International Journal of Advanced Research in Commerce, Management & Social Science (IJARCMSS)
ISSN :2581-7930 (Online), Impact Factor : 7.270, Volume 08, No. 04(II), October-December, 2025, pp 14-19

Economics, Environment and Maritime Sector of India

Dr. Dharmesh S. Raval*

Faculty Member, School of Maritime Management, Gujarat Maritime University, GNLU Campus, Koba, Gandhinagar, Gujarat, India.

*Corresponding Author: dharmesh.raval@gmu.edu.in

Citation: *Raval, D. (2025). Economics, Environment and Maritime Sector of India. International Journal of Advanced Research in Commerce, Management & Social Science, 08(04(II)), 14–19. https://doi.org/10.62823/ijarcmss/8.4(ii).8316*

ABSTRACT

Ships all over the world deliver 80% of world trade and the current day world where we live in is a connected world and so the products we buy and consume for work, life and study are brought in by ships of varying size and type from far countries through oceans. If we use a product which is indigenously manufactured locally, there are all chances that the raw material or machine used in manufacturing are imported. The oil that we use in vehicles and chemicals we use in factories are also brought in by tanker vessels. As the summer vacations have just concluded it will be interesting to highlight marine tourism which includes cruise, scuba diving, underwater sea walking, speed boating and other options available on sea to have fun!.

Keywords: *World Trade, Raw Material, Tanker Vessels, Marine Tourism, Scuba Diving, Speed Boating.*

Introduction

How would a college student in Bangalore or an elderly gentleman enjoying his post retirement vacation in Shimla are related with shipping, ports and maritime sector? At first thought we might not be able to connect!

It will not be an exaggeration when we say that the maritime sector has a significant influence on current day world. Maritime sector has a lion's share in connecting the world for trade and commerce and through that on the health of global economy; hence it is imperative to gauge the future path. International businesses are not just business transactions between two companies, but it is also a relationship, an exchange and a dialogue between two countries. Today the world is facing more challenges than ever before on human health, environment, terrorism and international political relations front. It is extremely important for countries to work together, share resources, technology, research and information to face global issues. Geo political factors play key roles in a country's social and economic development.

Key Policy Initiatives

After privatization initiatives, the first major maritime sector strategic policy initiative was Sagarmala Program which was launched in 2015 for the promotion of port led development and to prepare for creating opportunities from the vast coastline of the country. Sagarmala provided 5 pillars to focus. Another milestone in terms of strategic policy initiative is the Maritime India Vision 2030. This 10 - theme initiative launched in 2021 identified and gave a direction to the industry players along with government itself about how to go about the highly potential maritime sector. In the same year PM Gati Shakti National Master Plan was launched for transformation of entire transportation mechanism of the country including ports. With all these initiatives yielding transformative results in the year 2023 a comprehensive "Amrit Kaal Vision 2047" was prepared for the long term vision for the maritime sector. This vision includes objectives in Logistics, Infrastructure and shipping supporting India's Blue Economy.

This strategic policy is comprehensive and builds on existing and past growth, outlining more than 300 actionable areas in the broad domain of ports, shipping and waterways to be achieved by 2047.

Green Shipping

As shipping sector is carrying majority of cargo for the world trade, it is important to address the 2-3% of the total annual GHG emissions caused by shipping. If shipping is contributing to the well-being of society it is equally responsible for the environment. In order to address the global warming caused on account of shipping, a green transition has already begun. United Nation's agency International Maritime Organization has assigned a goal to shipping sector to reduce the national emissions by at least 50% by the year 2050. There are several initiatives including that of alternative fuel, changing the mechanism of ships, etc which can reduce and control emissions.

Apart from all technological, legal and mechanical measures, there are economical and financial initiatives also which have started contributing to the process of greening of shipping. Financial institutions, banks and lenders have realized that they can contribute to responsible ship finance, which has led to development and implementation of Poseidon Principles in the year 2019. These principles are helping banks in aligning their shipping loans with climate action targets. Those international banks who agree on these principles they commit to measure the carbon intensity of their shipping loans. These banks can also take pride in publishing their shipping portfolios and announce about their alignment with climate goals. On the same lines Sea Cargo Charter was implemented in year 2020. Poseidon Principles for Marine Insurance was launched in the year 2022.

