

Mélange

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Monthly Magazine of The Institute of Marine Engineers (India)





The Institute of Marine Engineers (India)

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From the Editor's Desk

Dear Esteemed Readers,

The maritime world continues to advance on the twin engines of innovation and responsibility, adapting to complex challenges while steering decisively toward a sustainable and efficient future. The **May 2025 edition of iMélange** captures the pulse of this transition—featuring a rich blend of technical discourse, policy momentum and initiatives focused on personal and professional development.

The Chennai Branch hosted a noteworthy **Technical Seminar on Autonomy and Risk in Maritime Operations**, raising timely discussions on the evolving balance between automation and human oversight. From regulatory considerations to the ethical implications of decision-making by autonomous systems, the session brought crucial questions into focus as the industry explores smarter, more efficient operations.

In **Kolkata**, the **National Maritime Day Celebrations** paid tribute to India's maritime heritage, honouring the seafarers who form the backbone of global trade and supply chains. At the other end of the spectrum, Vizag witnessed a forward-looking **Technical Session on Advanced Nanomaterials in Marine Construction**, introducing participants to materials science innovations that promise to reshape the durability and efficiency of future marine infrastructure.

Complementing the technical, the **Mumbai Branch's Emotional Resilience Workshop at IMU Mumbai** offered future mariners tools to develop mental strength and holistic well-being—an often-overlooked but critical dimension of seafaring life.

On the policy front, the **IME(I)-DG Tech Seminar** held in the wake of **MEPC 83** outcomes addressed India's alignment with global decarbonization efforts. Discussions centred on green fuel technologies, compliance strategies and the country's roadmap to meet IMO's ambitious emission reduction goals—reaffirming India's proactive stance in sustainable shipping.

Adding to the knowledge-sharing momentum, the **Kochi Branch hosted a webinar on Marine Lubrication**, where experts shared insights into evolving lubrication technologies and their role in improving efficiency and equipment life onboard vessels.

In the national arena, strategic initiatives continue to gain traction. The **Union Minister for Ports, Shipping and Waterways** conducted a comprehensive review of key maritime projects aimed at ensuring seamless cargo movement and fostering sectoral growth.

India's growing maritime footprint was further marked by the **Indian Register of Shipping** expanding its **presence in the Middle East**, inaugurating a new office in Saudi Arabia.

As the sector embraces technological advancement, emotional resilience and sustainable transformation, the spirit of learning, collaboration and continuous growth remains our shared compass. We invite your thoughts and contributions at editornewsletter@imare.in and subeditor@imare.in by **7th June 2025**.

SUNIL KUMAR
Honorary Editor – iMélange

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Autonomy and Risk in Maritime Operations: Technical Seminar at Chennai Branch



The Institute of Marine Engineers (India), Chennai Branch and The Company of Master Mariners of India (CMMI), Chennai Chapter, once again came together to organise a Joint Technical Seminar on 25th April 2025 at The Presidency Club, Egmore, Chennai.

The session commenced with opening remarks by **Capt. Ganeshyam**, Chairman, CMMI Chennai Chapter, who introduced the seminar's theme and outlined the format and guidelines for the evening.

Mr. Suresh Shenoi, Chairman, IME(I) Chennai Branch, welcomed the gathering and expressed gratitude to the maritime fraternity for their enthusiastic participation. He also introduced the theme of the seminar and emphasised the relevance of the topics being presented.

The speakers were introduced by Mr. Shenoi and Capt. Ganeshyam, who also moderated the session.

The seminar featured insightful presentations on the following topics by distinguished professionals from the industry:

1. "Autonomous Ships and Challenges from a Seafarer's Perspective" Presented by Capt.





R.V. Rajesh Nambiar, Extra Master, Warden – CMMI, Dock Master, Chennai Port Authority

2. “Challenges in Management of Risk and Loss in Deck Equipment” Presented by Mr. Ramesh Subramanian, Hydraulic Trainer, Founder & Consultant – RMET Consultancy

Both speakers delivered engaging and thought-provoking presentations that were well received by the audience.

Capt. Anoop Kumar, Secretary, CMMI Chennai Chapter, moderated a dynamic Q&A session that followed the presentations.

The seminar concluded with a vote of thanks by Capt. Kumar, who expressed appreciation to the esteemed speakers and all attendees for their active participation and for contributing to the success of the event.



National Maritime Day Celebrations at IME(I) Kolkata



In observance of National Maritime Day 2025, a meet was held in Kolkata by the Institute of Marine Engineers (India), Kolkata Branch, jointly with the Institution of Engineers (India), West Bengal State Centre, on 8th April 2025 at Sir R. N. Mookerjee Hall of the West Bengal State Centre of the Institution of Engineers (India). The theme of the meet was 'Our Ocean, Our Obligation, Our Opportunity'.

Prof. Dr Raju Basak, Chairman, WBSC, IEI, in his welcome address, expressed happiness in being able to celebrate this historic day jointly with IME(I). He narrated the importance of the day briefly.

Mr. Gautam Sen, Former Director, Marine Department, Kolkata Port Trust and Chairman, IME(I) Kolkata Branch, in his address, explained the theme for the day and talked about the history and significance of the day. He recounted that Indian merchant ships used to trade far and wide in olden times. He then narrated how the British stifled native shipping, so that British vessels could monopolise maritime trade. However, from the historic voyage of the SS *Loyalty* in 1919, Indian shipping has come a long way and is a key player in world trade.

Prof. Soumitra Neogi, Professor of Practice (Marine Engineering and Technology), Indian Maritime University – Kolkata Campus, in his address, talked about India's shipbuilding scenario. The points touched upon were:

1. India's present shipbuilding capacity and capability.
2. Comparative analysis of India's shipbuilding scenario vs those of Far Eastern countries like South Korea.
3. The present challenges Indian shipbuilding companies face.
4. The future of Indian shipbuilding.

Prof. Sadhan Kumar Sarkar, Former Director (i/c), Marine Engineering & Research Institute, Kolkata (presently IMU-KC), spoke on the subject 'Our Seas and Subsea Wealth'. He gave a brief account of the wealth of Indian seas. He explained the United Nations Convention on the Law of the Sea (UNCLOS), and talked about the area under the Exclusive Economic Zone of India. His lecture gave an account of the oil, natural gas and minerals available under the sea, and also the renewable energy available from the sea. He informed how coastal states of India are progressing with fishing and sea food export. Prof. Sarkar elaborated on the employment opportunities for youth in the area of fishing and underwater research activities.

To conclude the meet, **Dr. Anirban Datta**, Honorary Secretary, West Bengal State Centre, IEI, presented a vote of thanks. He thanked all dignitaries and audience for their presence and expressed the hope that such observances and discussions would promote understanding of the current issues and contribute to the growth of Indian shipping in the days ahead.

The function was attended by a sizeable audience, including marine and non-marine professionals, students and marine cadets.



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Technical Session on Advanced Nanomaterials in Marine Construction



A technical meeting was organised by IME(I) Visakhapatnam Branch on 9th May at the Seminar

Hall, Department of Marine Engineering, A.U. College of Engineering, Andhra University.

The session featured a technical talk by **Dr. V. Jyotsna Kalpana**, from the Department of Mechanical Engineering, Sri Padmavathi Mahila University, Tirupati, Andhra Pradesh. Dr. Kalpana presented on the use of Graphene Nanoplatelets (GNPS) and Boron Carbide (B4C) as surface-modified nanomaterials aimed at improving the performance of hybrid composites, particularly for marine construction applications.

Her presentation, delivered through PowerPoint slides, effectively illustrated the compositional advantages and property enhancements achieved using GNPS and B4C. The findings demonstrated potential cost benefits and performance improvements in marine structures due to these materials.

The lecture was highly informative and well-received by attendees. It prompted an engaging question-and-answer session, with active participation from the audience.

The event was graced by **Dr. V.V.S. Prasad**, Chairman of the IME(I) Visakhapatnam Branch, along with Vice Chairman **Shri V. Lakshmiipati Rao**, Secretary **Dr. D.S. Anand**, Treasurer **Shri Amara**





Vijayananda Kumar and senior members including **Shri S.V. Durga Prasad** and **Shri P.V.V. Harihara Rao**. Faculty members from the Department of Marine Engineering, Andhra University College of Engineering, were also present.

