

## Session 3: Transforming India's Maritime Sector for the Next Decade

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**Ms. Heena Goswami:** I request our panelists to join me on stage: Shri Jeyanth Thomas, Shri Gaurav Saxena, Shri Preetish Biswal, Shri Karan Arora, and Shri Sunil Kumar. Shri Jeyanth Thomas is Secretary, Shipping Ship Agents Association. Shri Gaurav Saxena is Director at PwC, focusing on transport and logistics sector advisory. Shri Preetish Biswal is from PwC India, serving as Sustainability and Climate Director. Shri Karan Arora is an Energy Advisor with GIZ India. Shri Sunil Kumar is with Digi Shipping. Thank you all for joining me. I'm Heena Goswami, Editorial Consultant with IGP, and since we're short on time, let's begin the session.

This session focuses on green financing and policy frameworks, and as we know, money makes the world go round. The Indian government has made significant financial and policy strides to support the green transition, including a ₹25,000 crore Maritime Development Fund, a Shipbuilding Financial Assistance Policy offering up to 30% funding for vessels powered by clean fuels, a ₹1,624 crore support package to help Indian shipping companies stay globally competitive during the transition, a ₹15,000 crore viability gap funding plan, and 81 public-private partnership projects worth ₹42,300 crore focused on sustainable port infrastructure.

My question to Shri Jeyanth Thomas: Are these financial measures by the Indian government sufficient to meet the needs of greening the maritime sector? Are there international mechanisms the Indian shipping sector can leverage to ensure a smooth green transition without causing pain to the industry?

Additionally, I request Shri Vaibhav Thakur, General Manager, Environmental, Social, and Governance (ESG) and Green Energy, JM Baxi Group, to join us on stage.

**Shri Jensen Thomas, Secretary, Shipping Ship Agents Association:** Thank you very much for this opportunity. Since I represent the shipping fraternity, I'm an operational person dealing with day-to-day business. I'd like to bring to the forum how we, as basic operations people, view these business initiatives, representing the common businessman. To begin, how do I move the slides? Can you please help me? Thank you. Here's a quiz for everyone to pay attention to. It has three images and a symbol. Can you figure out what it represents? It's an English term, a metaphor. The clue is there: Camel to Cadillac. When we talk about moving from a traditional setup to rapid transformation, this topic fits perfectly. As operations people, we think about green energy in one way, but the discussions here are highly technical. Common industry businessmen must transform from a traditional setup to a modern business scenario. On one side, we have India's policy targets: by 2030, the carbon intensity of our economy must be reduced to less than 45%, and by 2070, we aim for net zero. But what's the ground reality? What are we, as basic shipping people, experiencing

