Advancing Port Cooperation and Sustainable Logistics for Optimised Regional Trade

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Why Advancing Port Cooperation and Sustainable Logistics Matters

As global trade becomes increasingly reliant on efficient and sustainable logistics, ports are positioned as critical nodes within the supply chain. The intensification of environmental concerns and the evolution of international regulations underscore the urgent need for ports to adopt sustainable practices. By integrating innovative technologies and operational strategies that enhance efficiency while minimizing environmental impact, ports can not only comply with regulatory demands but also improve their competitiveness in a rapidly evolving market. This commitment to sustainability is essential for fostering resilient supply chains and ensuring long-term economic viability.

Port Cooperation

- Advancing port cooperation involves fostering collaboration among ports, stakeholders, and regional partners to enhance operational efficiency and resource sharing.
- By establishing joint initiatives, sharing best practices, and coordinating logistical efforts, ports can optimize their services and improve overall supply chain performance.
- This collaborative approach not only reduces costs but also strengthens regional trade networks, ultimately contributing to a more integrated and resilient maritime ecosystem

Sustainable Logistics

- Sustainable logistics refers to the implementation of practices that minimize environmental impact while maximizing efficiency throughout the supply chain.
- This includes adopting green technologies, reducing carbon emissions, optimizing transportation routes, and enhancing waste management practices.
- Meet regulatory requirements, improve their public image, and contribute to global efforts aimed at combating climate change, all while ensuring economic viability and operational effectiveness.

Optimized regional trade

- Optimized regional trade encompasses strategies aimed at enhancing the flow of goods and services within a specific geographic area.
- This includes improving logistics infrastructure, streamlining customs processes, and fostering trade agreements that facilitate smoother transactions.
- By optimizing regional trade, countries can benefit from increased economic growth, enhanced competitiveness, and more efficient supply chains, ultimately leading to better access to markets and resources

Resource Sharing

Information Exchange

Standardization

Joint Marketing Efforts

Environmental Sustainability

Crisis Management

Capacity Building

Enhanced Security

Strategic Planning

Community Engagement

Key Components of Port Cooperation

Enhances operational efficiency, reduces costs, fosters innovation, improves service delivery, strengthens security, promotes environmental sustainability, and supports strategic planning and community engagement.

Collaborative Infrastructure

- Joint investments in shared facilities like deep-water berths, warehousing, and intermodal connections
- Developing complementary services such as ship repair, bunkering, and cold storage to avoid duplications across ports
- Establish regional centres for maritime services, reducing competition and enhancing collective capacity

Data Sharing and Digital Integration

- Establish common digital platforms across ports for real-time cargo tracking, customs documentation, and berth management.
- Implement blockchain for secure, transparent transactions and to minimize delays at customs
- Integrate AI-driven systems to predict port congestion, optimize cargo handling, and reduce waiting times

Harmonization of Policies

- Standardize customs and trade policies across countries in the region to streamline operations and reduce delays.
- Align environmental regulations and sustainability goals, ensuring all ports adhere to similar eco-standards.
- Create unified regulations on port fees and tariffs to encourage fair competition and reduce costs for shipping companies.

Sustainable Port Operations

- Implement shore-to-ship power, allowing vessels to plug into the local grid instead of using diesel engines while docked
- Renewable energy sources such as solar panels and wind turbines within port facilities.
- Electric vehicles for cargo handling and introduce energy-efficient equipment for port operations.

Singapore Port and **Port of Rotterdam** have partnered to develop advanced warehousing and intermodal transportation hubs that enhance cross-border efficiency

Port of Busan (South Korea) and **Port of Shanghai** (China) both developed ship repair and bunkering services tailored to reduce redundancy and improve competitiveness.

Hong Kong's Trade Facilitation Platform has integrated with the **Singapore Networked Trade Platform** for seamless cargo tracking and customs clearance.

Shanghai International Port Group (SIPG) uses AI to predict port congestion and optimize cargo routing, significantly cutting waiting times during peak seasons

The China-ASEAN Free Trade Agreement (CAFTA) facilitates smoother customs processes across member countries, speeding up trade between China and Southeast Asia.

