



OCEAN CENTRES INDIA

PUTTING SAFETY AT THE HEART OF SUSTAINABILITY

*Fostering a safe and sustainable
ocean economy in India*

HOSTED BY



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FOREWORDS

India's relationship with the ocean is ancient and inseparable from its identity. With a coastline of over 11,000 kilometres, an Exclusive Economic Zone of 2.4 million square kilometres, and millions of livelihoods anchored in our maritime sector, the ocean is not merely an economic resource for India, it is a way of life. As the country charts its course toward Viksit Bharat 2047, the blue economy will be one of the most decisive engines of inclusive growth, climate action, and global competitiveness.

It is in this context that I am privileged to present this National Report, "Stepping Stone Towards a Safe and Sustainable Ocean Economy in India". This is a consolidated outcome of eight stakeholder consultations across our coastal states under the Ocean Centres India initiative, hosted by the UN Global Compact Network India and supported by Lloyd's Register Foundation. The premise guiding every dialogue has been simple but profound: safety is the core of sustainability. A blue economy that compromises the well-being of its workers, the resilience of its infrastructure, or the integrity of its ecosystems cannot be truly sustainable, however rapidly it grows.

At the United Nations Global Compact, we believe responsible business is the foundation of a sustainable future. The Ten Principles of the UN Global Compact, covering human rights, labour, environment, and anti-corruption, align naturally with the aspirations of India's ocean economy.

Through Ocean Centres India, we have worked to translate these principles into practical action across four priority areas: shipping and ports, fisheries and aquaculture, offshore renewables, and finance and investment.

This report brings together more than 1,200 voices of participants representing government, industry, finance, academia, civil-society, and coastal communities. My sincere gratitude goes to the Ministry of Earth Sciences, the Directorate General of Shipping, our state government partners, member companies, Lloyd's Register Foundation, and the Ocean Stewardship Coalition of the UN Global Compact, whose partnership made this work possible.

As India accelerates toward Maritime India Vision 2030 and its net-zero commitments, I invite you to engage with this report not as a final word, but as an open invitation to build an ocean economy where safety is the foundation, sustainability is the goal, and no one is left behind.



Ratnesh
Executive Director
UN Global Compact
Network India

FOREWORDS

Over the past year, I have had the privilege of travelling to eight coastal cities: Kochi, Mumbai, Chennai, Bhubaneswar, Visakhapatnam, Mangaluru, Goa, and Kolkata, to sit with those who live and work with our ocean every day. From artisanal fishers in Karnataka to port authorities in Odisha, from offshore wind developers in Tamil Nadu to seafarers' families in Mangaluru, from bankers in Kolkata to shipbuilders in Goa, each conversation has deepened my conviction that India's maritime future must be built ground-up, with those who know the sea best at the centre of every decision.

This National Report is the consolidated voice of that journey. It is not the product of any single institution or viewpoint, but the collective wisdom of more than 1,200 participants across government, industry, finance, academia, trade unions, NGOs, and community organisations. Each workshop examined a unique facet of India's ocean economy: the shore leave crisis for seafarers, the socio-economic vulnerabilities of small-scale fishers, the regulatory maze facing offshore wind developers, the financing gap for green shipping, and the urgent need to embed safety in every emerging technology and every new policy.

Ocean Centres India was designed as a locally led, long-term initiative for a reason. The transition from a 'brown' to a 'blue' economy cannot be achieved through isolated interventions or imported templates. It requires institutional change that is rooted in India's regulatory frameworks, responsive to its diverse coastal geographies, and attentive to our fishers who still live in poverty conditions. Through

co-design principles, theme-specific working groups, and close partnership with the Ministry of Earth Sciences, the Directorate General of Shipping, and our 74 member organisations, we have tried to honour that ambition.

I am deeply grateful to Mr. Ratnesh Jha for his strategic guidance, to Lloyd's Register Foundation for their steadfast partnership, to Ms Patricia Furtado de Mendonça and the global Ocean Centres team for their mentorship, and to every speaker, facilitator, moderator, and participant who brought candour and expertise to our workshops. My thanks also to our academic hosts, partner chambers of commerce, and the entire Ocean Centres India and UN Global Compact Network India team, specially Mr. Tanay Kumar whose work behind the scenes made this possible.

The recommendations that follow are actionable, sector-specific, and grounded in lived experience. I hope they will serve as a practical reference for policymakers, a call to action for businesses, and a reassurance to coastal communities that their voices have been heard and will continue to shape India's path toward a safer, more sustainable, and more just ocean economy.



Ravi Raj Atrey
Country Lead, Ocean
Centres India
UN Global Compact
Network India

WHY PUT SAFETY AT THE HEART OF SUSTAINABILITY

Putting safety at the heart of Sustainability is the only way to ensure a just and resilient Blue Economy. Ocean Centres India operates on the principle that sustainability and safety are inseparable.

1. Safety makes sustainable growth possible. A sustainable ocean economy depends on the safety of ocean workers and coastal communities whose lives and livelihoods rely on it.

At the human level, the Social Dimension of safety addresses the wellbeing of the millions of seafarers and fishers who are the backbone of India's ocean economy, a workforce grappling with a growing mental health crisis driven by isolation, fatigue, and the stigma of seeking help,

compounded by chronically low PPE adoption among fishing communities and the persistent undervaluation of women who constitute nearly 40% of the aquaculture and processing workforce.

2. Safe operations and resilient infrastructure protect people and help reduce environmental risks, supporting healthier ocean ecosystems.

At the ecological level, the Planetary Dimension confronts the compounding pressures of climate change and environmental degradation, intensifying cyclones, rising sea levels, declining

fish stocks, the spread of illegal and unreported fishing, and mounting coastal pollution, all of which erode the natural systems on which every dimension of ocean safety ultimately depends.

3. A safer, more responsible ocean industry reduces risk, builds investor confidence, and helps unlock sustainable blue finance and long-term growth.

At the economic level, the Prosperity Dimension recognises that safety deficits translate directly into investment deficits: with 95% of fishing vessels uninsured, no formal blue finance taxonomy to guide institutional capital, and an

ageing merchant fleet where 39% of vessels are over 20 years old, the absence of verifiable safety governance is one of the primary reasons that affordable finance has not reached India's ocean industries at the scale they need.

These three dimensions are not separate concerns; they are mutually reinforcing. A fisher without safety equipment is also an uninsurable economic asset and a vulnerability in a coastal ecosystem under climate stress. Putting safety at the heart of sustainability in India means addressing all three simultaneously.

THE OCEAN CENTRES INITIATIVE

The **Ocean Centres initiative** is hosted by the UN Global Compact, the world's largest corporate sustainability initiative, and supported by Lloyd's Register Foundation, a global charity dedicated to engineering a safer world.

For the Ocean Centres initiative, safety and sustainability cannot be addressed separately. Safety is not only a matter of compliance or risk response; it is an enabling condition for sustainable development, climate resilience, investment and long-term prosperity. In this context, climate adaptation is also a safety strategy: by reducing exposure to hazards, strengthening resilience and enabling systems to cope with changing conditions, it helps prevent harm to people, infrastructure and communities. There is no blue economy without blue economy workers - fishers, port workers, seafarers - delivering their challenging jobs safely, supported by adequate standards, equipment and skills.

This safety-sustainability nexus is also increasingly relevant for unlocking finance and investment. As financial institutions, insurers and investors integrate operational, social, governance and reputational risks into their assessments, safety-related considerations are becoming more important within due diligence, ESG and investment decision-making processes.

Creating a **Safe and Sustainable Ocean Economy** is therefore not only a social imperative, but also an economic one. By helping stakeholders understand these interconnected risks and opportunities, the Ocean Centres seek to strengthen investor confidence, reduce barriers to finance and support investment in sustainable ocean development.

The Ocean Centres were set up in seven countries: Brazil, Ghana, Kenya, India, Bangladesh, Indonesia and the Philippines. The programme focuses on four key Action Areas:



The Ocean Centres initiative was officially launched during the UN Ocean Conference in Nice, France, on June 2025. Following the global launch, each participating country organised its own national launch and initiated a series of eight multi-stakeholder workshops, convening organisations from government, industry, the financial sector, academia, trade unions and civil society.

These dialogues were designed to identify and address the priorities, challenges, solutions, and opportunities shaping each country's transition towards a **Safe and Sustainable Ocean Economy**, including those related to climate change, the energy transition, emerging technologies and digitalisation.

This report forms part of a broader body of knowledge developed through the Ocean Centres initiative across the seven countries listed above. Together, the seven national reports

and the accompanying Global Report capture the key priorities, challenges, opportunities and recommendations emerging from locally led, multi-stakeholder engagement.

Each report was co-created through a series of in-person and online dialogues, reflecting the knowledge, experiences and perspectives voluntarily shared by participants in each country. Drafts were subsequently reviewed by Ocean Centres members and the respective National Safety Committee, whose feedback helped strengthen the accuracy, relevance and contextual grounding of the final report.

