Harit Sagar Samachar

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In This Issue

Welcome Note

Welcome to the Eleventh issue of Harit Sagar Samachar.

We are pleased to present the latest edition of **Harit Sagar Samachar,** your go-to source for innovation, updates, and best practices in sustainable maritime operations. This publication is designed to inform, inspire, and connect professionals dedicated to reducing the environmental footprint of ports and shipping activities.

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Deendayal Port Authority: Pioneering India's Green Port and Shipping Transition

Ports play a vital role in facilitating global trade, economic growth, and regional development. As critical nodes in maritime transport networks, they serve as gateways for the movement of goods and energy resources. However, conventional port operations and shipping activities are significant contributors to greenhouse gas emissions, air pollution, and energy consumption. In the context of climate change and global sustainability goals, the maritime sector is increasingly embracing the concept of green shipping and sustainable port development.

Green shipping refers to the adoption of environmentally responsible practices, clean fuels, energy-efficient technologies, and low-carbon infrastructure across the maritime value chain. It aims to minimize environmental impacts while ensuring operational efficiency and economic competitiveness. In India, the transition towards green ports and sustainable maritime operations is being driven by national initiatives such as the Maritime Amrit Kaal Vision 2047, the National Green Hydrogen Mission, and India's commitment to achieving net-zero emissions by 2070.

Against this backdrop, the Deendayal Port Authority (DPA), located at Kandla in Gujarat, has emerged as a frontrunner in implementing innovative and forward-looking sustainability initiatives. As one of India's major gateways for northern hinterland trade, a significant share of commodities destined for and originating from North India is transported via DPA. Moreover, despite being a tidal port with inherent operational constraints, DPA has demonstrated remarkable commitment by proactively adopting green shipping and sustainable port practices which are aligned with national decarbonization objectives, focusing on clean mobility, alternative fuels, renewable energy, and resource-efficient infrastructure.

One of the major steps in this direction is the Green Mobility Project, under which electric wheel loaders have been deployed to replace conventional diesel-powered equipment, significantly reducing emissions and fuel consumption. In collaboration with NTPC, DPA is introducing 11 hydrogen fuel cell electric buses to promote zero-emission public and operational transport within the port premises. Further strengthening its leadership in clean energy adoption, DPA has also commissioned India's first megawatt-scale green hydrogen plant at a port, with a capacity of 1 MW. This facility enables on-site production of green hydrogen using renewable energy, supporting clean fuel usage for mobility and industrial applications. Complementing this initiative, DPA has placed orders for India's first all-electric green tug with a bollard pull capacity of 60 tonnes, marking a significant milestone in reducing emissions from port-based marine operations.

Recognizing the importance of alternative marine fuels, DPA has actively engaged with global institutions and industry partners. By joining the Methanol Institute, the port has enhanced its technical capabilities for adopting methanol as a low-carbon marine fuel. In collaboration with DNV, DPA has conducted a Green Fuel Bunkering Readiness Study to assess infrastructure and safety requirements for methanol bunkering. Additionally, an

agreement with Bapu Shipping enables the supply of bio-methanol bunkers to vessels at Kandla, facilitating the transition towards cleaner shipping fuels.

In a major step towards building a green energy ecosystem, DPA has allocated approximately 3,400 acres of land to leading companies like L&T Energy Green Tech, Reliance Green Hydrogen, AM Green Hydrogen, and Welspun New Energy for large-scale green ammonia production. These projects aim to produce nearly 5.6 million tonnes per annum (TPA) of green ammonia by 2032, positioning the port as a strategic hub for renewable fuel manufacturing and export. Sustainable resource management is another key focus area at DPA. A detailed project report has been prepared by Mecon Limited for a 50 MLD desalination plant, expandable to 100 MLD, to ensure reliable and environmentally responsible water supply for port operations and associated industries. The project is currently undergoing further technical studies and statutory clearances.

Glimpses of DPA's New Green Initiatives

Source: Deendayal Port Authority, Kandla

Through these integrated initiatives, DPA is redefining the role of Indian ports in the era of climate action and energy transition. By combining clean mobility, green hydrogen, alternative fuels, renewable energy infrastructure, and sustainable water management, the Deendayal Port Authority is setting new benchmarks for environmentally responsible port development. Its proactive approach not only strengthens India's green shipping ambitions but also contributes significantly to national and global climate goals. As a model green port, DPA demonstrates how maritime infrastructure can evolve to support economic growth while safeguarding environmental sustainability.