Japan and South Korea's port agreements provide fair and consistent fee structures, encouraging more shipping companies to operate across their ports.

Port of Tianjin (China) has implemented large-scale solar power installations, making its operations more energy-efficient and reducing carbon emissions.

Port of Yokohama (Japan) has introduced electric vehicles for cargo handling, contributing to lower carbon emissions and energy-efficient port logistics.

Best Practices for Advancing Cooperation and Sustainability

Strategies for Enhancing Regional Port Cooperation and Sustainability

Develop a Regional Port Alliance

- Form alliances such as the Asia-Pacific Port Cooperation Network, fostering knowledge exchange and coordinated development plans.
- Share resources for joint environmental monitoring, research, and workforce development initiatives
- Establish regular forums or meetings between regional port authorities to synchronize projects and goals.

Implement Smart Port Technology

- Deploy AI and IoT systems for automated container tracking, berth allocation, and cargo flow optimization.
- Utilize predictive analytics to forecast trade volume surges and adjust port capacity accordingly.
- Implement 5G technology to enhance connectivity between smart devices and improve data transfer speeds.

Focus on Green Port Initiatives

- Incentivize shipping companies to use low-sulfur fuels or adopt LNG (Liquefied Natural Gas) to cut emissions.
- Invest in waste management and water recycling systems to reduce pollution from port activities.
- Encourage ports to collaborate on carbon offset projects, like mangrove restoration, to mitigate their environmental footprint.

Enhance Workforce Training

- Provide regular training on sustainable logistics practices for port workers and management teams
- Create certifications for green logistics and offer incentives for ports that meet environmental targets
- Educate staff on using digital tools such as AI-based port management systems and sustainable supply chain software

Promote Collaborative Investments

- Facilitate joint public-private investments in green technology and infrastructure projects, such as electrification of port equipment.
- Partner with international organizations like the IMO to secure funding for sustainable initiatives
- Create cross-border special economic zones (SEZs) to attract foreign investment and foster economic cooperation between ports..

Stakeholder Engagement and Community Involvement

- Develop outreach programs that involve local communities in port planning and operations, ensuring their needs and concerns are addressed.
- Build partnerships with local businesses, environmental NGOs, and academic institutions to foster collaborative projects
- Launch public awareness campaigns to educate stakeholders and the community about the importance of sustainability in port

Sustainability and cooperation initiatives in ports across Asia

Regional Port Alliances:
Shanghai Cooperation Organization's Port Alliance includes ports from China, Russia, India, and Central Asia, focusing on coordinated regional development.

Smart Port Technology:
Port of Busan, South Korea, uses IoT and AI for real-time cargo management, reducing wait times and improving efficiency.

Green Port Initiatives:
Port of Yokohama, Japan, incentivizes the use of low-sulfur fuel and LNG for cleaner shipping operations.
Singapore's Green Port Program provides financial incentives to ships that adopt cleaner fuel technology.

Workforce Training:
Hong Kong Port offers training in green logistics and certifies workers in sustainable port management practices.
Port of Qingdao, China, regularly trains its workforce in AI-based systems and sustainability best practices.

Collaborative Investments:
China's Green Port Project has seen ports like Tianjin and Shanghai invest in electrifying equipment through public-private partnerships.
The Sagarmala initiative in India has brought public and private investors together to develop sustainable port infrastructure.

Stakeholder Engagement:
Port of Colombo in Sri Lanka has partnered with local environmental NGOs and academic institutions to promote sustainable port operations.
Chennai Port, India, collaborates with local universities on research to reduce pollution and improve port efficiency.