Dr. Kalpana was formally felicitated by the dignitaries in appreciation of her valuable contribution.

Following the technical session, a general meeting of the branch members was held to discuss upcoming activities and initiatives.

The meeting concluded with the rendition of the National Anthem.



IME(I) Mumbai Pioneers Holistic Development for Future Mariners with Emotional Resilience Workshop at IMU Mumbai



Recognising that the demanding and often isolating environment of a career at sea requires more than just technical proficiency, the Mumbai Branch of the Institute of Marine Engineers (India) spearheaded a transformative workshop for cadets at the Indian Maritime University (IMU) Mumbai on 13th May 2025. The thoughtfully curated session, titled “Packing for the Sea Within,” was expertly facilitated by Empowerment and Transformative Life Coach Ms. **Deepshikha S Mehra** and addressed the fundamental need for cultivating inner strength, self-awareness and robust emotional grounding in these future marine professionals as they embark on their significant journeys.

This proactive initiative underscores IME(I) Mumbai’s unwavering commitment to the comprehensive and holistic development of aspiring marine engineers and officers. The institute recognises that the emotional and mental well-being of seafarers directly impacts their performance, job satisfaction and overall quality of life. The significance of this forward-thinking approach was further amplified by the esteemed presence of **Mrs. H K Joshi**, former Chairperson and Managing Director of The Shipping Corporation of India, a beacon in the maritime industry and **Mr. Rajesh Doshi**, a valued fellow member of IME(I), both of whom lent their support and insights to the occasion.

Deepshikha S Mehra brought a unique and deeply empathetic perspective to the workshop, drawing upon her extensive 14 years of experience in transformative coaching, somatic therapy and inner child healing. Her profound personal connection to the maritime world – as the daughter of veteran marine engineer Atul M. Raizada, sister of Captain Anupam Raizada and having shared voyages aboard some of the world’s largest vessels with her husband, Chief Engineer Sanjeev Mehra – allowed her to connect with the cadets on a deeply personal level. She provided subtle yet powerfully impactful experiential tools and reflective exercises designed to foster self-awareness, manage stress and build inner resilience, skills crucial for navigating the inherent challenges of life at sea.

This collaborative effort between IME(I) Mumbai and IMU Mumbai highlights a shared understanding of the multifaceted nature of preparing individuals for the maritime industry. While technical expertise remains paramount, IME(I) Mumbai’s initiative emphasises that emotional preparedness is an equally vital component for ensuring the long-term success, well-being and retention of skilled seafarers. The workshop powerfully conveyed the enduring message that amidst the vastness and potential isolation of the sea, the strongest and most reliable anchor is the one each individual carries within themselves.

Glimpses of the Event



India Charts Green Shipping Path: MEPC 83 Outcomes Discussed at IMEI-DG Tech Seminar



The Institute of Marine Engineers (India), Mumbai Branch, in collaboration with the Directorate General of Shipping, hosted a high-impact seminar on 14th May 2025 at the IRS Auditorium, Powai, to deliberate on the key decisions taken at the 83rd session of the Marine Environment Protection Committee (MEPC 83) of the International Maritime Organization (IMO). The event focused on short- and medium-term decarbonization measures, the evolving regulatory landscape under MARPOL Annex VI and India's preparedness for the Hong Kong Convention (HKC), which is set to enter into force in 2025.

The Guest of Honour, **Shri Ajith Sukumaran**, Chief Surveyor-cum-Addl. DG (Engineering), DG Shipping, delivered an insightful and impressive speech, highlighting how India has constructively engaged at IMO forums and justified its balanced regulatory stance. He encouraged Indian shipowners to not only comply but lead in meeting and exceeding IMO environmental targets and emphasized the importance of technical, economic and support mechanisms for an equitable transition.

Opening & Keynote

Shri Rajeev Nayyar, President of IMEI, welcomed the participants, followed by an insightful keynote address by **Shri Vikrant Rai**, Principal Officer, MMD Kolkata. He acknowledged the contributions of the Indian delegation and supporting technical teams, having led India's participation at MEPC 83. His address clarified the

difference between CII and GFI, the identification criteria for ZNZ fuels and the readiness of Indian manufacturers to exceed IMO regulatory targets. Shri Rai also delivered the concluding remarks, reinforcing India's leadership and ambition in green shipping.

Technical Committee & Moderation

The technical sessions were chaired and moderated by **Shri Shobhit Kapoor**, Head – Technical Committee, IMEI Mumbai Branch.

Session 1: IMO GHG Measures and Fuel Standards

Shri Rajeev Nayyar and **Shri Mudit Mehrotra** shared their perspectives on the way forward for the Indian shipping industry, covering regulatory preparedness, operational adaptation and the importance of technical and crew training to meet decarbonisation obligations. **Shri N. Girish** clarified IMO's LCA (Life Cycle Assessment) guidelines, explaining how well-to-wake pathways will be assessed under the GFI regime and offering recommendations to shipyards. **Shri Satish Kamath** delivered a comprehensive presentation on mid-term IMO measures, outlining the three-pillar strategy adopted by IMO: Technical (GFI standards), Economic (Market-based measures) and Supportive (Capacity building and innovation funding). He elaborated on the 2027 implementation of GFI, the role of LCA, ZNZ fuel adoption, the need for internationally harmonized documentation and ensuring a just transition.



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Session 2: CII, EEDI, EEXI & GFI Harmonization

Shri B. Venkat elaborated on the recent changes in CII regulations, including tightening of rating thresholds, enhanced correction factors and enforcement timelines. **Shri I.N. Bose** focused on carbon capture technologies and regulatory harmonization. He discussed the integration of EEDI, EEXI, CII and GFI within a coherent MEPC framework. Technical updates included EEDI Phase 3 adjustments, EEXI benchmarks for existing ships and mandatory transition to ISO 15016:2025 and ITTC RP 2024 by 1 May 2026.

Session 3: Ballast Water, Air Pollution, URN & Marine Plastic Litter

This session featured presentations by **Shri Devrup Kabi**, **Shri Gopi Krishna**, **Shri Mahesh Korade** and **Shri Vikrant Rai**. Topics included proposed amendments for D-4 to D-2 conversion under the Ballast Water Management Convention, compliance improvements in BWMS and SCR system implementation for NOx Tier III. **Shri Mahesh Korade** outlined the voluntary guidelines on Underwater Radiated Noise (URN), with a focus on design-based incentives for noise reduction. **Shri Gopi Krishna** highlighted the 2025 IMO Action Plan on Marine Plastic Litter (MEPC.404(83)), stressing seafarer training, port waste reception improvements and cross-sector cooperation.

Session 4: Ship Recycling & HKC Implementation

Speakers **Shri Gopi Krishna**, **Shri Rajeev Nayyar** and **Shri Satish Kamath** addressed India's preparations for implementing the Hong Kong Convention (HKC), effective 2025. **Shri. Gopi Krishna** informed the discussions that took place in MEPC 83 with respect to the new output agreed towards the assessment of the implementation of the HKC through an experience building phase and development of amendments. Further the panel reviewed legislative alignment, infrastructure upgrades at Alang and training needs. **Shri Gopi Krishna** confirmed that the competent authority under HKC for India will be formally announced soon, bringing clarity to the regulatory framework.

Interaction & Conclusion

The seminar concluded with an open house interaction covering GFI vs. CII methodology, LCA compliance, ZNZ certification and practical measures for shipyards and ports. **Shri Vikrant Rai** emphasised India's leadership role and innovation potential in global decarbonization efforts.

Shri Rajesh Kasaragod, Hon. Treasurer, IMEI Mumbai Branch, delivered the Vote of Thanks. The event ended with presentation of mementoes and networking over high tea.

Watch Online

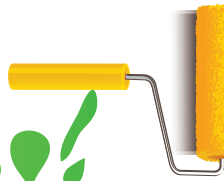
Full recordings of the event are available at: IMEI Mumbai YouTube Channel - <https://www.youtube.com/@imeimumbai>

Glimpses of the Event





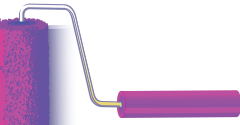




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Participation in National Seminar at METI, Cochin Shipyard Ltd.