daily? If a TV reporter asks about green shipping or industry developments in Tuticorin, as a shipping executive, I'd say Tuticorin is in the limelight. We're getting new industries. Tata Solar Power has set up a 4.3-gigawatt manufacturing facility. When I mention Tata Power, I picture a solar panel. Then there's VinFast, the Vietnam car manufacturer, setting up a factory, which is good for us. When I mention VinFast, I picture a car. But when I talk about green fuel companies, it's just terms like green hydrogen or green ammonia-like a green apple. As a product, it lacks individual visibility. Regarding developments in Tuticorin, the first news about large green hydrogen or ammonia plants came in July 2022. Just a year later, we heard about VinFast coming to Tuticorin. Today, they're ready with a 4,000-car manufacturing facility, set to roll out next month. That's how fast things have moved. But for green energy, we only see boards stating land allocated to these industries. This is the ground reality a common man sees. We don't have a clear product identity or visibility of what's coming. Thankfully, Tuticorin Port is taking initiatives, like a prototype for green hydrogen storage, but it's not in the public eye. It's at one end of the port, and the public talks about green energy, hydrogen, or ammonia, but it's beyond our imagination. That's where we are. The first issue is visibility: when will these industries materialize? As was rightly mentioned, the discussion is incomplete. We don't know which fuel-green ammonia, hydrogen, or methanol will dominate. It's still evolving. As a businessman, I now turn to business contracts, not for small or medium exporters but for logistics service providers dealing with large corporations. When we engage in such business, the first thing is the Request for Quotation (RFQ), running into hundreds of pages with numerous clauses. I've seen one or two questions, like, 'Do you plan to invest in EV trucks in the next five years?'-just one question among hundreds. When we submit the RFQ, say quoting ₹20,000 for transportation from point A to point B, the reverse auction sets a base price of ₹18,000, lower than our quote. Then, we must reduce by ₹500 per unit to secure the business. After the reverse bid, if five or six participants are involved, there's an opportunity to match the L1 price for a share of the business. Ironically, after such rigorous cost-cutting, halfway through the tender, we face renegotiation of the price. So, where's the incentive for green initiatives? We're all focused on cost. Even if there's a slight interest in investing in green energy, the price negotiations squeeze it out, and we lose that desire. There are two financial colors: red and black. Every company wants to avoid red and stay in the black. Corporates compete with multinational chains to win contracts and stay in the black. As service providers, we try to price for some margin to avoid the red. But green is out the window. We don't think about investing in green because tenders lack provisions or incentives for supporting green initiatives. The second question is viability. As a logistics service company, we also handle ITV operations, providing trucks to move containers from ship to shore and vice versa-all diesel vehicles. Due to green initiatives, the port and terminal operator asked if we could invest in one EV truck for trials. As a company, we were skeptical because the cost is three times higher. But, wanting to participate, we agreed to try. Normally, for diesel trucks, companies line up for orders. But when we sought EV vehicles two months ago, not a single company provided a product or quote, despite our efforts. So, the third issue is availability. These three issues-visibility, viability, and availability-are discussed at corporate or policy levels. When will they reach the common businessman? That's the challenge. Most discussions are conceptual, not commercial. Madam mentioned looking beyond commercial ships to fishing vessels. Many things are still at the concept

level; we need to move to commercial scale. It's at the policy level, not a people's movement. I've been involved in port initiatives, particularly SEZs, where land is leased for 30, 60, or 90 years for industries. We've discussed allocating large-scale land for green energy. I've seen a green methanol-retrofitted ship. But, like a common man, I remain ignorant about many aspects of green energy. Pardon my ignorance, but I represent a large portion of common businessmen. With that, I conclude my speech and leave it to the panel. Thank you.

**Ms. Heena Goswami:** Thank you so much, sir. I must apologize; I think I got a little too excited talking about money. But I believe we have a few presentations. Do we have any presentations? Yes, I'm really sorry. Can we proceed with the presentation, please?

**Shri Gaurav Saxena, Director, PwC:** The IMO 2023 and 2025 regulations mark the start of decarbonization in the shipping sector. They mandated carbon emission reductions, with 2023 introducing an efficiency rating for vessels, requiring vessel owners to improve energy efficiency annually. IMO 2025 sets a net-zero target by 2050, with phased reductions: 20% by 2030 and 70% by 2040, leading to 100% by 2050. This requires vessel owners to implement short-, medium-, and long-term interventions to reduce carbon emissions while staying compliant with regulations and managing costs. Several options are available. One, discussed throughout the day, is alternative fuels-switching to cleaner, greener fuels. Other short- to medium-term interventions include improving vessel energy efficiency, reducing waste, and using solar panels or renewable energy for partial power. However, most progress will come from cleaner, greener fuels. We've discussed fuel options like LNG, ammonia, hydrogen, biofuel, and methanol. Each has pros and cons. Biofuel requires no retrofitting; it can be blended with current IFO to reduce carbon emissions, making it useful in the short to medium term. Methanol also has low retrofitting requirements and is cost-competitive, making it a potential medium- to long-term option. LNG is similar. Ammonia and hydrogen, however, are viewed as long-term options, as technology improvements are expected to reduce their costs. From a cost perspective, LNG and methanol are moderately priced, while hydrogen and ammonia are currently more expensive. Biofuel is cheaper due to minimal retrofitting costs. Vessel owners decide based on cost and other parameters, considering their fleet—old vessels, newly bought ones, and future purchases. For older vessels, owners may avoid retrofitting and opt for fuels like biofuel that require no changes. For vessels with considerable operational life, retrofitting may be viable. For new vessels, owners may choose long-term fuel alternatives. The second factor is infrastructure availability, such as bunkering options. LNG and methanol are advantageous here, as LNG is available at multiple ports, and there's a pathway to greener fuels like biomethane and LNG. Similarly, methanol can transition to e-methanol, a fully green option with no carbon emissions. As Shri Jensen Thomas mentioned, cost is a key issue—who will pay for this? Regulations exist, but costs are a concern. Governments are stepping in with financial initiatives and involvement in design aspects, like engine or vessel designs to keep costs down, and providing support infrastructure for these fuel options. The Indian government is taking several steps. The Maritime Amrit Kaal Vision 2030 document outlines initiatives for greener, cleaner shipping and sustainable port operations. These include green tug initiatives, with major ports preparing green

