conducted a number of workshops with the local Shoreline Management Committees (SMC) which were formed by MMB itself and various Non-Governmental Organisations (NGOs) to understand coastal community's needs and provide them with the funds for fulfilling the needs of a particular region. This project is being funded by Asian Development Bank under its Sustainable Coastal Protection and Management Investment Programme (SCPMIP).


Please share MMB's future vision to make Maharashtra the

most favourable destination for Maritime activities in India?

The future vision of MMB consists of full-fledged development of coast with cargo ports such as Dighi, Jaigad, Vijaydurg, Redi and Vadhvan where different types of cargo will be handled to cater needs of Northern and Western regions of India.

Development of passenger and Ro-Ro transport, coastal shipping and inland water transportation facilities will significantly reduce the burden on roads and rail routes. Development of cruise tourism in Konkan area and marina developments at Belapur and other locations which will be very important for the development across the country.

Development of coastal cruise tourism across the state

Development of passenger transport facilities in West Coast of Mumbai (Nariman Point, Bandra, Juhu, Versova, Marve and Boriwali) with deployment of catamaran vessels, development of floatels. i.e., luxury floating hotels with 3 decks which can cater around 600 guests at a time will take place. In line with the development of marina at Belapur, plans are getting furnished for creating one at Mandwa too. 





Inland Waterways Transforming India's Logistics Industry

By **Sreetama Datta Roy**

Water-based transport is an excellent way of transportation as it has low operating costs of fuel and has less adverse effects on the environment. Inland waterways is a network in the form of rivers, canals, backwaters and creeks that can be used for transportation in place of or in addition to roads and rails and India is exploring a lot of options in this regard.

Established in 1986, the Inland Waterways Authority of India (IWAI) came into existence for the development and regulation of inland waterways for shipping and navigation. The Authority primarily undertakes projects for development and maintenance of IWT infrastructure on national waterways through a grant received from the Ministry of Shipping.

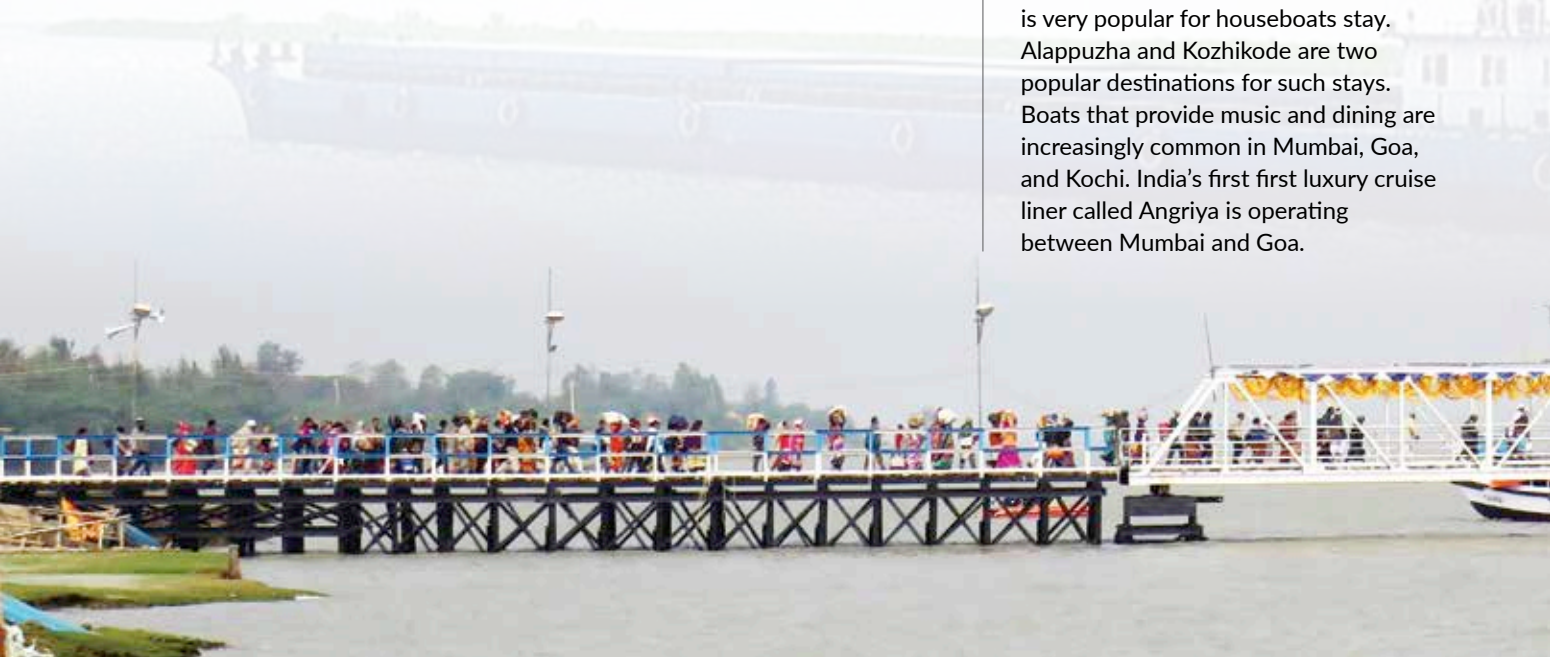
With more than 14,500 kms of inland waterways available, India is using it to transport more than 55 million tonnes of cargo every year.