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Source: https://www.deendayalport.gov.in/wp-content/uploads/2025/12/Annual-Administrative-Report2025-edp.pdf

DID YOU KNOW?

Under India's National Green Hydrogen Mission (2023), the government plans to set up green ammonia bunkering and refuelling facilities at all major ports by 2035. Read More...

Green Shipping@2047: NGSP 2025 as India's Economic Powerhouse for Net Zero Maritime Supremacy

Introduction

The maritime industry in India is the engine driving its economy, accounting for 95% of all trade by volume and 70% by value over its massive 7,517 km long coastline, while securing the import of energy, fuelling the development of the coastline, and building global connectivity that makes Bharat a rising maritime superpower. Yet, despite this strong momentum, with JNPT and Mundra ports handling over 1,000 million tonnes of cargo every year, the maritime industry in India stubbornly remains very carbon-intensive, contributing 3% of global GHG emissions that are projected to triple by 2050.

Then comes the National Green Shipping Policy (NGSP) 2025, an integrated and visionary plan that dares to decarbonize the entire maritime sector, from green ports and zero-carbon shipping to alternative fuels and infrastructure, perfectly matching the stringent IMO standards such as the Energy Efficiency Design Index (EEDI), Energy Efficiency Existing Ship Index (EEXI), and Carbon Intensity Indicator (CII). The NGSP 2025 not only meets the standards but leads the way by harmonizing the infrastructure revolution of Sagarmala, the long-term vision of Maritime Amrit Kaal Vision 2047, and the ambitious goals of the National Green Hydrogen Mission.

Recent landmark achievements have reinforced India's unstoppable green momentum: upgradation of green hydrogen pilot projects at VO Chidambaranar Port and new plans for green fuel bunkering at Deendayal, Paradip and beyond to promote green methanol, ammonia and hydrogen. These initiatives are hyper-accelerating the economic change and unlocking investments of $10 billion in green shipbuilding, creating over 6,00,000 direct and indirect jobs, reducing the fossil fuel import bill by ₹1 lakh crore, and enhancing the $5 trillion economy target of India by 2027 under Atmanirbhar Bharat. By promoting high value manufacturing, upskilling skilled workforce through IMU-ITIs and exportable green technologies, NGSP is not only greening maritime operations but is taking India to a global forefront, transforming ports into economic clusters and seafaring vessels into a source of pride and joy for Viksit Bharat.

Methodology

This paper, through a comprehensive qualitative methodology of policy analysis, amalgamates primary data from government official PRs (including Ministry of Ports, Shipping, and Waterways PRs, PIBs), authentic expert reports from well-known sources (including IMO, ICCT-TERI), and credible media sources. The thematic literature review is then supplemented with other relevant literature on climate mitigation, the renewable energy transition, and maritime economics.

The analysis of the NGSP 2025 is narrowed down to assessing the economic impact of the programme in terms of monetary figures of direct/indirect investment (green shipbuilding investment of $10 bn), employment (6,00,000 jobs through linkages from Green Hydrogen Mission), competitiveness and trade facilitation, green finance innovations (₹250 bn MDF, green bonds), and alignment with global decarbonization standards such as EEDI/EEXI/CII.

The Seven Pillars of NGSP and Economic Impacts

Pillar 1: Green Shipping – Shipbuilding and Ship Repair

This pillar seeks to increase the number of low and zero-emission ships in the Indian fleet through green fuels such as hydrogen, ammonia,

methanol, biofuels, and electricity, as well as increased efficiency standards through EEDI, EEXI, and CII compliance. Green shipbuilding investments support Make in India and Atmanirbhar Bharat.

Economic Impact:

- Encourages high-value production of ships, lessening reliance on overseas-ship imports.
- Skilled worker creation through construction, engineering, and retrofitting.
- Economic spillover expected into steel, machine tool, and marine equipment industries.
- Indigenous green vessels and technology exports can now take place. Investments up to $10 bn in both green and conventional vessels (indicated by evidence) which will strengthen India's shipbuilding industry.

Challenges:

- Initial capital intensity and technological learning curves.
- Need for global certification standards and financing support.

