iMélange

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Monthly Magazine of The Institute of Marine Engineers (India)

The Institute of Marine Engineers (India)

IMEI HOUSE, Plot No.94, Sector-19, Nerul, Navi Mumbai.

Tel: +91 – 8454847896/ 022-27711663
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Features:
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Administration Office:
IMEI House
Plot No. 94, Sector -19, Nerul,
Navi Mumbai 400 706.
Tel. : +91 22 2770 1664
Fax : +91 22 2771 1663
E-mail: editornewsletter@imare.in
Website: www.imare.in

Editor: **Sunil Kumar**

Editorial Board:
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From the Editor's Desk

Dear Esteemed Readers,

As we step into February, the maritime industry stands at the confluence of sustainability, innovation and progressive policymaking. This edition of **iMélange** brings together key developments shaping the sector's trajectory—highlighting transformative initiatives, industry collaborations and India's active engagement on the global stage.

The much-anticipated **Green Shipping Conclave 2025** took center stage this month, serving as a vital forum for discussions on decarbonization, energy transition and regulatory advancements. As the industry aligns itself with global environmental imperatives, the conclave provided valuable insights into sustainable fuel alternatives, carbon capture technologies and strategies to achieve IMO's ambitious climate targets. India's growing commitment to green shipping was evident through its evolving policy frameworks, research-driven solutions and investments in clean-energy infrastructure at ports. These discussions will undoubtedly play a critical role in shaping industry-wide strategies for a more sustainable maritime future.

Equally significant was **India's active participation at IMO's HTW-11 (Human Element Training and Watchkeeping Sub-Committee Meeting)** where key contributions were made to enhance global maritime training standards. The discussions focused on competency frameworks, the digital transformation of training methodologies and AI-driven learning tools. India's robust maritime training ecosystem played a pivotal role in advocating standardized seafarer certification while emphasizing the need for mental health and well-being modules within maritime education.

In policy and reform, several noteworthy developments marked the month. The **DGS ₹1 Lakh Scholarship for Women** aims to increase gender diversity in the maritime workforce reinforcing inclusivity as a core industry principle. Similarly, the **Jalpari Initiative** gained momentum encouraging greater participation of women in India's maritime sector through structured skill development programs.

From a regional perspective, the commencement of the **VICT course at IME(I) Kochi Branch** marked another milestone in enhancing specialized training for maritime professionals. Meanwhile, the **Annual Contributory Meet at IME(I) Kolkata Branch** celebrated 49 years of togetherness, reinforcing the spirit of unity and collaboration within the industry.

India's inland water transport received a boost as the **UP Cabinet approved the creation of the Inland Waterways Authority** a step toward optimizing the country's vast river network for sustainable trade and logistics.

Finally, the launch of **'Sagar Mein Yog' and 'Sagar Mein Samman'** initiatives highlight the increasing emphasis on holistic well-being and professional dignity for Indian seafarers acknowledging their indispensable contributions to global trade.

As we navigate these transformative times, it is evident that sustainability, skill development and policy-driven progress will continue to define the maritime landscape. I encourage you to share your thoughts at editornewsletter@imare.in **and** subeditor@imare.in by **7th March 2025**.

Wishing you all a meaningful and inspiring month ahead.

SUNIL KUMAR
Honorary Editor – iMélange

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Green Shipping Conclave 2025: Paving the Way for a Sustainable Maritime Future

The DGS-INMARCO Green Shipping Conclave 2022, held in Mumbai in November 2022, was a milestone in India's maritime decarbonization journey. Attended by **Shri Sarbananda Sonowal**, Honourable Union Cabinet Minister of Ports, Shipping and Waterways, senior IMO officials and key industry stakeholders, the event provided a critical platform to evaluate India's strengths and challenges in achieving maritime decarbonization, setting the stage for future actions.

Building on the success of GSC-2022, the Directorate General of Shipping (DGS), in collaboration with the Institute of Marine Engineers (India) (IMEI(I)), hosted the **Green Shipping Conclave 2025 (GSC-2025)** on 20th February 2025 at The Westin Mumbai Powai Lake. This event brought together industry leaders, policymakers and innovators to advance solutions enabling Indian shipping to achieve a 5% uptake in alternative fuels by 2030 and set a trajectory for net-zero GHG emissions by 2050.

The Green Shipping Conclave 2025 was graced by esteemed dignitaries, including **Mr. Arsenio Dominguez**, Secretary General of the International Maritime Organization (IMO); **Shri Sarbananda Sonowal,** Hon'ble Union Cabinet Minister of Ports, Shipping & Waterways; and **Shri Shantanu Thakur**, Hon'ble Minister of State for Ports, Shipping & Waterways. Also in attendance were **Shri Rajesh Kumar Sinha,** Additional Secretary, MoPSW; **Shri Shyam Jagannathan (IAS)**, Director General of Shipping; **Shri Ajithkumar Sukumaran**, Chief Surveyor, **DGS**; and **Dr. Malini Shankar (IAS Retd.),** Vice Chancellor, Indian Maritime University (IMU). The event also brought together other DGS officials, senior personnel from the Shipping Corporation of India, Directors of IMU, key representatives from shipping companies, among other prominent industry leaders.

As India strengthened its leadership in sustainable maritime practices, GSC-2025 drove cross-industry cooperation and actionable strategies, reaffirming the nation's commitment to a greener maritime future.

Session on Green Energy Waves: Driving Maritime Sustainability Through Green Fuels

Chair, Convenor, Speaker and Panelists, Experts

Session Chair	Shri. Arun Sharma	Executive Chairman, Indian Register of Shipping
Convener	Shri. P.K. Mishra	Managing Director, Indian Register of Shipping
Panelists	Shri. Mrinal Dutt	Senior Manager, GAIL
	Shri. Tarun Kumar	State Head (I&C), Maharashtra 1, BPCL
	Ms. Josefine Pallesen	Maritime Counsellor Royal Embassy of Denmark
	Dr. Arun Sharma	Adviser to Chairman, Group Head Sustainability & Climate Change, Adani Group
	Cmde Debesh Lahiri (Retd)	Advisor - Centre for Resource Efficiency and Governance (Green Shipping) The Energy and Resources Institute (TERI)
	Shri. Saurabh Mohan Saxena	Founder Director & President AHODS Technologies
Experts	Dr. Piyali Das- Teri	Associate Director, Pyrolytic Biofuels, Biochar and Green Chemicals
	Shri. Tejas Kshatria	Vice President, Green Technology, KPIT
	Shri. Devrup Kabi	Sr. Principal Surveyor , IRS

Coordinators

DGS	Shri. Satish Kamath	Engineer & Ship Surveyor, MMD Chennai
IMEI	Shri. Kunal Sharma	Sr. Surveyor, IRS

Session summary

The discussions began against the backdrop of the IMO's stringent intermediate targets for 2030 and 2040, aiming for net zero by 2050. The National Centre of Excellence for Green Ports and Shipping is spearheading multiple alternative fuel projects that are nearing commercial implementation. India is expected to become a net exporter of green fuels in the future, thanks to the country's low-cost and large-capacity renewable energy resources. International collaboration, particularly with countries like Denmark, will be crucial for advancing sustainable maritime practices and technology sharing. While LNG is currently the most suitable interim fuel for GHG reduction, emerging options like hydrogen without storage are also on the horizon. There is growing clarity in identifying net zero fuels such as green methanol and green ammonia, both of which have significant scalability potential. A multi-pronged approach is necessary due to the lifecycle intensity of green fuels. It is essential for companies to integrate sustainability into their business strategies. Additionally, nuclear energy may play an important role in the future.

Key Focus Areas

Green Fuels for Zero-Emission Shipping: Exploring green ammonia, hydrogen, biofuels, and synthetic fuels to reduce maritime carbon footprints.

- **Transitional Fuels & Infrastructure:** Leveraging LNG and methanol while developing robust bunkering and supply chains for green fuel adoption.
- **Safety, Regulations & Technology:** Aligning national policies with global standards and using emerging technologies to enhance fuel efficiency and scalability.
- **Collaboration for Innovation:** Fostering public-private partnerships to accelerate investment, innovation, and the transition to sustainable maritime energy.

Key Takeaways

- **Accelerate Green Hydrogen & Green Ammonia Adoption**: Leverage India's cost leadership in green ammonia and solar power, while scaling electrolyser manufacturing to reduce costs and enhance competitiveness.
- **Green Fuels & Transition Pathways:** Prioritize Green Hydrogen, Green Ammonia, and Green Methanol, support transition fuels like LNG and blended ethanol, and explore LPG for small fishing boats and hydrogen augmentation for efficiency gains.
- **Market Readiness & Policy Considerations**: Focus on creating a strong demand signal through policy and industry coordination rather than subsidies, while considering Fuel Life Cycle Assessment (LCA) and GFI-based fuel selection (methanol, ammonia, hydrogen).
- **Technological & Workforce Readiness**: Advance fuel cells and dual-fuel engines, promote low-temperature hydrogen fuel cell technology for inland waterways, and strengthen seafarer upskilling programs for the green fuel transition.
- **Regulations & Global Coordination**: Align with imminent global fuel standards, support a progressive low-levy fuel model, collaborate on offshore wind programs, and monitor nuclear energy advancements as a potential long-term alternative.

Session on Green Gateways: Pioneering Green Transitions of Ports

Chair, Convenor, Speaker and Panelists, Experts

Session Chair	Shri. Rajkumar Beniwal	Vice Chairman & CEO, Gujarat Maritime Board
Convener	Capt. S.I. Abul Kalam Azad	Nautical Adviser-Cum-Addl.DG (Nautical)(i/c), DG Shipping
Panelists	Shri. Surash Babu	Chief General Manager (M&EE)
	Shri. Niteen M. Borwankar	Chief Manager Mechanical & Electrical Engineering and CEO – SEZ , Jawaharlal Nehru Port Authority
	Shri. Rajeev Agarwal	Ex CEO & MD, Essar Ports
	Shri Girish Sreeraman	Area Business Director, South East Asia and Indian Subcontinent, DNV
	Shri. Daljit Singh Kohli	India Representative for Port of Antwerp & Bruges
Experts	Shri. Shobhit Kapoor	M&O Operations Manager SAW. Lloyd's Register India

Coordinators

DGS	Capt. Anish Joseph	Dy. Nautical Advisor-cum Sr. DDG(Tech)
IMEI	Shri Tarique Mulla	Hon. Secretary, IME(I) Navi Mumbai Chapter

Session summary

The panel discussed the various challenges and opportunities in the transition to Green Ports, providing valuable insights into the future of sustainable port operations while highlighting the importance of innovation, collaboration and necessary investments. The challenges included high initial investments, technological integration complexities, regulatory gaps and a shortage of a skilled workforce. Despite these challenges, the discussions also emphasized substantial opportunities through the green transition, such as improved operational efficiency through digitalization and smart technologies, environmental benefits and enhanced global competitiveness as a green ports can attract more international business as well as opportunity for Public-Private Partnership.

Discussion Highlights:

1. **Green Ports:**
   - **Strategies and Technologies:** Discussion on the latest strategies and technologies to make ports more environmentally friendly.
   - **Implementation Challenges:** Addressing the challenges in implementing green initiatives at ports.
2. **Shore Power:**
   - **Emission Reduction:** Benefits of shore power in reducing emissions from ships while docked.
   - **Infrastructure Requirements:** Necessary infrastructure and investment needed for shore power implementation.
3. **Just-In-Time (JIT) Green Corridor:**
   - **Efficiency and Sustainability:** Enhancing port operations' efficiency and sustainability through JIT logistics.
   - **Coordination and Collaboration:** Importance of coordination among various stakeholders to achieve JIT logistics.
4. **Alternative Fuels Availability in Ports:**
   - **Types of Fuels:** Availability of renewable diesel, biodiesel, hydrogen, and other alternative fuels
   - **Infrastructure Upgrades:** Need for significant investment in port infrastructure to support alternative fuel storage and distribution
5. **Trucks in Ports Converting to Battery Operated:**

- **Electrification Benefits:** Reduction in greenhouse gas emissions, air pollution, and noise levels
- **Challenges and Solutions:** High initial costs and the need for extensive charging infrastructure.

6. **Ports as Catalysts for Producing Green Fuels:**
   - **Green Energy Hubs**: Ports playing a crucial role in the production, application, and distribution of green fuels like green methanol and ammonia
   - **Supporting Decarbonization:** Ports facilitating the transition to renewable energy sources and supporting global decarbonization goals

Key Focus Areas:

- **Renewable Energy Integration:** Focus on strategies for adopting renewable energy sources such as solar, wind, and tidal energy in port operations to enhance sustainability and reduce carbon emissions.
- **Shore-to-Ship Power (Cold Ironing):** Discuss the implementation of cold ironing systems that allow docked vessels to draw power from the port grid, minimizing reliance on fossil fuels during berthing.
- **Energy-Efficient Cargo Handling:** Explore electrification and automation in cargo handling processes to improve energy efficiency and reduce operational costs in port activities.
- **Green Bunkering Infrastructure:** Emphasize the development of facilities for alternative fuels like LNG, hydrogen, and methanol to support the transition to greener maritime operations.