In Germany, IWT constitutes more than 20 percent of their transport, in Bangladesh, it is 32 percent. However, in India, the percentage of IWT is very low.

Functions of Inland Waterways

Carriage of vehicles (preferably in the roll-on-roll-off mode): West Bengal, Kerala, and Goa have a significant number of these ferry services. Over the years, IWAI is trying to increase this number with faster boats, proper landing facilities, and interchange with other modes.

Tourism, including stay and entertainment: This is a growing activity with economic potential. Kerala is very popular for houseboats stay. Alappuzha and Kozhikode are two popular destinations for such stays. Boats that provide music and dining are increasingly common in Mumbai, Goa, and Kochi. India's first luxury cruise liner called Angriya is operating between Mumbai and Goa.





Cargo movement: One of the main purposes of the inland waterways is to transport cargo. Some factors that affect the economics and operation of water transport are the availability of the waterway, terminal facilities like jetties and ports, barges and other vessels capable of navigation, and finally the management component.

National Waterways
National Waterway 1 (Allahabad to Haldia)

The majority of the traffic on NW-1 is centered around the inland water port of Kolkata. All the commercial operations, the barge owners, the Central Inland Water Corporation (CIWTC) and the major shipyards and repair facilities are all based in Kolkata. The National Waterway-1 is aided with a differential global positioning system (DGPS), river information system (RIS), river training and conservancy works. The Haldia-Varanasi stretch of the National Waterway-1 has been developed with technical assistance

and investment support from the World Bank. The total estimated cost of the project is Rs 5,369.18 crore. The cost of the project was shared between the Indian government and the World Bank on 50:50 ratio.

The project involves the construction of three multi-modal terminals - at Varanasi, Sahibganj and Haldia, two inter-modal terminals and five roll-on-roll-off or Ro-Ro terminal pairs. It also has a new navigation lock at Farakka, assured depth dredging,





integrated vessel repair, and maintenance facility.

Operation, management and further development of the terminal is proposed to be entrusted to an operator on the public-private partnership model. The selection of the operator is at an advanced stage through international competitive bidding.

The multi-modal terminal was developed as part of the Centre's Jal Marg Vikas Project that aims to develop the stretch of the river between Varanasi and Haldia for navigation of large vessels weighing up to 1,500 to 2,000 tonnes.