The Kochi Branch of IME(I) collaborated closely with the Marine Engineering Training Institute (METI) of Cochin Shipyard Ltd. in the successful conduct of a National Seminar that featured a paper presentation competition among Marine Engineering students.

The seminar included presentations by six teams from prominent Marine Engineering institutions in Kochi and Chennai. A team from Kochi branch Training Institute, consisting of

students from the Class II Preparatory Course, presented a well-researched paper and was awarded Third Prize—a proud achievement for IME(I) Kochi branch.

The seminar was held in METI's newly inaugurated auditorium, equipped with modern audio-visual facilities, contributing to a seamless event experience. Judging was carried out by a panel of three experts, including a senior member of IME(I) and representatives from Synergy Shipping and BSM Training Institute.

Webinar on Marine Lubrication Part II

The Kochi Branch of IME(I) organised a highly informative webinar on 16th May 2025, marking the continuation of our seminar series on Marine Lubrication. The session was led by **Mr. Sanjiv Wazir**, an accomplished Marine Engineer with significant onboard experience and an extensive background in marine lubricant technologies and business.

Mr. Wazir, who happened to be in Kochi for another engagement, generously agreed to deliver the presentation live from the institute premises. His lecture was not only technically rich but also engaging, drawing active participation from students and other members alike. The clarity of his explanations, coupled with real-life insights from years of sailing and working in the lubricant industry, made this session immensely valuable. A key highlight was the interactive Q&A session, during which Mr. Wazir expertly addressed a wide range of queries with clarity and depth.



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Union Minister MoPSW Reviews Strategic Maritime Projects to Ensure Seamless Cargo Movement and Sectoral Growth



In response to the current maritime landscape, the Union Minister of Ports, Shipping and Waterways, **Shri Sarbananda Sonowal**, conducted a comprehensive review of key maritime projects during a series of high-level meetings held in Mumbai. The Minister emphasised the need to ensure uninterrupted cargo movement and directed officials to maintain “business as usual” operations across all ports and maritime agencies.

Senior representatives from major organisations under the Ministry, including the Shipping Corporation of India (SCI), Jawaharlal Nehru Port Authority (JNPA), Indian Port Rail and

Ropeway Corporation Ltd. (IPRCL), Indian Port Global Ltd. (IPGL), Directorate General of Shipping and Mumbai Port Authority, participated in the extensive discussions.

Shri Sonowal also reviewed the progress of the **National Maritime Heritage Complex (NMHC)** at Lothal, Gujarat — a flagship initiative aimed at preserving and showcasing India’s rich maritime legacy.

During a detailed interaction with the CMD and directors of SCI, the Minister assessed current operations, fleet enhancement plans



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and long-term strategies in alignment with **Vision 2047**, reinforcing SCI's vital role as India's national shipping line in bolstering maritime self-reliance.

In a separate session with JNPA Chairman **Shri Unmesh Wagh** and senior officials, Shri Sonowal reviewed the **Greenfield Mega Port project at Vadhavan**. He underscored the urgency of accelerating its development in line with the Prime Minister's vision of establishing India as a global maritime leader.

Further, Shri Sonowal engaged with IPGL Chairman **Shri Sunil Mukundan** to review India's international port operations, including updates on **Chabahar Port (Iran)** and **Sittwe Port (Myanmar)** — both pivotal projects aimed at expanding India's maritime presence abroad.

The Minister also held a focused meeting with IPRCL Chairman **Shri M.K. Semwal** and the management team to evaluate progress on critical **rail connectivity infrastructure**, particularly those facilitating Inland Waterways Authority of India (IWAI) operations in Assam and other major port areas. He directed IPRCL to expedite

the development of port-linked rail lines to accommodate increasing cargo volumes.

Additionally, Shri Sonowal met with the newly constituted **National Shipping Board (NSB)** and welcomed its Chairperson and members. He highlighted the Board's essential role in shaping maritime policy and expressed confidence in their contribution toward India's maritime advancement.

Speaking on the occasion, Shri Sonowal stated "Under the visionary leadership of Prime Minister **Shri Narendra Modi** ji, we are actively exploring the vast potential of the blue economy and enabling the maritime sector to emerge as a global force. All our agencies and stakeholders are committed to realising the Prime Minister's vision of a **Viksit Bharat**. These reviews are critical steps towards accelerating our maritime goals and unlocking new opportunities."

The meetings were also attended by Secretary (Ports, Shipping and Waterways) **Shri T.K. Ramachandran** and Joint Secretary (Ports) **Shri R. Lakshmanan**, who contributed to the strategic discussions and planning.



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Passing Out Ceremony Celebrates Academic Excellence at IMU MPC

The Indian Maritime University, Mumbai Port Campus (IMU MPC) conducted the Passing Out Ceremony on 16th May 2025 for the graduating students of B.Tech (Marine Engineering) – 4th Year and PGDME programmes. The event was a significant occasion, celebrating the academic achievements and professional enthusiasm of the cadets as they embark on their maritime careers.

Shri Rajeev Nayyar, President of the Institute of Marine Engineers (India) graced the ceremony as the Chief Guest and addressed the gathering with inspiring insights on the maritime industry and the responsibilities that lie ahead for the graduates. The ceremony reflected the institution's commitment to excellence in maritime education and its role in shaping future marine professionals.

Mr. Sanjeev V. Mehra, Hon. Secretary of IME(I) Mumbai Branch and **Mr. Rajesh Doshi**, Fellow Member of IME(I), graciously extended their support and shared valuable insights on the occasion.

Faculty members and industry dignitaries were present to witness the formal send-off, making the event both memorable and meaningful.



Glimpses of the Event



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Indian Register of Shipping Expands Middle East Presence with New Office in Saudi Arabia

The Indian Register of Shipping (IRS), a prominent international ship classification society and member of the International Association of Classification Societies (IACS), is pleased to announce the opening of its new office in the Kingdom of Saudi Arabia. This strategic expansion underscores IRS's dedication to supporting the Kingdom's fast-evolving maritime and oil & gas sectors.

Located in Dammam, the new office will enable IRS to deliver its full range of services across all major ports in Saudi Arabia. This move aims to enhance engagement with local clients, ensure quicker service turnaround and provide focused support to ship owners and operators throughout the region.

With this addition, IRS further strengthens its regional footprint, offering timely, competitive and high-quality services to clients operating in the Persian Gulf and the Red Sea. The services will include ship classification, statutory surveys and certification, technical inspections and ISM/ISPS/MLC audits in accordance with IMO and flag state regulations.

"The launch of our Saudi Arabia office marks a key milestone in IRS's global growth journey," said **Shri P.K. Mishra**, Managing Director of IRS. "It reinforces our long-term commitment to the Kingdom's maritime industry and supports its ambition to become a world-class logistics and shipping hub."



The Institute of Marine Engineers (India)

Kolkata Branch

NOTICE OF ANNUAL GENERAL MEETING

All valid Corporate Members of the Kolkata Branch are cordially invited to attend the **Annual General Meeting (AGM)** scheduled as follows:

Date: Friday, 20th June 2025 | **Time:** 6:30 PM

Venue: Sapphire / Inn, 1st Floor, Princeton Club, 26 Prince Anwar Shah Road, Kolkata – 700033

The meeting will be followed by sponsored refreshments.

Kindly confirm your attendance in advance by contacting the Branch Office at:

Phone: 98313 85294 / 82403 89728.

E-mail: imeikol@yahoo.co.in

Recognising Visionaries: Judges and Core Committee Felicitated

The Indian National Shipowners' Association (INSA) hosted a Felicitation Ceremony on 19TH May 2025 at the INSA Board Room to recognise and honour the invaluable contributions of the Judges and Core Committee Members of the recently concluded INSA Tech Paper Competition.

The event commenced at 11:30 AM with a warm welcome address by **Mr. Anil Devli**, CEO of INSA. This was followed by a virtual address by **Dr. B. K. Saxena**, Chairman of the R&T Committee, INSA, who emphasised the importance of fostering innovation and technical excellence in the maritime sector.