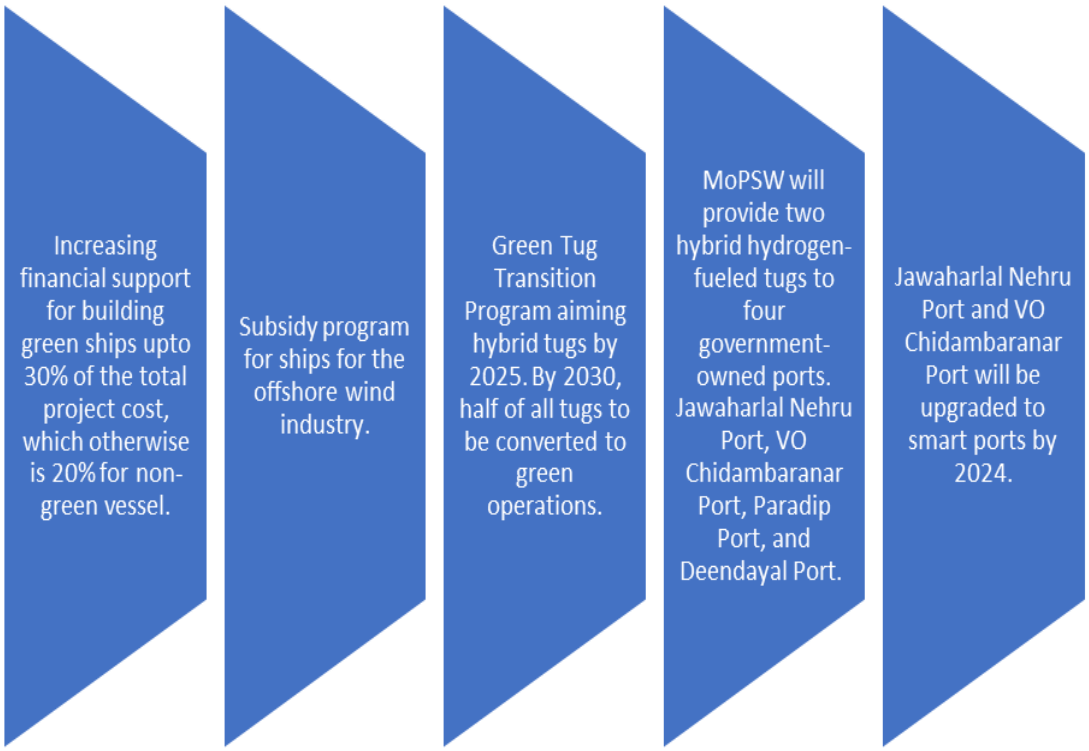
Green Ports and Shipping in India

Under the Nationally Determined Contributions (NDC), India has set a target of becoming a net-zero emissions country by 2070. The country also aims to reduce its carbon emissions by 45% by 2030 by sourcing 50% of its energy from renewable sources. One of the major initiatives to reduce carbon emission is the National Green Hydrogen Mission. The initial outlay for the Mission will be Rs.19,744 crore. The Mission will result in developing green hydrogen capacity with approximate investment of eight lakh crores of investment, creating more than six lakh jobs, reduction in import of fossil fuel worth more than one lakh crore and reduction of approximately 50MMT GHG emissions. This will also improve export opportunities of green hydrogen, decarbonizing industries, transportation and other related sectors.