Key Takeaways:

- **Holistic Environmental Approach:** Ports must address pollution beyond their boundaries, integrate stakeholders to reduce bottlenecks, and optimize operations across the logistics value chain.
- **Energy Transition & Electrification:** Standardize state-level electricity policies, leverage cost-effective renewable energy, implement solar and wind power mixes, and provide land for green power generation and alternative fuel production.
- **Green Fuel Production & Infrastructure:** Focus on reducing electrolyser costs, improving ammonia production efficiency, and developing ports as green hydrogen hubs, with Tuticorin's Green Hydrogen pilot project as a model.
- **Technology & Logistics Optimization:** Enhance efficiency through digitalization (real-time monitoring, sensors, digital twins), expand rail networks, and introduce electric/hydrogen trucks and tugs, while addressing trucking challenges.
- **Bunkering & Shore Power:** Promote shore power (cold ironing), utilize LNG bunkering as a near-term solution with a 2030 target, and transition to hydrogen/ammonia bunkering by 2035, leveraging LNG terminals as low-hanging fruit.

Session on Green Ships & Smart Tech: Integrating Technology for Sustainable Seas

Chair, Convenor, Speaker and Panelists, Experts

Session Chair	Shri. C V Subba Rao	MD, Sanmar Shipping
Convener	Shri.Anil Kumar	Principal Surveyor, LR
Panelists	Shri.Arjun Chowgule	Executive Director, Chowgule Group
	Shri.Hrishikesh Narasimhan	Senior Consultant-Business Development L&T Shipbuilding
	Shri.Sanjay Verma	Director, Wartsila Singapore
	Shri.Sajan P John	Chief Operating Officer, Kochi Water Metro
	Shri.Ronny Hansen	Nautical Adviser, Danish Maritime Authority

Coordinators

DGS	Shri.Nebu Oommen	Ship Surveyor-cum- Deputy Director General (Tech.),
DGS	Shri.Pradeep Sudhakar K.	Chief Ship Surveyor-cum-Joint DG (Tech.) (I/C)
IMEI	Shri.Bryan D'sa	Exec. Committee Member, IME(I) Mumbai Branch

Session Summary

The panel discussed the alternate technology options and it's readiness level, The infrastructure needs and challenges in the supply chain, the policy changes and barriers that need to be resolved and finally arrive at a possible roadmap. The session " Green Ships & Smart Tech – Integrating Technology for Sustainable Seas" at the DGS-IMEI the Green Shipping Conclave 2025 under the chairmanship of Shri. Subba Rao, Managing Director, Sanmar Shipping and domain experts from Shipyards (Chowgule, L&T) Engine builder (Wartsila), ship owner (Kochi Water Metro) and National Administration (Denmark). Their insights significantly contributed to this important dialogue, helping to shape the strategies necessary for advancing green technology adoption in the maritime sector.

The session focused on fostering global partnerships to drive sustainable maritime practices and explored explore collaborative frameworks, shared technological advancements, and policy alignments that can accelerate the decarbonization of the maritime sector.

The panel discussed the alternate technology options and it's readiness level, The infrastructure needs and challenges in the supply chain, the policy changes and barriers that need to be resolved and finally arrive at a possible roadmap. The following points were discussed.

1. The Technology readiness Level (TRL) is advanced as explained by the leading Engine Makers. There are challenges to overcome. We can see pilot projects using alternate fuel taken up. To make sure Technological developments are safe, the regulatory regime be are progressing well, the IMO and Class societies have developed Rules and Regulation for Gas Low Flash point for Methanol and Ammonia.
2. We need to consider, both newbuild and retrofit to achieve 5% uptake in alternate fuel by 2030. For newbuild, the decision is clear, we can have Joint development Projects by stake holders. For existing ships, there could be challenges.
3. We need to look at what we need to achieve in green shipbuilding and green technologies in short term and mid-term and then progress into long term basis.
4. The shipyard is of the opinion that transitioning to fully alternate fuel propulsion would pose an enormous engineering challenge, requiring broader supply chain collaborations.
5. Shipyard needs to focus of ship segment for alternate fuel newbuilding and same way the engine builder are focusing on alternate fuel ship type. Engine builder stated that their focus is alternate fuel engine required for Passenger vessel newbuild.
6. Efficient Shipbuilding process will cut down the timeline needed and hence energy requirements. Moreover, the GHG emission during the shipbuilding process and manufacturing of Material, Machinery and Component manufacturing process will substantially cutdown emission.

7. The feasibility of manufacturing the material, equipment and components of green technologies, as well as the retrofitting of equipment and components of green technologies in India, needs to be explored since leading global engine builders and technology providers have a presence in India.
8. The availability of maintenance and support services for alternate fuel technology along coastal India, including distant locations such as Lakshadweep and the Andaman & Nicobar Islands, needs to be explored.
9. Smaller coastal general cargo vessels are being built with an electric propulsion system using a main generator and battery or a hybrid propulsion system with a battery or shaft generator.
10. For smaller passenger ferries, the vessel design depends on battery capacity and charging requirements.
11. For existing ships, the technology is limited to what we already have. The bunker tanks and spaces on board for retrofitting need to be considered. However, retrofitting alternate fuel systems for existing ships is an option that needs to be explored. For example, SCI has plans to retrofit a methanol propulsion system on board OSVs.
12. For alternate fuel uptakes, different ship types such as tugs, passenger vessel, cargo vessel will have different options.

Key Focus Areas:

- **Green Ship Design & Alternative Fuels:** Developing energy-efficient hulls, propulsion systems, and integrating LNG, hydrogen, and ammonia.
- **Smart Shipbuilding & Digital Innovation:** Using AI, big data, digital twins, and 3D printing for optimized construction and predictive maintenance.
- **Advanced Shipyard Infrastructure:** Automating fabrication units, building alternative fuel-ready facilities, and developing maritime clusters.
- **Regulatory Alignment & Workforce Training:** Aligning policies with IMO goals, streamlining certifications, and upskilling professionals through industry-academia collaboration.

Key Takeaways

- **Current Fuel Mix & Future Fleet Transition:** 99.17% of the fleet runs on conventional fuel, with only 0.83% using alternative fuels. Future orders show just 19% of vessels will adopt alternative fuels, highlighting the need to accelerate green fuel adoption.
- **Engineering & Supply Chain Challenges:** While India excels in hull fabrication, engineering and commissioning remains bottleneck. Green engine supply is delayed compared to demand, and India's battery technology still faces challenges related to size and lifespan.
- **Green Technologies & Hybrid Vessels:** Methanol, ammonia, and hydrogen are key green technologies gaining traction in India, with green hydrogen viewed as the future. Hybrid vessels, particularly successful in Europe, are seen as a transitional step toward fully green ships.
- **System Integration & Energy Efficiency:** Shipbuilding is evolving beyond commodity production, with a focus on system integration for safety due to alternative fuels. Energy savings can be achieved by optimizing production engineering, reducing build time, and improving emissions control.
- **Collaboration & Manufacturing Focus:** Strong collaboration among ship designers, clients, shipyards, equipment suppliers, and classification societies are essential. India's focus on manufacturing and adopting hybrid vessels aligns with global trends, as evidenced by Denmark's experience with digitalized shipping and retrofitting challenges.

Session on Green Capital: The role of Green Finance In Maritime Decarbonization

Chair, Convenor, Speaker and Panelists, Experts

Session Chair	Shri. Deepak Shetty	Former DG Shipping
Convener	Shri. P.K. Mishra	Managing Director, Indian Register of Shipping
Panelists	Ms. H.K.Joshi	Ex Chair Person & Managing Director, The Shipping Corporation of India Ltd
	Shri. Anil Devli	CEO, Indian National Shipowner's Association (INSA)
	Ms. Surbhi Goyal	Senior Energy Specialist, World Bank Group
	Shri. Ambrish Bansal	SVP Consultancy, Lloyd's Register
	Shri. Jaikumar Raghunathan	Senior Specialist, KPMG India

Coordinators

DGS	Shri. Praveen Nair	Engineer & Ship Surveyor-cum-Deputy DG(Tech)
IMEI	Shri. Rajesh Kasargod	Head Management, Adani Shipping (India) Pvt. Ltd.

Session summary

The panel discussed that the transition to zero carbon fuels for the maritime industry is challenging and diverse with no single pathway to decarbonization. The session discussed the primary challenges hindering the growth of green finance in India's maritime sector and possible methods that could be adopted in order to accelerate the transition. The panel also complimented the Government of India for it's initiatives such as Maritime Development Fund and the enhanced Shipbuilding Financial Assistance scheme that has the potential to drive the maritime decarbonization to the next level.

The panel was unanimous that the early movers should be incentivized with a need to explore the sandbox approach which could enable the initial funding for suitable investment projects which otherwise would be difficult on account of the risk of uncertainties.

The panel discussion also focused on the challenges and opportunities presented before the Indian port sector and the bunkering industry. The methods that can be adopted to enable India to benchmark its green finance policies and initiatives against the global best practices to enhance investor confidence and streamline funding for sustainable maritime projects was also discussed. This was also discussed in the background of the demand for short-term profitability and the expectation on better returns on investment.

The key role played by institutions such as World Bank in the development of climate finance was highlighted and their commitment to the ambitious green hydrogen project which has the potential to accelerate India's development of low-carbon energy was appreciated.

The panel also discussed the significance of developing KPIs for green financing which should be measurable, verifiable and aligned with the requirements of the nation and the IMO.

Key Focus Areas:

- **Green Finance Instruments:** Expanding green bonds, sustainability-linked loans, and blended finance models to support sustainable investments.
- **Risk Mitigation and Incentives:** Reducing investment risks through credit guarantees, carbon pricing, and emissions trading schemes.
- **Technology and Innovation Support:** Accelerating R&D and pilot projects with grants, subsidies, and public-private partnerships.
- **Global Standards and Long-Term Investment:** Harmonizing financial standards and promoting lifecycle-based investment decisions for sustainable growth.

Key Insights

Standardization & Global Benchmarks: Push for standardized definitions and global benchmarks for green finance to improve clarity and adoption, addressing challenges faced by financial institutions.

Financing Mechanisms & Investment Models: Encourage leasing models to reduce the financial burden on shipbuilders and operators, expand interest subvention and Viability Gap Funding (VGF) schemes to lower financing costs, and explore Sovereign Wealth Funds as funding sources.

Risk Management & Alternative Financing: Support alternative financing solutions like Green and Blue Bonds, Asset Reconstruction Companies (ARCs) to manage downturn risks, and align green fuel financing with demand signals through a phased transition strategy.

ESG & Sustainable Finance: Enhance integrated ESG reporting frameworks to secure international funding and donor loans, using World Bank sustainability indices as guides, and set measurable KPIs for sustainable financing.

Addressing Market Challenges: Develop policy incentives to mitigate high capex requirements, market volatility, rupee depreciation, and fluctuating freight rates, while overcoming barriers to green fuel adoption and aging fleet decarbonization.

Session on Green Alliances: International Co-operation For Greener Seas

Chair, Convenor, Speaker and Panelists, Experts

Session Chair	Shri CSR Ram	Jt. Secretary, Ministry of External Affairs
Convener	Shri. Aniruddha Chaki	Engineer & Ship Surveyor-cum-Deputy DG(Tech), DG Shipping
Panelists	Ms Monica	Consul General, Norway
	Mr Thiery Van Helden	Deputy Consul General, Netherlands
	Mr. Jakob Visti Eriksen	Special Adviser- Danish Maritime Authority
	Mr. Erik af Hällström	Consul General of Finland
	Shri. Philipp Wittrock	Project Manager & Lead Shipping, International PtX Hub
Experts	Dr. Arun Sharma	Adviser to Chairman, Group Head Sustainability & Climate Change, Adani Group

Coordinators

DGS	Shri. Aniruddha Chaki	Engineer & Ship Surveyor-cum-Deputy DG(Tech)
IMEI	Ms. Archana Sangal	Exec. Committee Member, IME(I) Navi Mumbai Chapter

Session summary

The session focussed on fostering global partnerships to drive sustainable maritime practices and explored explore collaborative frameworks, shared technological advancements, and policy alignments that can accelerate the decarbonization of the maritime sector.

It focused on International collaboration initiatives including Bilateral partnerships, regional alliances and engagement in global platforms.

The Discussions centred around Global Regulatory Alignments, Collaborative Technological Developments, Green Financing and Investments, Capacity Building and Knowledge Transfer and Development of Green Shipping Corridors and India's proactive engagement in these areas were appreciated by the panellists.

Key Focus Areas:

- **Global Regulatory Alignment:** Harmonizing maritime regulations with international climate goals.
- **Collaborative Innovation:** Advancing green shipping technologies through joint R&D and digitalization.
- **Green Financing and Partnerships:** Mobilizing global funds and public-private investments for sustainable shipping.
- **Capacity Building and Green Corridors:** Enhancing workforce skills and developing international routes with sustainable fuels workforce skills and developing international routes with sustainable fuels.