The Judges of the competition — **Mr. Dilip Mehrotra**, **Capt. Kishore Sunderesan**, **Mr. A. B. Dutta**, **Mr. I. N. Bose** and **Mr. Chitta Dash** — shared their insights and feedback, reflecting on the high quality and originality of the entries received. Additionally, Core Committee Members **Mr. David Birwadkar**, **Mr. Sunil Kumar** and **Mr. Lokanath Tripathy** provided their perspectives on the organisation and execution of the event.

A special interactive session allowed other members present to contribute their suggestions and feedback, further enriching the collaborative spirit of the gathering.

The event was graced by **Chief Guest Dr. (Mrs.) Sujata Naik**, Chairperson of the Tolani Group, whose inspiring



address underscored the critical role of such initiatives in nurturing young talent and advancing maritime education and research.

This was followed by the **presentation of awards** to the judges and committee members in recognition of their dedication and service. The event concluded with a vote of thanks and closing remarks by **Mr. Chitta Dash**, Advisor at INSA.

INSA extends its heartfelt appreciation to all the dignitaries and contributors who made the INSA Tech Paper Competition and the felicitation event a grand success.

Glimpses of the Event



IWAI Inaugurates Srinagar Office; Launches Major River Navigation Projects in Jammu & Kashmir



In a significant step to enhance Inland Water Transport (IWT) in the Union Territory of Jammu & Kashmir, the Inland Waterways Authority of India (IWAI), under the Ministry of Ports, Shipping and Waterways, has established a new regional office in Srinagar. Located in Transport Bhawan, the office space has been provided by the Government of Jammu & Kashmir. The Srinagar office will serve as the central hub for all IWT-related activities in the region.

In line with its mission to harness the potential of the region's rivers, IWAI has signed a Memorandum of Understanding (MoU) with the Jammu & Kashmir Government to develop river navigation infrastructure across three declared National Waterways:

- NW-26 (River Chenab)
- NW-49 (River Jhelum)
- NW-84 (River Ravi)

Under this MoU, IWAI will undertake various development initiatives including:

- Installation of floating jetties at ten strategic locations
- Dredging operations to develop navigable fairways
- Implementation of night navigation aids
- Conducting regular hydrographic surveys to ensure safe vessel movement

These measures are designed to boost connectivity, foster economic development and lay the foundation for eco-friendly transportation alternatives.

Guided by the vision of Prime Minister **Shri Narendra Modi** and the leadership of Union Minister **Shri Sarbananda Sonowal**, IWAI has been at the forefront of transforming India's waterways into powerful drivers of sustainable growth. Through proactive infrastructure development and partnerships like the one with the Jammu & Kashmir Government, IWAI aims to unlock the untapped potential of river systems, while simultaneously promoting eco-tourism and supporting local economies.



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Boosting Inland Waterways: IWAI Signs MoU to Expand Cargo Movement

In a major stride towards strengthening the inland water transport (IWT) ecosystem in India, the Inland Waterways Authority of India (IWAI), under the Ministry of Ports, Shipping and Waterways (MoPSW), signed a Memorandum of Understanding (MoU) with Rhenus Logistics India Pvt. Ltd., a leading global logistics provider. The partnership aims to enhance cargo movement through a large-scale deployment of barges on India's national waterways.

The MoU was formalised in New Delhi in the presence of Union Minister **Shri Sarbananda Sonowal**, along with MoPSW Secretary **Shri T.K. Ramachandran**, IWAI Chairman **Shri Vijay Kumar**, senior ministry officials and representatives from Rhenus Logistics India.

Rhenus Logistics, a Germany-based company with a presence in over 70 countries and an annual turnover of EUR 8.2 billion, will introduce 100 cargo barges and pusher tugs in a phased manner across key routes—NW-1 (Ganga), NW-2 (Brahmaputra), NW-16 (Barak) and the Indo-Bangladesh Protocol (IBP) route. The rollout will begin in the third quarter of 2025, with the deployment of 20 barges and 6 pushers in the first phase. These vessels are tailored for low-draft operations to carry bulk and break-bulk cargo across North, East and North-East India and extend services to neighbouring countries.

Calling it a “bold step” towards a resilient and sustainable multi-modal logistics system, Shri Sonowal highlighted that this collaboration marks a significant milestone in private sector participation in inland water transport. He expressed confidence that the initiative would catalyse innovation, attract capital investment and significantly reduce logistics costs by leveraging India's vast riverine network.

The IWAI-Rhenus collaboration is a direct outcome of the progress made under the Jal Marg Vikas Project—an ambitious initiative funded by the World Bank to enhance



the capacity of National Waterway-1 (Ganga). The project includes key developments like dredging, IWT terminals, navigational locks, community jetties and navigational aids to ensure seamless cargo and passenger transport.

Under the dynamic leadership of Prime Minister Shri Narendra Modi and the guidance of Minister Shri Sarbananda Sonowal, IWAI has made transformative interventions to position waterways as a critical engine of economic growth. The number of operational national waterways has increased from 24 to 29, with river cruises now running on 13 of them. Cargo traffic has reached a record 145.84 million tonnes, reflecting a growing preference for IWT.

Additionally, the newly launched ‘Jalvahak’ Cargo Promotion Scheme, introduced in December last year, is providing a significant boost to cargo movement. The scheme offers up to 35% reimbursement on actual operational expenses, making inland water transport more economically viable. A fixed-schedule cargo service is also now operational on NW-1, NW-2 and NW-16 via the IBP route, further strengthening the logistics network.



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Indian Ports' Evolution Through Digitalization and Sustainability

ABSTRACT:

Globally, India ranks 16th in maritime trade, with 95% of its trade taking place via sea and 70% in value. Driven by digitalisation and infrastructure advancements, optimising logistics and supply chains is essential for enhancing India's competitiveness in global trade. Vizhinjam and Mundra are at the forefront of full automation. JNPA, Cochin, and Kamarajar ports lead cargo handling growth, utilising lean management, forecasting, and data analytics. Enhancements are being made to waste management systems, including waste segregation, recycling, and implementing Port Reception Facilities (PRFs). As a result of its potential to convert waste into energy, the Waste-to-Energy (WTE) concept is gaining traction. In addition, sustainable port operations are being advanced by initiatives such as the Harit Sagar policy and renewable energy projects. As part of a broader effort like the Sagarmala project, these initiatives are intended to modernise and green Indian ports. Indian ports are being automated and are undergoing a process of green development in this paper.

KEYWORDS: Green Ports, WTE, Port Automation, Port Reception Facilities (PRFs).

1. INTRODUCTION:

During the last financial year, India's 7,517 km of coastline and its 12 major ports handled around 817.97 million tonnes of cargo traffic. A growing global trade market has led to the development of smart, automated ports, using innovations like AI, blockchain, and the Internet of Things (IoT) to improve efficiency and reduce environmental impact. It simplifies operations, reduces errors, and improves their ability to handle large volume weights by automating and streamlining operations. Ministry of Ports, Shipping and Waterways (MoPSW) has taken a number of initiatives to make port operations more sustainable and eco-friendlier, including Harit Sagar. This paper attempts to outline the streamlining of Port Operations, that will eventually promote a flexible, adaptable, and sustainable maritime ecosystem.

2. THE OPTIMIZATION OF LOGISTICS AND SUPPLY CHAIN IN PORTS:

The booming world business with the increase in global trade paved the way for digitalisation in port operations. Logistics and supply optimisation in Indian anchorages is pivotal for enhancing the country's trade effectiveness and global competitiveness. With its wide

coastal range, India is a vital maritime mecca in global trade. Still, significant logistics and supply operations advancements at anchorages are necessary to harness this eventuality completely. JNPA recorded the highest growth in cargo handling at 15.12 per cent followed by Cochin Port with 15.12 per cent, Kamarajar Port (10.70 per cent). The optimisation techniques include lean supply optimisation, demand forecasting, supplier optimisation, data analytics technology, etc. The logistics sector in the country contributes between 13 to 14 per cent to India's Gross Domestic Product (GDP).