The objective of the project is to promote inland waterways as a cheap and environment-friendly means of transportation, especially for cargo movement. The Inland Waterways Authority of India (IWAI) is the project implementing agency.

The multi-modal terminal project and proposed freight village in Varanasi are

The National Waterway-1 is aided with a differential global positioning system (DGPS), river information system (RIS), river training and conservancy works.

expected to generate 500 direct employment and more than 2,000 indirect employment opportunities.

The IWAI vessel, MV Rabindranath Tagore that Prime Minister Narendra Modi received in Varanasi was the first container movement on an inland waterway in India since Independence.

The vessel transported 16 containers equivalent to 16 truckloads of food and snacks from Kolkata to Varanasi. It will be on its return journey carrying fertilisers from IFFCO.

National Waterway 2

National waterway 2 is the Brahmaputra system from Dibrugarh in Assam to Dhubri on the Bangladesh border and also in Assam. The waterway is entirely in Assam.

Facilities which have been constructed for this waterway are:

- i. Multimodal terminal at Pandu with Low Level and High Level Jetty.
- ii. Ro-Ro terminal at Dhubri with RCC Ro-Ro Jetty.
- iii. Floating terminal at 11 locations on NW-2 i.e. Hatsingimari, Jogighopa, Pandu, Tezpur, Silghat, Biswanathghat, Neamati, Bogibeel, Sengajan, Oakland/ Dibrugarh and Oriumghat.
- iv. Differential Global Positioning System (DGPS) at Dhubri, Jogighopa, Biswanathghat and Dibrugarh for safe navigation.





- v. Ro-Ro service for providing connectivity between north bank (Dhubri) and south bank (Hatsingimari) of river Brahmaputra. The Ro-Ro service has created a direct link between Assam and Meghalaya enabling trucks/ vehicle to avoid circuitous road route of approximately 220 km through Jogighopa Bridge.
- vi. Night navigational aids for safe shipping and navigation in Bangladesh Border – Pandu and Pandu – Silghat stretches of NW-2.
- vii. River Conservancy Works like bundling and dredging for maintaining navigable depth in shallow location.

National Waterway 3

With a total length of 250 kms, the National Waterway 3 is in Kerala.

It is made up largely of coastal backwaters of the Arabian Sea. This waterway comprises of natural lakes, back-waters, river sections and man-made canal sections. The Champakara and Udyogmandal


National waterway 2 is the Brahmaputra system from Dibrugarh in Assam to Dhubri on the Bangladesh border and also in Assam. The waterway is entirely in Assam.

canals link industrial centers of Ambalamugal and Udyogmandal with the Kochi port. On the main West Coast Canal between Kollam and Kottapuram, the Kochi Edapallikota (120 kms) stretch was opened for cargo movement during November 1994 consequent to improvement works carried out by IWAI.

National Waterway 4

The Kakinada-Puducherry stretch of canals and the Kaluvelly tank, Bhadrachalam-Rajahmundry stretch of river Godavari and Wazirabad - Vijayawada stretch of river Krishna with a total length of 1,078 kms was declared as National Waterway-4 (NW-4) in 2008. The stretch was further extended upto Nashik in case of Godavari and upto Galagali in case of river Krishna, in Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu and Puducherry under the National Waterways Act, 2016. The length of NW-4 is 2890 kms and it is planned to be developed in three phases:

- i. **Phase-I:** Vijayawada to Muktyala stretch of Krishna River.
- ii. **Phase-II:** Kakinada to Vijayawada and Rajahmundry to Polavaram after completion of Phase-I.
- iii. **Phase-III:** Remaining stretches of NW-4 after completion of Phase-I and Phase-II

Development work of Phase-I of NW-4 at a cost of Rs. 96 crore has already commenced. 