We invite readers to explore the full collection of reports and join us in advancing knowledge, partnerships and investment, implementing the recommendations, and working collaboratively towards safer and more sustainable ocean economies.



EXECUTIVE SUMMARY

Ocean Centres India is a multi-stakeholder platform driving India's transition to a safer, more sustainable ocean economy, fostering dialogue, responsible business practices, and enforceable standards across four priority areas: Shipping and Ports, Fisheries and Aquaculture, Offshore Renewables, and Finance and Investment.

Between September 2025 and March 2026, it organised eight multi-stakeholder workshops across India's coastal states. This report presents the challenges, issues, and solutions identified, along with short-term and medium- to long-term action areas for each priority sector.

Ocean Centres India by the Numbers

8 NATIONAL WORKSHOPS

50
hours

1526
Individuals

Note: Under "Organizations by Sector", "Others" includes individuals who participated in the workshops without representing a specific organisation or sector.

Organisations by Sector

532 Private Sector

240 Academia, Research, and Think Tanks

210 Government & Public Institutions

182 Civil Society, NGOs, and Multi-Stakeholder Platforms

94 Others

92 Labour Unions & Professional / Sector Associations

76 Intergovernmental and International Organisations

73 Community, Indigenous, Women, or Youth-led Organisations

27 Finance & Investment

LAUNCH EVENT

6
Hours

146
Individuals

78 OFFICIAL MEMBERS

75
Organisations
3
Individuals

Three Things you Need to Know About Ocean Centres India

Safety is the Core of Sustainability:

A sustainable blue economy is impossible without safety. Ocean Centres India promotes a safety lens integrating occupational health, resilient infrastructure and risk-based decision-making, leaving no worker or community behind.

Strategic Focus:

The initiative targets four high-impact areas: green ports and shipping decarbonisation; safety and climate resilience in fisheries and aquaculture; offshore renewables; and blue finance and investment security.

Multi-Tiered Engagement:

Stakeholders can engage as Members (influencing policy and accessing Blue Finance guidance), Knowledge Partners (contributing research and technical expertise), or Ally Partners (amplifying the mission through their networks, including as Ocean Centres Ambassadors).

1

2

3

Cross-cutting Findings from the Blue Safety Wheels Presented in the “Outputs” Chapter



Opportunities for Safe Blue Growth

- Shipping:** Innovative finance, AI optimisation and green shipping corridors de-risk investment and accelerate decarbonisation.
- Ports:** ESG reporting, innovative finance, disaster insurance and emissions-linked finance strengthen resilient ports.
- Fisheries:** Insurance, resilient infrastructure and traceability reduce risks and strengthen fisheries resilience.
- Aquaculture:** Certification, women-led finance and AI-enabled farming strengthen resilience and market access.
- Offshore Renewables:** Investment incentives, long-term policy certainty, fisher reskilling and nature-inclusive design improve project viability.

Finance and Investment Implications of Safety Challenges

- Shipping:** Investment funds, innovative finance, AI and green shipping corridors de-risk investment and improve efficiency.
- Ports:** ESG reporting, blue bonds, insurance, green infrastructure and MRV improve financing access and resilience.
- Fisheries:** Insurance, safety technology, resilient infrastructure and traceability reduce risk and strengthen investment.
- Aquaculture:** Certification, women-led finance, biofloc and AI precision farming improve market access and resilience.
- Offshore Renewables:** Investment incentives, long-term regulatory certainty, fisher reskilling and nature-inclusive design.

A CALL TO ACTION: KEY RECOMMENDATIONS AT A GLANCE

The recommendations below highlight the priority actions emerging from the findings of this report. They provide an at-a-glance overview for the business, government and finance sectors, while the complete set of recommendations is presented in the chapter A Call to Action: Recommendations by Action Area.



Business

- Adopt safety-linked IoT, digital twins & blockchain traceability.
- Implement Safety Management Systems & green certifications (TCFD, BAP/ASC).
- Invest in worker training - MED, green-fuel handling, psychometric screening.
- Engage women-led and community-led value chains.
- Apply ESG & supply-chain standards; join UN Global Compact.



Government

- Update & strengthen safety standards across all sub-sectors.
- Expand AIS/VMS coverage; formalise three-layer coastal security architecture.
- Mandate registration (NFDP, CAA) and integrate safety into maritime policy.
- Improve inspections, infrastructure & inter-agency coordination.
- Launch unified blue-economy policy & single-window approvals.



Finance

- Create dedicated safety-linked loan facilities (Maritime Development Fund, Blue Bonds).
- Integrate safety into ESG, lending & insurance requirements.
- Mandate & expand parametric and standing-crop insurance coverage.
- Develop loan products linked to safety KPIs.
- Enable blended finance, VGF and First Loss Default Guarantees.



A full-page background image featuring a wind turbine on a beach at sunset. The sky is a mix of orange, pink, and blue, with a bright light source on the left creating a lens flare effect. The ocean is calm, and the wind turbine stands prominently in the foreground.

“ Safety is a precondition of all sustainable business practices, and the role of UN Global Compact is to provide business and governments with clear guidance on how to embrace safety in their sustainability journey ”

Erik Giercksky

Head, Ocean Stewardship Coalition
United Nations Global Compact

INTRODUCTION

About this Report

This report consolidates findings from multi-stakeholder consultations across eight coastal Indian states under the Ocean Centres India initiative, bringing together government, industry, financial institutions, academia, civil-society, and coastal communities to identify safety and sustainability challenges across India's ocean sectors. Structured around four priority areas, shipping and ports, fisheries and aquaculture, offshore renewables, and finance and investment, it applies a "safety-lens" to

examine risks, gaps, and opportunities in India's transition to a safe, sustainable ocean economy. Combining workshop insights with systems-level analysis of operational, regulatory, financial, and environmental challenges, the report provides an evidence base to inform policy, guide investment, and support safer, more resilient, and inclusive ocean industries.

Refer to [Annexure I](#) for the List of Contributors. Refer to [Annexure II](#) for the Glossary.

Who is this Report for?

This report is for **stakeholders** shaping India's ocean economy: **policymakers** and **government bodies** at national and state levels, **industry leaders** in shipping, ports, fisheries, aquaculture, and offshore renewables, and **financial institutions** exploring blue economy

opportunities. It also serves **academia**, **research institutions**, **civil-society**, and **community-led groups** working on sustainability, safety, and livelihoods, supporting informed decision-making, cross-sector collaboration, and safety-led practices across India's maritime sectors.



Our Two Priority Areas

Ocean Centres India focuses on four key areas:



However, stakeholder consultations placed greater emphasis on **Shipping and Ports** and **Fisheries and Aquaculture**, given their mature policy frameworks, scale of industry engagement, and breadth of community stakeholders. Offshore Renewables and Finance & Investment, though critical enablers of India's Blue Economy

transition, remain comparatively nascent in regulatory development and institutional readiness. As these sectors gain momentum, driven by 2030 offshore wind targets, evolving green finance taxonomies, and growing investor interest, future editions are expected to reflect more balanced cross-sectoral dialogue.



BACKGROUND

Why does Ocean Centres India exist?

Ocean Centres India was established to address the critical safety and sustainability gaps in the country's vast maritime sector. In a fast-changing world, collective action is the key to turning obstacles into advantages. India's shift to a sustainable ocean economy requires a safety-

first approach to ensure long-term growth and stability. To reach net-zero and nature goals, ocean industries must make safety-informed decision-making a collective priority. Ocean Centres India's existence is driven by:

1 Addressing Safety Gaps:

India faces significant obstacles in maritime safety, including low adherence to safety culture in ports and high operational risks in marine manufacturing.

2 Economic Goals

It aligns with national missions like Viksit Bharat 2047, aiming to ensure that the ocean economy meaningfully contributes to India's GDP through port infrastructure, ship manufacturing, offshore energy and the sunrise sector of fisheries & aquaculture.

3 Risk Mitigation:

The initiative helps tackle climate-induced risks such as extreme weather and rising sea levels that threaten food and human security along India's 7,500 km coastline.

Why a multistakeholder collaborative platform?

No single entity can solve complex ocean challenges alone, collective action requires commitment from a wide range of stakeholders relevant to driving change nationally. The platform brings together the private sector, MSMEs, financial institutions, government bodies, NGOs, and academic institutions to identify issues and drive action aligned with local needs, backed by robust data and insight. Ocean Centres India enables national coalitions

for change to build safer, more sustainable ocean industries, with improved standards expected to reduce risks and attract blue investment. By breaking down silos between sectors like shipping, fisheries, and finance, and fostering dialogue across diverse groups, from financial institutions to trade unions and youth-led associations, it ensures safety remains a shared priority and all relevant voices are heard in identifying barriers and co-designing solutions.