Port automation and modernisation are interlinked as they relate to building networks for logistics. The Internet of Things (IoT) is used to improve efficiency and limit vessel congestion and turnaround times. A digital twin is a virtual replica of the port, and this technique provides real-time tracking, monitoring, and data-driven decision-making insights. The Unified Logistics Interface Platform (ULIP) deployment is intended to enhance the logistics framework's real-time visibility and coordination. Vizhinjam Port employs cutting-edge technologies like automated guided vehicles (AGVs), remote-controlled ship-to-shore (STS) cranes, and automated rubber-tired gantry (RTG) cranes. To optimise, India can invest more in infrastructure by facilitating warehouses, enhancing multi-modal transportation, port capacities, etc. Channelling in digital infrastructure is essential for the advancement of supply chain efficiencies. Investments in technologies that improve data management and real-time visibility can help organisations monitor supply chain operations effectively and respond quickly to disruptions.

3. PORT AUTOMATION AND SMART PORTS:

Smart ports use innovative technologies and data-driven solutions to improve operational efficiency, safety, and sustainability. Artificial intelligence, 5G, RFID, and blockchain play a crucial role in this transformation. Among them are Syama Prasad Mookerjee Port Kolkata (SMPK), Deendayal Port Authority (DPA), Paradip Port Authority, and Vishakhapatnam Port Authority. In India, only Mundra Port has fully implemented online documentation, while Vizhinjam Port is the first fully automated port capable of handling megamax ships. Among the key smart port technologies being implemented are remote-controlled ship-to-shore cranes, rubber-tired gantry cranes, automated guided vehicles, asset condition monitoring, industrial internet of things (IIoT), and drones. The 5G connection makes these technologies more efficient and generates the most

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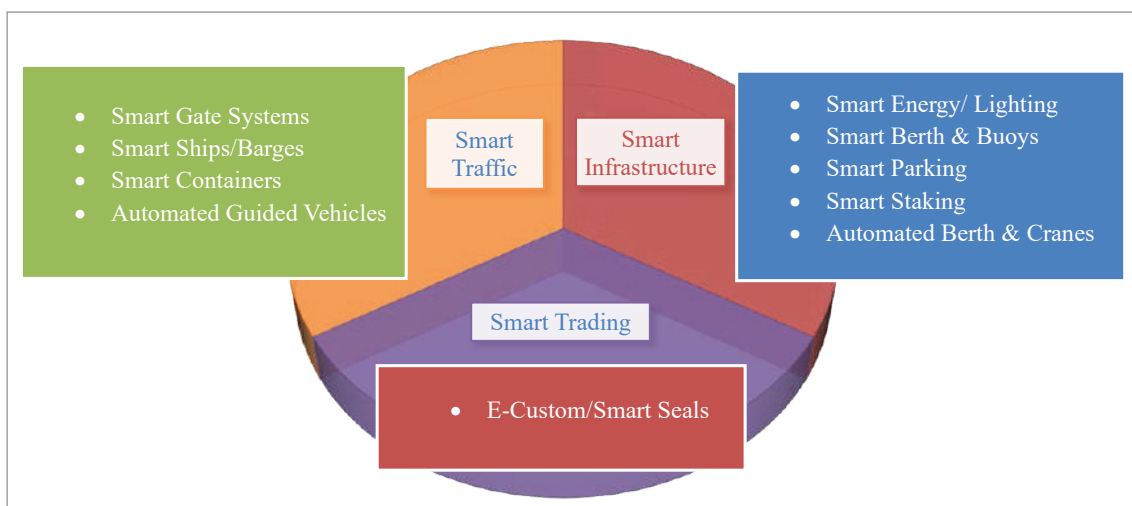


Figure 1: Illustration of Segregation of Port automation

revenue. Below is an illustration of how various sectors of a port can be automated:

It is a well-known fact that Cochin Port uses SAP ERP, a cloud-based system that manages industry-specific utilities and customer services. It is important to note that the hybrid access control system (HACS) is capable of both quick response codes (QR codes) and radio frequency identification (RFID) cards for harbour access. In Chennai Port, the implemented system allows customers to access services such as registration, pass requests, approvals, and payments without the need to visit the port to access such services physically. The Sagarmala project, led by MoPSW, includes more than 574 projects valued at \$82 billion, to automate and smarten port operations by the year 2035.

With rapid boost in technology the ports optimization has been booming and with the help of AI, Internet of things and much more new technologies, it is implemented for reducing traffic to gain more efficiency and productivity.

4. WASTE MANAGEMENT SYSTEMS AT PORTS:

A port's waste management system is vital in conserving the environment and complying with international regulations. A very large amount of waste is generated every year from maritime activities all around the world. Effective waste management systems are very important to reduce the environmental impact by the marine activities. The International Convention for the Prevention of Pollution from Ships (MARPOL), adopted by IMO in 1973, plays a significant role in preventing marine pollution.

There are mainly two types of waste generated in a port:

- Ship-generated waste like oily bilge water, sewage, garbage, and hazardous waste.
- Port-generated cargo residues, packaging materials, and maintenance waste.

Standard practices of port waste management systems used by major ports of India:

- **Port Reception Facilities (PRFs):** Port reception facilities are a place that international shipping ports must provide to collect residues, oily mixtures, and garbage generated from an ocean-going vessel. It is to prevent the discharge of contaminants directly into the ocean.
- **Waste Segregation and Recycling:** Segregating the waste according to its type, like biodegradable, non-biodegradable and recyclable, is the first step of waste management. Then, the specific waste management techniques are allotted.
- **Hazardous Waste Management:** It involves differentiating, storage, collection and safe disposal of hazardous waste materials produced by the ports. This is to ensure the right handling of procedures to prevent environmental damage.
- **Swachh Sagar Portal:** It is an online portal by the government of Indian for improving the waste management systems in Indian ports. Portal offers a centralized space for the collection of data, contributes to eco-friendly behaviours, guaranteeing regulatory compliance, and involving the community.

4.1 WASTE-TO-ENERGY

The Waste-to-Energy (WTE) concept is a forward-thinking and advanced concept with a huge potential for addressing the problem of waste disposal from ships on a significant scale. WTE enables ships to produce energy from waste rather than polluting the ocean with waste, and it also contributes to cleaner maritime practices and a more sustainable environment by converting waste into energy. In India, several major ports, including Chennai Port Authority, Mumbai Port Authority, and Cochin Port Authority, have expressed interest in implementing WTE technologies to minimise waste disposal and improve environmental sustainability. The application of WTE in the shipping industry still needs to be explored despite

its success on land. Therefore, extensive testing, evaluation, and research are required before this technology can be successfully implemented in India's ports. WTE must be adapted carefully to maritime operations' unique challenges and requirements to remain effective.

5. INDIAN PORTS GOING GREEN:

Green ports prioritize environmental sustainability across all aspects of port and maritime operations. The green port industry invests in eco-friendly technologies and practices to reduce its ecological footprint, contributing to preserving marine and coastal environments. The Indian government recognizes the importance of greening its ports to support both environmental and economic goals, given its extensive coastline and heavy reliance on ports for commercial and trade activities. The country has taken several initiatives to enhance the sustainability of its ports, including reducing Co2 emissions, improving energy efficiency, and integrating renewable energy sources into the ports' operations. The efforts include the adoption of cleaner fuels, the installation of energy-efficient infrastructure, and the promotion of practices that reduce greenhouse gas emissions. In addition to conserving the environment, the country ensures that its ports remain competitive in the global market by implementing cost-effective green technologies and practices. This balanced approach supports long-term economic growth and resilience and helps India's ports operate responsibly.

5.1 INITIATIVES:

The Indian port industry has launched several eco-friendly initiatives. Harit Sagar encourages greener

ports using energy-efficient technologies like solar and wind energy. The Shore Power Supply system reduces emissions while docked by drawing electricity from the shore. JNPT and Chennai Port have also implemented large-scale renewable energy projects, and the Sagarmala Project integrates green technologies into port infrastructure. Efforts to improve port cleanliness and waste management are further strengthened through the Swachh Bharat Abhiyan.