Collaboration of stakeholders in regional trade efficiency, reducing operational costs, and fostering sustainable growth

- Port Authorities and Operators
- National and Regional Governments
- Shipping Companies
- Private Investors and Financial Institutions
- Logistics and Freight Forwarding Companies
- Customs and Border Control Authorities
- Environmental Regulatory Agencies
- Port Equipment and Technology Providers
- International Organizations and Trade Bodies
- Labor Unions and Workforce Representatives
- Non-Governmental Organizations (NGOs)
- Local Communities and Businesses
- Academic and Research Institutions

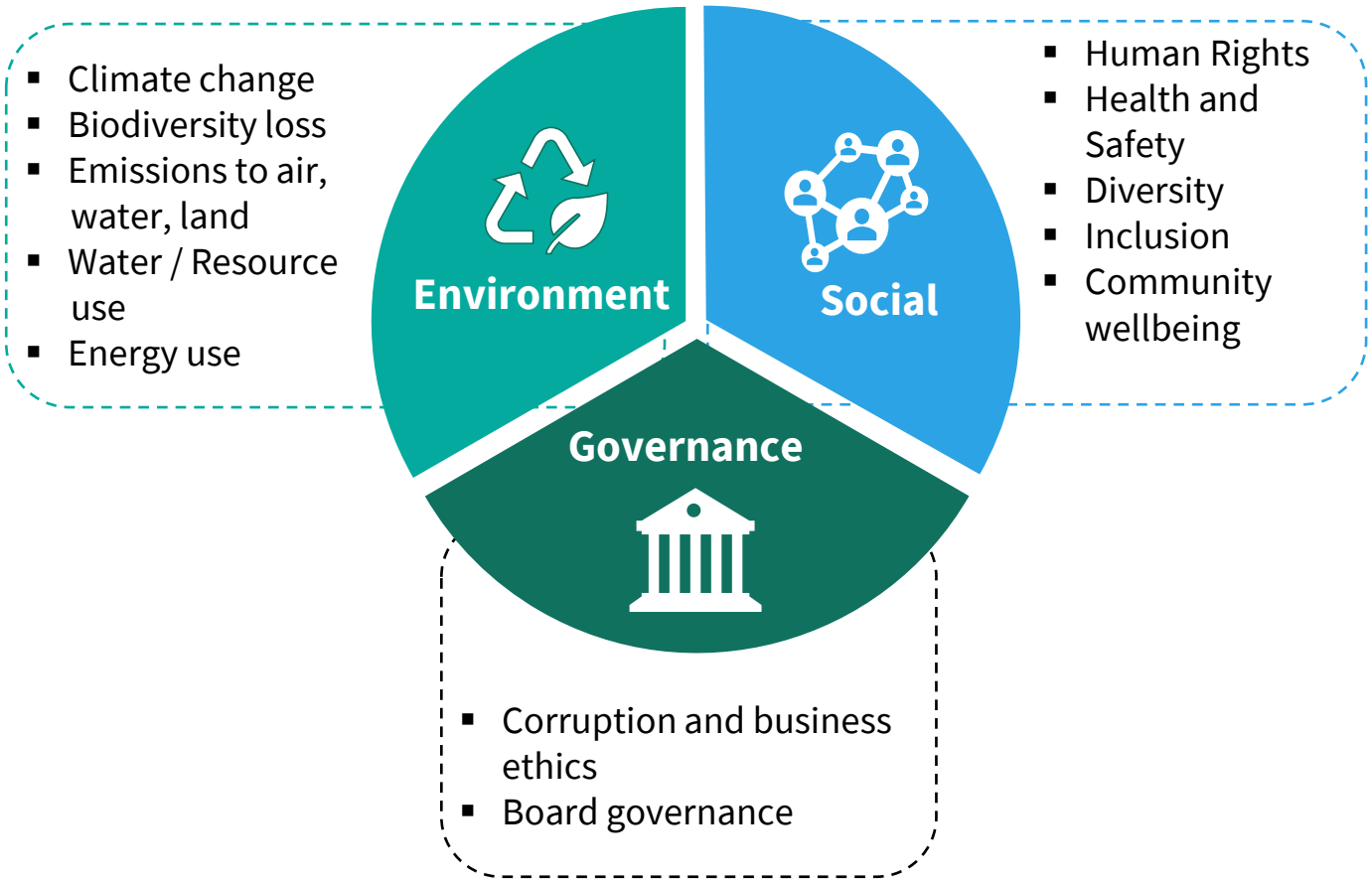
Strategy for Environmental, Social & Governance (ESG) Reporting

ESG Assessment by Port Terminals

Port terminals across the globe are adopting resource efficiency practices, since their activities significantly impact (directly or indirectly) the environment and communities surrounding their sites of operation.