Why Locally Led?

Because each country has unique maritime ambitions and specific safety challenges that can only be properly understood by local experts. India's specific needs, such as adopting modern safety technologies in traditional fishing or concerns related to maritime data, require

solutions grounded in the local context. Being locally led by the UN Global Compact Network India allows the initiative to leverage national networks and align directly with India's specific regulatory and policy frameworks.

Why Long-term?

Ocean Centres are a long-term initiative because building a resilient and sustainable ocean economy requires institutional change. Transitioning from 'brown' to 'blue' economies involves deep-seated changes in standards,

workforce skills, and policy frameworks that take years to implement. The goal is to embed safety institutionally, not just as a one-off project, to support the future growth of India's maritime sector through 2030 and beyond.



OCEAN CENTRES INDIA: JOURNEY TO DATE

Governance Structure

National Level

- **Strategic Country Advisory Committee**

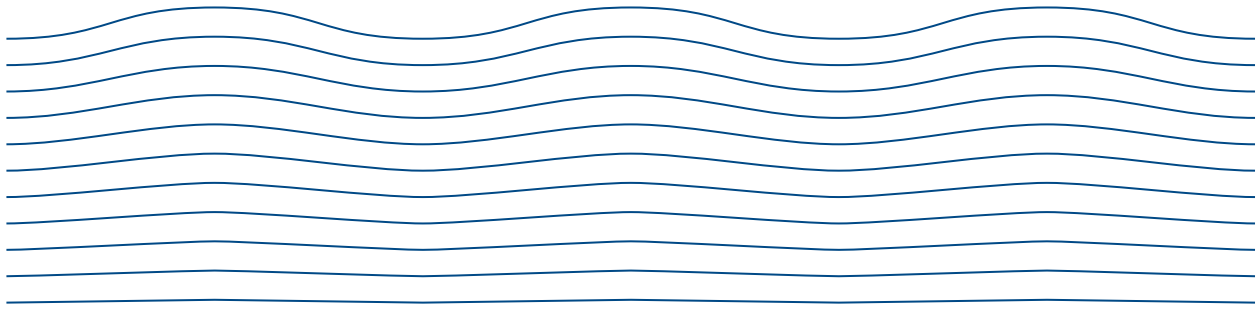
- Mr. Alex Stitt, Director, Heritage, Lloyds' Register Foundation
- Mr. Ratnesh, Executive Director, UN Global Compact Network India
- Mr. Erik Giercksky, Head, Ocean Stewardship Coalition, UN Global Compact
- Mr. Ben Austine, Sr. Programme Manager, Skill & Education, Lloyd's Register Foundation
- Ms Dagmara Kawobska, Sr. Programme Manager, Lloyd's Register Foundation
- Ms Patricia Furtado de Mendonça, Global Lead, Ocean Centres, UN Global Compact

- **Execution**

- Mr. Ratnesh, Executive Director, UN Global Compact Network India
- Dr. Ravi Raj Atrey, Country Lead, Ocean Centres India, UN Global Compact Network India

Stakeholders Level

- **National Safety Advisory Committee Ocean Centres India Members**



Capacity Building

Ocean Centres India built stakeholder capacity through regular workshops, meetings, learning sessions, and webinars, with experts from Lloyd's Register, Lloyd's Register Foundation, UNGC, the Maritime Decarbonization Hub, and other specialised agencies providing technical expertise to Indian stakeholders.

The Methodological Innovation

- The Ocean Centres India adopts co-design principles in the delivery of its agreed programmes.
- Through Multilevel Collaboration, the deliberations focused on users and beneficiaries, including the voices of the unheard, to bring the crucial issues, challenges and their possible solutions.
- The unique, 'Locally Led, Globally Connected' initiative imbues a flavour of global best practices, standards, and guidance available with the UNGC and LR Foundation.

Stakeholder Engagement

We engaged stakeholders through a strategic, on-field exercise: mapping stakeholders across central and state governments, regulators, autonomous bodies, public and private institutions, think tanks, civil society, inter-governmental and international organisations, communities, workers' associations, industry and professional bodies, and businesses;

holding bilateral meetings to brief them on the vision of Ocean Centres India and formally onboard them as partners; recruiting them as Members, Knowledge Partners, and Ally Partners; participating in targeted external events, conferences, and seminars; and organising eight coastal state stakeholder workshops to further deepen engagement.

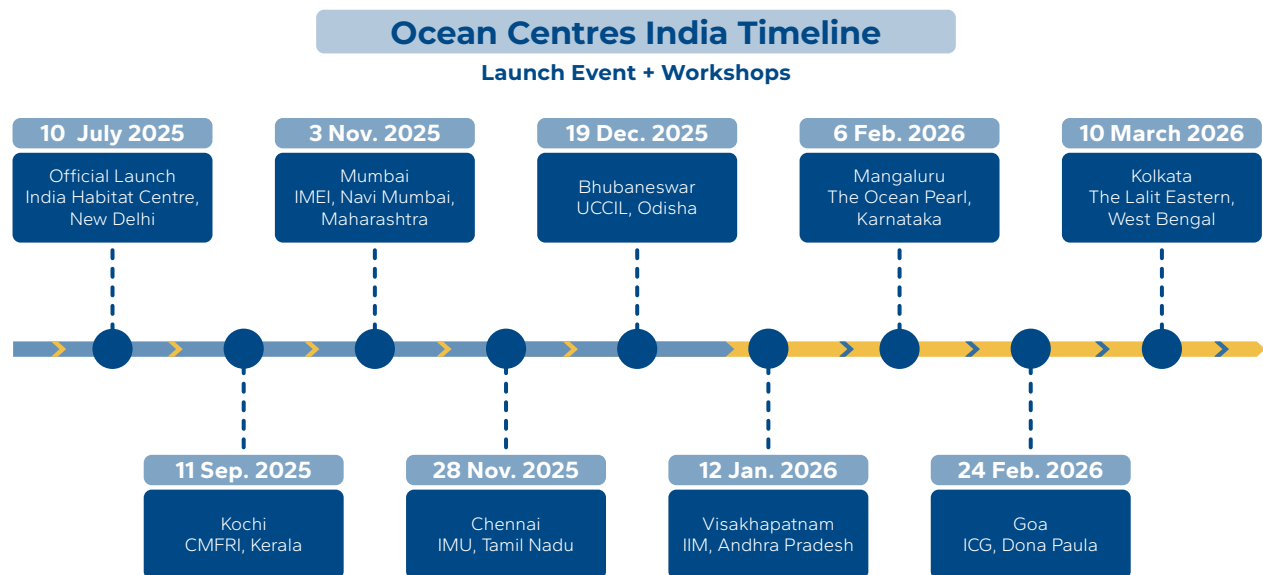


Workshops

Ocean Centres India advanced its stepping-stone approach through a series of closed-group, multi-stakeholder workshops to deliberate on issues, challenges, and solutions for a safer, more sustainable ocean economy in India. Stakeholders collectively mapped safety and sustainability challenges, identified key gaps requiring collective action, particularly around the safety challenges of adopting sustainable practices, and explored systemic causes of safety deficits by giving voice to a wide range of organisations, including the unheard. Business and government best practices served as useful reference points throughout.

Operational Safety challenges identified are detailed in [Annexure III](#).

Reports from the launch event and each of the eight workshops are available in [Annexure IV](#).



An underwater photograph with a teal and green color palette. A large, light-colored rock is visible in the upper left corner. Numerous small fish are swimming throughout the water, which is filled with fine white particles. The text is overlaid on the right side of the image.

“ Safety culture, at its most mature, is not about compliance checklists or incident reports. It is about the values embedded in every operational decision, every investment case, and every leadership conversation across an organisation ”

Mr. Rituraj Mehta
Group Head – Safety, Adani Group

OUTPUTS

Blue Safety Wheel

The Blue Safety Wheel is the common analytical framework adopted throughout this report to assess safety challenges across the ocean economy. It examines safety through five complementary dimensions, as you can see below, providing a structured approach to analyzing safety across sectors. The following challenges were consolidated from diagnostic exercises, stakeholder engagement processes, and workshop discussions, and represent systemic vulnerabilities affecting shipping, ports, fishing, aquaculture, and offshore renewable.

Detailed explanations are in [Annexure V](#).