Key Insights

- **India-Norway Partnership for Maritime Sustainability**: Collaboration between India and Norway focuses on ship recycling, maritime innovation, and developing a white paper on coastal shipping, with India also participating in the IMO Green Voyage program and Oslo 2025.
- **Finland's Expertise in Energy-Efficient Vessels**: Finland aims for carbon neutrality by 2035 and leads in LNG technology for polar cruise ships, with 80% of the world's ice class vessels built in Finland and a green shipping corridor established in the Baltic Sea.
- **Netherlands' Maritime Opportunities in India**: India's state-of-the-art port facilities create growth opportunities for Dutch and EU companies, aligning with the Dutch Maritime Master Plan, which targets 30 hydrogen-powered ships by 2030.
- **Denmark's Centre of Excellence for Green Shipping**: Denmark is advancing sustainable maritime practices through its Centre of Excellence, promoting research and technology development for greener vessels.
- **Urgent Need for Collective Action**: If shipping were considered a country, it would rank 7th globally in terms of greenhouse gas emissions. International collaboration, including initiatives like the International Solar Alliance, is essential to accelerate decarbonization.

The IMO Secretary General's Round Table Meeting with CEOs of Renewable Energy Producers In India

The IMO Secretary General Mr. Arsenio Dominguez, alongside Shri Shyam Jagannathan (IAS), Director General of Shipping and Shri Ajithkumar Sukumaran, Chief Surveyor-cum-Addl. DG (Engineering) engaged in roundtable discussions with CEO's of Indian renewable energy producers from India.

The dialogue highlighted India's achievement of 200 GW in renewable capacity, aiming for 500 GW by 2030, setting the stage to become a key supplier of green hydrogen derivatives like green ammonia. The meeting focused on India's competitive advantages in low-cost solar power and robust electrolyzer production. The leaders emphasized India's readiness to meet global demand for zero-net-zero (ZNZ) fuels, underlining the importance of IMO's mid-term measures and stable financial incentives to accelerate the energy transition.

Session on Green Blue Print for Maritime India: Policy Makers Leading the Change

Chair, convenor, speaker and panellists, experts

Chair of the Session	Shri Rajesh Kumar Sinha, IAS	Additional Secretary, Ministry of Ports, Shipping and Waterways
Co-Chair of the Session	Shri Shyam Jagannathan, IAS	Director General of Shipping
Convener	Capt. S.I. Abul Kalam Azad	Nautical Adviser-Cum-Addl.DG (Nautical)(i/c), DG Shipping
Panel Member	Shri. Ajithkumar Sukumaran	Chief Surveyor-cum-Addl. DG (Engineering), DG Shipping
	Dr. Malini Shankar, IAS (Retd.)	Vice-Chancellor, Indian Maritime University
	Capt. Binesh Kumar Tyagi	Chairman and Managing Director, The Shipping Corporation of India Ltd.
	Shri Arun Sharma	Executive Chairman, Indian Register of Shipping

Coordinators

Coordinator	Shri Killi Mohana Rao	Principal Officer, MMD, Chennai

Session summary

The Green Shipping Conclave 2025 was an opportunity to all the stakeholders to express their thought process and ideology for developing a Nations Green Shipping Policy in line with India's National Environment Policy (NEP) of 2006 and aligning with the IMO's Revised GHG Strategy 2023.

The Session discussions were based on the inputs from various stakeholders like ship owners, operators, port facilities, ship designers, shipbuilders, equipment manufacturers, classification societies, maritime experts, interest groups, and the public is the process in developing key policies of the maritime sector.

Session Summary

Agenda:

- The Green Shipping Conclave 2025 brought together senior government officials from key maritime and industrial sectors to discuss India's existing policy initiatives and the future reforms required to position India as a global leader in green shipping.
- The main objective of the session was to facilitate the high-level policy discussions, highlighting regulatory advancements, financial incentives, workforce development, infrastructure expansion, and strategic frameworks essential for green maritime development.
- The key Focus of the discussion was on the Union

Budget's landmark proposals, including the ₹25,000 crore Maritime Development Fund (MDF) and the extension of the Shipbuilding Financial Assistance (SBFA) Scheme, while also integrating key takeaways from other sessions at the Conclave related to green fuels, shipbuilding, port sustainability, and global collaborations.

Key Discussion Points:

1. **Green Fuels**: Aligning policies with global best practices for ammonia, hydrogen, LNG, and biofuels to decarbonize shipping.
2. **Green Shipbuilding**: Strengthening financial and regulatory support for green ship construction and retrofitting.
3. **Port Sustainability**: Expanding shore-to-ship power infrastructure, renewable energy adoption, and emission reduction strategies in port operations.
4. **Global Collaboration**: Leveraging international alliances such as Green Voyage 2050 and the Denmark-India Centre of Excellence for Green Shipping.

Key Take Aways:

1. Technical feasibility of usage of green fuels is not proven, it currently faces significant challenges related to cost, infrastructure development, and safety concerns, but ongoing research and development are making it increasingly viable as a future solution for decarbonizing the maritime industry.

2. Green shipbuilding in India is considered highly feasible due to the government's strong focus on alternative fuels and renewable energy, coupled with a growing global demand for environmentally friendly vessels, positioning India to potentially become a major hub for green shipbuilding with the right investments and technology transfer. However, challenges remain regarding infrastructure development, access to advanced technologies, and existing financial constraints within the shipbuilding industry.

3. Shore-to-ship power supply is feasible in Indian ports, and is being implemented in phases. Govt. of India is emphasizing investing in infrastructure improvements on berths with shore power capability, efficient cargo handling systems, and optimized yard layouts to reduce idling time and energy usage.

4. India is committed to lead the maritime sector to green transformation through clean energy, sustainable ports, and innovative shipbuilding through global collaborations for technology transfer and for strategic investments.

Session on Green Navigators : CEO Forum for Sustainable Maritime Leadership

Chair, convenor, speaker and panellists, experts

Chair of the Session	Shri Rajesh Kumar Sinha, IAS	Additional Secretary, Ministry of Ports, Shipping and Waterways
Co-Chair of the Session	Shri Shyam Jagannathan, IAS	Director General of Shipping
Convener	Shri. Anil Devli	CEO, Indian National Shipowner's Association (INSA)
Member	Dr. Malini Shankar, IAS (Retd.)	Vice-Chancellor, Indian Maritime University
	Capt. Binesh Kumar Tyagi	Chairman and Managing Director, The Shipping Corporation of India Ltd.
	Shri Arun Sharma	Executive Chairman, Indian Register of Shipping
	Dr Sujata Naik	Chairperson-Tolani Maritime
	Shri Bharat K. Sheth	Deputy Chairman & Managing Director, The Great Eastern Shipping Co. Ltd.
	Shri C.V. Subba Rao	Managing Director, Sanmar Shipping
	Capt. S.I. Abul Kalam Azad	Nautical Adviser-Cum-Addl.DG (Nautical)(i/c), DG Shipping

Coordinators

Coordinator-DGS	Shri Gopikrishna.C	Engineer & Ship Surveyor-cum-Deputy DG(Tech)
Coordinator-IMEI	Shri Sanjeev Mehra	Hon. Secretary, IME(I), Mumbai Branch

Session summary

The CEOs of the leading Shipping Companies discussed the implications of recent policy measures announced in the Union Budget for 2025-26.

The panelists discussed primarily the recent Government Initiatives, Operational and Financial Strategies and Workforce Readiness besides the holistic 360 degree connect between Green fuels, Green Ships & technology, Green finance, training, Green ports and International Cooperation in the Green transition.

Summary

The main objective of the session was to discuss & deliberate the challenges and opportunities facing the Indian Shipping companies while transition to green shipping practices keeping in mind of the recent Union Budget's landmark announcements, including the ₹25,000 crore Maritime Development Fund (MDF) and the extension of the Shipbuilding Financial Assistance (SBFA) Scheme.

Key discussion points:

1. It was discussed that less than 3 percent of global pollution is from Shipping however the move towards Green transition is very intense.
2. It was also discussed that operational efficiency such as Voyage optimization, Just in time option can lead to reduction of emission.
3. India's interest must be the priority while making a choice between MBM or Levy in the IMO GHG reduction strategy.
4. It was also discussed that appropriate lifestyle changes, environmental concerns, financing options and stakeholder involvement are needed during the green transition.
5. While adopting changes, factors such as the involvement of youth, innovation & R&D projects, skill development, training needs

towards alternative fuels, government-aided research projects, technological training, updating of curriculum and collaboration with industries also need to be taken into consideration.

6. The need for technology & innovation, safety issues necessary for alternative fuels, quality assurance, education, commitment, finance and the necessary inter-dialogue was also highlighted.
7. Port connectivity – Green Tug Transition Programme, government initiatives in shipbuilding and the port sector towards setting up green hydrogen and green ammonia. Retrofitting in two vessels, multimodal transport and a conducive atmosphere.
8. The recent visits to South Korea and Japan by the Indian delegation and the steps taken toward shipbuilding projects were also discussed.

Key Take Aways:

1. Green Fuels: Aligning policies with global best practices for ammonia, hydrogen, LNG, and biofuels to decarbonize shipping.
2. Green Shipbuilding: Strengthening financial and regulatory support for green ship construction and retrofitting.
3. Port Sustainability: Expanding shore-to-ship power infrastructure, renewable energy adoption, and emission reduction strategies in port operations.
4. Global Collaboration: Leveraging international alliances towards Green Shipping.
5. Skill Development: Specialised training for the workforce towards green fuels.

Meeting of IMO Secretary General with Chairman & Senior Officials of Indian Register of Shipping

The IMO Secretary General Mr. Arsenio Dominguez, accompanied by Shri Shyam Jagannathan (IAS), Director General of Shipping and Shri Ajitkumar Sukumaran, Chief Surveyor-cum-Addl. DG (Engineering) participated in a roundtable discussion with Chairman Shri Arun Sharma and senior officials from the Indian Register of Shipping.

The meeting agenda focused on the role and contributions of the Indian Register of Shipping in relation to IACS and IMO, policy mechanisms to accelerate the adoption of alternative fuels, global best practices in green shipping, and their applicability to India's maritime sector. Discussions also centered on aligning national maritime policies with international regulatory frameworks to enhance India's role in global maritime sustainability.

Release of Consultative Policy Documents by Hon'ble Union Minister of Ministry of Ports, Shipping and Waterways

1. Indian Ocean Centre for Excellence for Sustainable Maritime Transport (IOCE-SMarT) is a visionary initiative driven by the Ministry of Ports, Shipping and Waterways, Government of India, that seeks to establish a world class hub for training, research, and innovation in sustainable maritime practices in India. It is a transformative step towards fostering a sustainable, safe, and efficient maritime industry in the Indian Ocean region. Envisaging partnership with the IMO's global MTCC network, IOCE-SMarT seeks to advance the maritime sector in the Indian Ocean region through technological innovation, sustainable practices, digital proficiency, and technical cooperation.

   A consultative document prepared by the Directorate General of Shipping (DGS) and Lloyds Register (LR) towards the IOCE-SMarT was released by Honourable Union Minister of Ministry of Ports, Shipping and Waterways in the Session.

2. The National Green Shipping Policy (NGSP) is a strategic initiative designed to transition India's maritime sector toward environmental sustainability, technological innovation, and global competitiveness. As a cornerstone of India's economic growth, the shipping industry handles 95% of trade by volume, making it essential to adopt a unified policy framework that addresses decarbonization, compliance with international regulations, and the integration of green technologies. The NGSP envisions a sustainable maritime future, aligning national priorities with international goals and positioning India as a leader in green shipping.

   A consultative document prepared by the Directorate General of Shipping (DGS) and Lloyds Register (LR) was released towards The National Green Shipping Policy (NGSP) by Honourable Union Minister of Ministry of Ports, Shipping and Waterways in the Session.

3. India's maritime sector is poised to transition towards sustainability with the formulation of a comprehensive Future Fuel Strategy (FFS). This strategy aims to position India as a leader in the global green fuel market by adopting cleaner fuels, developing essential infrastructure, and fostering international collaboration. The strategy's roadmap for implementation is structured around multiple scenarios to ensure a resilient and adaptable approach, aligning with India's broader decarbonization goals and commitments under the Maritime India Vision 2030 (MIV2030), Maritime India Amrit Kaal 2047, Harit Sagar and Harit Nauka vision. Future Fuel Strategy for India: India's Future Fuel Strategy (FFS) is designed to transform the maritime sector by focusing on the adoption of sustainable fuels, infrastructure development, and supportive policy frameworks. The strategy aims to ensure energy security, reduce carbon emissions, and enhance India's position in the global green fuel market.

   A consultative document prepared by the Directorate General of Shipping (DGS) and Indian Register of Shipping (IRS) was released towards the Future Fuel Strategy (FFS) by Honourable Union Minister of Ministry of Ports, Shipping and Waterways in the Session.

4. In addition to the above, a report of Indian Maritime University on "Centre of Policy Studies" was released by Honourable Union Minister of Ministry of Ports, Shipping and Waterways in the Session.

Technical Paper Presentation Forum at GSC-2025

The Technical Paper Presentation Forum at GSC-2025 served as a dynamic platform for professionals, academics, researchers, and students to present pioneering research and innovative solutions in the maritime sector. This forum fostered knowledge exchange and collaboration, with a strong emphasis on green shipping, emerging technologies, and sustainable maritime development. Participants had the opportunity to showcase their work to industry leaders, policymakers, and peers.