Producing, and setting up bunkering and refuelling facilities of green hydrogen is an important milestone in sustainable green shipping. Green hydrogen is used in ships as fuel to reduce carbon emission to a great extent. In order to initialize green ports in India, special hubs for hydrogen will be set up at Deendayal Port and VO Chidambarnar Port and eventually to all the major ports of the country. Further to facilitate green ports, few identified ports will be required to set up LNG bunkering facilities by the year 2030 and EV charging facilities inside and around the port areas by the year 2025. In order to decrease the energy consumption of ports, they are directed to reduce energy consumption of 20% by 2030 as compared to their energy consumption in the current year, 2023. Ports will be required to utilize renewable energy for powering equipment and vehicles; for major ports the use of renewable energy should be for 50% of power requirements by 2030 which will be increased to 90% by 2047. For meeting the goals, 50% of the equipment will be electrified by 2030.

One of the major hurdles in green shipping is the age of ships. In India the average age of Indian ships is on growing, hence there are restrictions in place already with regard to the use of ships which need permission of DG Shipping including those which are registered domestically, ships used for coastal shipping, or non-domestic flagged ships. The new rules are preventing companies to purchase or charter old ships. Earlier there were no clearances required for ships below 25 years, but today there are restriction for ships aged 20 years and more. Ships are divided into three categories and each of them have been given an upper age limit of 25 years, 30 years and 40 years. For example oil tankers, bulk carriers, etc are in first category. Container vessels, gas carriers, tugs under second category and Dredging ships in third category.

There have been extremely systematic and organized efforts underway for enabling green shipping, green ports and digitization of ports in India. Five important initiatives need a special mention:



(Source: author's representation)

Five initiatives focusing on green shipping, green ports and digitization of the ports.

- **1st Initiative:** Government will increase the financial support level for building green ships. For green vessels, government will increase the support to 30% of the total project cost, which otherwise is 20% for non-green vessels.
- **2nd Initiative:** Vessels for the offshore wind industry will be considered for the subsidy program. Wind turbine installation vessels, semi-submersible heavy life vessels for the wind sector, and service and maintenance vessels will now be eligible for the program.
- **3rd Initiative:** Green Tug Transition Program will be launched with objective of having hybrid tugs by 2025. By 2030, half of all tugs are expected to be converted to green operations.
- **4th Initiative:** MoPSW (Ministry of Ports, shipping and waterways, GOI) will provide two hybrid hydrogen-fueled tugs to each of four government-owned ports. This will include Jawaharlal Nehru Port, VO Chidambaranar Port, Paradip Port, and Deendayal Port.
- **5th Initiative:** Port modernization is essential to improve port efficiency. Jawaharlal Nehru Port and VO Chidambaranar Port will become smart ports before 2030.

Maritime Supply Chain

The maritime supply chain is an integrated environment of freight forwarders, shipping lines, port terminal operators and land-based logistics system. Logistics is a facility which empowers ports to move cargo between port and the destination of cargo, referred as the hinterland. For quick and cost-effective movement of cargo between ports and hinterland, appropriate transportation infrastructure is the key. Quality of this transport infrastructure will determine the cost and efficiency of ports and overall EXIM of any country. Logistics cost as a percentage of GDP is less than 10% in US, China, South Korea and some European countries. In India this logistics cost is around 13% which is expected to reach below 10% by 2030.

Logistics costs are extremely important for the reason that a 0.5 % decrease in logistics costs has the potential to increase trade by 2 % and range of products exported from the country by 40%.

Logistics Cost

In order to support maritime sector, cargo movement between ports and hinterland and achieve overall economic growth advantage, there are several measures, including strengthening existing modes of transportation and initiating new modes like coastal shipping and moving cargo through waterways. By several strategic efforts and appropriate funding, logistics costs can be brought down, which can have inordinate advantage for economy. Government has prioritized waterways over railways, roadways and aviation. Sagarmala, National Logistics Policy and PM Gati-Shakti master plan have been introduced as strategic initiatives to boost the competitiveness of the industry and cut logistics costs. The strategic initiatives under Sagarmala is expected reduce logistics costs for international and domestic maritime transportation to the tune of approximately ₹35000 crores. More importantly it will decrease carbon emissions to the extent of 12.5MT per year. Through Sagarmala, government has earmarked Rs. 4 Lakh Crores for Port Road and Port Rail Connectivity and Rs. 8 Lakh Crores for 28 Industrial Clusters.