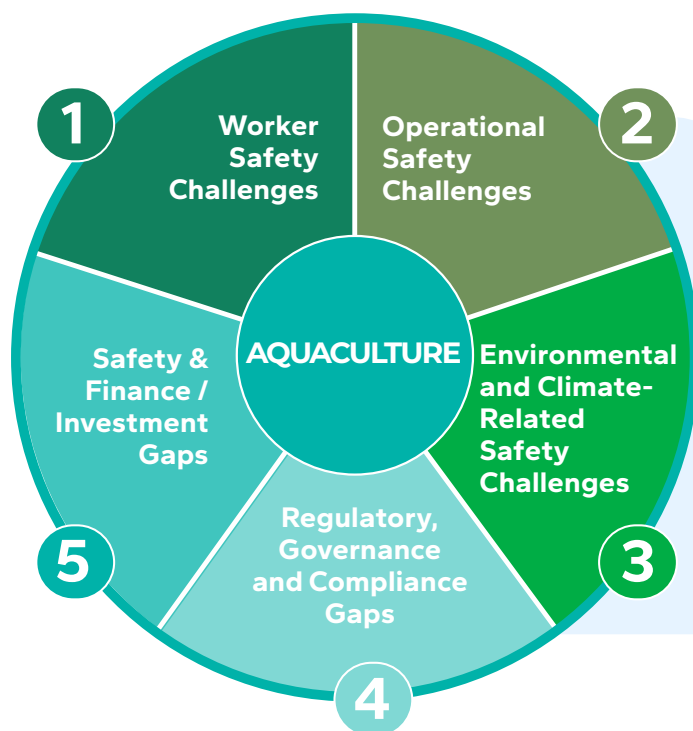




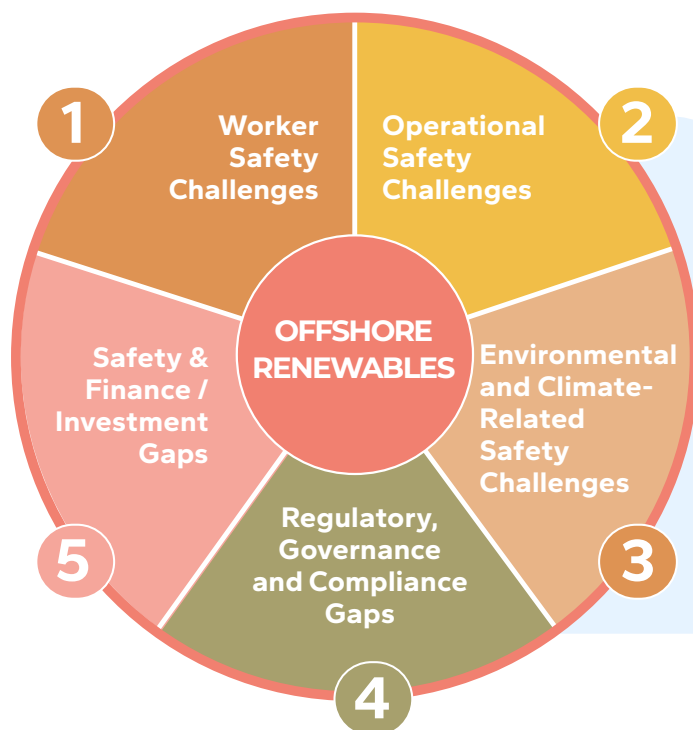
- 1:** Weak safety culture; undocumented near-misses.
- 2:** AIS/Radar gaps; Cyber-attack vulnerability.
- 3:** Cyclone damage; Non-functional lighthouses.
- 4:** No cyber framework; weak recycling rules.
- 5:** Insurer hesitancy; No ESG standards.



- 1:** Low PPE use; Injuries; No emergency training.
- 2:** No GPS/AIS on Boats; Comms Blackout >15 km.
- 3:** Ocean Warming; 28% Fish Catch; Capsize Risk.
- 4:** State ban mismatch; IUU Fishing; PMMSY gaps.
- 5:** 95% uninsured; 61% BPL; No MSP.



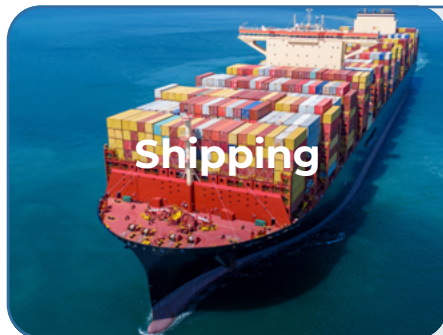
- 1:** Women Workforce undervalued; No PPE.
- 2:** Siltation; No Cold Storage; Weak Harbour Safety.
- 3:** Sea temp disruption; mangrove loss.
- 4:** Antibiotic Overuse; CAA Barriers complicated approval process for novel and high value applications.
- 5:** Poor Grassroots Finance; Export focus; CAA hurdles.



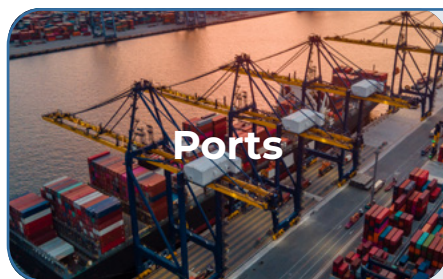
- 1:** Falls; Electrocution; Training gap on site.
- 2:** Vessels-Turbine collision; Medevac complexity.
- 3:** Corrosion; Cyclones; Ecosystem Noise Impact.
- 4:** No India-tailored standards; End-of-life gaps.
- 5:** No blue-finance taxonomy or guarantee framework.

Opportunities for Safe Blue Growth

Stronger safety systems unlock major opportunities for safe blue growth across ocean industries - reducing risks, boosting investor confidence and bankability, attracting finance, and improving productivity, worker well-being, and market access. As a growth enabler, safety drives digitalisation, green innovation, blended finance, and resilient ocean value chains. This section summarises these opportunities; detailed explanations are in [Annexure VI](#).



- Green Vessel Certification & Safety-Rating systems unlock institutional capital via Green Bonds.
- AI voyage optimisation & Energy Saving Devices deliver 10–15% fuel savings.
- Dual-fuel readiness future-proofs fleets against regulatory tightening.
- Mental Health & Wellbeing Frameworks address the 36.7% rise in non-operational incidents.
- Green Shipping Corridors create guaranteed demand for zero-emission transport.



- ESG reporting & Blue/Green bond frameworks attract international investment via PPP and VGF.
- Shore-to-ship power, equipment electrification & 50% green tugs by 2030 cut carbon footprints.
- Digital Twins & IoT monitoring lower insurance premiums and reduce financier risk.
- Alternative fuel bunkering hubs at Kandla, Paradip & Tuticorin position India as a green refuelling node.



- Parametric insurance stabilises livelihoods & unlocks credit for 80%+ uninsured fishers.
- ISRO transponders provide cyclone-safe communication beyond mobile range.
- Solar cold storage & fish drying units cut post-harvest losses by 20–25%.
- Blockchain traceability & drone-based IUU monitoring meet international compliance standards.



- Biofloc with 40–60% subsidies & antibiotic-free certification opens EU/US export markets.
- AI/IoT precision monitoring reduces losses and chemical dependency.
- Women SHG-linked financing & input-linked loans break middleman dependency.
- IMTA & seaweed farming diversify livelihoods and serve as carbon sinks.



- ₹7,453 Cr VGF & Article 6.2 carbon credits bridge the offshore-onshore cost gap.
- 35-year Lease Rules & 25-year ISTS waiver provide long-term investor certainty.
- Nature-Inclusive Design turns turbine foundations into artificial reef habitats.
- 37 GW target creates a new ocean industry; GWO training makes workers globally deployable.

Finance and Investment Implications of Safety Challenges Across Ocean Industries

Safety challenges raise perceived risk, insurance costs, and capital constraints across ocean industries, limiting the bankability of climate-resilient projects, while stronger safety systems unlock blended finance and private investment in shipping, ports, fisheries, aquaculture, and offshore renewables. This section summarises these finance and investment implications; detailed explanations are in [Annexure VII](#).