Session on Green Energy Waves – Driving Maritime Sustainability through Green Fuels

Chair , Convenor , Panelists , Experts

Session Chair	Shri N. Girish	Chief Surveyor, Indian Register of Shipping
Coordinator	Shri Mugil Rajan	Engineer & Ship Surveyor-cum-Deputy (Tech), DG Shipping
	Ms. Shilpa Bhandurge	Member, IME(I)
Panel Speakers	Shri Karan Doshi	Research Engineer, Indian Register of Shipping
	Shri Yogin Soodesh C	The Energy and Resources Institute
	Shri Abdul Raheem	Chief Maritime Strategy & Innovation Officer, Lila Global
	Shri Ilias Soultanias	Sustainability Manager, American Bureau of Shipping (ABS)
	Shri Rajneesh Verma	Director, Vedam Design & Technical Consultancy

Session summary

- Shri T.K. Sahu, JMD of Indian Register of Shipping delivered a keynote address to inaugurate the technical paper session. The session comprised of various technical papers on the topic of alternative fuels.
- The presentation by Shri Karan Doshi from IRS presented the methodology as per International Standard to perform the Lifecycle Analysis of Maritime Fuels as prescribed in 2024 IMO LCA Guidelines.
- The presentation by Shri Abdul Raheem from Lila Global discussed the technical aspects and the overall trend of alternative fuels including fuel availability and cost projections, with particular emphasis on biofuels. As alternative fuels gain traction, the maritime sector will be better positioned to meet global emission targets, ensuring a cleaner and more sustainable future for generations to come. Biofuels and their blends can be used to reduce the GHG emission.
- The presentation by Shri Yogin Soodesh C from TERI highlighted the prospects of Fuel Cell in Marine Applications-Prospects for India was also discussed.
- There were discussions on the Shipping Energy Transition and Green Shipping Corridors Development.
- The presentation by Shri Rajneesh Verma from Vedam delved on the potential environmental benefits of AMP in India analysing the carbon footprint and examining the power sources including fossil fuels and renewable sources.

Session on Green Tech Warriors: Engineering the Future of Decarbonisation

Chair , Coordinators and speakers

Session Chair	Shri Shobhit Kapoor	M&O Operations Manager SAW. Lloyd's Register India
Coordinator	Capt.V. Pardhasaradhi	Nautical Consultant, Mercantile Marine Dept.
	Shri Karthik.S	IME(I)
Speakers	Shri. Anil Sharma	HOD (ETO), Anglo Eastern Maritime Academy
	Shri H. Van den Heuvel	Royal IHC Holland
	Shri Pankaj Misra	Wartsila
	Shri Bimal Haridas	MAN Energy Solution
	Dr. Suhas Vhanmane	Indian Register of Shipping
	Capt. MSN Murthy	Indian Navy

Session summary

The Panel discussed the Onboard Carbon Capture Systems (OCCS) onboard ships as a part of the larger CCUS (Carbon Capture, Utilization, Storage System).

- The paper presentation by Mr H. Van den Heuvel from Royal IHC Holland discussed valuable insights into hybrid power drive systems for hopper dredgers, focusing on energy efficiency. To reduce climate change resulting from human emissions, the maritime industry must increase its operational efficiency and adopt green fuels.
- There was a presentation by Shri Pankaj Misra on Wartsila's engine options for future fuels. The paper suggested that Fuel flexibility and the ability to convert for fuels is crucial if ship operations to continue uninterrupted. The best choice is a set-up, that does not depend on the availability of a single fuel type.
- There was a paper presentation by Shri Bimal Haridas from MAN Energy Solution which pointed out that Methanol is an important addition to the

carbon free fuel options giving an advantageous trade-off between energy density, combustibility and toxicity and as such, stands in the center of the MAN Energy Solutions company strategy and its ingenuity focus.

- The presentation by Dr. Suhas Vhanmane from IRS highlighted that as the shipping desires for using zero emission fuels and technologies, nuclear power emerges as a potential pathway toward decarbonizing the shipping sector due to its several advantages including reduced frequency of refuelling and uninterrupted power supply and growing recognition of its benefits.
- The paper presented by Capt. MSN Murthy from Indian Navy gave important technical insights into Advanced hydrogen on demand system (AHODS).

Session on Green Horizons: Merging Technology, People & Circular Maritime Practices

Chair , Coordinators and speakers

Session Chair	Sumithran Sampath	General Manger, Class NK
Coordinator	Shri Pravin Kapale	E&SS, DG Shipping
	Shri Mohan Singh Pal	Director Maritime Education & Training, IME(I)
Speakers	Capt. Dinesh Sharma	Digital Solutions Advisor - Lloyd's Register
	Shri Jamil Al Ali	Head of Regional Commercial & Business Development for the Middle East Region, Bureau Veritas
	Shri R.Srinivas & Shri Avinash Vaze	Senior Surveyors, Indian Register of Shipping
	Shri Rohit Agarwal	Guideship Consulting
	Shri Arpit Raj	DNV, India
	Shri. Jacob Isac	Dy. Manager (Design), Garden Reach Shipbuilders & Engineers
	Shri Chirag Bahri	International Operations Manager, International Seafarers' Welfare and Assistance Network (ISWAN)

Session summary

- The Presentation of Capt. Dinesh Sharma from LR enlightened the audience on AI and digital transformation in the maritime industry.
- The Presentation of Shri Jamil Ali from Bureau Veritas presented Decarbonization Trajectories, and explained the vital Role of Digitalization.
- The Presentation of Shri R.Srinivas and Shri Avinash Vaze from Indian Register of Shipping highlighted the Cyber Resilient Network Architecture and discussed the challenges in network security and provided a brief overview on the concept of security zones, network segmentation and methods to address cyber security issues in an integrated network including use of cyber secured components towards network resilience.
- The Presentation of Shri Rohit Agarwal of Guideship Consulting discussed the relevance of ship recycling and its impact on India's environmental and economic landscape.
- Shri Arpit Raj from DNV put forth his views on Unlocking Circular Economy Potential in India's Ship Recycling Industry.
- The Presentation of Shri Jacob Isac from GRSE highlighted the India's Inland Waterways Renaissance in terms of Sustainable Propulsion & Innovative Green Designs and the initiatives by GRSE in decarbonisation projects.
- Finally the Presentation Shri Chirag Bahri delved into the important topic of Understanding the Impact of Decarbonisation on Seafarers' Wellbeing and presented the findings of an ISWAN survey.

Session on Students Session Green Sparks: Igniting Budding Mariners' Innovations in Maritime Sustainability

Chair, coordinators and speakers

Keynote Address	Dr. Malini V Shankar, IAS (Retd.)	Vice Chancellor, Indian Maritime University
Session Chair	Cmde (Dr.) Vivek Chawla (Retd.)	Director, Indian Maritime University, Mumbai Port Campus
Coordinator	Shri Pradeep Sudhakar K.	Chief Ship Surveyor-cum-Joint DG (Tech.) (I/C)
	Shri Sunil Kumar	Hon. General Secretary, IME(I)
Speakers	Mr. Mohd Emaad Khan	IMU Kolkata
	Mr Moosa Minhaj Vu & Yash Nagaonkar	IMU, Mumbai Port Campus
	Ms. Neha R, Mr. Siva P Prasad and Dr Jayaram S	Sree Narayana Gurukulam College of Engineering, Ernakulam, Kerala

Session summary

Dr. Malini Shankar, Vice Chancellor, IMU inaugurated the student's session by delivering an encouraging keynote address.

Mr. Mohd Emaad Khan from IMU Kolkata presented a paper on Enhancing Microbial Fuel Cell Efficiency for Sustainable Marine Wastewater Treatment and Energy Generation: A Path towards Carbon Neutral Shipping. The integration of Microbial Fuel Cells (MFCs) with shipboard Sewage Treatment Plants (STPs) presents a transformative opportunity for the maritime industry. Traditional STPs consume significant energy for aeration and sludge treatment, adding to operational costs and carbon emissions.

Mr Moosa Minhaj Vu & Yash Nagaonkar from IMU MPC presented their views on Maritime Energy Transition Landscape.

By synthesizing technical insights, economic considerations, and future outlooks, the presentation provided a framework for understanding the transformative potential of hydrogen fuel cells. This was followed by a presentation by Ms. Neha R from Sree Narayana Gurukulam College of Engineering on use of Sodium Based Batteries for Propulsion System.

The session concluded with the session Chair Cmde (Dr.) Vivek Chawla (Retd.) presenting mementoes to the speakers and coordinators of the session Shri Pradeep Sudhakar K., Chief Ship Surveyor-cum-Joint DG (Tech.) (I/C) and Shri Sunil Kumar, Hon. General Secretary, IME(I).

Glimpses of the Event


DGS-IME(I)


DGS-IME(I)
Green


ABS
AHOODS


DGS-IME(I) Green Shipping Conclave 2025
Green Blue Print for Maritime India:
Policy Makers Leading the Change
DGS-IME(I)
Green


5. THE INSTITUTE OF MARINE ENGINEERS (INDIA)


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SCAN
for website
LARSEN & TOUBRO

Commencement of the VICT Course

The Institute of Marine Engineers (India), Kochi branch, has successfully commenced the Vertical Integrated Course for Trainers (VICT) Course. Following several months of dedicated efforts to fulfill all regulatory requirements, the Directorate General of Shipping granted the necessary approval to conduct the programme.

Given the overwhelming response and the receipt of applications exceeding the maximum permissible intake, the institute had proactively identified and engaged the required faculty. Consequently, the course was able to commence without delay.

The inaugural session was held on 27th January 2025, marked by a brief opening ceremony, following which classes commenced at full capacity. The successful launch of the course underscores the institute's commitment to providing high-quality maritime training and furthering professional development in the industry.

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49 Years of Togetherness – Annual Contributory Meet

The 49th Annual Contributory Dinner of the Kolkata Branch was held on 1st February 2025 at Princeton Club, bringing together members, the marine fraternity, sponsors and their families for an evening of fellowship and celebration.

The event featured an enjoyable mix of networking, refreshments, dinner, music and dancing. Attendees participated in lively competitions, including dance contests and souvenir lucky draws. A special highlight of the evening was the felicitation of senior member Shri B.N. Bera, honouring his contributions and gracing the event by Mr. Sunil Kumar, Hon. General Secretary, IME(I).

The success of the event was made possible by the collective efforts of all attendees, sponsors and supporters.

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Advancing Maritime Training: India's Key Contributions at IMO HTW-11

The 11th session of the International Maritime Organization's (IMO) Sub-Committee on Human Element, Training and Watchkeeping (HTW-11) was held in London from 10th to 14th February 2025. This crucial session aimed at strengthening global maritime safety and advancing training standards for seafarers. Member states, industry stakeholders and international organisations actively participated in the discussions, making significant contributions toward the enhancement of training frameworks and competency standards. Among these, India played a leading role by presenting technical papers, actively engaging in working groups and making strategic interventions on key maritime training issues.

India's Proactive Engagement

India, through its Directorate General of Shipping, demonstrated an unwavering commitment to improving maritime safety and training. The Indian delegation made substantial contributions by submitting 17 technical papers, most of which successfully advanced to the next stage of consideration. These papers focused on three major aspects of maritime training:

- **Comprehensive Review of the 1978 Standards of Training, Certification and Watchkeeping (STCW) Convention**: India played a pivotal role in the ongoing revision process of the STCW Convention, ensuring

that training regulations align with modern maritime challenges and emerging technologies.

- **Training for Alternative Fuels**: Recognising the industry's shift towards greener energy sources, India advocated for structured and specialized training programmes for seafarers to manage and operate vessels using alternative fuels safely and efficiently.
- **Development of Model Courses**: India actively contributed to the formulation and validation of standardised training materials aimed at maintaining high competency levels among global seafarers.

Indian representatives also engaged in multiple working groups to drive discussions and develop actionable strategies. Some key areas of India's participation included:

- **Comprehensive Review of the 1978 STCW Convention**: India collaborated with international partners to assess current training standards and recommend necessary revisions to address technological advancements, digitalisation and human element considerations in maritime training.
- **Training for Alternative Fuels**: Indian experts worked on developing guidelines for structured training frameworks for seafarers operating ships powered by alternative energy sources, ensuring safety and regulatory compliance.
- **Model Course Development**: India took an active role in the validation of new model courses and updates to existing IMO model courses to standardise global training curricula.

In addition to these contributions, India played a strategic role in discussions related to the STCW oversight mechanism and the IMO Member State Audit Scheme (IMSAS). The Directorate General of Shipping emphasised the importance of a structured, transparent and progressive approach to evaluating maritime training institutions and regulatory frameworks. India's interventions were aimed at enhancing global maritime safety, harmonising training standards and elevating competency benchmarks for seafarers in line with IMO objectives.

Key Outcomes of HTW-11

Throughout the session, delegates engaged in extensive deliberations on multiple critical aspects of maritime training and regulation. The discussions led to several significant outcomes, including:

1. Interim Guidelines for Alternative Fuels

With the maritime industry's transition towards environmentally sustainable energy sources, a major focus of HTW-11 was the development of interim guidelines for training seafarers in handling alternative fuels. These guidelines aim to equip maritime professionals with the skills necessary to safely operate vessels powered by alternative fuels such as hydrogen, ammonia, methanol and biofuels. The adoption of these guidelines is a critical step toward ensuring safety and environmental sustainability in the maritime sector.