tugs, the Harit Sagar Green Port Guidelines for sustainable port operations, and Harit Nauka guidelines for vessel operations in inland waterways. The Maritime Development Fund, as highlighted earlier, supports these efforts, including cleaner maritime sector operations. The government is also promoting green shipping corridors, such as the proposed Tuticorin-Kandla corridor. Other corridors are under consideration. Operating vessels along these corridors depends on factors like the cost of transporting cargo with cleaner fuels, availability of bunkering infrastructure, and access to suitable vessels. The government is undertaking pilot projects to identify challenges and determine incentives needed to encourage private vessel operators to adopt these corridors.

**Ms. Heena Goswami, Editorial Consultant, IGPP:** I want to come to you, Shri Vaibhav Thakur, and please tell us, do these measures outlined by the government and the funds allocated or proposed by the government suffice for this green transition?

**Shri Vaibhav Thakur, General Manager, Environmental, Social, and Governance (ESG) and Green Energy, JM Baxi Group:** On behalf of JM Baxi and Tuticorin Container Terminal, I'm representing our ESG efforts here. Our Chairman and MD have published a sustainability book, available on our website.

To be honest, regarding ESG funding, before this terminal started, I visited Tuticorin with an investor-I won't name them. We stayed at this same resort, and the first question the investor, a banker, asked was, 'What is your progress or plan for ESG?' Fortunately, we had our sustainability book. For funding, yes, government incentives under the Maritime India Vision are necessary, but the government has limitations. As a terminal operator, it's our commitment to climate change and sustainability.

At JM Baxi and Tuticorin Terminal, we're proud of our commitment to sustainability, focusing on reducing Scope 1, Scope 2, and Scope 3 emissions. Across our 12 terminals, for Scope 1 reduction, we've electrified equipment. Shri Sunil Kumar mentioned RTGC cranes; we've converted diesel RTGCs to electric across all terminals, led by my colleague Shri Sunil Kumar, who pioneered this. Altogether, 57 cranes have been electrified. We've also introduced the first battery-operated reach stacker for cargo and container handling, with 25 currently in operation at JM Baxi.

For Scope 2 emissions, related to electricity consumption from the grid, we're focusing on solar panels and exploring power purchase agreements with third-party vendors. At our Kandla terminal, 100% of energy comes from wind, thanks to the Kandla Port Authority. Similarly, here, we use green energy from wind and solar, thanks to the VOC Port Authority team. This is how we're reducing Scope 2 emissions.

Scope 3 emissions, with 14 parameters, are a challenge, particularly road transport. Our trucks, shown earlier with JM Baxi cranes in the background, run on diesel. Now, we're introducing battery-operated trucks through a company called Energy in Motion. About 100 trucks are in the pipeline. Last week, we received one at Paradip DICT, and they'll soon arrive in Nhava Sheva.