Pillar 2: Green Ports

Ports are key points for trade and emissions. Green ports target the use of renewable energy (over 60% RE use by 2030), Zero Emission Port Zones (ZEPZ), and shore-to-power to lower emissions from ships during berthing.

Economic Impact:

- The use of renewable energy sources lowers operational costs in the long run due to reduced energy costs and carbon compliance savings.
- The establishment of green hydrogen and bunkering infrastructure at ports such as Deendayal, Paradip, and VO Chidambaranar is anticipated to attract the interest of industries, thus triggering the formation of economic clusters.
- Global collaborations, such as MoUs among multiple countries at the India Maritime Week 2025, indicate improved investor confidence and global integration.

Challenges:

- High upfront infrastructure costs.
- Need for skilled workforce in digital port operations and emissions tracking.

Pillar 3: Green Ship Recycling

India is one of the top ship recycling nations in the world. Meeting the requirements of the Hong Kong Convention and adopting a circular economy model helps safeguard the environment, workers and economic value.

Economic Benefits:

- Improves value recoverable from end-of-life vessels using recycling and material reuse.
- Elevates India as a premier sustainable ship recycling hub attracting international vessels for environmentally responsible decommissioning.
- Creates ancillary economic opportunities in the steel supply chain and material processing.

Pillar 4: Green Finance

Financing is an essential part of decarbonization. The policy agenda includes the Maritime Green Transition Fund (MGTF) and engagement with institutions such as NIIF, EXIM Bank, SBI and international climate finance. Green bonds, sustainability-linked loans and blended finance are essential elements.

Economic Benefits:

- De-risks capital for early adopters of green technologies, particularly MSMEs.
- Encourages private and institutional investments into maritime sustainability.
- Examples include ₹250 bn MDF in the national budget, aimed at shipbuilding and infrastructure development, with potential to crowd in private capital.

Challenges:

- Aligning investable proposals with ESG criteria.
- Developing maritime-specific green taxonomies.

Pillar 5: Green Skill Development & Human Resources

This pillar is about building a skilled workforce for green fuels, digital MRV tools, energy efficiency operations, and next-

generation propulsion systems.

Economic Impact:

- Builds employability and capacity building.
- Facilitates labour market transition from conventional to green maritime roles in relation to shipyards and ports.
- Partners such as IMU, ITIs and industry will collaborate to develop industry-relevant talent pipelines.

Challenges:

- The new demands in advanced propulsion technologies, digital MRV systems, green fuels, and AI tools are not entirely met by current maritime curricula.
- Effective knowledge transfer is hampered by the scarcity of instructors with practical experience in green maritime technologies.
- Many institutions find it difficult to make the significant investments needed to set up labs, pilot facilities, and simulators for digital systems and green fuels.
- Time constraints, certification requirements, and uncertainty about career pathways make reskilling challenging for seafarers and port workers.
- Training programmes' practical relevance and employability outcomes are diminished by insufficient real-time industry input and a lack of apprenticeship opportunities.

Pillar 6: Green Fuels

Decarbonization of maritime: Green hydrogen, methanol, ammonia and advanced biofuels at the centre of focus. Green fuel hubs under development at critical ports.

Economic Impact:

- Supports green energy value chain by connecting renewable power investments with maritime demand.
- National Green Hydrogen Mission estimates job creation to be more than 6,00,000 and reduction in fossil fuel imports worth more than ₹1 lakh crore, along with significant GHG abatement by 2030.
- Provides green fuels and bunkering services export potential to neighbouring countries.

Challenges:

- Scaling up delivery of electrolyser infrastructure.
- Somewhat delayed green hydrogen target (e.g., 2030–32) due to unknown global policy landscape.

Pillar 7: Green Technology

Innovation in battery systems, AI-enabled routing, digital twins and emissions monitoring is essential for competitiveness.

Economic Impact:

- Promotes indigenous R&D and exportable technologies.
- Reduces operational costs through efficiency gains and predictive planning.
- Attracts global investments into technology startups and centres of excellence.