Anoop K Agrawal
Managing Director, IPRCL

IPRRCL

Making Robust Rail Infrastructure for Ports

By **Ritika Srivastava**

The Indian Port Rail and Ropeway Corporation Limited (IPRRCL) is a first of its kind Joint Venture Company (JVC) formed between the major ports under the Ministry of Shipping and Rail Vikas Nigam Limited (RVNL) with the objective to providing efficient rail evacuation systems to ports and enhancing their capacity, says **Anoop K Agrawal**, Managing Director, IPRCL, while highlighting the company's plans.



"We should not be left behind in improving our infrastructure which will make our exports competitive. Our supply chain management will improve with better connectivity."



Give us a brief about the functioning of the Indian Port Rail and Ropeway Corporation Limited (IPRCL).

IPRCL was established in 2015 with the basic aim to provide improved rail connectivity to major ports in the country. The Corporation is also involved in improving the rail infrastructure of the ports so that cargo can be dispatched on time.

In order to improve the handling time of

the ports, any cargo reaching them should be dispatched at the earliest. Therefore, it is important to achieve seamless connectivity at ports. Some of the ports lack basic infrastructure which is hampering the connectivity. We are coordinating with the Railways, State Governments and port authorities, etc, so that infrastructural projects can be speeded up.

IPRCL was formed keeping in mind the objectives of Sagarmala project which has four verticals and one of them is





port connectivity. To reduce logistics cost in India, which is around 14-15 percent of the Gross Domestic Product (GDP), the connectivity needs to be improved. This also includes conveyor belts, water connectivity (inland and coastal shipping). The logistics lost time cost should be maximum up to 8 to 9 percent.

We have experts from all the domains working with us. For bulk cargo like coal, conveyor belts are good. We are trying to have state-of-the-art conveyor belts so that pollution is minimal and we are able to handle large amounts of coal at one go. Imported fertilizers are also handled through conveyor belts.

How is IPRCL planning to provide better infrastructure to ports?

Presently, we have over 850 kms of railway lines inside our ports with more than 80 locomotives pressed into service. We are doing a detailed survey of the infrastructure that needs to be upgraded. We are identifying the deficiencies and making plans accordingly to improve the layout keeping in mind the requirements in the next 20 years.

Masterplans have already been created for Haldia and Paradip ports and the implementation will be done in phases. We are looking at the ways to provide last mile connectivity and also exploring the options of single and double lines. Besides that, work is on to improve other infrastructure like signaling and rectifying the existing railway lines. Electrification of railway yards is also taking place. We want to reduce the turnaround time from 14 to 16 hours to 4-6 hours.



Which digital initiatives have been taken by you recently?

All rail receipts are now printed digitally and all freight services are monitored through Indian Railways. The cargo can be tracked online, which also facilitates the ports to know in advance about the arriving cargo.

How is IPRCL collaborating with other organisations to ensure development of ports?

The Ministry of Shipping is the mother body of this company. We are getting all the support from them. All the recruitments and deputations are done through the Ministry. We are trying to have connectivity to all major ports. The infrastructure has to improve at the rate of 8-9 percent per year. In the next five years, Indian ports have to handle 2,000 million tonnes of cargo and all the facilities have to be upgraded accordingly.

What is your vision for this year?

Our last mile connectivity and connectivity within the ports should be at par with the global standards. The turnaround time should come down to

four hours. We should handle all the cargo effectively and plan all the things in advance. We should not be left behind in improving our infrastructure which will make our exports competitive. Our supply chain management will improve with better connectivity.

There are many ports which are based in cities like the ones at Cochin, Kolkata and Visakhapatnam. As the cities grow there is pressure on land, which is limited. To add new revenue sources, the cities are adding new commercially viable projects such as cruise tourism. Ropeway is one of the facilities we are trying to provide which will not only boost tourism but also provide revenue to ports. Mumbai Port Trust is planning to operate one such ropeway from Sewri to Elephanta Caves. This eight-km long ropeway will probably be the longest over the sea in the world. IPRCL is doing review of DPR and Bid Process Management for Elephanta Ropeways.