2. Validation of Model Courses

The sub-committee validated five model courses, including the draft Model Course 3.23. These model courses serve as essential training resources that standardise seafarer education across different regions and ensure consistency in competency levels. The validation process involved a rigorous review to align these courses with evolving industry standards, technological developments and best practices in maritime operations. The focus was on maintaining relevance and effectiveness in delivering high-quality training to seafarers globally.

3. Comprehensive Review of the STCW Convention

One of the most significant discussions at HTW-11 was the review of the 1978 STCW Convention. Delegates identified gaps in existing training standards and proposed amendments to address new challenges. Key areas of focus included:

- **Training for Emerging Technologies**: Ensuring seafarers are adequately trained to operate and maintain ships equipped with modern digital systems, automation and artificial intelligence-driven technologies.
- **Electronic Certification and Digitalization**: Developing frameworks for electronic certification systems to improve efficiency, reduce paperwork and enhance the verification of seafarer credentials.
- **Mental Health and Well-being**: Addressing the psychological challenges faced by seafarers, with recommendations for integrating mental health support into maritime training curricula.
- **Gender Sensitisation and Diversity Training**: Promoting inclusivity and gender equality in the maritime workforce by incorporating gender sensitisation programmes into training modules.

A roadmap for implementing these changes was established, with an initial phase set for completion by spring 2025 and draft amendments expected by spring 2027.

Collaborative Efforts and Future Implications

HTW-11 was marked by a spirit of international collaboration, with various working groups finalising key strategies and work plans. The following developments took place:

- **Working Group 1**: Developed a draft work plan for the comprehensive review of the 1978 STCW Convention and Code, outlining a structured timeline for future revisions.
- **Working Group 2**: Finalised interim generic guidelines for training seafarers in handling alternative fuels and made significant progress in defining specific fuel-type training frameworks.

- **Working Group 3**: Focused on model course development, completing the validation of five courses and recommending updates to IMO guidelines for model course formulation and implementation.

The outcomes of HTW-11 will have a lasting impact on global maritime training and competency standards. By addressing pressing issues such as alternative fuel training, digital transformation and mental well-being, the IMO aims to ensure that the maritime workforce remains well-equipped to navigate the evolving landscape of the shipping industry.

India's Continued Commitment to Maritime Excellence

India's participation in HTW-11 reaffirmed its dedication to enhancing maritime training and safety on a global scale. The Directorate General of Shipping remains committed to aligning India's maritime training frameworks with international standards, fostering innovation in seafarer education and supporting initiatives that strengthen global shipping operations.

Moving forward, India will continue to play a proactive role in shaping the future of maritime training through active participation in IMO initiatives, development of model courses, and advocacy for sustainable maritime practices. The country's contributions at HTW-11 underscore its leadership in fostering competency-driven maritime workforce development, ensuring the safety and efficiency of global shipping operations.

Conclusion

HTW-11 highlighted the importance of international collaboration in advancing maritime training standards and enhancing seafarer competency. India's significant contributions through technical papers, working group participation, and strategic interventions have reinforced its role as a key player in the global maritime sector. The session's outcomes will shape future policies and training methodologies, ensuring that seafarers worldwide are well-prepared to meet the demands of an evolving industry. As maritime operations continue to embrace new technologies and sustainable energy solutions, India's commitment to fostering excellence in training and safety will remain a cornerstone of its maritime strategy.

For more information on HTW11, visit DG Shipping's LinkedIn page: https://www.linkedin.com/company/dg-shipping-india/posts/?feedView=all

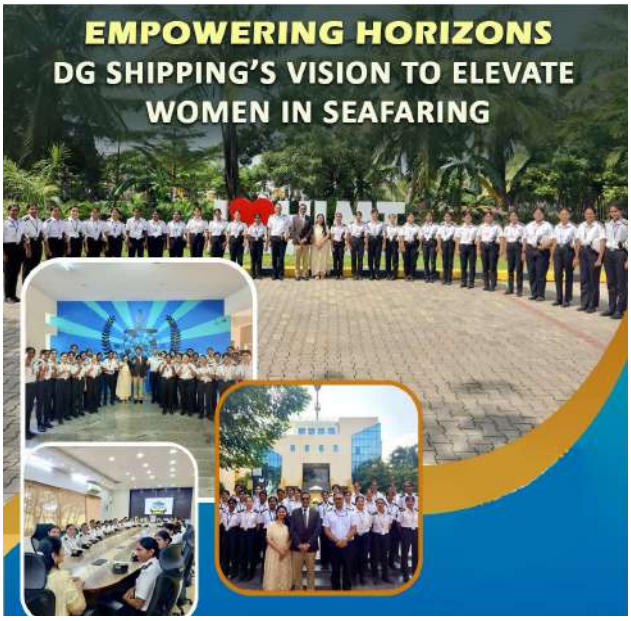
DGS Introduces ₹1 Lakh Scholarship to Boost Women's Participation in Maritime Sector

The Directorate General of Shipping (DGS) has taken a significant step to promote gender diversity in the maritime industry by introducing a financial support scheme for women cadets. Under this initiative, the Maritime Training Trust (MTT) will provide ₹1 lakh per girl cadet for the academic year 2024-25.

HIMT College, one of India's leading Maritime Training Institutes (MTIs) approved by DGS, currently has 27 girl cadets enrolled in various pre-sea courses. These include G.P. Rating, B.Tech Marine Engineering, B.Sc. Nautical Science, Diploma in Nautical Science (DNS) and Electro-Technical Officer (ETO) programs.

This move aligns with the broader vision of creating an inclusive and diverse maritime workforce. By alleviating financial barriers, the initiative ensures that talented and determined women can pursue careers at sea without limitations.

DGS remains committed to fostering a progressive maritime sector where opportunities are accessible to all, regardless of gender. With this scholarship, aspiring women seafarers are encouraged to break barriers and contribute to the industry's growth.



This landmark initiative marks a step toward a more equitable maritime future, where skill and ambition define success on the high seas.

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3.	High Voltage Safety & Switch Gear Course (at Operational Level)	-	13
4.	Refresher And Updating Training Course For All Engineers	24 - 27	19 - 21

Value Added Courses		February 2025	March 2025
1.	Practical Marine Electrical (Basic) - Module 1	24 - 01	03 - 07, 17 - 21
2.	Practical Marine Electrical (Advance) - Module 2	-	03 - 05, 10 - 12, 24 - 26
3.	Electronics for Marine Engineers - Module 4	-	06 - 07, 27 - 28
4.	Instrumentation, Process Control & Programmable Logic Controllers - Module 5 & 6	03 - 07	03 - 07, 24 - 28
5.	Auxiliary Diesel Engine and Maintenance Course	03 - 07, 10 - 14, 24 - 01	03 - 07, 17 - 21, 24 - 28
6.	Bridge Manouervering & Engine Control - Management Level	24 - 27	-
7.	Bridge Manouervering & Engine Control - Operational Level	06 - 07	-
8.	Engine Room Emergency Management	13 - 14, 24 - 25	20 - 21
9.	Hydraulics for Engineers - Basic	03 - 05	10 - 12
10.	Hydraulics for Engineers - Advanced	10 - 14	03 - 07, 24 - 28
11.	Maritime Crew Resource Management (MCRM) - CAE Accredited	03 - 06, 24 - 28	03 - 06, 10 - 13, 17 - 20
12.	Machinery Maintenance - Skill Enhancement - Module 2	03 - 07	03 - 07, 24 - 28
13.	Machinery Maintenance - Skill Enhancement - Module 3	03 - 06, 10 - 13, 24 - 28	03 - 06, 10 - 13, 17 - 20, 24 - 27
14.	Machinery Maintenance - Skill Enhancement - Module 4	10 - 12	10 - 12, 17 - 19

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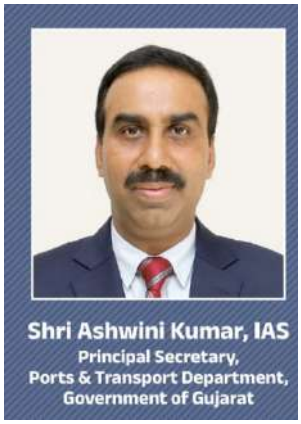
Gujarat Government Appoints Shri Ashwini Kumar as Principal Secretary of Ports & Transport



Shri Ashwini Kumar, IAS, has taken additional charge as the Principal Secretary of the Ports & Transport Department, Gujarat, while continuing as the Principal Secretary of the Urban Development & Urban Housing Department.

A 1997-batch IAS officer of the Gujarat cadre, Shri Kumar brings nearly 28 years of experience in public administration, infrastructure planning and policy execution. He has held key positions in multiple departments of the Gujarat government, including a significant tenure at the Chief Minister's Office, where he contributed to policy formulation, infrastructure development and urban governance.

His appointment comes at a crucial time when Gujarat's maritime sector is focusing on infrastructure expansion, multimodal transport integration and sustainable port operations under the Vision 2047 roadmap. His expertise in urban governance and large-scale infrastructure projects is expected to strengthen Gujarat's port infrastructure and logistics networks.

Shri Kumar holds a B.Tech in Chemical Engineering from IIT Kanpur and a Master's in Public Services, Policy & Management from King's College, London. He also serves as the Chairman of Gujarat Urban Development Company Limited and Urban Ring Development Corporation Limited and is a Nominee Director on the boards of several key organisations, including GIFT City Company Limited and Gujarat Metro Rail Corporation Limited.

His leadership is anticipated to enhance Gujarat's maritime growth, particularly with projects like the International Port City and integrated logistics planning.

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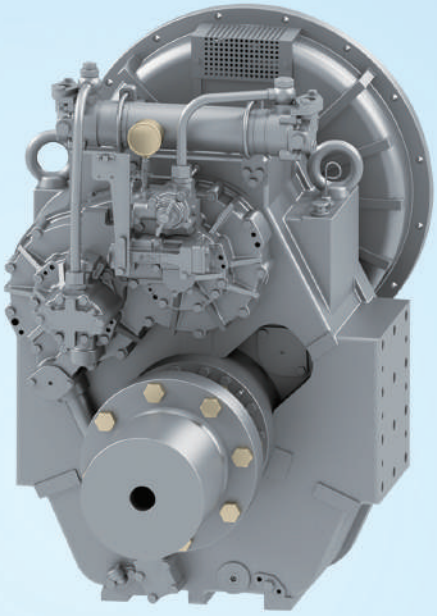

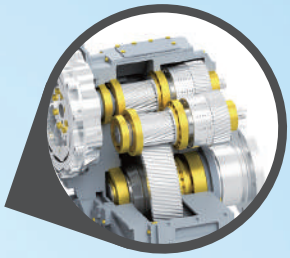

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Jalpari Initiative: Paving the Way for Women in India's Maritime Sector

In a significant move set to reshape the maritime industry, the Forward Seamen's Union of India (FSUI) and Maritime SheEO have signed a landmark Memorandum of Understanding (MoU) to launch the Jalpari Initiative. This transformative programme aims to accelerate women's participation in India's maritime sector by breaking gender barriers and fostering inclusivity.

The initiative focuses on lateral entry pathways, skill development programmes, and early-age awareness campaigns to equip women with the knowledge, training and opportunities to thrive at sea. Mr. Manoj Yadav, Secretary of FSUI, emphasised its significance, stating, "Women have long been an untapped force in India's maritime industry. The Jalpari Initiative is about creating an equitable future where talent defines opportunity, not gender."

Leading this initiative is **Mrs. Aishwarya Pilankar**, who will drive structured reforms ensuring seamless entry, career progression and long-term retention of women in maritime professions. **Mrs. Sanjam Sahi Gupta**, Founder of Maritime SheEO, echoed this sentiment, saying, "This

partnership is a catalyst for a future where women are not just participants but pioneers in the maritime sector."

The Jalpari Initiative will also focus on policy advocacy, industry collaborations and specialised training programmes, ensuring a robust, sustainable pipeline for female seafarers. With visionary leaders like Mr. Manoj Yadav, Mrs. Sanjam Sahi Gupta, and Mrs. Aishwarya Pilankar steering the initiative, the future of maritime in India is set to become truly inclusive.

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Advancing Green Initiatives in Port Operations

In a significant move towards sustainable port operations, Deendayal Port Authority (DPA) Kandla has announced the deployment of four SDLG L956HEV electric wheel loaders, supplied by Swayam Shipping Services Pvt Ltd. This initiative aligns with the Union Budget 2025-26 and India's vision for a sustainable future, emphasising clean technology innovation.

The deployment of these electric wheel loaders is in line with the Government of India's *"Harit Sagar"* Green Port Guidelines, which promote eco-friendly and energy-efficient port operations. SDLG, a member of the Volvo Group, is recognised for offering zero-emission construction equipment solutions and the L956HEV model is a testament to this commitment.

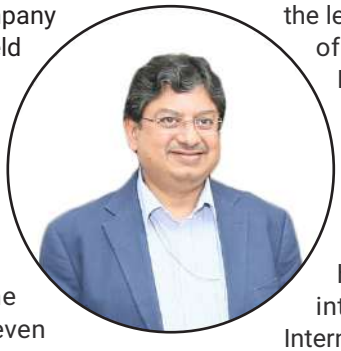
To support the seamless operation of these electric loaders, DPA has facilitated the installation of an Electric Vehicle (EV) charging station within the dock area. This move not only ensures efficient operations but also encourages the broader adoption of clean energy solutions in port activities.