- **Harit Sagar:** "Harit Sagar" is a Sanskrit word that means "Green Ocean." The MoPSW introduced this policy to make the ports of India more sustainable and eco-friendlier. According to this, ports are motivated to use energy-efficient technologies like solar and wind energy. For example, Haldia Port in West Bengal is the first green port in India, as it uses biodiesel for its activities.
- **Shore Power Supply:** The process in which electrical power is supplied from the shore to a ship while it is docked, allowing the ship's auxiliary engines to be shut down and the burning of diesel fuel to cease. This will help significantly reduce greenhouse gas emissions and air pollution caused by ships. Ports like the Cochin Port Authority have already implemented this, showcasing its potential to improve sustainability in port operations.
- **Installation of Renewable Energy Projects:** With less reliance on traditional, fossil fuel-based energy sources, these programs aim to reduce greenhouse gas emissions and promote energy efficiency by utilising renewable energy sources like solar and wind power. For example, JNPA, Chennai Port, and V.O. Chidambaranar Port have large-scale solar power plants, and Kandla Port has also initiated wind energy projects as there is an abundance of wind resources on the western coast.
- **Sagarmala Project:** This is a dynamic project by government of India for redeveloping the structure of Indian ports. Green initiatives like green warehousing, Roof top solar by methods like rain water harvesting and HVLS (high volume low speed) fans are integrated into this to promote the use of eco-friendly and sustainable technologies in port infrastructure development.
- **Swachh Bharat Abhiyan:** It is a nationwide campaign by the Indian Government to eradicate open defecation, enhance solid waste management, and establish Open Defecation Free (ODF) communities. This has been extended to ports concentrating on waste management and cleanliness of the ports by ensuring proper disposal, segregating at source and by promoting recycling.

6. CONCLUSION:

Green ports and renewable energy sources strengthen India's environmental stewardship and align with global climate change initiatives. This shift reflects India's

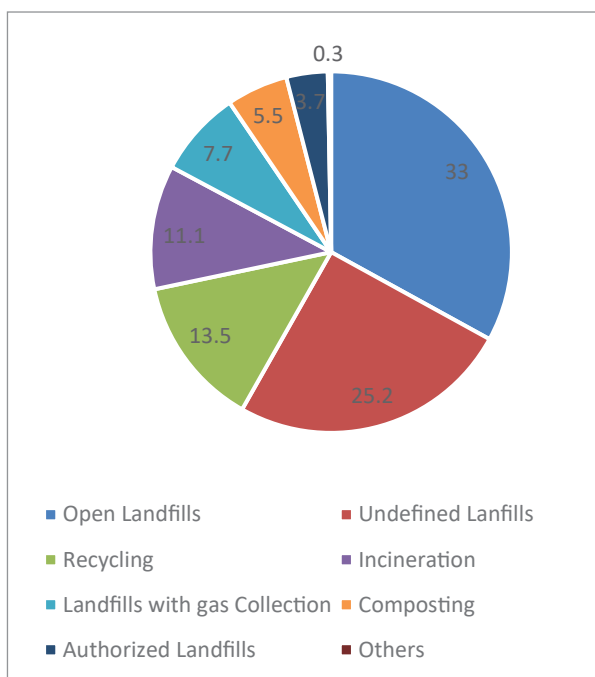


Figure 2: Methods of WTE

commitment to sustainably developing its economy while preserving its environment. By embracing smart and eco-friendly technologies, India is becoming a key player in the global effort to reduce carbon footprints and promote cleaner and more efficient maritime operations. Indian ports actively contribute to the United Nations' Sustainable Development Goals (SDGs) by implementing energy-efficient technologies, renewable energy projects, and waste management systems. These initiatives address sustainable cities and communities, affordable and clean energy, industrial innovation, and climate action. Indian ports are now setting a benchmark for sustainable port operations by integrating these green practices, which enhance their environmental performance. In future, Indian ports will be technologically advanced, but also environmentally responsible. Through this forward-thinking approach, India's ports will play a crucial role in the global transition to a greener, more sustainable economy that fosters long-term resilience and prosperity.

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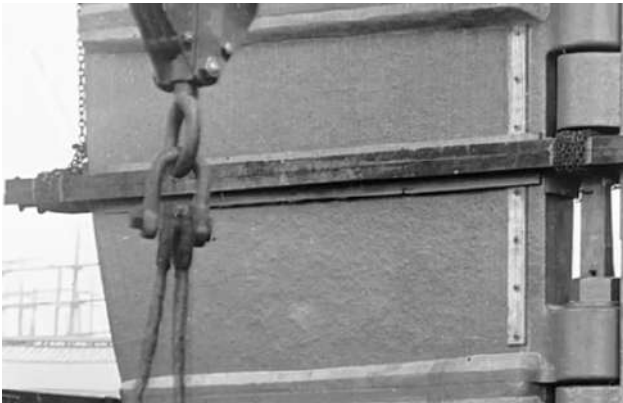
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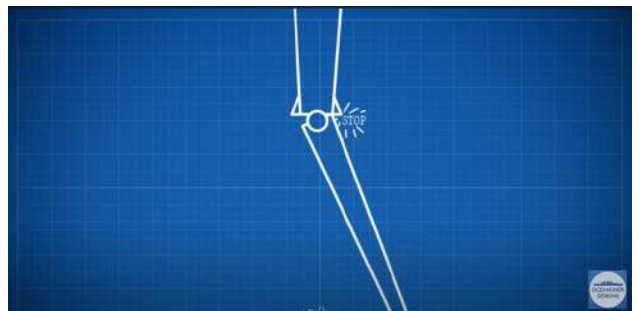
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Titanic - Part IV - Rudder and Steering



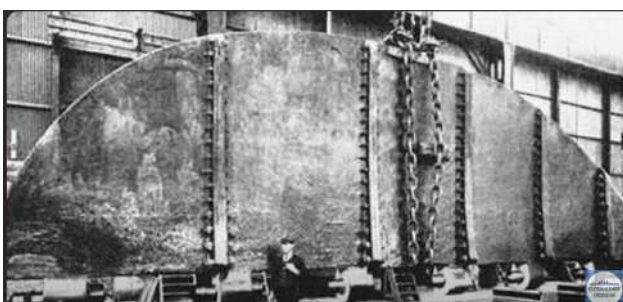
Red shaded portion shows the Rudder Stock



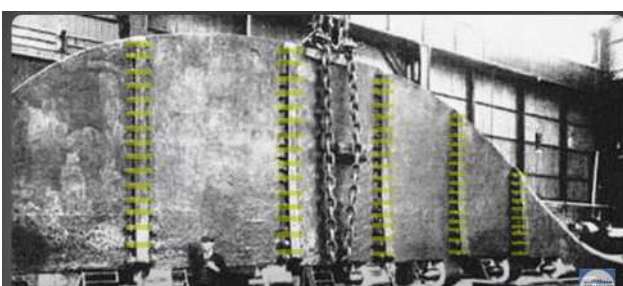
RUDDER stoppers were provided to restrict the turning of the rudder to less than 40 degrees

RUDDER

- Unbalanced rudder. 78 feet tall. 101 tons.
- Turning angle restricted to a maximum of 40 degrees, to prevent overload on the rudder and to prevent the rudder from shearing off.
- Present day turning angle is restricted to 35 degrees to either port or starboard.



The Rudder during the Construction stage



Note the 6 pieces of solid mild steel, each bolted on to the next with 3.5 inch bolts



Blue shaded pad eyes were introduced for maintenance work on the propellers and rudder

- Probably one of the first ships to introduce pad eyes on the ship's stern for rigging up chain blocks/ tackles for rudder and propeller maintenance. The practice continues till today.