What is ESG?

ESG refers to Environmental, Social and Governance factors considered by companies when managing their operations, and investors when making investments, in respect of the risks, impacts and opportunities.



Industry Requirements For ESG Reporting

- The financial sector is broadening and deepening its requirements for ESG information
- Banks and insurance companies are working to integrate ESG factors into risk and credit processes and insurance risk premium assessments
- The Poseidon Principles are now signed by 28 financial institutions, jointly representing approximately USD 185 billion in shipping finance with 31 banks as signatories. The principles represent a framework for assessing and disclosing the climate alignment of ship finance portfolios.
- The EU Taxonomy is the center piece in EU ESG related regulations. The introduction of CBAM puts a focus on shipping industry as well
- ESG Reporting is becoming a financial and legal requirement in the shipping industry with enhanced focus on climate risk in investment decisions.

Ports play a crucial role in global supply chains. However, they are also significant contributors to environmental pollution, affecting local air quality and generating carbon emissions

Environment

Air Quality and Emissions

Shipping accounts for approximately **3% of global greenhouse gas (GHG) emissions**

Ports also contribute to emissions of pollutants like particulate matter (PM), nitrogen oxides (NOx), sulfur oxides (SOx), and carbon monoxide (CO)

Water Quality and Marine Protection

Ports impact water quality through run-offs, spills, and waste discharge. Ports play a crucial role in mitigating marine ecosystem degradation by reducing oily waste, sewage, and refuse disposal

Around **2.5% of ships' oily waste**, **10% of sewage**, and **one-third of refuse** are still being illegally dumped at sea

Climate Resilience and Adaptation

Ports are vulnerable to rising sea levels and extreme weather events, making climate resilience critical

By 2100, the cost of climate adaptation for global ports could reach **USD 205 billion**, yet failing to adapt could result in even higher financial and operational losses

Social

Workforce Safety and Welfare

Ports are large employers but face challenges in ensuring worker safety and welfare

The **adoption of automation and AI** is also reshaping the workforce, requiring **reskilling and attention** to job security

Community Engagement

Ports are increasingly required to mitigate their impacts on local communities. Issues such as noise, traffic congestion, and pollution directly affect residents' quality of life

Human Rights and Labor Practices

Ports must ensure fair labor standards and human rights are upheld throughout their operations, including in their supply chains

Governance

Regulatory Compliance

Increasing environmental regulation, such as **the EU's Emissions Trading Scheme, which included shipping in January 2024**, highlights the need for compliance

Ports must stay updated on these changes and proactively integrate them into their operations to avoid penalties and reputational damage

Transparency and Accountability

Strong ESG governance requires ports to be transparent with their stakeholders

Comprehensive reporting systems that provide real-time data on emissions, waste management, and operational efficiency are critical for building transparency

Ports must **align diverse stakeholder interests, ranging from investors and regulators to local communities**

Overcoming challenges in Implementing ESG

Financial Constraints

Implementing ESG initiatives can be costly, but the long-term savings from **improved efficiency, reduced risk, and enhanced reputation** make it worthwhile

The Transition Pathway Initiative found that **of the 31-largest shipping firms, 21 firms have started integrating low-carbon transitions** into their decision-making

Technological Barriers

Technologies for reducing environmental impacts can be expensive and complex to implement

Operational Complexity

Ports must integrate ESG strategies without disrupting daily operations, requiring a balance between sustainability initiatives and operational efficiency

Organizations are free to choose international standards for sustainability reporting