	Investment Barriers	Risk Perception	Insurance & Finance Constraint	Opportunities for Blue Finance
Shipping	High interest rates (10-10.5% vs. 2-3% globally), no SARFAESI collateral, 40% equity needs, and 80% MS-MEs rated BBB- make green vessel financing costly.	IMO targets risk-stranding 20-year assets in 10; mispriced risk, an ageing fleet, and currency mismatch raise costs.	Insurer reluctance, high P&I costs, IGST disadvantage, and no blue taxonomy block Blue Bond access.	Maritime Development Fund, Maritime AIF, and GIFT-City tax breaks enable capital access; CII/EEEXI-linked loans reward safety.
Ports	Fragmentation across 25 ministries, a weak InvIT market, poor hinterland links, and road dominance leaves coastal shipping un-financeable.	Concentration, cyber, and climate risks plus absent ESG reporting make cash flows unreliable, deterring Green Funds.	No parametric insurance, guarantees, or unified policy; forex limits and fragmented data hinder underwriting.	Parametric insurance, InvITs, and FLDG-backed bonds attract pension/LIC funds; Digital Twins and a Blue Fund cut risk.
Fisheries	Only 15-20% access formal credit; high gear costs, no MSP/ cold storage, and middleman debt cycles deter lending.	95% uninsured, casualty rates 10x merchant shipping, unclaimable ₹500 policies; climate shocks and IUU fishing erode returns.	No weather-indexed insurance; cover excludes vessel/gear/ catch; distress selling destroys lending viability.	Parametric insurance and transporter-based asset formalisation unlock credit; Blue Bonds fund coastal infrastructure.
Aquaculture	No subsidised insurance, CAA barriers in eco-zones, conflicting policies, and feed/ seed dependency on Andhra Pradesh deter investment.	Export rejections, antimicrobial resistance, pollution, IUU depletion, and no traceability create market-access risk.	No crop or women-focused insurance; CAA barriers and 20-25% post-harvest losses erode returns.	Input-linked loans, certifications, and SHG financing reach underserved groups; traceability boosts bankability.
Offshore Renewable	At 2-3x onshore cost, ~36 clearances, 2-3 MW turbine limits, weak grid, and community opposition hinder financing.	Corrosion, cyclone/ seismic exposure, weak decommissioning rules, and missing data inflate risk premiums.	VGF may need revision; no ESG norms; weak tenders and stranded-asset risk deter capital.	VGF, 35-year leases, and ISTS waivers ensure viability; carbon credits and community funds enable the 37 GW target.

A CALL TO ACTION: RECOMMENDATIONS BY ACTION AREA

Based on the findings of this report, the following recommendations provide a practical roadmap for action across each Ocean Centres Action Area. While they emerged from a broad multi-stakeholder dialogue involving government, industry, the financial sector, academia, trade unions and civil society, they are primarily directed to businesses, governments and the finance sector, recognizing their capacity to shape policy, mobilize investment and drive implementation at scale. Their successful implementation, however, will depend on the continued collaboration of all sectors of society engaged in the Ocean Centres Initiative.

To support implementation, the recommendations are organized into two indicative time horizons according to their expected level of complexity, coordination and investment requirements. While some actions can be initiated immediately using existing capacities, others require longer-term planning, institutional strengthening and broader collaboration.

SHORT-TERM ACTIONS (UP TO ONE YEAR)

Actions that can be initiated in the near term using existing resources and institutional capacities. They can address immediate gaps, such as reviewing regulations, strengthening safety procedures, and launching training.

MEDIUM- TO LONG-TERM ACTIONS (BEYOND ONE YEAR)

Actions requiring broader coordination, policy reform, institutional strengthening or sustained investment over time. They involve structural reforms like new regulatory frameworks, infrastructure modernisation, and Blue Finance enablement.

These timeframes are illustrative and may vary by institutional capacity and context, intended to guide prioritisation while allowing adaptation to national realities.

More detailed Recommendations can be found in [Annexure VIII](#).



Shipping and Ports

Short Term Recommendations

BUSINESS

- Deploy IoT/telemetry, blockchain traceability, and AI-based optimisation for ESG and operational efficiency.
- Invest in cold-chain logistics and multimodal connectivity (inland waterways + ports).
- Establish stop-work authority for all employees and contract/third-party workers, free from reprisal.
- Develop multilingual safety documentation and integrate mental health support into port hospital.
- Expand the 50,000-worker upskilling target to include port workers, contractors, and daily wage earners.

GOVERNMENT

- Formalise three-layer coastal security (Navy, Coast Guard, Port security) with expanded AIS/radar coverage and geo-fencing.
- Establish State Maritime Task Forces and a unified command structure for shipping decisions.
- Create sandbox ports for green fuel SOP testing and institutionalise quarterly safety roundtables.
- Establish a Bureau of Port Security under the Merchant Shipping Act 2025.
- Enforce a national shipbuilding safety code with digital permit-to-work, and update hydrogen/methanol/ammonia regulations.
- Formalise a multi-ministerial green shipping policy matrix incorporating ILO just transition guidelines.

FINANCE

- Introduce parametric (cyclone-triggered) insurance and ESG-linked lending for ports.
- Enable blended finance for decarbonisation and develop blue bonds post-taxonomy.
- Incentivise MRV/data transparency and link insurance premiums to verified safety performance.

Medium-Long Term Recommendations

BUSINESS

- Empower staff to halt unsafe operations without reprisal; tie safety KPIs to executive bonuses.
- Mandate Mental Health First Aid training, 24/7 helplines, and pre-deployment psychometric testing.
- Standardise watchkeeping schedules and provide internet access to address fatigue and isolation.
- Adopt zero-tolerance policies for harassment and value-based (not lowest-cost) procurement.

GOVERNMENT

- Consolidate maritime safety laws into one ESG-linked framework with whistleblower protection.
- Mandate seafarer mental health and shore-leave rights under National Maritime Labour Standards.
- Strengthen MLC 2006 implementation and crew welfare/repatriation mechanisms.
- Update laws for cybersecurity (IMO 2021) and enforce ISO 45001 sector-wide.

FINANCE

- Operationalise the Rs. 25,000 Cr Maritime Development Fund and FLDG-backed bonds.
- Mainstream Maritime InvITs and grant industrial status to shipbuilding (100% FDI).
- Issue Blue Bonds and Sustainability-Linked Loans tied to CII/EEXI performance.
- Lower insurance premiums for safety/emissions performance via IRDAI.
- Enact a Unified Maritime Act aligned with the Indian Ports Bill 2025.

Continue in next page

Medium-Long Term Recommendations (cont.)

BUSINESS

- Develop bunkering manuals and certifications for ammonia, hydrogen, and methanol.
- Implement Just-in-Time arrival, Digital Twin monitoring, and electrified port equipment.
- Pursue HKC-compliant recycling and well-to-wake LCA accounting (Scope 3).
- Co-create a Maritime Cyber-Resilience Standard and separate IT/OT networks.
- Implement MFA, zero-trust architecture, AI-CCTV monitoring, and digital worker IDs.
- Use VR simulators for emergency training and build cybersecurity expertise.
- Adopt TCFD/ESG reporting and MRV systems to access green finance.
- Use sustainability-linked loans and Net-Zero Funds for green CAPEX.
- Join UNGC and engage with Ocean Centres platforms on policy.

GOVERNMENT

- Strengthen Harit Sagar Guidelines and mandate Shore-to-Ship Power at major ports.
- Set a clear alt-fuel roadmap via the 2026 National Green Shipping Policy.
- Develop alt-fuel bunkering SOPs and fuel quality standards with PESO.
- Penalise older vessels and incentivise green ships via SBFAP 2.0 extension.
- Form a National Maritime Safety Council and Unified Port Authority.
- Establish a dedicated Blue Economy Ministry and improve inter-ministerial coordination.
- Implement Marine Spatial Planning and accelerate Maritime Single Window/SEZs.
- Upskill 50,000 maritime workers by 2030 via dedicated training hubs.
- Strengthen port security coordination and use PPPs for green infrastructure.

FINANCE

- Establish Dedicated Admiralty Courts and an Independent Maritime Regulator.
- Apply zero-rated GST for domestic shipbuilding and repair.
- Establish a National Blue Taxonomy and standardise Maritime ESG reporting.
- Mandate Digital Twins/IoT for major port projects.
- Shift port KPIs to productivity-based measures and liberalise FDI/forex rules.
- Establish a Maritime Finance Centre of Excellence in GIFT-City.



Fisheries and Aquaculture

Short Term Recommendations

BUSINESS

- Invest in aquaculture models (Biofloc, RAS, seaweed) and geo-fencing navigation for fishers.
- Develop cold-chain infrastructure and blockchain traceability for seafood exports.
- Diversify into value-added processing and promote women-led fisheries enterprises and FPOs.
- Establish harbour waste segregation units and solar fish drying units.
- Implement QR-code traceability from net to plant to eliminate exploitative middlemen.
- Provide ergonomic equipment and gender-appropriate PPE for processing workers.
- Adhere to fundamental labour rights (no child labour, POSH compliance, non-discrimination).

GOVERNMENT

- Mandate registration under the National Fisheries Digital Platform; enforce MLS and net regulations.
- Scale FPOs/FFPOs nationally and launch Coast Guard Community Interaction Programs.
- Strengthen MCS via VMS/transponders for ban periods and IUU fishing.
- Prioritise subsidised domestic VMS over costly AIS for small vessels.
- Implement coastal plastic waste management and marine water quality monitoring.
- Support fisher cooperatives/SHGs for alternative livelihoods during ban periods.
- Develop HKC-aligned vessel decommissioning roadmaps for dilapidated boats.
- Expand insurance coverage (accident + asset) and provide subsidised safety kits (GPS, DATs, life jackets).
- Enable blended finance for coastal livelihoods and expand KCC credit access linked to registration.
- Develop parametric weather-index insurance for vessel damage and aquaculture crop loss via insurer workshops.