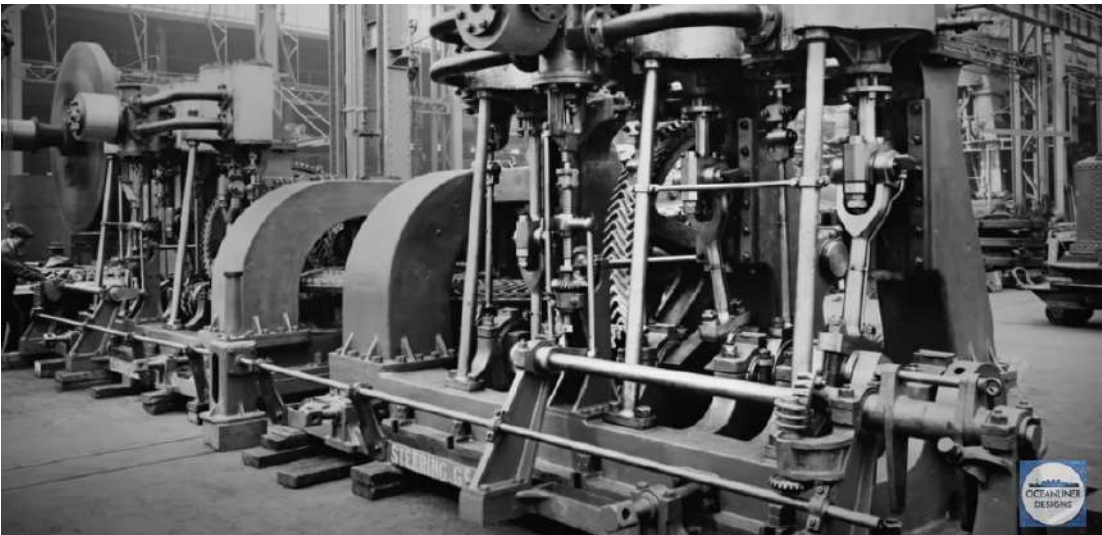
STEERING



Older, smaller ships machinery for turning the rudder



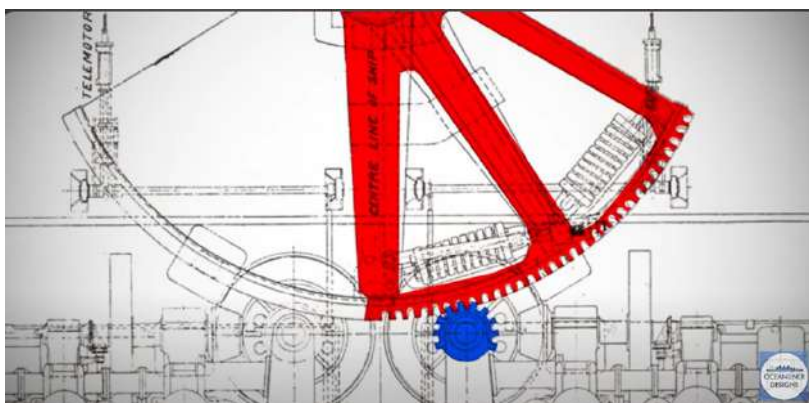
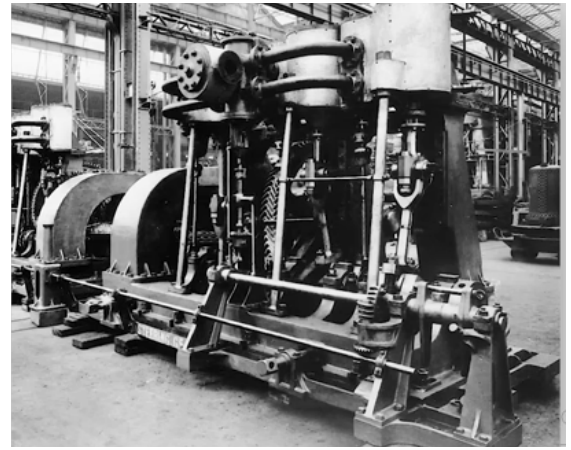
Titanic's Steering Gear for turning the rudder, located on C Deck



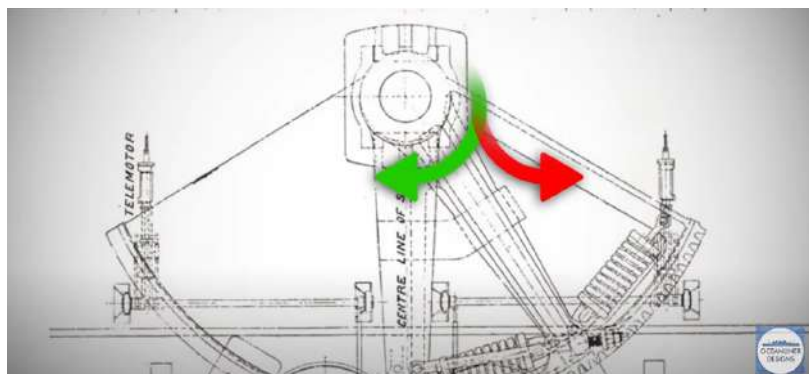
Steam Engine used for the steering gear to turn the rudder



Two Steam Engine on the shop floor, for steering gear



Massive Steering Quadrant was needed for the 101 ton rudder



The Quadrant moves left or right depending on steering orders



Tiller Arms were used to turn the rudder, to take up the load that would have, otherwise, come on the quadrant

- There were two (reversible) steam engines to give power for the steering gear, one as a 'standby' unit.
- In an emergency, with loss of power, the 'Tiller Arm' (shown above) could be turned manually, using a block and tackle. *This innovation of an emergency procedure for loss of steering power is one of the concepts followed even today. Present day emergency procedures are incumbent on emergency power being supplied to one electrical motor from the Emergency Generator.*
- The concept of 'back ups' for the steering gear was, most probably, introduced for the first time during the Titanic era. This configuration of a 'standby' unit for steering gear is in vogue to this day.
- There were three steering positions - one in a well protected wheel house, one on outside of the Bridge and one aft, directly above the steering gear. *Most ships of today have one steering position inside the Wheel House (or Bridge) and an 'Emergency Steering Position' inside the Steering Gear Room. The steering position in the Wheel House has a 'Follow Up' or 'Non Follow Up' mode. Some ships are provided with an extension cord control, using the Non Follow Up mode that can be extended to any part of the Bridge or Bridge Wing.*



IME (I) GOVERNING COUNCIL, BRANCH, AND CHAPTER COMMITTEE ELECTIONS 2025-27

As the elections for The Institute of Marine Engineers (India) approach, we wish to notify all Corporate Members of the following procedures:

SCHEDULE

Soft Copy of Nomination Papers:

- The entire election process will be communicated exclusively through electronic media.
- Nomination forms will be sent via mass email and can also be downloaded from the IME(I) website. Completed forms must be returned to the Election Officer.
- Nomination papers for Council elections will be emailed by **15th May 2025** to the registered email ID.
- The Institute's office must receive the completed nomination papers by **15th June 2025**.
- The last date for withdrawing nominations is **30th June 2025**.
- The Election Committee will complete the scrutiny of nomination papers by **5th July 2025**.
- After scrutiny, the Election Officer will publish the CVs of eligible candidates on the IME(I) website.

E-VOTING

As a Corporate Member (on the Roll as of **15th May 2025**), you can cast your vote in the upcoming IME(I) elections using the **e-Voting** system exclusively.

- Two voting options will be available:
 - **Head Office (HO) Elections**
 - **Branch Level Elections** (if applicable)
- Overseas Members will have the option to vote **only for the HO level elections**.

- If your email address has changed, you must update it by emailing electionofficer@imare.in no later than **15th June 2025**.
- Members will receive the e-Voting link **only** at their registered email addresses as per IME(I) records on **1st June 2025**.
- To update your email ID or contact details, write to membership@imare.in by **10th May 2025**.
- E-Voting will commence on **15th July 2025** and remain open until **1700 hrs on 31st August 2025**.

ELIGIBILITY TO STAND FOR ELECTION

- All office bearers of the **Council and Council Members** must be **Fellow Members** from branches or chapters only.
- Office bearers and Council Members must have been Corporate Members for at least four years at the time of filing their nomination and must have served at least one full term on the executive committee of a local branch or chapter before being eligible to stand for election from that branch.

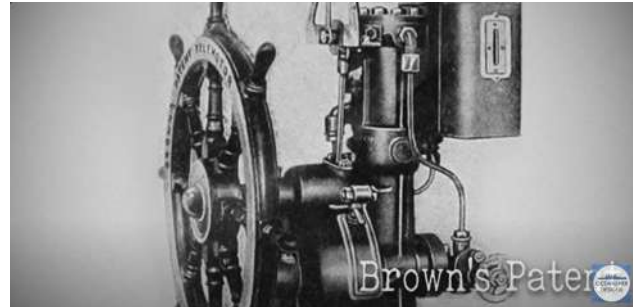
USE OF WORKPLACE / OFFICIAL EMAIL IDS

- In the past, mass emails have been blocked by certain organization domains, flagged as spam, or led to the blacklisting of the IME(I) domain. To avoid this, we **strongly recommend using personal email IDs only**.
- Using your personal email ensures you receive all important election-related communications.