Commonly Used Reporting Standards

Issuing Organization	Stakeholder Focus	Key Points
The Value Reporting Foundation (result of SASB/IIRC merger)	Investors	SASB has a specific standard for the Marine Transportation Industry
Global Reporting Initiative (GRI)	All stakeholders	GRI is the most widely used international reporting framework for sustainability reporting, with over 90% of the largest companies in the world using this standard..
United Nations Sustainable Development Goals	All stakeholders	Many businesses refer to the SDGs in their reports to showcase positive impact and contribution to the goals.
Task Force on Climate-related Financial Disclosures (TCFD)	Investors and other fin. services stakeholders	Climate-related Financial Disclosures that enable investors and the wider public to gain insight into the risks a company may face related to climate change.
CDP (formerly the Carbon Disclosure Project)	Investors	Mostly covered by the disclosures included in TCFD. Widely used by analysts within the financial industry for ratings
Poseidon Principles	Investors	Poseidon Principles constitute a widely used industry framework for evaluating and reporting policies that are in line with the IMO environmental strategies
EU CSRD	All stakeholders	The EU CSRD is a mandatory disclosure to be implemented from FY 2024. The CSRD borrows from all the commonly used reporting standards and further expands on them.

Existing Reporting Practices

The Maritime Industry collects a lot of data for regulatory compliance and industry performance standards. ESG Reporting looks at connecting this collected data to relevant categories and criterias to build targets, show progress and compliance.

Environment

Indicator	Source	Requirement
Scope 1 Emissions	Poseidon Principles	GRI 305 -1, SASB TR MT-110a.1, CDP C6-C8
Sulphur Emissions	MARPOL Annex VI	SASB TR-MT-120a.1 GRI 305-7
Shipping duration in marine protected areas and areas of protected conservation status	UNEP World Conservation Monitoring Centre (UNEP WCMC)	SASB TR-MT-160a.1, GRI 304-2

Social

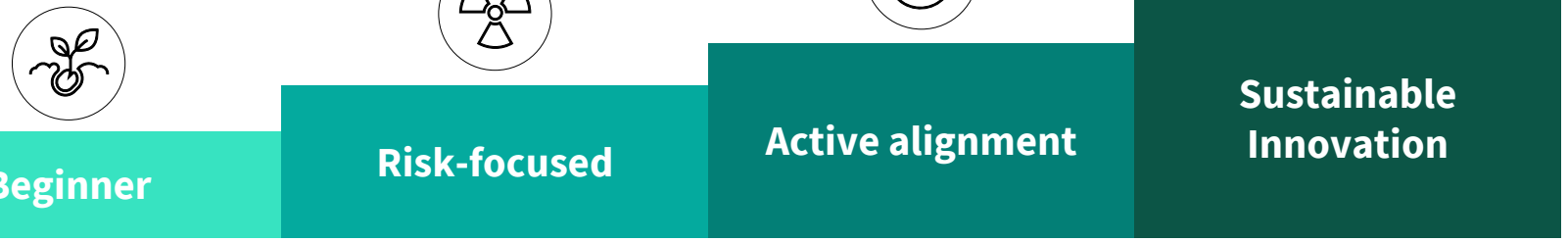
Indicator	Source	Requirement
Lost time incident rate (LTIR)	IMO ISM Code	SASB TR-MT-320a.1 GRI 403-9

Governance

Indicator	Requirement
No. of port calls in 20 lowest rankings in Transparency International's Corruption percentage Index	SASB TR-MT-301-09

Assess your organization's level of ESG maturity and start to bridge the gap between current maturity and ambition

Level of ESG Maturity



	Beginner	Risk-focused	Active alignment	Sustainable Innovation
Business focus	Protects subsidies and jobs	Maintain core business model with an identification of ESG risks	Develop strategies to engage in a more sustainable economy	Explore new ventures and scale transformational innovation
Company culture	Sustainability knowledge sits within targeted functions	Sustainability learning amongst Senior Employees	Integrate sustainability into company culture and roles and responsibilities	Foster community engagement for transparent progress
Data	Data is reported individually for respective disclosures	Utilize and compile data to develop communication strategies	Increase transparency to disclose specific goals, targets and way forward	Leverage data to engage with the value chain and wider stakeholder group
Technology	IT compliance for individual data management	Incorporate ESG into Enterprise Risk Management	Technology to support C-level decision making, reporting for ESG	Invest in technology to support innovation and long-term resilience