DFCs

Central Government has plans to invest heavily in transportation infrastructure with some mega projects such as the doubling of railway lines, their widening, dedicated freight corridors, industrial corridors, etc. The Dedicated Freight Corridor (DFC) is a new train passage only for carrying cargo through trains, with an objective of decreasing national railway congestion on a massive scale.

Major advantage for trade and industry is decreased travel time and costs to move cargo inside the country between different locations. With DFC the costs are also expected to come down which will be passed on to customers. The Western Dedicated Freight Corridor runs from Dadri in Uttar Pradesh to JNPT in Mumbai. The Eastern Dedicated Freight Corridor runs from Ludhiana in Punjab to Dankuni in West Bengal. DFC is dedicated to transporting freight at higher speed with increased load-carrying capacity.

Let us understand with the help of an example, a goods train carrying containers originating from Kathuwas (Rajasthan), normally took around 4 days time to reach Pipavav port of Gujarat; the travel time stands reduced to less than 1 day with the help of Western Dedicated Freight Corridor, and with double stack, trains can carry more goods as well. The WDFC connects Rewari in Haryana with Jawaharlal Nehru Port Trust (JNPT) in Maharashtra. Now important Gujarat ports — Mundra, Kandla, Pipavav, Dahej and Hazira will also be connected with WDFC by the end of 2023.

Inland Waterways Shipping and India

When we compare India with other countries having logistics cost under 10%, we see a clear difference in the contribution of waterways in the multimodal mix. Lower use of Inland Waterways and Coastal Shipping is the key reason behind increased logistics costs in India. Another important and environmentally relevant method of cargo and passenger transportation is the use of inland waterways which can significantly contribute in lowering the logistics costs, travel time, traffic congestion on roads/railways, noise pollution. The total available length of waterways is approximately 14500 kms which includes rivers, canals, backwaters and creek which can be used with varying degree.

Under National Waterways Act, 2016, total 111 National Waterways (NWs) are identified which can be utilized under the act, out of which around 23 NWs will be operationalized by the year 2030. Important NWs includes Ganga-Bhagirathi-Hooghly rivers, the Brahmaputra, the Barak river, the river of Goa, the backwaters in Kerala, inland waters in Mumbai, and the deltaic region of the Godavari-Krishna rivers.

As per one estimate the cost of transporting cargo via water in India is approximately ₹0.5/km as compared to ₹1/km by railways and ₹1.5/km by road. Currently approximately 44 million tonnes of cargo is moved annually through waterways using mechanized ships and country boats in the waterways of Goa, West Bengal, Assam, and Kerala. Cargo movement through NWs have increased by 4.2 time from 30MTPA to 126MTPA between 2014-15 to 2022-23, but it remains as low as 0.1% of the total inland traffic which is very low as compared to that of 21% in USA.

While we discuss the potential contribution of IWs for cargo movement, there is a milestone achieved recently in February 2023, when MV Ganga Vilas – the world's longest river cruise, completed its first trip between Ganga Valley, Varanasi and Brahmaputra Valley, Dibrugarh opening a new chapter in River Tourism in India. Interestingly this cruise vessel is built in India and has 18 suits on board.

Coastal Shipping and India

When ships loaded with cargo move between two countries for Exports and Import (EXIM) it is generally referred as overseas shipping, but when the cargo moves over ships between two different ports of the same country it is referred to as coastal shipping. Coastal shipping is an important mode of transport for domestic trade. In India the most popular mode of goods transportations is by road and by railways. IWs and Coastal Shipping are emerging but extremely popular modes of cargo movement in recent times as the highways and railway networks that connect ports to the hinterland are facing issues of congestion, high cost and emissions.