Medium-Long Term Recommendations

BUSINESS

- Protect traditional fishing areas; ships to alter course, not displace artisanal fishers.
- Form Fish Producer Organisations to eliminate exploitative middlemen.
- Shift to MSP contracts and bank transfers to break informal high-interest credit cycles.
- Provide PPE, POSH compliance, and entrepreneurship pathways for women workers.

GOVERNMENT

- Launch subsidised safety equipment programme and weather-indexed parametric insurance.
- Enact Traditional Fishermen (Protection and Welfare) Bill with insurance, healthcare, education.
- Tie PMMSY aid to sustainable harvesting training; ensure timely no-fishing compensation.
- Mandate women-specific harbour facilities and direct weather alerts to fisherwomen.

FINANCE

- Develop comprehensive insurance covering vessels, gear, aquaculture crops, and production losses.
- Institutionalise input-linked loans and KCC-based Debt Swap schemes; grant FFPOs tax holidays.
- Create regulatory framework and incubators for Blue Bonds and blended finance.
- Expand Viability Gap Funding and establish a Blue Finance Taxonomy for impact investment.

Continue in next page

Medium-Long Term Recommendations (cont.)

BUSINESS	GOVERNMENT	FINANCE
• Mandate migrant labour safety training and enforce the 60-day fishing ban. • Mandate DAT/ISRO Nabhmitra transponders, AIS/VMS, and Deckhand Certification. • Redesign safety gear (life jackets, GPS units) for small wooden/FRP boats in regional languages. • Adopt 'No Safety, No Buy' procurement and Safety Premium pricing. • Establish maintenance contracts and Hub-and-Spoke repair networks for safety tech. • Implement QR/blockchain traceability and align with ASC, BAP, MSC standards. • Self-regulate against bull trawling, light fishing, and destructive gear. • Adopt IMTA, seaweed integration, and replace fishmeal with alternative proteins. • Use AI/satellite data for fuel-efficient fishing and fuel-saving vessel design. • Develop Blue Bond incubators and align ESG reporting with SHAPHARI/ National Traceability Framework.	• Establish state-funded sea rescue system with satellite SOS and 24/7 GPS monitoring. • Standardise mesh-size/MLS limits nationally and enforce bans via satellite VMS. • Mandate ISRO transponders and AIS/VMS for vessels over 12m to combat IUU fishing. • Ratify ILO C.188, FAO PSMA, Cape Town Agreement; secure tenure rights for small-scale fishers. • Coordinate Forest-Fisheries land-use policy in eco-sensitive zones; amend CRZ rules for traditional fishers. • Integrate fisheries into Marine Spatial Plans with shared-space rules for tourism. • Subsidise solar cold storage, electric outboard motors, and Debt Swap (KCC) schemes. • Establish pre-cleared Aquaculture Zones for Biofloc/RAS to cut licensing delays. • Introduce fisheries MSP and ocean-to-plate traceability for export growth. • Create Blue Transition Fund for retraining and a Marine Bio-Observatory at Mangalore. • Define climate change in legislation to enable disaster relief and ALDFG retrieval incentives.	



Short Term Recommendations

BUSINESS

- Invest in offshore wind supply chain (ports, vessels, logistics) and specialised installation capabilities.
- Pursue global tech transfer partnerships and build a local turbine/component manufacturing ecosystem.
- Adopt GWO safety training standards and incorporate nature-inclusive turbine designs.
- Establish binding livelihood restoration and compensation frameworks for displaced fishing communities.

GOVERNMENT

- Define designated offshore zones with fast-tracked single-window clearances.
- Establish offshore safety/design standards (incl. seismic resilience) and expand grid (ISTS) integration.
- Conduct high-resolution wind resource assessments (LiDAR).
- Launch a unified NIWE-managed approval portal to streamline the 36-clearance process.
- Define marine spatial planning with no-go zones and upgrade pilot ports for turbine logistics.

FINANCE

- Deploy Viability Gap Funding and long-tenure, low-interest financing for offshore wind.
- Enable blended finance and risk-sharing mechanisms for early-stage investors.
- Promote green bonds and Article 6.2 carbon trading; require Equator Principles-compliant ESIs.

Medium-Long Term Recommendations

BUSINESS

- Mandate GWO-standard training for sea survival, rescue, and turbine transfer; implement Permit-to-Work systems.
- Standardise life-jacket-harness systems for Bay of Bengal conditions; track near-misses via shared database.
- Set corrosion/cooling standards and update foundation codes for cyclonic and seismic risks.
- Adopt Nature-Inclusive Design: silent piling, artificial reefs, biodegradable cable protection.
- Commit to 90%+ blade recyclability and seabed restoration protocols across project-lifecycle.
- Use automated acoustic/thermal monitoring for wildlife and SCADA encryption for subsea infrastructure.
- Develop formal Livelihood Restoration Plans preserving fisher navigation corridors.
- Create Verified Local Supplier tags for Indian SMEs and join Ocean Centres working groups.

GOVERNMENT

- Establish Unified Maritime Renewable Infrastructure Plan with single NIWE-managed clearance portal.
- Scale Marine Spatial Planning nationally with no-go zones and decommissioning regulations.
- Ensure 35+ year lease certainty under Offshore Wind Energy Lease Rules 2023 with Navy/Coast Guard data sharing.
- Adopt international safety/EHS standards and mandate Equator Principles-aligned ESI.
- Expand Rs. 7,453 Cr VGF scheme with milestone-linked disbursement; bundle offshore wind under RPOs.
- Prioritise transmission (ISTS) buildout and port upgrades for heavy-lift offshore vessels.
- Access Article 6.2 carbon trading and green bonds; fund pilot demonstration projects.
- Mandate Social Impact Assessments and binding compensation/retraining frameworks for fishers.
- Standardise GWO-aligned skill development and retrain local fishers as technicians.
- Embed Nature-Inclusive Design standards into licensing conditions.

FINANCE

- Expand VGF and green bonds; integrate offshore wind into Article 6.2 carbon trading.
- Require Equator Principles-compliant ESI and develop dedicated ESG frameworks for offshore renewables.
- Align lending with IFC Blue Finance Guidance and UNEP FI Principles to unlock blue finance.



Short Term Recommendations

BUSINESS	GOVERNMENT	FINANCE
• Develop specialised maritime financing verticals with ESG-compliant, IoT-based risk assessment. • Form investment lobbies to build bank expertise in maritime risk pricing. • Create a finance observatory tracking blue economy capital flow to MSMEs, women-led enterprises, and coastal communities.	• Define a Blue Taxonomy and ensure inter-ministerial coordination for investment approvals. • Liberalise FDI/forex regulations and standardise ESG reporting frameworks. • Enact a blue finance taxonomy and operationalise the Rs. 25,000 Cr Maritime Development Fund. • Establish blue economy cells within coastal state departments. • Optimise infrastructure status rules for shipyards and coastal/offshore vessels.	• Operationalise the Maritime Development Fund (Rs. 25,000 Cr) and Maritime AIF (Rs. 20,000 Cr). • Set up an interest subvention fund (Rs. 5,000 Cr) and enable Partial Credit Enhancement via NaBFID. • Introduce shipbuilding subsidies (15-25%) and shipbreaking credit incentives. • Activate infrastructure status for the maritime sector. • Develop weather-index parametric insurance products via insurer workshops. • Introduce maritime bond market instruments and expand input-linked KCC loans for seed and feed.

Medium-Long Term Recommendations

BUSINESS	GOVERNMENT	FINANCE
• Adopt three-tier ESG reporting and shift to Digital Twin/IoT-based data as a single source of truth. • Reorient asset valuation toward green fuel outlook and productivity-based KPIs to avoid stranded assets. • Implement well-to-wake LCA accounting covering Scope 3 emissions for all fuel procurement. • Develop internal ESG frameworks for emerging sectors and commit to UNGC Ten Principles with annual CoP. • Use sustainability-linked loans and Net-Zero Funds for green CAPEX, including green tugs and shore power. • Adopt parametric insurance for liquidity, build maritime risk-pricing expertise, and partner with academia.	• Establish a National Blue Taxonomy and ESG frameworks for emerging maritime technologies. • Create a dedicated Blue Economy Ministry and National Ocean Accounting Framework. • Establish an Independent Maritime Regulator, Admiralty Courts, and integrate Maritime Studies into NEP. • Liberalise RBI forex/FDI rules and offer 15-20 year tenors and expanded shipyard subsidies. • Expand VGF for offshore wind, support parametric insurance, and mandate Shore-to-Ship Power. • Mandate IoT-based ESG reporting (SEBI-BRSR adapted for maritime MSMEs) and productivity KPIs.	• Operationalise the Rs. 25,000 Cr Maritime Development Fund and FLDG-backed AAA bonds. • Issue Blue Bonds and CII/ EEXI-linked SLLs aligned with EU Taxonomy/Poseidon Principles. • Mainstream Maritime InvITs, launch a Sovereign Blue Fund, and mobilise PPPs for Vision-2047. • Enact a Unified Maritime Act aligned with the Indian Ports Bill 2025 for clear lender rights. • Apply zero-rated GST for shipbuilding, lower risk-weights for green vessels, and extend loan tenures. • Establish a Maritime Finance Centre of Excellence at GIFT-City and embed safety/human rights in due diligence.