The deployment event was attended by key figures, including **Shri Sushil Kumar Singh**, IRSME, Chairman of DPA, who served as the Guest of Honour. Other notable attendees were **Shri Sanjay Thakrar**, Chairman of Swayam Shipping Services Pvt Ltd. and **Shri Keyur Thakrar**, the company's Managing Director. Representatives from SDLG India and the Gandhidham Chamber of Commerce & Industry (GCCI) were also present, highlighting the collaborative effort behind this green initiative.

This development underscores DPA Kandla's commitment to reducing its carbon footprint and enhancing energy efficiency. By integrating green technologies and adhering to the *"Harit Sagar"* guidelines, DPA is setting a benchmark for sustainable port operations in India.

Veteran Policymaker Joins as Independent Director

The Great Eastern Shipping Company Limited, at its board meeting held on 28th January 2025, appointed **Shri Amitabh Kumar, IRS (Retd.),** as an Additional and Independent Director for a tenure of five years, effective from the same date.



Shri. Kumar brings over 37 years of distinguished service with the Government of India, including seven years as Director General of Shipping, where he led maritime administration efforts. He retired as Principal Chief Commissioner of Income Tax at the level of Secretary to the Government of India and has also served as Director (Delhi) in the Ministry of Home Affairs.

He played a key role in formulating the Maritime India Vision 2030, focusing on green ports and shipping. Additionally, he has represented India in international forums such as the International Maritime Organization and the International Oil Pollution Compensation Fund, contributing to the development of global maritime regulations.

UP cabinet approves creation of Inland Waterways Authority

The Uttar Pradesh Cabinet has approved the creation of the Uttar Pradesh Inland Waterways Authority to enhance water transport and tourism in the state. Alongside this, the cabinet has enacted the 'Uttar Pradesh Waterways Authority Rules-2025' to ensure the authority's efficient operation. Finance and Parliamentary Affairs Minister Suresh Khanna announced that 11 out of 12 proposals presented in the meeting were approved.

India has designated 111 national waterways, of which Uttar Pradesh is home to 11, including the Ganga and Yamuna rivers. The newly introduced rules aim to improve the affordability and accessibility of water-based transport, reducing pressure on other transportation modes while boosting trade and commerce.

The authority will be headed by the state's transport minister or an expert in inland waterways, shipping, navigation, ports and maritime affairs, as appointed by the Chief Minister. Additionally, a Vice-Chairperson will be selected from among experts, and a representative nominated by the Chairman of the Inland Waterways Authority of India (IWAI) will also be a member. The

Transport Commissioner of Uttar Pradesh will act as the Chief Executive Officer.

The authority will oversee key aspects such as governance structure, operational processes, budgeting, accounting, and auditing. It will also facilitate land and property access, ensuring smooth project execution. Moreover, the Uttar Pradesh government plans to use the authority to promote water tourism by linking key tourist destinations via waterways, providing visitors with a unique travel experience while contributing to the state's economic growth.

Union Budget Boosts India's Shipping Sector with Progressive Reforms

The Union Budget has placed a strong emphasis on unlocking the potential of India's shipping sector with forward-looking initiatives aimed at driving investment, economic growth and employment. Union Minister of Ports, Shipping & Waterways, **Shri Sarbananda Sonowal**, welcomed the budget, calling it a progressive step toward realising Prime Minister **Shri Narendra Modi**'s vision of a "Viksit Bharat" by 2047.

A key highlight is the establishment of the Maritime Development Fund (MDF) with an initial corpus of ₹25,000 crores, with the Government contributing 49%. The remaining funds will come from major port authorities, Central PSEs, financial institutions and private sector entities. The MDF aims to increase India's flagged ships' share in global cargo movement to 20% by 2047 and generate ₹1.5 lakh crore in shipping sector investments by 2030.

Further, the budget introduces mega shipbuilding clusters with a 1.0 to 1.2 million Gross Tonnage (GT) capacity each under a Public-Private Partnership (PPP) model to promote modernisation and green technologies. An allocation of ₹6,100 crore supports India's shipyards in upgrading and automating operations, while ₹18,090 crores are earmarked under the Shipbuilding Financial Assistance Policy (SBFAP) 2.0 to provide direct financial subsidies to Indian shipyards.

A new Shipbreaking Credit Note scheme offers a 40% credit on scrap value to incentivise the purchase of Made in India ships. The budget also earmarks ₹1,200 crore for Shipbuilding Capability Development Centres (SCDC) to foster innovation and ₹610 crores for R&D in ship technology, aiming to create 11 lakh direct and indirect employment opportunities.

Additionally, including large ships in the Infrastructure Harmonised Master List (HML) provides tax incentives and easier access to financing. Extending the Tonnage Tax Scheme to inland vessels promotes cargo movement, while the expansion of the PM Gati Shakti Portal to private players optimizes multimodal infrastructure planning for cost-effective cargo transportation.

These strategic measures reinforce India's commitment to strengthening its maritime industry, enhancing global competitiveness, and achieving sustainable economic growth.

India Sets Sail for Change with 'Sagar Mein Yog' and 'Sagar Mein Samman'

On 30th January 2025, India's Ministry of Ports, Shipping and Waterways, through the Directorate General of Shipping, introduced two significant programmes—*'Sagar Mein Yog'* and *'Sagar Mein Samman'*—at the Shipping Corporation of India in Mumbai. These initiatives align with the Prime Minister's Maritime India Vision 2030, focusing on the well-being of seafarers and promoting the role of women in maritime professions.

Sagar Mein Yog is a wellness programme designed to improve the physical, mental and spiritual health of seafarers at all stages of their careers: before, during and after sea service. By integrating yoga into maritime training and daily routines, the programme aims to boost resilience, decrease medical issues and promote overall well-being among maritime workers. The ultimate goal is to foster a healthier and more balanced workforce in the maritime industry.

Sagar Mein Samman is an initiative aimed at empowering women in the maritime sector. It focuses on enhancing respect, safety and career opportunities for female seafarers, striving to create a supportive environment where women can excel. This programme reflects a broader global movement towards inclusivity and gender equality in traditionally male-dominated industries.

The launch event featured key industry figures, including **Shri Shyam Jagannathan (IAS)**, Director General of Shipping; **Capt. B.K. Tyagi,** Chairman and Managing Director, Shipping Corporation of India; **Capt. (Dr.) Daniel Joseph,** Deputy Director General of Shipping (Crew); and **Ms. H.K. Joshi,** Chairperson of Sagar Mein Samman and former CMD of SCI. Participants engaged in discussions both in person and online and the event included the unveiling of logos and brochures for the new programmes.

In his address, Shri Jagannathan highlighted the broader impact of these initiatives, emphasising their potential to elevate Indian shipping on the global stage. The event also showcased short films detailing the objectives and implementation strategies of the programs.

Honorable Union Minister of State for Ports, Shipping and Waterways, **Shri Shantanu Thakur,** underscored the importance of recognising the unique contributions of women in the maritime sector. He noted that 'Sagar Mein Samman' is crucial for supporting female seafarers who often face distinct challenges while working far from home. He also emphasised the deep connection between yoga and Indian heritage, highlighting the significance of 'Sagar Mein Yog' for India's active seafarers, who serve as global ambassadors of the nation's resilient spirit and maritime excellence.

These programmes represent a unified effort to drive the maritime industry toward a more progressive and inclusive future, reaffirming India's commitment to the well-being of its seafarers and the realisation of its vast maritime potential.

Normalisation of Intentional Disservice

I still vividly remember my CRM (Customer Relationship Management) classes' central theme while doing MBA about 20 years back was that for any producer or service provider, customer satisfaction should be the utmost priority and innovative strategies need to be devised with an aim to upgrade a customer's feel from satisfaction to happiness to delight and then finally to a memorable experience. This way, one wins over loyalty and retaining an old customer always makes more economic sense than acquiring a new one.

But when I reflect on my experiences over the last few years, I see the opposite of what was taught in the classroom where on a daily basis professionals and companies across diverse industries and sectors are adopting ill-designed business strategies and prioritising profits over a customer's pleasant experience. More so, these days it feels to be an accepted norm and novel thinking wherein one can cause "intentional disservice" by creating discomfort and irritation in order to up-sell premium options by embedding the same into customer engagement.

Allow me to elaborate so called **"out of the box-innovative"** strategies with a few examples:

- YouTube videos interrupted with aggressive advertisements causing irritation that prompts you to upgrade to a premium subscription.
- Music apps and radio channels embed advertisements within songs and entice customers to buy a premium plan for an enhanced experience.
- Intrusive advertisements while surfing a website or app (sometimes the cross sign is difficult to locate and the advertisements do not disappear immediately even after clicking on it).
- Receiving numerous unsolicited calls and messages despite signing up at the NDNC (National Do Not Call Registry).
- While watching a movie on Cable TV, the initial experience is smooth with few and short advertisements. However, as the movie draws closer to the climax, both the frequency and duration of advertisements increases causing such an unexplainable frustration but one suffers silently. For an advertisement free watch, one needs to buy a subscription plan.
- News apps insert multiple advertisements while reading articles and ask for subscription for a smooth read.
- Spamming the mail box by sending unsolicited videos and junk e-mails and then asking customers to buy more storage space.
- Automated customer service systems with in-built advertisements.
- Educational institutions publishing misleading academic achievements and placements based on which they charge excessive tuition fees.
- Doctors/hospitals/clinics using various unfair means to inflate treatment bills and surge their prices during peak seasons or epidemic breakouts.
- Various insurance companies/mutual funds and banks try to make their schemes/products attractive by overpromising and claiming false results, whereas in truth they do not fully disclose the associated risks and keep the disclaimers in fine print.
- Sponsored articles disguised as "real news" in newspapers.

- Software and product vendors discounting support after few years of launch and iniquitous clauses in AMCs.
- Surge charges by aggregators and airlines during peak seasons.
- Data service providers throttling data speed and capping data transfer forcing customers to upgrade the plan.
- Airlines charging extra money for window or aisle seats.
- Online travel sites and retail stores offering misleading pries.

And this list can go on and on with similar examples. A global phenomenon indeed, with varied levels of abhorrent experiences across countries accentuates the spread and depth of this nuisance. With implementation of such mislaid ingenuity, revenues may go up a bit, but it is certainly not a good long term business strategy. Customers will tolerate this absurd ransom only until they get superior options when innovative companies will go back to the basics of ensuring customers a delightful and memorable experience.

On the other extreme come to think of it, if the same logic gets imitated by other professionals and businesses that too first start causing intentional discomfort to customers and then charging extra for getting rid of it, how bad the overall landscape of our society will become? A few examples just to envision this:

- Restaurants and bakeries inflating prices for fresh ingredients or freshly crafted treats
- Hospitals and clinics charging more for cheerful disposition or humane touch of nurses and doctors
- Salons charging more for a "no cut-bleeding experience"
- Doctors levying extra charges for straight-forward treatments or legible prescriptions

About the Author

Commander JP Singh, MBA (Finance & Marketing, M.Tech (Nuclear Technology), B.Tech(Mechanical) served Indian Navy for 20 years. He was one of the key members of its Nuclear Submarine Design team. He served on board as Engineer Officer on various ships (Vidyut -class missiles boats, Nanuchka-class corvettes and Sukanya Class offshore patrol vessels). After leaving Indian Navy in 2007, he served as Director Marketing, Mahindra Consulting, Vice President, Dantal Hydraulics and a key member of business development team of Reliance Naval Engineering Ltd. (erstwhile Pipavav Shipyard). He started Makk Consulting (an equity research & investment firm and co-founded Sohsheel Foundation (an Education Research Foundation) in 2014.

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- Insurance companies charging extra for faster claims settlement
- Taxi drivers overcharging for safe driving
- Dentists charging more for causing less pain
- Educators demanding extra compensation for exciting classroom atmosphere
- Plumbers, electricians and carpenters etc., demanding premium for prompt and proper maintenance works

Consequences of the spread of this disconcerting trend are far-reaching and to list just a few of them, it would continue:

— Exploitation of vulnerable consumers,

— Further erosion of trust in professionals,

— Increased financial burdens and

— A diminished quality of life

A Multi-Faceted Solution

Few governments are aware of this absurdness and intervene from time to time but only for a few specific cases e.g., capping of surge pricing, and merely scratch the surface. These interventions don't cover the full spectrum whereas comprehensive reforms and regulatory framework are crucial to safeguard consumers from this blatant exploitation or "ransom" so to say. Blissfully turning a blind eye to this scourge ensures continuance of profiteering through unethical and irrational means. Getting rid of this exploitative landscape before it gets further entrenched in our lives is possible only with multipronged strategies addressing the issue at all levels e.g.,

1. **Awareness:** Recognise such insidious tactics at an individual level
2. **Education:** Enlighten others through diverse channels, inspire critical thinking and **break the silence**
3. **Advocacy:** Mobilise policymakers for transformative change
4. **Regulation:** Establish and enforce robust rules and penalties
5. **Competition:** Encourage open competition fostering customer-centricity
6. **Ethical Governance:** where politicians, administrators, regulators and corporates collaborate and prioritise transparency, accountability and fairness in businesses

So, has the time come to build collective activism? Yes, if after reading this you too start analysing your daily experiences critically, identifying the instances of customer disservice and making others aware about this menace. History demonstrates that once there is informed public outcry against a misplaced trend, it drives meaningful reforms. In this case too, it may take time but will surely happen where together we all can create a marketplace that prioritises customer's well-being over brazen profiteering.