For any queries, please contact: **Election Officer**
electionofficer@imare.in



Heavy Duty Spring coils took up the shock of the turning of the heavy rudder



- To connect the two steering positions forward to the aft of the ship, a 'Telemotor' was used. (It would take a while to explain the 'Telemotor' system, hence skipping it. Suffice it to say that turning the wheel would cause fluid in the telemotor to increase in pressure, which is transmitted to the telemotor unit in the aft steering position that controls the rudder. There was a feed back system that maintained equilibrium in the system. The Titanic used a mixture of water and glycerine as a medium to operate the telemotor. *It is worthwhile noting that nearly the same design of telemotor was in use in the ships built as late as the 1960s, '70s and '80s, with solenoids in the circuit, especially for feed back. Of late, all signals*

are electronic, doing away with hydraulic systems and pipes.

- I was surprised to learn that, of all the equipment on the Titanic's Bridge, the Telemotor has survived the ravages of the sea and exposure for more than a hundred years.

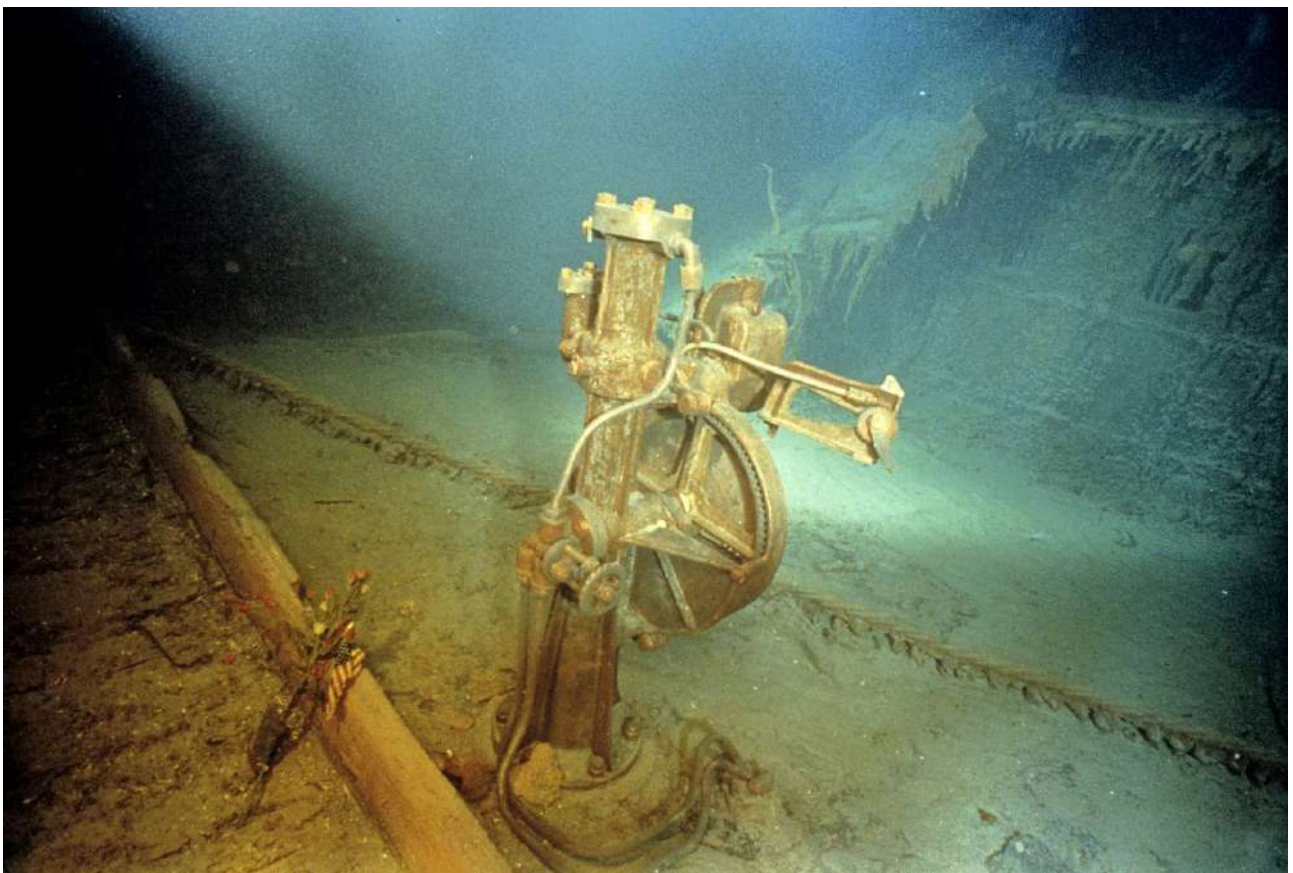
Could the steering and / or handling of the engines have made a difference in the Titanic's collision with the iceberg?

Maybe.

21.5 knots = 36.3 feet / sec

The estimated length of impact is about 300 feet length of the starboard side of the vessel.

300 / 36.3 = 8.26 seconds of impact / scraping.



The Telemotor, after more than a 100 years of submersion in the sea, still secured to the Bridge



The order issued by First Officer Murdoch, on getting to know that they were heading for the iceberg was

"Hard Starboard"

"Stop Engines and Full Astern on the Engines" or words to that effect.

- By giving a 'Hard Starboard' movement, he was giving a 'Tiller' movement which, on the Titanic, meant that the steering wheel is to be moved to port, to swing the bow to port.
- This was in accordance to the helm orders of that time.
- A ship's tiller is a lever that's attached to a rudder post or stock, and is used to steer the ship. The tiller provides leverage to turn the rudder, which controls the ship's navigational direction.
- The simplest way to describe it is to see the above image of a boat's tiller. By pushing the tiller bar to starboard side, the rudder moves to the port side and the bow of the ship or boat moves to the port side.
- To prevent the strain of manually holding on to the tiller, they used tackles to keep it in place.
- So, as per the custom of that period, the order was given as 'Hard Starboard', whereas the steering wheel was rotated to portside.
- The custom of 'tiller orders' continued till 1930, after which they were 'rudder orders', to turn the rudder in the direction that the ship was to turn.
- Even today, Masters or Pilots giving orders to the helmsman will give the order, say, 'Port 10' or 'Hard a-port' and follow it up by raising his left arm and vice versa.
- So, the steering order of 'Hard Starboard' was correct as per the standard of the time and the helmsman was correct in turning the wheel hardover to portside.

- ***In my opinion - and this is argumentative - the First Officer Murdoch erred in stopping engines and giving a 'Full Astern' order.***
- With a propeller turning astern, the rudder becomes ineffective to a very large degree.
- On the Titanic, the configuration of the three propellers were
The Centre propeller was left handed and not capable of going astern, since it was turbine (direct) driven.
The Starboard and Port propellers were right handed, the Triple expansion Steam engines for these propellers capable of being reversed.

- Moreover, the rudder was on the centreline. The port and starboard propellers a distance away.
- In an astern movement, with right handed propellers, the bow tends to move to starboard.
- I do not know enough to say if the centre (turbine) shaft continued rotating in the 'ahead' direction. I would assume that if the two side Triple Expansion Engines had to be stopped and then given steam to move astern, the Parsons turbine - I feel - would need to be stopped.
- ***Having given the 'astern' movement, Murdoch lost his steering capability, so the wheel's movement to port was (largely) inconsequential.***
- ***Remember, the scraping impact was a fleeting 10 seconds, not more than 15.***
- ***This opinion needs the expert advice of a Master. Again, in my opinion, if he had gone 'astern' on one engine and 'ahead' on the other, the centre shaft turbine would have continued getting steam and the rudder would have been effective.***
- ***One side propeller going in one direction and the other in another direction would, likely, have turned the ship away from the iceberg.***
- ***Conjecture, but those are my thoughts.***

About the Author

Mr. A. Ranganathan, 1970 batch of DMET, now retired, worked in Sisco and Barber SM. Of the 38 years at sea, 28 were as Chief Engineer, served on Car Carriers, Container Vessels, Bulk Carriers, MPCs and Self Unloaders.





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