Challenges:

- Large-scale adoption of advanced battery systems, AI platforms, and digital twins is constrained by significant capital investment, lengthy payback periods, and investor perception of risk.
- Many green technologies are still in the early stages of development and have issues with inter-operability, dependability, and integration with port infrastructure and legacy ships.
- Effective AI-driven optimization and emissions monitoring are hampered by poor data quality, disjointed digital systems, poor connectivity, and growing cybersecurity and data governance risks.
- Implementation, operation, and scaling are hampered by a lack of qualified experts in AI, maritime digitalization, battery management, and predictive analytics.
- Cross-border innovation adoption is slowed by conservative industry practices, regulatory uncertainty, and a lack of harmonised standards.

Comparative and Global Context

India's National Green Shipping Policy 2025 is a masterclass of strategic foresight that not only meets the International Maritime Organization's (IMO) revised 2023 GHG Strategy to limit maritime emissions growth to 20% from 2008 levels by 2028

(with a target of 30% reduction), 5–10% by 2030 and net-zero by 2050, but also incorporates metrics of EEDI Phase 3 for newbuilds >400 GT after 2025, EEXI retrofits, and CII rating (A-E bands, based on annual efficiency ratio) that are yet to materialize in IMO guidelines.

NGSP draws inspiration from the Green Deal agenda in Europe and the Rotterdam shore power obligation, Hamburg's hydrogen quay, and the India scale 13 major ports handling 855 MT of cargo in FY25, a YoY growth of 4.3%, outpacing Singapore's methanol roadmap with VO Chidambaranar green hydrogen pilots under the NGHM's 5 MMT target by 2030, with ₹8 lakh crore investment.

The competitive advantage of India comes to the fore: China leads 63% of green ship orders in 2025 (Clarksons data), but the $10 bn investment by NGSP expects 15% market share in 2035 through Atmanirbhar links, ascertained by ICCT-TERI MoU (India Maritime Week, 2025) for AI-MRV 30% CII compliance benefits.

Sagarmala's ₹5.79 lakh crore investment (272 projects) provides 8–10% RoI, outperforming ASEAN countries, while Japan/UAE ammonia JVs solidify India's IMO leadership and the Global South's position in Maritime Amrit Kaal.

Economic Outcomes and Strategic Implications

NGSP's economic impact is multifaceted:

- Capital Inflows: From domestic budget allocation to foreign finance, green shipping brings capital into high priority infrastructure.
- Employment creation: Green shipbuilding, fuels and port services are labour-intensive and have high potential for skilled employment creation.
- Export Competitiveness: Increased efficiency and compliance with international standards reduce non-tariff barriers and create a conducive export logistics environment.
- Energy Security: Interlinkage with national clean energy objectives reduces reliance on imported fossil fuels and enhances energy security.

Nevertheless, challenges remain in financing, technology transfer, skills transition and scaling green fuel supply chains.

Conclusion

India's NGSP 2025 is a strategic policy move which brings together two paradigms—economics and environment—in a skilful fashion and evolves India's maritime sector into a backbone of Viksit Bharat 2047. From $10 bn green shipbuilding infusions to 600K Green Hydrogen Mission jobs to ₹250 bn MDF mobilization to AI-MRV innovations, NGSP is not only meeting IMO's 2050 net-zero aspirations, but beating them by slashing its 3% GHG contribution to a negligible level and enabling 95% of India's trade to move at sea with zero lag.

This virtuous cycle inclines sagarmala hits giving 8–10% RoI, Atmanirbhar Bharat backed 15% green ship market share by 2035, and energy security from ₹1 lakh crore fossil saving to make India faster than China in shipbuilding and faster than ASEAN in port operations. This strategic memorandum (ICCT-TERI) and Japan/UAE's JVs make Bharat the leading Global South decarbonization partner and transform JNPT-Mundra into an economic engine worth ₹80 lakh crore.

However, the key to actual success lies in implementation—filling the capex gaps with the help of MGTF blended finance, skill development of 1 million people with the help of IMU-ITIs, and accelerating 5 MMT green H2 by 2030. The NGSP is not just a roadmap; it is India's rallying cry to the world to achieve maritime dominance, where green ships will be the symbol of 'Atmanirbhar' India, and the Indian maritime sector will help realize the $5 trillion vision.