A milestone was achieved in February 2023 by coastal shipping when a coastal container feeder service was launched between Chennai port and Puducherry port with the aim of decreasing freight cost by 25%. This is a 12-hour ferry service avoiding congested road traffic and reducing carbon footprints. The cargo handled by coastal shipping has grown to 151 million metric tonne per annum (MMTPA) in 2022-23 which was 74 MMTPA in 2014-15, registering a 104% increase. (pib.gov.in). Through coastal shipping businesses can move cargo quickly without getting affected by congestion of road and rail network.

Coastal shipping not only improved logistics efficiency but also addresses environmental concerns as the shipping is least polluting medium for cargo movement as compared with roadways and railways.

Conclusion

With the fastest growing economy in the world and highest populated country, India at this stage is all set to exploit the tremendous potential of maritime transportation for domestic and EXIM cargo. Government has shown proactive approach in recent past with regard to focused and comprehensive strategy towards the long-term road for economic development through maritime sector. With the only concern of environment, the journey looks promising as it is expected to improve the logistics efficiency, utilizing the natural resources in the interest of the country and generating employment.

References

1. https://www.poseidonprinciples.org/finance/about/how-did-we-get-there/
2. https://maritime-executive.com/article/india-imposes-age-ban-on-buying-or-operating-cargo-ships
3. https://www.thehindubusinessline.com/economy/logistics/shipping-ministry-to-provide-30-financial-support-for-promotion-of-green-shipping/article66881236.ece
4. https://www.thehindubusinessline.com/economy/logistics/indias-push-for-green-shipping-getting-stronger/article66583107.ece
5. https://www.marineinsight.com/shipping-news/india-to-revolutionize-shipping-industry-with-green-hydrogen-bunkering-at-major-ports-by-2035/
6. https://maritime-executive.com/article/indian-government-to-pay-30-subsidy-to-build-green-shipping
7. https://dfccil.com/images/uploads/img/FAQs_22_MI46.pdf
8. https://www.apmterminals.com/en/pipavav/about/dedicated-freight-corridor#:~:text=With%20existing%20%E2%80%93%20future%2Dproof%20%E2%80%93,two%20locations%3A%20Mehsana%20and%20Ahmedabad.
9. https://www.thehindubusinessline.com/economy/logistics/a-faster-lane-for-indias-freight-transport/article66842351.ece
10. https://www.thestatesman.com/india/cargo-movement-inland-waterways-increases-2-76-times-1503044600.html
11. https://www.thehindubusinessline.com/economy/logistics/mv-ganga-vilas-completes-maiden-trip-as-it-reaches-dibrugarh/article66564310.ece
12. https://economictimes.indiatimes.com/small-biz/sme-sector/ports-shipping-ministry-to-give-financial-support-for-promoting-green-shipping/articleshow/100436108.cms?from=mdr
13. https://www.marineinsight.com/maritime-law/what-is-coastal-shipping/

14. https://www.newsdrum.in/business/ports-shipping-ministry-to-give-financial-support-for-promoting-green-shipping
15. https://indianinfrastructure.com/2022/02/08/scope-for-growth-3/
16. https://www.thehindubusinessline.com/economy/logistics/in-a-first-in-the-country-a-short-haul-coastal-container-feeder-service-to-be-launched-between-chennai-and-puducherry/article66555954.ece
17. https://www.pib.gov.in/PressReleasePage.aspx?PRID=1989686&noshow=1&reg=3&lang=2
18. https://www.mopsw.nic.in/sagarvidyakosh/index.php?title=Maritime_Amrit_Kaal_Vision_2047#India_reaches_22nd_rank_in_International_Shipment_category_as_against_44th_rank_in_2014
19. https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1992273&reg=3&lang=2#:~:text=Prime%20Minister%20launches%20the%20'Maritime,Shipping%20supporting%20India's%20'Blue%20Economy'
20. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2115878&reg=3&lang=2#:~:text=The%20Sagarmala%20Programme%2C%20launched%20in,at%20revolutionizing%20India's%20maritime%20sector.
21. https://sagarmala.gov.in/sites/default/files/MIV%202030%20Report.pdf.

❑❑❑