Similarly, we are planning another ropeway in Goa, from Vasco to Dona Paula. We have one ropeway each in Cochin and Kanyakumari. We are also assisting State Governments in establishing these ropeways. As many as five-six States have already approached us for Detailed Project Reports (DPRs). After DPRs, we will help them in the execution of these projects. www.iprcl.gov



इंडियन पोर्ट रेल एंड रोपवे कॉर्पोरेशन लिमिटेड
 (पूर्व नाम इंडियन पोर्ट रेल कॉर्पोरेशन लिमिटेड)
 भारत सरकार का उपक्रम
Indian Port Rail & Ropeway Corporation Ltd.
 (formerly known as Indian Port Rail Corporation Ltd.)
 (A Government of India Enterprise)
 CIN No: U60300DL2015GOI282703





SETTING SAILS FOR CRUISE TOURISM IN INDIA

✦ By **Ritika Srivastava**

Having been recognised as a niche tourism product in India, Cruise Tourism is creating a mark on the country's tourism sector. India's first luxury cruise liner Angriya is already operational between Mumbai and Goa and is attracting a lot of foreign tourists as well.





In order to promote cruise tourism as a 365 days destination in India, the Ministry of Shipping has taken a number of steps. These include developing the right kind of infrastructure at ports for handling cruise vessels and facilitating ease of movement of passengers.

The Mumbai Port Trust (MbPT), Mormugao Port Trust (MoPT), New Mangalore Port Trust (NMPT), Cochin Port Trust (CoPT) and Chennai Port Trust (ChPT) are already working on various initiatives that will attract cruise ships with dedicated terminals and other related infrastructure for berthing of cruise vessels and embarking and disembarking of cruise passengers.

Over the years, the number of ships and cruise passengers has increased

drastically. According to the Ministry of Shipping, as against 55 cruise ship calls in the year 2003-04, the number of cruise ship calls increased to 166 in the year 2016-17. Further, the number of cruise passengers also increased from 28,000 in the year 2003-04 to 1,91,835 passengers in the year 2016-17. This number rose to 1,62,660 in 2017-18.

The Ministry had announced a Cruise Shipping Policy in 2008 to promote India as an attractive cruise tourism destination. The Policy aimed to develop India as a destination as well as a source market for cruise tourism; to increase the number of cruise shipping calls and passenger arrivals; to popularise cruise shipping among Indian tourists; to provide simplified immigration process for foreign cruise tourists; to provide easy customs

clearance and to have a conducive fiscal regime for cruise ships through development of cruise terminals and related infrastructure.

A Task Force on Cruise Tourism has been formed jointly by the Ministry of Tourism and Ministry of Shipping with representatives of all major stakeholders. The Ministry of Tourism has sanctioned projects for the development of Cruise Terminals and related infrastructure at the major ports as part of its scheme of Assistance to Central Agencies.

To boost Cruise Tourism, the Ministry has brought out a Vision Document which envisages to develop supporting infrastructure for cruise tourism at ports, to give special focus on developing the domestic cruise industry through policy supports,





incentives and port infrastructure

development. Separately, the Ministry of Shipping and the Ministry of Tourism has jointly appointed a consultant for 'Preparation of Action Plan for Development of Cruise Tourism in India.

Cruise tourism offers opportunities for supply for provisions, transport, hotels, bunkering etc. to cruise ships which generate direct and indirect employment and help in growth of the local economy.

Malanad Malabar Cruise Tourism Project

The Malanad Malabar Cruise Tourism Project was sanctioned by the Central Government last year. It was announced under the Swadesh Darshan Scheme.