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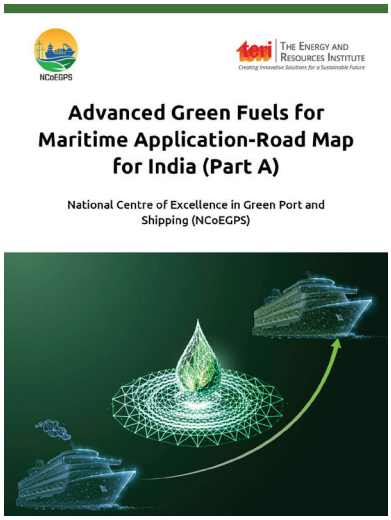
Featured Report



Advanced Green Fuels for Maritime Application Roadmap for India

The report provides a comprehensive overview of global trends in alternative shipping fuel adoption and maritime energy transition, based on an analysis of over 1,20,000 vessels. It develops a ranking of low-carbon and zero and near-zero (ZNZ) emission fuels for maritime applications in India, evaluated across eight sustainability parameters: (i) well-to-wake greenhouse gas intensity; (ii) life cycle assessment-based GHG reduction potential; (iii) fuel supply readiness; (iv) storage capacity and bunkering infrastructure; (v) global port bunkering readiness; (vi) engine and fuel cell ecosystem development; (vii) fuel costs with and without the proposed IMO GHG emissions tax; and (viii) policy and regulatory gaps. In the absence of a standardized classification for ZNZ fuels, the study considers biofuels and e-fuels with greenhouse gas intensity below the IMO's annual threshold as ZNZ fuels. The report further estimates India's alternative and ZNZ fuel demand-supply gap through 2035 and quantifies the green hydrogen and renewable energy capacity required for fuel production. Read the full report at NCoEGPS Portal.

Suggested citation: Das, P., Soodesh, Y.C., Upadhyay, P., Valera, H. A.2026. Advanced Green fuels for Maritime Application-Road Map for India (Part A). NCoEGPS, TERI.

Green Initiatives

National Initiatives

Major Green Shipping Boost in Union Budget 2026

The Union Budget 2026 introduced several measures directly supporting greener maritime logistics, including:

- A ₹10,000 crore Container Manufacturing Scheme promoting domestic, energy efficient container production over five years. This reduces emissions from importing empty container.

Fast-tracked expansion to enhance India's transshipment capacity and maritime competitiveness

The inauguration marked the commencement of construction works for Phases II, III and IV of the Vizhinjam International Seaport, which are being implemented under a fast-tracked and integrated development programme. The expansion aims to substantially augment India's container transshipment capacity and strengthen the country's maritime infrastructure ecosystem. Read more...

IWDC 3.0 approves over ₹1,500 crore projects to drive green mobility, cargo movement & river tourism on India's inland waterways

IWDC 3.0 identified projects worth more than ₹1,500 crore, aimed at accelerating green mobility, strengthening multimodal logistics and promoting river-led economic development. Foundation stones were laid for projects exceeding ₹150 crore, including river cruise jetties in Kerala, Gujarat, Karnataka, Odisha and Telangana, supporting the expansion of cruise tourism circuits across the country. Read more...

Port, inland waterways projects worth ₹552 crore launched to boost riverine logistics

In a major push to strengthen river-based logistics and promote sustainable inland water transport, projects worth ₹552 crore were launched under the ports and inland waterways sector, marking a significant step towards decongesting traditional cargo routes and expanding multimodal connectivity. Read more...

INSV Kaundinya reaches Muscat, reviving 5,000 year old India-Oman maritime relationship

The Indian Naval Sailing Vessel (INSV) Kaundinya arrived in the capital of Oman after successfully completing its maiden voyage from Porbandar, marking a significant moment in the shared maritime heritage of India and Oman. Read more...

Chennai Port rolls out ₹129 crore infra and digital projects to strengthen resilience, safety and ease of doing business (EoDB)

The projects include repair and strengthening of the coastal revetment behind the coastal berth over about 850 metres using climate-resilient designs at a cost of ₹33.28 crore. The foundation stone for construction of a new firefighting pump house was also laid at the Oil Dock Area to meet OISD safety norms with an investment of ₹43 crore. Read more...

Deendayal Port to host India's first port-based green hydrogen plant

Under the pact, Oswal Greenzo Energies will undertake the design, engineering, supply, installation, testing and commissioning of a 5 MW green hydrogen facility at the Deendayal Port. The project marks a significant milestone in building sustainable, future-ready port infrastructure and aligns closely with the Government of India's *Make in India – Make for the World* vision and the objectives of the National Green Hydrogen Mission. Read more...