Believe me, it's a miracle-no waiting in queues for hours like with CNG. Our battery-swapping machine lifts the battery, replaces it with a charged one, and completes the process in about 17 minutes without human intervention.

When we talk about ESG, it's about environmental responsibility and social commitment. Safety is one aspect, and governance is another. Participants may not know, but Tuticorin Terminal is the only terminal in India with 50% female workers-a big round of applause for that. I've spoken to stakeholders at Hapag-Lloyd terminals, and they said they have only 10-15% female workers. The first container vessel handled here-I was on the ship-had a female operations team member calling me. It's a great move by JM Baxi, aiming for a terminal with 100% female employees under our diversity and inclusion vision.

On sustainability, we've started a zero liquid discharge initiative. Our Visakhapatnam terminal is the first in India to receive zero liquid discharge certification, meaning no wastewater is dumped into the sea or drains. It's treated at a wastewater treatment plant and reused for gardening, flushing, cleaning solar panels, and domestic purposes. Two days ago, one of our CFS facilities received this certification. Thus, 100% water recycling is part of our waste management vision.

Looking at the Harit Sagar guidelines, there are environmental KPIs for the 2030 and 2047 missions, including reducing wastewater and increasing renewable energy use. We're close to these targets-perhaps even ahead. Another highlight is that JM Baxi has submitted our net-zero commitment to the Science Based Targets initiative (SBTI), a globally accredited body. Our emission targets were approved by SBTi, making us the first in India to achieve this. This is just the beginning of our ESG journey, and we have a long way to go.

**Ms. Heena Goswami, Editorial Consultant, IGPP:** Thank you, sir. I had the privilege of visiting the Tuticorin Container Terminal yesterday and interacting with the female employees. They highlighted that many of them come from humble backgrounds. So, kudos to the JM Baxi Group for this initiative. But I want to inquire, Shri Sunil Kumar, about the private sector's commitment to ESG. How genuine is it? How enthusiastic do you find the private sector in envisioning the future and allocating funds for a green transition? Do you think these claims are true or somewhat debatable?

**Shri Senthil Subramanian:** These claims are true, but the green transition requires both government and private players to collaborate. A few minutes ago, you asked whether the funds allocated by the government are sufficient for the green transition. As you know, the Maritime Development Fund (MDF) has contributed ₹25,000 crore, and we have ₹1,624 crore under the National Green Hydrogen Mission. However, there are many ways of financing. Unless we identify a clear financing strategy, progress will be limited. As the previous speaker emphasized, visibility is key. Organizations like the IMO are introducing new regulations in their revised strategy, providing financial mechanisms for transitioning to new technologies. They offer a differential price gap

between conventional and green fuels. For example, if a company transitions to alternative fuels, there's a debate about which fuel to choose, but as someone from RINA mentioned in the previous session, 300 ships are already operating on ammonia. Ship owners are aware; the main issue is financing and cost. The United Nations Environment Programme (UNEP) has a fund of around \$5 billion, and the IMO's new regulations, effective by 2026, will generate another \$5 billion. Remember, shipping contributes only about 3% to global greenhouse gas emissions. The transition involves not just shipping but all global sectors, including private and government entities. Knowing how to access this \$5 billion from the IMO is critical. India's Directorate General of Shipping has submitted papers during UN debates, outlining how these funds can be utilized. Through coordination with member states, this has been accepted. Once the funds are operationalized in October 2026, shipping companies can access financing for the transition. For example, fuel manufacturers producing green hydrogen or ammonia can be funded through this mechanism. The issue is visibility-people need to know about it. India must engage more with shipping companies, and conferences like this, organized by the VOC Port Chairman and Deputy Chairman, facilitate stakeholder interaction. These platforms enlighten entities on how to convert to green fuels or establish green hydrogen hubs, like the one planned in Kandla. These can be financed if we demonstrate their use. ESG governance also allows access to funds if you prove green fuel production. Regarding innovative green financing models like climate bonds, ESG-linked loans, or blended finance, they are being leveraged in the shipping industry, but it depends on member states' approaches to ship financing. Traditionally, ships are financed through bonds for construction. Japan, a leading shipbuilding nation, secures such financing. In India, the government provides 20% funding for any ship constructed locally, extendable to 30% for green ships. Financial institutions, bankers, and lending associations must define these financial instruments-bonds, loans, or other methods-and collaborate with the IMO to access the \$5 billion expected by 2030 through new GHG statutes, direct compliance methods, and base targets. India has around 1,500 ships, with only 300 trading globally, so our impact is limited. Even if these 300 ships transition to green, the volume of EXIM trade, at 97%, affects end users-consumers. This necessitates financing and interaction among shipping companies, financial institutions, and stakeholders.