The project will be developed at a cost of Rs 80.37 crores and will focus on the development of water-based thematic cruise experiences in and around Valapattanam and Kuppam Rivers of Kannur District. The three thematic cruises developed under the project are:

- a) Malabari Cuisine and Culinary Cruise in Valapattanam River (Muthappan Cruise) - Cruise starts from Valapattanam to Munambu Kadavu in Valapattanam River with an effective Cruise Length of 40 km.
- b) Yyam Cruise in Valapattanam River - The Cruise starts from Valapattanam to Pazhayangadi in Valapattanam River with an effective length of 16 km.
- c) Mangrove Cruise in Kuppam River - Cruise starts from Pazhayangadi to Kuppam in Kuppam River with an effective Cruise length of 16 km.

The Malanad Malabar Cruise Tourism Project was sanctioned by the Central Government last year. It was announced under the Swadesh Darshan Scheme.

The Tourism Ministry has sanctioned funds for development of basic infrastructure facilities like passenger terminals, boat terminals, jetties, boat race gallery, restaurants, food courts, performance areas, open-air theatres, angling yards, parking, cycle tracks, handicraft kiosks, bio toilets, Wi-Fi facilities, drinking water facilities, floating markets for local produce, solar lamps, watch towers, solid waste management, CCTV, signage, etc. The cruises under the project will be operated under the PPP mode.

The Tourism Ministry has also extended facilities like e visa, e-landing and incentives like a minimum rebate of 30 percent on all cruise vessel related charges and additional rebate of 25 percent for coastal cruise movement. e.gov





INDIA'S FIRST CRUISE LINER ANGRIYA

The Mumbai – Goa Cruise Service is India's first luxury cruise liner. It sails three times a week. For this cruise liner, the Ministry of Shipping developed a new terminal that is centrally air-conditioned, with façade lighting. Mid-size cruise vessels with a carrying capacity of 300 – 400 passengers would be operated from Mumbai to Goa from the new terminal.

Angriya cruise leaves Mumbai at around 5pm and reaches Goa by 9 am the next day. The ticket price ranges from Rs 6,000-10,000 per person. It has six bars, a pub, two restaurants, a spa, and an infinity pool. The luxury liner has been named in the memory of Sarkhel Kanhoji Angre, India 's first Naval Commander who served in Shivaji's armanment.

The ship can carry 346 passengers. It has eight types of rooms – from dormitories to luxury rooms.



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- Only yard in India to undertake drydock refits of Indian Navy's prestigious aircraft carriers - INS Viraat and INS Vikramaditya
- Offers Marine Engineering Training - rated 'Excellent' by CARE

has a multitude of offerings for a broad range of vessels across life cycles.

- Setting up a large New Dry Dock to build specialised and technologically advanced large vessels such as LNG vessels, Naval Vessels and repair of Jack-up Rigs, etc.
- Transforming and globalising ship repair industry through setting up of International Ship Repair Facility (ISRF) with shiplift and transfer systems
- Formed a Joint Venture Company named Hooghly Cochin Shipyard Limited (HCSL), located in Kolkata, to cater to emerging opportunities in Inland Waterways segment



COCHIN SHIPYARD LIMITED

www.cochinshipyard.com

*As per dock capacity



Cochin Shipyard Ltd: Helping India Emerge as a World-Class Shipbuilding Hub

By Harshal Desai

A consistently profit-making company with a revenue growth at a Compound Annual Growth Rate of 12 percent, CSL, a 'Miniratna Category I' company, is putting in place modern systems, technologies and procedures, to help India emerge as a world-class shipbuilding and ship repair hub, says **Madhu S Nair**, Chairman, Cochin Shipyard Ltd.



Madhu S Nair
Chairman
Cochin Shipyard Ltd





Please take us on Cochin Shipyard Ltd's (CSL) journey of becoming the largest shipbuilding and maintenance facility in the country.

Government of India incorporated Cochin Shipyard Ltd on March 29, 1972 as the first green field shipyard of the country after Independence. The company commenced shipbuilding in 1975, ship-repair in 1982 and marine engineering training in 1993. With its presence in both commercial and defence shipbuilding and ship repair, CSL has one of the most diversified product-mix amongst shipyards in India.