The Titanic - Part II - Design, Planning and Construction

As a prelude to what motivated me to research the Titanic, the seed was sown when I was in a College meant for Marine Engineers. I came to know that a full complement of Engineers and Electricians preferred to give up their lives, in order to keep the generators running so that the passengers had sufficient lighting to find their way about in the labyrinthine corridors of a passenger vessel, which would, otherwise, been pitch dark.

That seed germinated more than five decades later and compelled me to research and write about the Titanic. Any errors found are totally mine. Any conjectures or theories postulated are also mine, for which I bear total responsibility.

The series of articles on the Titanic are through an Engineer's eye and not a Manohar Malgaonkar's or Pearl S. Buck's look into the soul of a society, hence will lack the novelty of a novel.

One of the primary questions that continue to be asked more than 100 years later is: Could there have been flaws in the design and construction of the 'Titanic' that could have caused it to sink in 2+ hours?

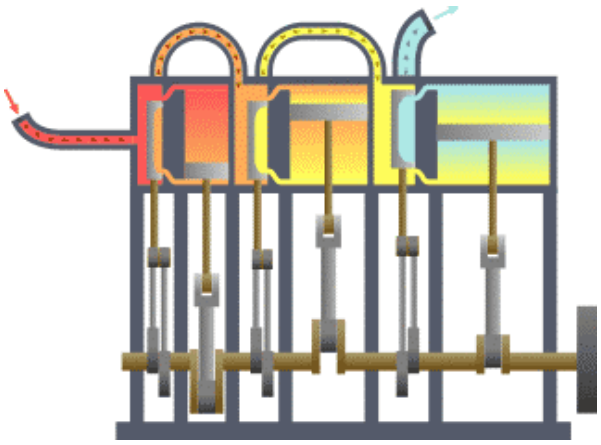
THE TITANIC - PART II - DESIGN, PLANNING AND CONSTRUCTION

This was an era when the only means of crossing the Atlantic from England or Europe to the US, was by ship.

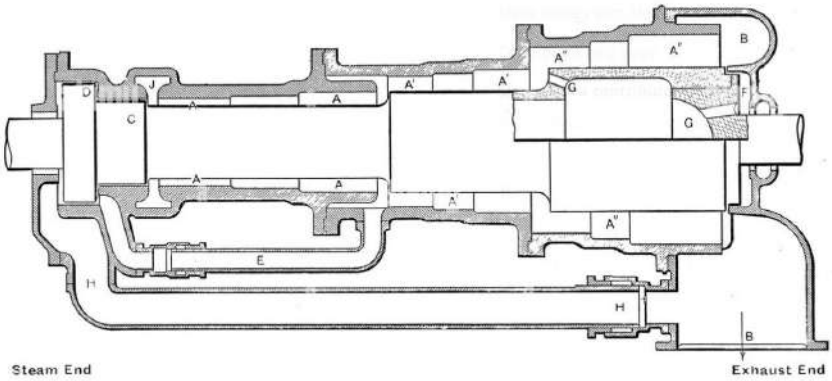
This was also an era where tremendous innovations, fueled by the Industrial Revolution - financed by the loot of India - were taking place. For example, the invention of Scotch Boilers in 1830 and its rapid increase in capacity by the turn of the century, provided steam power - at higher and higher pressures - to operate larger and larger machinery. In fact, with the increase in steam production, machinery for multiple uses were invented at an astonishing rate. Steam Engines were one such and they kept increasing in size and power.

Two of the shining examples of the speed of evolvement of technology which kept pace with the by-now well known power that steam can produce was

1. The Triple Expansion Engine, which was now being designed and manufactured literally as a made-to-measure item, to suit each customer's needs. The Titanic had an HP, IP, and Two LP cylinders. (HP - High Pressure. IP - Intermediate Pressure, LP - Low Pressure)



A Simple Double Acting Triple expansion Engine, with HP, IP and LP Cylinders



Parsons Steam Turbine Balanced Pistons

2. The advantages of the use of steam also produced an invention that had a far reaching impact beyond centuries and is still having considerable impact after 140 years - the Parsons Turbine, invented in 1884 by an Irish Engineer, Sir Charles Algernon Parsons.

Parsons' design was based on the Second Law of Thermodynamics and Carnot's Theorem, which states that higher steam temperatures lead to greater power plant efficiency. His turbine's design allowed for the extraction of kinetic energy while preventing the turbine blades from overspeeding.

(*An aside - one of the wings of the Marine Engineering College Hostel, my alma mater - dmet - was named after Parsons).*

Ever since wooden sail boats had given way to steel hulled ships, propelled by (initially) steam engines - the first iron steam ship was built in 1822 - ships had only gotten bigger. As the number of passengers increased, so did the size of the ship and the quality of refinements for the comfort of the passengers.

A Declaration

At the outset, let it be known that I have accessed scores of 'You Tube' documentaries, commentaries, research papers, Google, Wikipedia, Brittanica, as also a few books (for instance 'What Really Sank the Titanic' authored by Jenniferr Hooper McCarty and Tim Foecke) on the subject in order to gain an eagle's view of the events that led to the tragedy. 'Ocean Liner Designs', 'Brittanica' and the book 'What Really Sank the Titanic' were of immense value in being the source of many accurate facts.

These articles of mine on the Titanic are delved purely from research of material already in the public domain. Nothing is original. Perhaps some conjectures of mine may be original, based more on the experience of 44 years of sailing / working on ships and managing ships.

What I *have* done is collate material, categorise them and present them. I have tried to keep away from outright speculation, conspiracy theories and bizarre theories - of which, I found as I delved deep, a confused mass of unsubstantiated details.

As a measure of those times, I am keeping to the 'FPS" (Foot, pound, second) units that were in vogue at the turn of 20th century.

THE COMPETITION TO BE THE BEST AND FASTEST ACROSS THE ATLANTIC

A migration was taking place from Europe to the Americas. Seeing the wealth that slavery had brought to the US of A, though ignoble, it prompted a multitude of Europeans - Germans, Dutch, British (the Irish being the major race in this migration), French to cross the Atlantic. The rich went over to further enhance their wealth and set up business empires. The skilled artisan went over to be one of the pioneers in his trade, across the Pond, finding himself stalemated in his own country. The poor went across as the last ditch effort of his family, with an optimistic and dreamy prospect of a better life in the US and, once settled, planned on calling his family over.

Some migrations had a religious background. Ever since Martin Luther pinned his 95 Theses on to the Church door on 31st Oct 1517, it created strong, ever widening, ripples that tore asunder a Papal Church. The protests brought about strict retribution to force the populace to abide by the Vatican. The Spanish Inquisition (1438 ~ 1834), Papal Bulls and similar draconian measures forced people to flee to the safer pastures of the US, where they hoped the Papacy would have no influence.

The migration started as a ripple, swelling to a flood by the mid 1600s and continued for centuries. Shipping companies' coffers jingled.

A race was on to see who was the fastest across the Atlantic. A race between nations, a race betweeen shipping companies. An unofficial 'Blue Riband' was pasted on the ship with the fastest average speed, first in 1838, which continued for more than a century.

For nearly a century, in the 1800s upto the turn of the century, Britain ruled the roost in the Trans Atlantic trade, having established themselves through the triangular slave trade of the 19th century. But in 1897, their might was challenged by a German Company's ship, the 'Kaiser Wilhelm der Grosse' that won the Blue Riband. The British had their nose ground down, in a sphere where they had thought themselves supreme and invincible.

Ever since then, the Germans, the Dutch, the French, the Americans and the British threw themselves in to the fray to build faster, better, more luxurious ships. The competition reached its peak, just as the continent was heading into the First World War.

Cunard Lines brought out their 'Mauritania' and 'Lusitania', both powered by steam turbine engines.

Hamburg America had their moments of glory with 'Prinzessin Victoria Luise' and 'SS Deutschland'.

The White Star Line, not to be outdone, built their 'Olympic' Class of three vessels, the 'Olympic', the 'Titanic' and the 'Brittanic' at Harland & Wolff Shipyard in Belfast, Ireland. The emphasis, however, was to be on comfort and luxuries, rather than speed.

Trans Atlantic trade and the carrying of passengers became a matter of pride and prestige for several shipping companies, Cunard Lines and White Star Lines being amongst the leaders, both British. The two faced stiff competition from a German company, Hamburg America, and a Dutch company, Norddeutscher Lloyd. Some smaller companies were also in the fray, run by French and US Owners.

To cross the Atlantic in one of the passenger liners became a status symbol. More so when they travelled First Class. All companies that plied the Atlantic passenger trade pulled out all the stops to entice passengers to travel on their Company ships, especially the First Class, as they proved to be the golden eggs in terms of profit.

How much of a prestige symbol such crossings generated could be found in the press releases either end of the Pond. News papers listed the arrivals and departures of the ships. They also listed the arrival or departure of passengers, Class wise, which stroked the egos of the hoi-polloi.

(The geographical setting of the 4 shipping companies mentioned above should be noted, as it is a stark reminder of the mix of Irish, English, Dutch, German and French settlers who have made the USA and Canada their home).

One must remember that these were pre - First World war times where, for the rich elite, opulence was taken for granted. Wealth was in abundance as far as the upper classes were concerned, bled from the numerous colonies scattered around the world. This held true for not only the British, but also the Germans and the Dutch, who were as big colonisers as the British.

Rich passengers, who could afford to travel First Class, were in abundance, who used to cross 'the Pond', as the Atlantic was then nicknamed, to visit their cousins, to start or expand their businesses, to travel. They were the ones that the shipping companies tried to attract to occupy their First Class cabins and, by advertisements and word of mouth, popularise the comforts and opulence aboard their liners. This class of passengers were the ones that kept the shipping companies' coffers filled.

But there was another breed of people who were suffering the pangs of unemployment and oppression after the Industrial Revolution, who were trapped upon their unprofitable farms and agricultural land. These were in huge numbers - and they travelled Third Class, buying their tickets with the sale of their last few possessions. They were Irish, German, Dutch - all in search of a dream.

An unofficial award (title), 'the Blue Riband', was started in 1838 and given to the ship with the fastest 'average' speed per day across the Atlantic. Separate awards for west bound and east bound ships were in vogue, as ships went against the current (Gulf Stream) when west bound and found a favourable current when east bound.

Crossing the Atlantic Ocean on 'Zeppelins' were a little more than a decade away, let alone commercial flights in heavier-than-air machines, when the 'Olympic' Class of three passenger ships - 'Olympic', 'Titanic' and 'Brittanic' - were conceptualised in 1907.

Even the introduction of rigid air ships, the so-called Zeppelins - post World War I, did not deter the Pasenger Liner trade. For example, the Air Ship 'Hndenburg' would normally carry 50 passengers and 45 crew. Whereas the passenger ships could carry passengers in excess of 2000, with a crew of 600 odd. A simple matter of economics.

The stepping away from coal fired boilers to the introduction of oil fired boilers - for steam ships - drastically reduced the number of crew that a ship carried. A further reduction took place with the introduction of Diesel Engines for propulsion.

WHITE STAR LINES - A Brief History

Though formed in 1870 / 1871, they had been operating under different names from the 1830s. They had an established Australian route after having populated Australia by the tens of thousands on the discovery of gold, and also an Argentinian route.

Their initial ships were sail boats that, later, evolved into Clippers. Clippers were actually a faster, sleeker form of sailing ships, with more sail area.

A 'Clipper' under Full Sail

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Unlike some other companies, White Star Line did not invest in wooden ships with paddles, which were - then - using steam engines to operate the paddles.

The White Star Line that, later, operated the 'Olympic' Class of vessels (Olympic, Titanic and Brittanic) actually came into existence in 1870, although the same Owners had operated ships under other names.

They had a chequered past, having decent periods of success and grandeur to, at other times, a less than stellar performance, losing ships and nearly getting reduced to bankruptcy.

1873 - The 'Atlantic' ran aground off Halifax. It had nearly run out of coal due to fighting a storm and were forced to divert to Halifax.

1893 - The largest Live Stock Carrier of that era, the 'Naronic', disappeared without a trace in the Atlantic Ocean.

1899 - The liner 'Germanic' turned turtle in New York Harbour during a blizzard, due to accumulation of snow and ice.

1907 - The 'Suevic' ran aground off Cornwall, England and lost a portion of her forward section.

1911 - The 'Olympic' - the elder sister of the 'Titanic', lost a sizeable portion of her bow to a collision with HMS Howe, a British Navy ship. Captain EJ Smith of the 'Olympic' was, then, transferred to command the 'Titanic' when the 'Olympic' went in for major repairs. She was, for months, under repairs (nearly) alongside the under-construction 'Titanic'. After repairs, she would have one more accident in which she collided with an obstruction in the North Atlantic and lost a propeller.

This was followed by the loss of the Titanic in 1914.

THE CONTRACT

We take up the story from the year 1907, when the idea of the Titanic - and two other ships, Olympic and Brittanic - was mooted and incubated. As in most things British, it (supposedly) happened over a private dinner party held at Downshire House, Belgravia, London. Some have refuted the 1907 dinner meeting, as the Ship Builder, Harland & Wolff were already in the process of building the huge gantry crane that was needed for a ship the size of the Olympic class.