**Ms. Heena Goswami, Editorial Consultant, IGPP:** Shri Preetish Biswal, in your experience working with both government and private organizations in the shipping industry, do you think cost is the only factor that somewhat impedes the green transition, or are there other factors at play? Given that India has a limited impact on the global shipping industry, the transition may not be as challenging, but is cost the only impediment?

**Shri Preetish Biswal, Sustainability and Climate Director, PwC India:** When you look at decarbonization and reducing greenhouse gas (GHG) emissions, our societies are heavily locked into fossil fuels. The way we function daily, we've organized ourselves around fossil fuels. Now, we're trying to dissociate our economies from burning fossil fuels and move away from dependency on them toward alternative fuels and cleaner energy sources. There are typically three aspects that

regulate these areas when moving to new technology. First, the technology must exist. For decarbonization, technologies like battery storage, green hydrogen, green fuels, and emerging ones like carbon capture, utilization, and sequestration are available and developing. Second, a technology won't take off without a self-sustaining business model. The financial aspect is critical: Who's investing? Are there investors? Is money flowing into technology? Are there buyers? We often talk about government programs funding these projects, but governments have limited resources and other priorities. The gap between the finances needed to meet our 2050 climate targets and what's currently spent is staggering. Governments alone cannot bridge it; they need the private sector to unlock capital and incentivize investment. Mechanisms like carbon markets help derisk private finance by boosting project viability. For example, selling carbon credits can increase a project's internal rate of return (IRR) from 8% to 14%, making it more feasible and attracting private investment through carbon markets or blended finance. Third, especially in climate and energy sectors, proper regulations are essential. Governments must establish a rules-based framework across sectors—power, shipping, ports, or carbon markets—so private players feel secure. With clear rules, the private sector can invest confidently, knowing what to expect for returns. So, these are the three aspects: technology, finance, and regulations. Every time you want to move away from the status quo to something new, you need technologies to emerge, financing to support them, and regulations to provide a safe framework.

**Ms. Heena Goswami, Editorial Consultant, IGPP:** I'll come to Shri Karan Arora on the question of regulation. Although I know you're more of a technology person than a regulation expert, are you satisfied with the state of regulations in India for enabling the green transition? What is your overall view on that?

**Shri Karan Arora, Energy Advisor, GIZ India:** You've asked a very pertinent question because, ultimately, we're talking about global synchronization of standards. We're focusing on shoreside electricity, which is being discussed extensively, not only in India but also in the EU, where major ports are expected to mandatorily use shoreside electricity when ships are berthed. This reduces reliance on diesel generators, allowing ships to run on shore-based power. However, the challenge is that, despite the hype, we still lack concrete synchronization on standards, such as the types of cables and connectors needed. If a ship is berthed and the port lacks the right infrastructure to provide shoreside electricity, the system fails. Beyond infrastructure, standardization is critical for fuels. What's considered green in India may not be green in the EU. At GIZ, we're addressing this through India's Green Hydrogen Certification Scheme, which defines a threshold of 2 kg CO<sub>2</sub> emissions per kg of hydrogen and outlines system boundaries and GHG accounting methodologies. However, a ship complying with the EU's Renewable Fuels of Non-Biological Origin (RFNBO) guidelines may not meet Indian certification standards, as RFNBO uses a well-to-wake approach. This creates complexity, including concerns about certifying bodies—whether they're maintaining double ledgers or avoiding double-counting in certifications for hydrogen or green fuels. To address this, we launched a white paper last month to find synergy between Indian and EU RFNBO certification guidelines, aiming to harmonize standards and simplify the process.