Some of the achievements of CSL include export of about 40 ships to West Europe, the US and Middle East, construction of an indigenous aircraft carrier for the Indian Navy and being the only yard to have undertaken drydock repairs of the aircraft carrier INS Viraat.

A consistently profit making company with a revenue growth at a Compound Annual Growth Rate of 12 percent in the last several years, CSL was conferred 'Miniratna Category I' status in 2008. The company went for an IPO to fund its expansion projects. A highly successful IPO enabled the company to raise Rs 941 crores for part financing its two major expansion projects -- the new drydock at a cost of Rs 1,799 crores and the International Ship Repair Facility (ISRF) at a cost of Rs 970 crores. The company hopes to take up high-tech/larger ships in the dry dock and escalate its ship repair revenue through capacity addition at the new ISRF facility.

Can you please throw some lights on Cochin Shipyard's MoU with Mumbai Port Trust to operate the Ship Repair Facility at Mumbai Port? How will the facility generate employment opportunities for the locals?

Cochin Shipyard Limited signed an MoU with the Mumbai Port Trust on January 11, 2018 for operations and management of the ship repair facility at Indira Dock, Mumbai Port. CSL took over the operations of the facilities in January 2019.

The company seeks to utilise the facility for the purpose of ship repair and allied services and for further expansion. By putting in place better systems and procedures, the company is hopeful of putting Indira Dock to optimum utilisation. This would help generate more employment and also provide a fillip to the opportunities for ancillary development. This in turn would help in the generation of employment for the locals.

How does technology play a key role in shipbuilding & ship repair industry though it has long been known as a labour-intensive industry? How has

“Some of the achievements of CSL include export of about 40 ships to West Europe, the US and Middle East, construction of an indigenous aircraft carrier for the Indian Navy and being the only yard to have undertaken drydock repairs of the aircraft carrier INS Viraat.”





Introduction of robotic stations is also under evaluation.

What is your view on the government’s plan on ‘Indigenisation’ of defence manufacturing, especially for warships and submarines in Indian Navy? How has CSL contributed to the vision under ‘Make in India’ programme?

Indigenisation of defence manufacturing would definitely help in promoting ‘Make in India’. CSL’s contribution towards this end has been significant, with the construction of the first Indigenous aircraft carrier in the country that involved substantial indigenous content. One specific example would be that of the special grade steel used for the ship that was indigenously produced by SAIL. For this, the Welding Procedure Specifications (WPS) and Procedure Qualification Records (PQR) were jointly developed by CSL in association with Midhani.

What is your future vision for CSL in terms of business growth and expansion?

Cochin Shipyard hopes to commission the two expansion projects – the new drydock and ISRF – by 2020-21/22. While the new bigger drydock would help the company to diversify into bigger and more high-tech ships in building and repairs/ conversions of Oil Rigs, LNG ships, etc, the ISRF would help the yard to increase its share in the repairs of small and medium sized ships. This would also help to position Kochi as the ship repair hub of India. The company hopes that the India growth story would help in achieving better returns and to continue the corporate growth at the same level. 

CSL adopted technology as its core in this regard?

Though shipbuilding and ship repair are considered labour intensive works, shipyards worldwide have imbibed a considerable amount of technology and automation in recent times by way of design software, robotic welding, etc.

Potential use of additive manufacturing and 3D welding in shipbuilding and ship repair is also being explored. Besides, machineries and equipment like cranes, plate treatment systems and related machineries decide the production efficiencies and productivity levels. CSL, which was designed and built by Mitsubishi Heavy Industries, Japan in the 1970’s has always possessed technically sound infrastructure, which it has progressively augmented over the years. CSL is currently working on automation of its main fabrication facility.

“Indigenisation of defence manufacturing would definitely help in promoting ‘Make in India’. CSL’s contribution towards this end has been significant, with the construction of the first Indigenous aircraft carrier in the country that involved substantial indigenous content.”



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