The two men of consequence who met up at that dinner party were Joseph Bruce Ismay, Chairman and Managing Director of White Star Line and William James Pirrie, Chairman and Owner of Harland and Wolff. They agreed on working together to build the largest ship of those years, even if not the fastest, with the added intention of making the passenger's accommodation and facilities the most lavish the world had ever seen.

The relations between White Star Line and Harland & Wolff was already more than 40 years old, when the historic meeting at Belgravia, London, took place, as the latter had already built several ships for the White Star Line.

As in today's world of the ISM Code where a Shipping Company needs to spell out its aspirations and code of conduct in the preamble to the Safety Management System, so did White Star Line emphasise - even without ISM nudges - the accent on the comfort of passengers, rather than the speed of the ship across the Atlantic.

As a rejoinder, some of the ships that competed for the Blue Riband were found to be subject to excessive vibrations and noise, making the passengers' stay uncomfortable.

Three contractual agreements were signed by Chairman Ismay on 31st July 1908 for the construction and delivery of three ships from Harland & Wolff. They were called the 'Olympic' class of vessels - as the first of them was christened the 'Olympic' - and were designed for the Atlantic trade routes. There are conflicting dates given. It is likely that an MOA was signed on 31st July 1908 and the 'Construction Agreement' on 17th Sept 1908, based on the design submitted by Harland & Wolff.

The Managing Director and head of the Design Department of Harland & Wolff was Thomas Andrews, the nephew of H&W Chairman Pirrie. The drafting of the designs came under his stewardship.

HARLAND & WOLFF

The ship building division of Harland & Wolff was formed in 1861 when Edward Harland bought over a small shipyard. He made his assistant, Gustav Wolff a partner, hence the name.

As in modern times, the company expanded into various other ship related fields and also other venues, as their Belfast HQ was nearly at the centre of Irish nationalism, which were eventful even during those years.

Having been in operation since 1861, many keels had passed over their slipways, gaining them a reputation as one of the best in the ship building industry.

Edward Harland had, initially, worked with Robert Stephenson - English civil engineer and designer of locomotives - and had struck out on his own at quite a young age. In his own right, he was an extremely good and innovative designer. With the starting of H&W, his designing was put to the test, wth his unconventional ship designs.

Their crowning glory was the building of the three Olympic' class vessels which, unfortunately, marginally spoilt their reputation with the sinking of the Titanic.

Unlike the shipyards of today, more than 90% of the components were manufactured by H&W in-house. The yards of today sub contract or outsource their requirements.

For example, the Triple Expansion Engines, Parson's Turbines, Boilers of various sizes, ship's fittings, port holes, all wood work were all manufactured by their own staff. The raw steel plates, rivets etc were from outside sources, but the final shaping of the hull plating were done in-house.

Besides the steam engines, H&W were also famous - in later years - for their Two Strokee and Four Stroke

A look at one of H&W shops of that era

Workshop dedicated to producing portholes only

Dedicated workshops for manufacturing boilers

The earliest pictures of the Titanic under construction

Design Section of Harland & Wolff

Solid Floors being readied for the Titanic and Olympic

The earliest pictures of the Titanic under construction

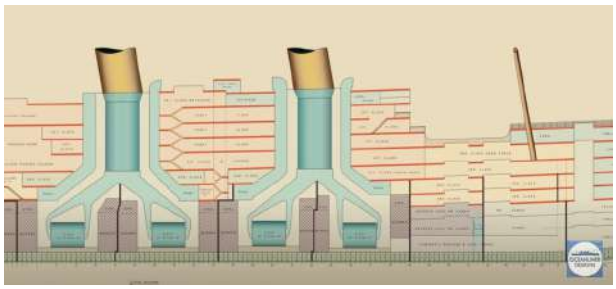
Drilling tool for driving in the three million rivets - Riveters were paid per rivet

Diesel Engines, facing stiff competition from MAN and Sulzer.

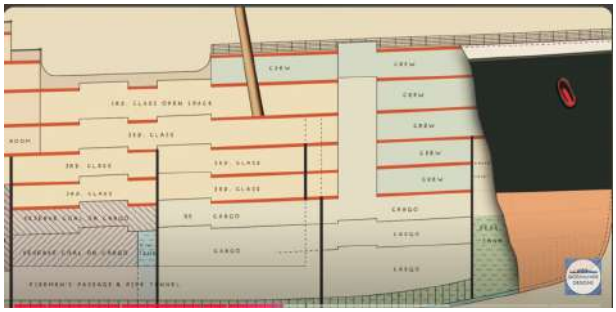
With the migration of ship building away from Europe to Asian countries like Japan, South Korea in the 1960s and, later, China, Harland & Wolff lost their pre-eminent position as one of the best. Today they stand relegated to ship repairing and other ancillary activities.

The Design and Construction of the Titanic -Special Features

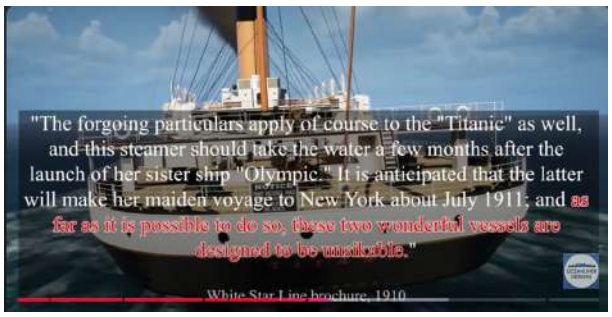
- The Chief of Design was Thomas Andrews. It was actually a collaborative effort on the part of two others of the team of three - Alexander Carlisle and Edward Wilding.
- Due to the sheer size - in those days the Olympic Class of vessels were the largest in the world - of the 3 vessels that H&W were to build, H&W needed two new ship yards in Belfast's Queen Island, now known as Titanic Quarters.
- A massive 228 feet high gantry crane, built by a Scottish company, Sir William Arrol & Co, became a part of the shipyard. (A tidbit of information that I read somewhere, I know not where, was that the same company built the famous London Bridge).
- Titanic : 883 feet long, 92 feet wide, 175 feet tall (from keel to top of funnel), 52,310 long tons weight (53,150 metric tons), 34 feet 7 ins draft.
- Funnels : 4 funnels, each 65 feet in height. In actuality, the original design had only three funnels - all for exhaust gases of the 29 boilers. A fourth funnel was added for symmetry, used as a ventilation duct for certain machinery spaces and galley exhaust.
- Decks : There were ten decks, 8 of them for passengers.
- *Water tight compartments ; The Titanic had 16 compartments, referred to by the designers as 'water tight'. This claim, in a large part, contributed to its reputation of being 'unsinkable'. More on this later, as the claim proved to be a misnomer.* ***The vertical bulkheads terminated about 10 ft. above the waterline.***
- *How the myth of invincibility was perpetuated much before the construction began:*



Shows some of the watertight bulkheads

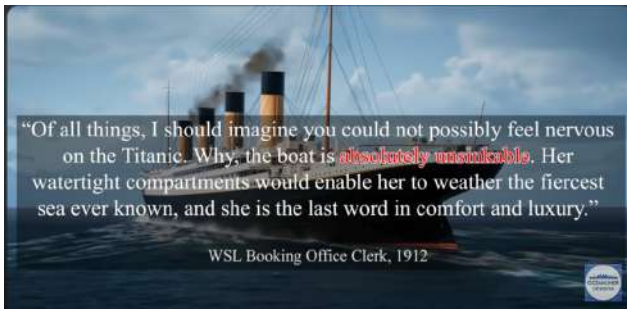


The crucial forward area

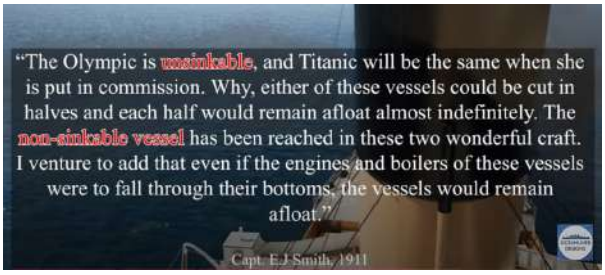


- *Shipping agents, booking in passengers, used this 'unsinkable' phrase often, to assure passengers who were in two minds. A classic example was Lady Duff-Godson who, although having travelled to the US by other ships, was a little apprehensive on undertaking a crossing on a ship that was on her maiden voyage, with no 'sea time' under her belt (my phrase), but was convinced by the Booking Agent about the 'unsinkable' Titanic. She travelled First Class, survived the sinking and also testified at one of the hearings on the circumstances leading to the sinking.*

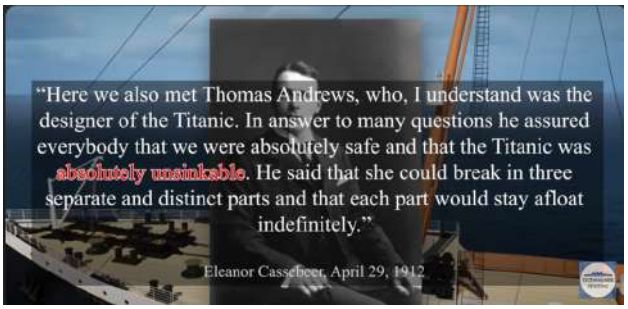
Lady Duff-Godson



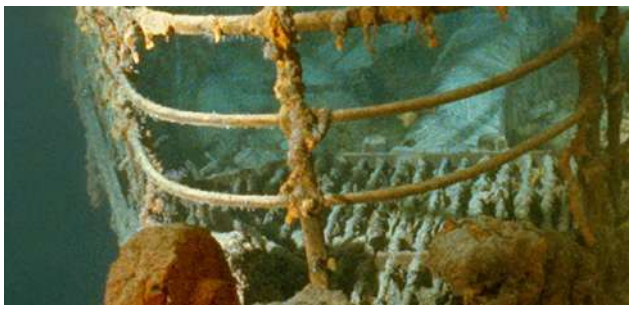
- *Capt EJ Smith, who was transferred from the 'Olympic' (after her accident / collision with HMS Howe) to the 'Titanic' had this to say*

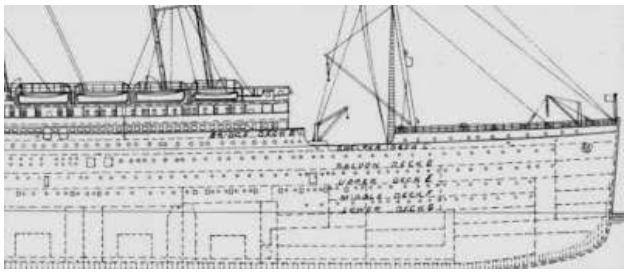


Ominous words - tempting Fate.



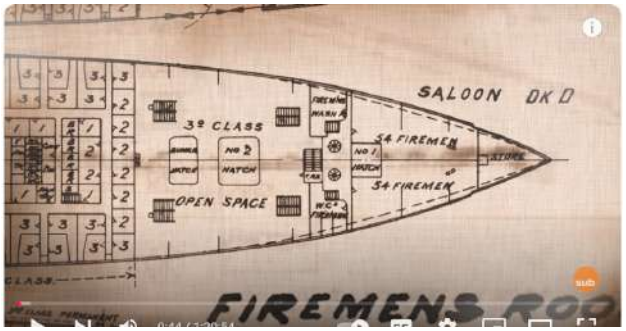
- Could it have been money and budgetary considerations that stopped the 'water tight' bulkheads from reaching the inevitable continuous shelter deck? Let me investigate further.





Original Drawing

Note: The vertical bulkheads reach upto the Upper Deck only



Original Drawing

Some lesser known facts:

- Around 15,0000 workers, mostly Irish, formed the work force that built the Titanic.
- There were a total of nine fatalities during construction and launch, with about 248 injuries, 28 of them serious.

This is the second of my series of articles on the 'Titanic'.

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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 where as Chief Engineer, served on Car Carriers, Container Vessels, Bulk Carriers, MPCs and Self Unloaders. After leaving sea, he has been a Consultant and Vessel Manager with Maersk USA for 6 years.

E-Mail: ranganathan.blog@gmail.com

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CONTACT DETAILS

For General Queries:
(Except Courses, TAR Book, Membership and MER / iMélange):
The Institute of Marine Engineers (India) "IMEI House"
Plot No. 94, Sector-19, Nerul, Navi Mumbai – 400706, India
Phone: +91 22 2770 1664, +91 22 2770 6749
E-mail: hgs@imare.in

For Training/Admission:
Training Programmes:
The Institute of Marine Engineers(India) "IMEI House "
Plot No. 94, Sector-19, Nerul, Navi Mumbai – 400 706, India.
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Send your Articles to:
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Plot No. 94, Sector-19, Nerul,
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Tel.: +91 22 2770 1664 | Fax: +91 22 2771 1663
E-mail: editormer@imare.in / subeditor@imare.in

For iMélange Queries and Articles:
The Institute of Marine Engineers(India) "IMEI House"
Plot No. 94, Sector-19, Nerul,
Navi Mumbai – 400 706, India
Tel.: +91 22 2770 1664
E-mail: editornewsletter@imare.in / subeditor@imare.in

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