Andhra Pradesh set to host world's largest green ammonia project at Kakinada Port

In a landmark development for India's clean energy ambitions,

AM Green is advancing the world's largest green ammonia facility at Kakinada, with the first major equipment erection ceremony held on January 17, 2026. The $10 billion project repurposed an existing ammonia-urea complex into a 1.5 million tonnes per annum (MTPA) production hub, backed by 7.5 GW of solar and wind power, 1,950 MW electrolysers, and 2 GW round-the-clock renewables. Read more...

International Initiatives

Initiative to create first green shipping corridor between China and France

Haropa Port, Zhejiang Provincial Seaport Group, Bureau Veritas Marine and Offshore (BV), China Waterborne Transport Research Institute, Mediterranean Shipping Company (MSC) and Terminal Investment Limited (TiL) recently signed a strategic agreement launching the creation of the first green shipping corridor between France and China. Read more...

Columbia Group announces strategic expansion with new integrated maritime services hub in India

Columbia Group, a leading integrated maritime, logistics and offshore services company, has announced a strategic expansion in India with the opening of a new office in Mumbai, reinforcing the Group's long-term global growth roadmap. Read more...

Valencia Port and the Port of Santos create a green corridor to decarbonize transatlantic trade

The port authorities of Valencia and Santos in Panama have signed a memorandum of understanding (MoU) for the creation of a green maritime corridor, with the aim of promoting the decarbonization of maritime transport between Europe and South America and strengthening the historic cooperation between the two ports. Read more...

UK and European ports and infrastructure partners advance carbon shipping in the North Sea

Associated British Ports (ABP), LBC Tank Terminals (LBC), North Sea Port and the Port of Esbjerg have signed two significant MoUs. The first between ABP and LBC and North Sea Port and a second between ABP and the Port of Esbjerg set the stage for collaborative efforts to develop shipping routes for captured carbon dioxide, enabling hard-to-abate sectors to cut emissions while supporting and growing jobs. This new shipping market adds to the positioning of ports as key players in the green economy. Read more...

Hong Kong launches innovative green shipping initiatives

Hong Kong's Transport and Logistics Bureau has unveiled measures to promote smart, green, and sustainable growth in the logistics industry, reported Athens' Safety4Sea. The initiatives include the formal launch of the port community system, new ESG data collection tools for logistics SMEs, and findings from a planning study on a modern logistics cluster in Hung Shui Kiu/Ha Tsuen. The measures aim to boost efficiency, sustainability, and competitiveness. Read more...

News Highlights

Assam Petro-Chemicals signs MoU with Deendayal Port to set up 150 TPD e-methanol plant at Kandla Port

January 29, 2026 | Source: Press Information Bureau

Assam Petro-Chemicals Limited (APL) signed an MoU with the Deendayal Port Authority (DPA) to establish a 150 tonnes per day (TPD) e-methanol plant at Kandla Port in Gujarat, marking a significant step towards India's clean energy and green shipping transition. More than ₹1,200 crore will be invested as capital for the project. Around 3,500 direct and indirect employment opportunities will arise as a result of this project. Read more...

Paradip Port plugs in shore-to-ship power

January 29, 2026 | Source: Port Strategy

Paradip Port Authority has become the second major port in India to successfully commission its shore-to-ship power supply system, providing full load power to MV APJ INDRANI at CB-1 Berth. This state-of-the-art technology has opened up new opportunities for the port with regard to similar vessels shuttling between Paradip and other ports with similar OPS facilities. Read more...

Alpha Gas inks ₹4,500 crore LNG carrier order at Hanwha Ocean

January 23, 2026 | Source: Maritime Gateway

Greek gas shipowner Alpha Gas has made a return to the newbuilding market by ordering two LNG carriers from South Korea's Hanwha Ocean. The contract, valued at KRW 738.3 billion (approximately ₹4,500 crore), was secured for Hanwha's Okpo yard in Geoje. Although Hanwha Ocean did not reveal the buyer's identity, it referred to the shipper as an 'Oceania-based' entity in a LinkedIn announcement. The two LNG carriers are scheduled for delivery in 2029 and will incorporate the latest energy-efficient technologies, in response to the increasing long-term demand for LNG tonnage. Read more...