**Ms. Heena Goswami, Editorial Consultant, IGPP:** Sir, how do you view the problem of global standards not being synchronized, where what is considered green in India may not be considered green elsewhere? How does your organization address this issue? Do we need more international collaboration? Do we need uniform standards, or should there be an understanding that each country's economic, social, and environmental needs differ, and not everyone can bear the same environmental burden? India is not the culprit of climate change; it's a victim.

**Shri Jensen Thomas, Secretary, Shipping Ship Agents Association:** To be very honest, our entire time and focus as commercial people are on making the business happen. Ultimately, at the ground level, at the port level, this industry needs a lot of hand-holding to navigate the changes happening. Some time back, we had the low-sulfur fuel introduced. Until its implementation, we were all focused on keeping our companies profitable. In terms of these transitions, we need significant cooperation and hand-holding to understand how to move from where we are to where we need to be.

**Ms. Heena Goswami, Editorial Consultant, IGPP:** My last question to Shri Gaurav Saxena. Going ahead, what would your suggestions be for both the private and government sectors to ensure funding is available for the green transition, or what are some of the challenges you would like to highlight?

**Shri Gaurav Saxena, Director, PwC:** From a green shipping perspective, as Shri Jensen Thomas rightly pointed out, in 2021, the IMO mandated a switch to very low sulfur fuel (VLSF). The shipping fraternity responded by exploring options like switching to VLSF, using scrubbers, or other measures to comply. Three years later, we now face decarbonization requirements. For the private sector, hand-holding and infrastructure support are essential. From an infrastructure perspective, if I choose a cleaner or greener fuel, I need to know if bunkering infrastructure is available, the cost of that fuel, and whether vessels compatible with that fuel exist. For example, if I want to operate an LNG vessel, are LNG vessels available in the market, and what are their charter rates? Does the overall cost make it feasible? The private sector requires this infrastructure support to move forward. From the government's side, policy support is critical, as has been highlighted. More conferences like this are needed to raise awareness about available options, including carbon markets, which can improve financial feasibility. Additionally, governments should explore vessel designs to reduce costs. These experiments or technologies could be undertaken at the government level. Pilot projects are also necessary to assess challenges, such as whether carbon markets provide sufficient financial feasibility and which routes allow vessels to operate profitably, given the availability of vessels and support infrastructure. The government's support is needed in policy, infrastructure, challenge assessment, and knowledge dissemination-ensuring the private sector understands all available options. Ultimately, the private sector must step up and invest, but this support is crucial to enable that investment.



**Ms. Heena Goswami, Editorial Consultant, IGP:** Thank you, sir. With this, we now conclude the session. I request the Deputy Chairman to take the stage.

I request Shri Rajesh Soundarajan to come and felicitate the guests. Thank you, Shri Rajesh Soundarajan, for joining us and making time for this event. With this final session, we now conclude the conference. I want to thank all the participants, panelists, distinguished guests, and members of the VOC Port Authority-everyone who made time to join us for this conference. I congratulate the VOC Port for such a successful conference. Thank you very much for taking the time out and making this a success. Just one more piece of information: our director, my boss, Dr. Manish Tiwari, will now be honored by the Chairman of VOC Port.

**VOC Chairman:** This event was planned and managed by IGPP Bharat Pravah and actively led by Dr. Manish Tiwari. The credit for the success of this program goes to him. So, we would like to honor him. Let's have a round of applause.

**Dr. Manish Tiwari, Director, IGPP:** Thank you so much. The credit goes to you and your leadership, along with everyone at the VOC Port Authority. All of you have been so warm and welcoming, and this is truly an honor to be here. I must say, things are changing in the government sector, and the spirit all of you have shown is far more commendable than one could expect. Thank you so much.

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