CASE STUDIES

These case studies provide operational blueprints for Ocean Centres India two Priority Areas. Selected for measurable impacts on mitigating systemic risks, job creation, and sustainability, they offer replicable models for the Indian Blue Economy.

To move beyond theory, these stories were built on direct site visits, interviews, and operational observations, integrating insights from national and international agencies. They map the multi-sector partnerships that turn complex challenges into viable solutions.

By examining both large-scale infrastructure and grassroots cooperatives, these studies illustrate how to operationalize the triple bottom line of growth, decarbonization, and social equity. Ultimately, they serve as bankable templates for aligning technological and environmental transitions with the welfare of maritime workers and coastal communities.

1 CASE STUDY: Harit Sagar Green Port Guidelines

In 2023, MoPSW released the Harit Sagar - Green Port Guidelines, a landmark framework aligned with NAPCC and Amrit Kaal Vision 2047, charting a net-zero pathway for Indian ports across energy, emissions, water, waste, and biodiversity through a 1-5 star Green Port rating system, shore power, renewables, LNG and green hydrogen infrastructure, and a voluntary-to-mandatory transition requiring all major ports to meet minimum ratings by 2030.

JNPA and Deendayal Port Authority have launched shore power and solar pilots targeting 60% renewable energy by 2030, major ports are undergoing third-party environmental audits, the guidelines align with IMO's CII and MARPOL frameworks, and MoPSW has launched a Green Port Dashboard for real-time compliance monitoring.

As a key Blue Economy instrument covering 12 major and 200+ non-major ports, Harit Sagar positions Indian ports as ESG-aligned, globally competitive hubs for green finance and partnerships under IMO 2050, and reinforces the Ocean Centres India initiative by demonstrating a scalable model of safe, sustainable port transition that strengthens the National Report's shipping and ports decarbonisation recommendations.

[Click here for more information.](#)



2 CASE STUDY: Sagarmala Programme

Launched in 2015 by MoPSW, the Sagarmala Programme is India's flagship port-led development initiative, with an outlay exceeding ₹6 lakh crore across 800+ projects, aiming to modernise ports, reduce logistics costs, and drive coastal economic development under Amrit Kaal Vision 2047.

Key thrusts include port capacity and digital upgrades, Coastal Economic Zones, last-mile rail/road/waterway connectivity to cut logistics costs from ~13% to sub-8% of GDP, and livelihood support for fisher communities.

Over 600 projects worth ₹4.5 lakh crore are completed or underway, including 900+ MTPA

capacity addition, multi-modal freight gains via National Waterway 1, Ro-Ro/Ro-Pax services across 11 routes easing road congestion, and digitised operations through the EXIM Logistics Portal and PCS 1x. As the institutional backbone of India's Blue Economy, Sagarmala — reinforced by Harit Sagar — integrates infrastructure, industry, and community development for sustainable maritime growth aligned with SDG 14 and India's NDCs, providing a foundational reference for the Ocean Centres India report's shipping and ports recommendations.

[Click here for more information.](#)

3 CASE STUDY: Mandapam Seaweed Self-Help Groups Project

The Mandapam Seaweed SHG Project, along Tamil Nadu's Palk Bay coast (Mandapam, Rameswaram, Gulf of Mannar), is a leading community-led aquaculture initiative organising coastal women from fisher families into Self-Help Groups to cultivate, process, and market *Kappaphycus alvarezii* seaweed, supported by CMFRI and NFDB and funded under PMMSY. It aims to diversify women's livelihoods beyond fishing, promote sustainable mariculture that eases pressure on Gulf of Mannar fish stocks, build SHG skills in cultivation and buyer linkages, and scale seaweed-based industries like biofertilisers and cosmetics.

Over 3,000 women across 200+ SHGs are now engaged, with monthly incomes up 40-60%; CMFRI-supported raft and tubenet methods have improved yields and reduced losses; linkages with processors in Tamil Nadu and Gujarat ensure assured offtake; and seaweed beds are aiding reef recovery and serving as fish nurseries in the Gulf of Mannar Marine National Park.

As a model of inclusive blue economy growth, gender empowerment, and ecological

sustainability, the project is highly scalable — supporting India's 1.12 million tonne seaweed target by 2025 and offering replication potential along Odisha, Karnataka, and Lakshadweep.

It serves as a key evidence base for the Ocean Centres India report's fisheries and aquaculture recommendations on community welfare and sustainable mariculture.

[Click here for more information.](#)



4

CASE STUDY: Incois Space-To-Sea Project

INCOIS, under MoES and developed with ISRO, NRSC, NOAA, and Copernicus Marine Service, runs the 'Space-to-Sea' initiative, using satellite data, ocean buoys, and AI to deliver real-time oceanographic intelligence to fishers, disaster managers, and maritime operators across India's coastline.

Its tools include Potential Fishing Zone advisories, five-day Ocean State Forecasts, tsunami/storm surge alerts via the Indian Tsunami Early Warning Centre, and Harmful Algal Bloom and oil spill alerts. PFZ advisories reach over 4 lakh fishers daily in seven languages via SMS, apps, VHF, and the Meenvalai portal, delivering up to 20% fuel savings and 15-25% higher catches; OSF bulletins

have cut vessel accidents; ITEWC issues tsunami warnings within 10 minutes, meeting IOC-UNESCO benchmarks; and over 300 Argo floats improve monsoon prediction.

As a model of ocean data as a public good, Space-to-Sea boosts fishing productivity, climate resilience, and sustainable EEZ management, positioning India as a leader in ocean science diplomacy under its Blue Economy Policy and UN Ocean Decade commitments, and serves as a key evidence base for the Ocean Centres India report's recommendations on safety advisories, resilience, and data-driven governance.

[Click here for more information.](#)



KEY ACHIEVEMENTS (APRIL 2025 - MARCH 2026)

Ocean Centres India has achieved the desired outcomes against its defined project indicators, with April 2025 to April 2026 marking its foundational year — moving from scoping to a fully operational national platform with a confirmed membership base, government partnerships, and a complete series of eight coastal stakeholder workshops.

- 1 Global Launch, June 2025:** Ocean Centres was unveiled at UNOC3 in Nice on 10 June 2025 as a pioneering global network embedding safety in the blue economy transition across seven emerging ocean economies - Brazil, Ghana, Kenya, India, Bangladesh, Indonesia, and the Philippines, with Country Lead Dr. Ravi Raj Atrey representing India at the launch event, "United by Ocean Centres: Global and Local Ocean Collaboration in Practice."
- 2 Official India Launch, July 2025:** Ocean Centres India was officially launched on 10 July 2025 at India Habitat Centre, New Delhi, inaugurated by Dr. M. Ravichandran, Secretary, Ministry of Earth Sciences, featuring high-level panels on co-creating a safe, sustainable ocean economy and embedding safety at its core.
- 3 Strategic Government Partnerships:** The Ministry of Earth Sciences and the Directorate General of Shipping (MoPSW) were onboarded as Strategic Partners of Ocean Centres India, with an MoU signed with DG Shipping in the presence of the Chairman, Lloyd's Register Foundation — a unique formal government-to-stakeholders commitment to advancing maritime safety standards in India.
- 4 National Safety Committee:** A high-level National Safety Committee has been constituted under the Ocean Centres India framework, providing institutional governance and oversight for the platform's safety and sustainability agenda.
- 5 Membership Growth:** Through bilateral meetings with stakeholders mapped across government, industry, academia, civil-society, trade unions, and intergovernmental organisations, Ocean Centres India formally onboarded 75 member organisations spanning all four action areas.
- 6 Eight-Workshops Series:** A complete series of eight coastal stakeholder workshops was conducted across Kerala, Maharashtra, Tamil Nadu, Odisha, Andhra Pradesh, Karnataka, Goa, and West Bengal, covering all four priority areas: Shipping & Ports, Fisheries & Aquaculture, Offshore Renewables, and Blue Finance & Investment.
- 7 Reach and Engagement:** Across the workshop series and bilateral engagements, Ocean Centres India engaged over 1,500 participants, including government officials, shipping companies, fishing cooperatives, academic institutions, NGOs, trade unions, finance institutions, and community-led organisations delivering over 50 hours of structured national dialogue.
- 8 Public Presence and Credibility:** Ocean Centres India established itself as a credible, trusted platform for advancing a safe and sustainable ocean economy in India, representing the country at multiple international and national conferences.
- 9 National Report:** This National Report, synthesising safety challenges, stakeholder recommendations, and forward actions from all eight workshops, marks the final milestone of Ocean Centres India's foundational year.