Biosolutions: Engineering a sustainable future, a path to net zero, and economic resilience

January 22, 2026 | Source: Innovation News Network

As the global economy shifts towards decarbonization, Biosolutions have emerged as a disruptive force capable of transforming industries far beyond traditional healthcare. By integrating engineering biology with advancements in AI and genomics, biosolutions provide a scalable framework to delink industrial production from fossil fuel dependency. This article outlines how biosolutions serve as a cornerstone for reaching net-zero through four key pillars. Read more...

Biodiesel significantly reduces black carbon emissions

January 15, 2026 | Source: Marine Link

Experts from the EU Cleanship Project found that using B100 FAME biodiesel can reduce black carbon emissions by up to 81% at low engine load and 61% at high engine load compared to traditional marine gas oil. This data was collected during a three-day voyage on the Falstria Swan, with baseline measurements taken using conventional diesel. An advanced online black carbon sensor from Green Instruments facilitated real-time emissions monitoring. Black carbon emissions are harmful to the climate and public health, contributing to global warming and reduced air quality. Read more...

Union Minister Sonowal proposes India-Oman green shipping corridor as ancient, stitched vessel reaches Muscat

January 14, 2026 | Source: DD News

Union Minister Shri Sarbananda Sonowal welcomed the Indian Naval Sailing Vessel Kaundinya at Port Sultan

Qaboos, emphasizing that its arrival marks not just a voyage completion, but a celebration of deep-rooted civilizational ties between India and Oman. This milestone marks its maiden voyage from Porbandar to Muscat, underscoring the maritime, cultural, and civilizational connections that have existed for over five thousand years, coinciding with seventy years of diplomatic relations between the two nations. Shri Sonowal outlined India's $8.4 billion maritime development package aimed at strengthening the shipbuilding ecosystem. Read more...

Kandla Port partners with Green-Kutch Nextgen to advance green hydrogen ecosystem

January 12, 2026| Source: Maritime Gateway

Deendayal Port Authority (DPA), Kandla, has signed an MoU with Green-Kutch NextGen Pvt. Ltd to promote the development of a green hydrogen ecosystem at the port, aligning with the objectives of the National Green Hydrogen Mission. The MoU was signed by DPA Chairman Sushil Kumar Singh at the Vibrant Gujarat Regional Conference in Rajkot. The collaboration aims to promote community involvement in green hydrogen initiatives, specifically empowering MSMEs, creating youth employment, and enhancing decarbonization. Read more...

DID YOU KNOW?

India-made vessels adopting green fuels are eligible for 30% financial assistance, lowering the upfront cost of low-carbon ships. Read More...

Green Corner

India's Coastal Corridors and the E-fuel Opportunity

- **Coastal cargo in India has more than doubled in a decade**

Traffic grew from 74 million tonnes (2014–15) to 162 million tonnes (2023–24) and is projected to reach 230 million tonnes by 2030, strengthening the case for low-carbon coastal shipping.

- **VOC Port is emerging as a key coastal corridor node**

In FY 2024–25, VOC Port recorded more than 2,500 vessel calls, with ~40% container vessels operating between VOC and Deendayal Ports.

- **Container trade = The real decarbonization lever**

The VOC-Deendayal route handles about 92,200 Twenty-foot Equivalent Unit (TEU) of container cargo (~34,200 DWT). Globally, over 50% of alternate-fuel vessel orders are container ships, making this route highly suitable for green transition.

- **Not all coastal traffic offers equal climate impact**

Between Paradip and VOC, 87% of vessels are bulk carriers, mainly transporting coal. Since most emissions occur during coal combustion at power plants, shifting these ships to green fuels yields limited lifecycle emissions benefits, so near-term focus is on containers.

- **Current fuel use on one corridor: 9 kilotonnes/year**

Container traffic between VOC and Deendayal consumes around 9 kt of conventional marine fuel (VLSFO) annually.

- **Switching to e-fuels could cut 34 kt of CO_2 each year**

Replacing fossil marine fuel on this route alone can avoid ~34 kilotonnes of CO_2 annually.