LR Approach & Methodology

LR’s viewpoint on applicability of ESG assessment for Existing and new Port

STAGE 1: DURING DEVELOPMENT PHASE OF PORT

- **Environment Specific Assessment Areas**
  - Land Development
  - Waterfront Development
  - Dredging
  - Air, Water & Noise Pollution from construction activities
  - Sourcing of Environmentally Friendly Raw Material for Work Packages
  - Conservation of Greenery/Trees/Plantation etc.
- **Social Specific Assessment Areas**
  - Labour Laws at Construction Site
  - Industrial Labour Relation Management
  - Community Welfare
  - Dispute Resolution during project construction phase etc.
- **Governance Specific Assessment Areas**
  - Project Management Structure
  - Procurement Management
  - Vendor/Supplier Selection Policies
  - Anti Bribery/Anti Harassment Policies
  - No Tolerance Policy
  - Business Continuity Plan etc.

STAGE 2: DURING OPERATIONS PHASE OF PORT

- **Environment Specific Assessment Areas**
  - Energy Consumption of Port Operating Asset
  - Carbon Intensity of the energy consuming asset
  - Emission from Ships during port stay
  - Waste Management
  - Water Treatment
  - Other Air, Water & Noise Pollution port activities etc.
- **Social Specific Assessment Areas**
  - Labour Laws at Operating Terminal Site
  - Industrial Labour Relation Management
  - Community Welfare
  - Labour Wages, Grievance Redressal, Performance Management etc.
- **Governance Specific Assessment Areas**
  - Terminal Management Structure
  - Board Meetings & Appointments
  - Vendor/Supplier Selection Policies
  - Anti Bribery/Anti Harassment Policies
  - No Tolerance Policy
  - Business Continuity Plan etc.

LR's maritime experts will set-up appropriate ESG framework for Port

Compliant with GRI/ EU CSRD / ISSB Requirements 2023

Project timeline: ~ 10 - 12 weeks

1. SETTING ESG FRAMEWORK, DATA IDENTIFICATION & BENCHMARKING

- **Review of ESG standards** and frameworks adopted by **peers in the industry and other regulatory requirements**
- **Identify key data set** for shipping and non-shipping assets focused on **Port history, footprint, performance, achievements, environment , social and governance etc.** to formulate the **ESG framework.**
- Generate list of **relevant material topics** applicable to the organization and **formulate templates** for internal & external stakeholder discussion.

2. STAKEHOLDER CONSULTATION AND MATERIALITY ASSESSMENT

- **Selection of stakeholders** that are important to business, such as customers/ dealers, employees/ workers, suppliers/ vendors/contractors, communities/ NGOs, investors & financial institutions, government/local authorities/regulators, and industry associations.
- **Schedule Consultation workshop with internal stakeholders** to identify key datasets, key projects to be highlighted.
- This workshop helps with **ESG sensitization within the entire organization** and a **bottom – top approach to ESG strategy discussion**.
- Consultation with key external stakeholders to identify **material topics for external audience** of the ESG report.

3. MATERIALITY MATRIX AND SDG MAPPING

- Stakeholders responding to the materiality questionnaire will be ranked as per the priority of each material topic as **'influence on stakeholders' and 'impact on business'**
- **Prioritization of material topics** shall be assessed using a materiality matrix.
- All identified material topics will be **mapped against relevant sustainability development goals** (SDG) as per GRI standards.

4. ESG REPORT PREPARATION

- **Data analysis** of selected and prioritized material topics shall be conducted based on receipt of information against identified data set under Step 1.
- **Reporting of information** under the finalised ESG framework to showcase the organization's current readiness level, availability of structure, policy & practices, company achievements, targets etc.

5. ESG STRATEGY FORMULATION

- **Identify ESG impacts, risks and opportunities** and incorporate it into business strategies
- **Develop a holistic ESG Strategy**
- **Establish appropriate governance structures and risk management processes** to avoid ESG oversight
- **Develop goals and targets for next ESG report** to measure progress against milestones