CONCLUSIONS

India's ocean economy is vast, strategically vital, and at a critical inflection point. Its 11,098 km coastline, 14 major ports, millions of small-scale fishers, a seafaring workforce that constitutes over 10 percent of the global total, and growing ambitions in offshore renewables and green shipping place India in a uniquely consequential position in the global blue economy transition. Yet, as the eight workshops of this series have made unambiguously clear, this potential remains constrained by fragmented governance, underinvestment in safety, inadequate skilling for emerging technologies, and the persistent exclusion of the most vulnerable maritime communities from the decisions that shape their livelihoods.

Ocean Centres India was established precisely to address such gaps. In its first year, the Ocean Centres India stakeholders' platform has demonstrated that a locally led, multi-stakeholder model can successfully convene actors who rarely share the same table: government ministries and artisanal fishers, shipping associations and women-led cooperatives, financial institutions and coastal community organisations. The breadth and depth of engagement across all eight coastal states, and the quality of the recommendations that emerged, reflect Ocean Centres India as a platform that has earned genuine trust across sectors.

Several convictions have emerged consistently from this process. Safety cannot be treated as an afterthought of sustainability. A blue economy that decarbonises its shipping lanes but neglects the fisher at sea, or retrofits its ports without

training the workforce to handle hazardous new fuels, has not resolved the problem. It has displaced it. The "safety lens" that Ocean Centres India advocates must be embedded from the planning stage, not bolted on at the end.

Equally clear is that no single actor can drive this transition alone. The challenge of building a safe and sustainable ocean economy in India is systemic. It requires financial institutions to develop instruments that reach the bottom of the pyramid, governments to harmonise fragmented regulations across ministries and states, industry to go beyond compliance toward voluntary commitment, and civil-society to ensure that progress is equitable. Ocean Centres India exists to build and hold this coalition together.

The recommendations in this report are not aspirational. They are grounded in the lived experience of the stakeholders who participated in this process, validated by expert practitioners, and consistent with the direction of both national policy under the Amrit Kaal Vision 2047 and international obligations under the IMO, ILO, and the UN Sustainable Development Goals. What they require is the political will to act, and the institutional resolve to move from consultation to implementation.

As Ocean Centres India enters its next phase, the focus must shift decisively from dialogue to delivery. The workshops have mapped the terrain. The national report has synthesised the evidence. What follows must be concrete pilot projects, enforceable standards, accessible financing, and skills built for the economy that is coming, not the one that has passed.

*“The Ocean does not wait.
Neither should India...”*

ACKNOWLEDGEMENTS

This report reflects sustained collaboration and goodwill across India's maritime ecosystem, made possible by the contributions of a wide range of partners and stakeholders.

We thank all partner organisations for their guidance, resources, and active participation throughout the foundational year, and the distinguished speakers, panellists, and guests who enriched the official launch events and eight coastal state workshops with diverse perspectives from government, industry, academia, and civil-society.

We sincerely thank the members of the National Safety Advisory Committee and the Country Strategic Advisory Committee for their guidance and strategic direction, which shaped the safety and sustainability agenda of Ocean Centres India and strengthened the rigour and credibility of this report.

Our heartfelt thanks go to delegates and participants from government bodies, shipping companies, port authorities, fishing cooperatives, aquaculture enterprises, offshore renewable energy developers, financial institutions, academic and research institutions, NGOs, trade unions, and community-led organisations across Kerala, Maharashtra, Tamil Nadu, Odisha, Andhra Pradesh, Karnataka, Goa, and West Bengal. Their candid engagement and ground-level insights form the backbone of this report.

We gratefully acknowledge the Lloyd's Register Foundation - Mr. Alex Stitt, Mr. Ben Austine, and Ms. Dagmara Karbowska; and the United Nations Global Compact and Ocean Stewardship Coalition - Mr. Erik Giercksky, Ms. Patricia Furtado de Mendonça, Mr. Jean Stephen Naas, and Mr. Nycolas Carvalho for their strategic guidance and global expertise in shaping this initiative.

Finally, we extend our appreciation to the United Nations Global Compact Network India team, including Dr. Somnath, Focal Point & Deputy Director, and Mr. Hariraj Singh, Administrative Coordinator, for their commitment to Ocean Centres India.

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TESTIMONIALS



"As India steadily grows its shipbuilding capabilities, embedding world-class safety at every stage of that journey has become both a strategic priority and a shared responsibility. India has the engineering capability, the shipyard infrastructure, and the strategic intent to collaborate with other important stakeholders, and this Report gives our policymakers and investors the evidence base they need to act with confidence and urgency."

Rear Admiral G. K. Harish

Head
L&T Shipbuilding Business,
Larsen & Toubro Ltd.

"In logistics and supply chain management, safety is not a peripheral concern, it is the operational backbone of everything we do. What gives this Report its particular value is the precision with which it connects operational safety failures to investment and bankability consequences, a connection that every logistics and infrastructure financier must understand."

Mr. Nilesh Kumar Sinha

Director,
Procam Group



"Marine engineering sits at the heart of every safety system that keeps a vessel operational, a port functional, and an offshore installation productive. Ocean Centres India has done something that the marine engineering community has long needed. I commend Ocean Centres India for the depth, rigour, and professional credibility of this report."

Mr. Kaushik Kumar Seal

President,
Institute of Marine Engineers India





"Safety culture, at its most mature, is not about compliance checklists or incident reports; it is about the values embedded in every operational decision, every investment case, and every leadership conversation across an organisation. Ocean Centres India has understood this instinctively, and the result is a Report that elevates safety from a regulatory footnote to the central organising principle of India's blue economy transition."

Mr. Rituraj Mehta

Group Head – Safety
Adani Group

"Small-scale fisheries are increasingly recognised worldwide as vital for food security, livelihoods, and sustainable ocean governance. Ocean Centres India has created a valuable platform that places fishers' voices at the centre of policy discussions. This Report is a timely and important contribution that deserves the attention of policymakers, administrators, and coastal institutions across India."

Dr. Sujitha Thomas

Head & Principal Scientist
RC Mangalore, ICAR-Central Marine
Fisheries Research Institute, Govt. of India



"Ocean Centres India bridges the gap between state-of-the-art marine technology and practical industry execution. Their technical workshops are essential for safely modernising India's maritime infrastructure. This Report captures commercial reality of marine sector with high precision that is rarely achieved in policy research. I look forward to seeing the recommendations in this Report translated into policy and investment action."

Capt. Vikas Vij

Managing Director
I Marine Infratech (India) Pvt. Ltd.

"As the ocean economy continues to expand and embrace new technologies and operating models, initiatives such as Ocean Centres India play an important role in fostering informed dialogue and evidence-based decision-making. The report offers practical insights that can support ongoing efforts to strengthen safety, build resilience and promote sustainable growth across ocean-based sectors."

Pravin Kumar Roy

Engineer & Ship Surveyor-cum-Deputy Director General (Technical),
Directorate General of Shipping, Govt. of India

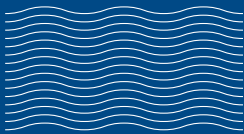


ANNEXURES

To ensure that the main report remains concise and accessible, these Annexes provide supplementary information and supporting materials for readers wishing to explore specific topics in greater depth

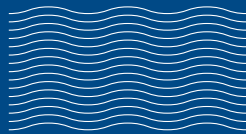
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List of Contributors



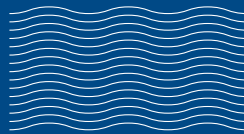
Annexure II:

Glossary



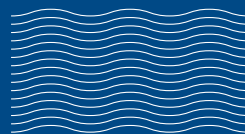
Annexure III:

National Key
Operational Safety
Challenges across
Ocean Industries



Annexure IV:

Reports from the
launch event and
each of the eight
workshops



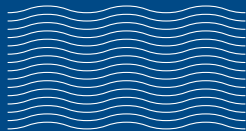
Annexure V:

Blue Safety
Wheel



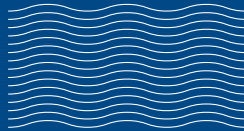
Annexure VI:

Opportunities for
Safe Blue Growth



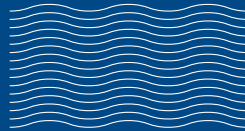
Annexure VII:

Finance &
Investment
Implications of
Safety Challenges



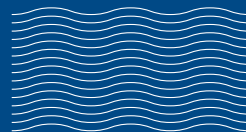
Annexure VIII:

Call to Action



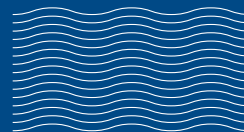
Annexure IX:

Testimonials



Annexure X:

Official Members





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