- **What would full decarbonization require?**

  To green this single corridor:

  » ~20 kt of green ammonia, or

  » ~19 kt of green methanol per year

- **Scale is the key to affordable green shipping**

A 19–20 kt/year fuel demand is too small to make standalone bunkering infrastructure cost-effective. Studies show that doubling throughput can halve bunkering costs, and >300 kt e-fuel throughput is needed to unlock full economies of scale.

- **The bigger picture: hubs, not isolated routes**

Corridors like VOC-Deendayal are ideal pilot corridors, but cost reductions depend on linking them with larger international routes and regional bunkering hubs, positioning VOC Port as both an e-fuel bunkering and export hub. Read More...

Upcoming Events

10th Green Ports Summit 2026

March 10–13, 2026 | Singapore
Read more...

Green Ports as a Gateway to Decarbonization

February 25th, 2026| New Delhi, India
Read more...

10th Green Shipping Summit

February 24–25, 2026 | Athens, Greece
Read more...

World Maritime Forum: Copenhagen

February 17–18, 2026 | Copenhagen, Denmark | Read more...

Maritime Information Services: Shipping Summit

February 10–12, 2026 | Athens, Greece
Read more...

Technical Seminar on Marine Biofuels

February 12, 2026 | IMO Headquarters, London | Read more...

Maritime Policies & Guidelines

- **National Green Shipping Policy**

The National Green Shipping Policy (NGSP) lays out a strategic roadmap for a low-carbon, sustainable, and technology-driven maritime sector in India, aligning environmental responsibility with economic competitiveness and *Panchamrit* commitments. Covering 95% of India's trade by volume, the policy drives decarbonization through renewable-powered ports, green fuels and hydrogen, electrification, carbon capture, green shipping corridors, efficient port operations, and sustainable ship recycling, with a vision of net-zero maritime emissions by 2070. Building on port infrastructure, Sagarmala initiatives and supported by scenario-based planning and financing strategies, the NGSP is anchored in three pillars—green finance, green collaboration, and green regulation, positioning India as a global leader in sustainable maritime development. Read More...

- **Sustainable Maritime Future Policy**

The Solomon Islands' National Action Plan for a Sustainable Maritime Future sets out a policy roadmap to modernize domestic shipping and ports in line with national climate and development priorities, promoting efficient, reliable, and environmentally responsible maritime transport. Developed by the Solomon Islands Maritime Authority (SIMA) with support from IMO's GreenVoyage2050 Programme, it outlines short, medium, and long-term actions to upgrade vessels and port infrastructure, improve energy efficiency, adopt low- and zero-carbon solutions, strengthen institutions and data systems, and mobilize finance for pilot projects. Led by SIMA in collaboration with government, the private sector, and partners, the Plan aligns with national climate policies and NDCs, supports net-zero goals, and advances a resilient, low-carbon maritime transition. Read More...

Latest Announcements

- **India unveils major green maritime initiatives in Union Budget 2026**

Two key Memorandums of Understanding (MoUs) were signed on 3 February 2026 to strengthen India's maritime and logistics capabilities. The MoUs cover

- the establishment of the Bharat Container Shipping Line (BCSL) and
- financing for the Outer Harbour Project at V.O. Chidambaranar Port Authority (VOCPA), Tuticorin.

These initiatives aims to enhance India's container shipping capacity, modernise port infrastructure and strengthen supply chains, while advancing the vision of Atmanirbhar Bharat and Maritime Amrit Kaal 2047. Read more....

- **Boost for ports, waterways: PM Modi launches ₹830 crore maritime projects in West Bengal**

Prime Minister Narendra Modi has inaugurated two key maritime infrastructure projects in West Bengal as part of a ₹830 crore development package, enhancing the state's role in India's logistics and trade ecosystem. Read more...

Visit the NCoEGPS Portal at https://green-port-shipping.org to explore resources on green ports and sustainable shipping. You can also access back issues of Harit Sagar Samachar directly at https://green-port-shipping.org/NCoEGPSPublication

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Send in your:

• Short articles • Case studies • Opinions
• Photos & infographics

On themes such as Port decarbonization strategies; Green shipping corridors; Alternative fuels (LNG, hydrogen, etc.); Digital tools for sustainability; and Gender leadership in green shipping

Submit by: February 28, 2026

Send to: ncoegps@green-port-shipping.org/reetas@teri.res.in

Together Towards a Greener Future

For feedback and contributions email us at: ncoegps@green-port-shipping.org