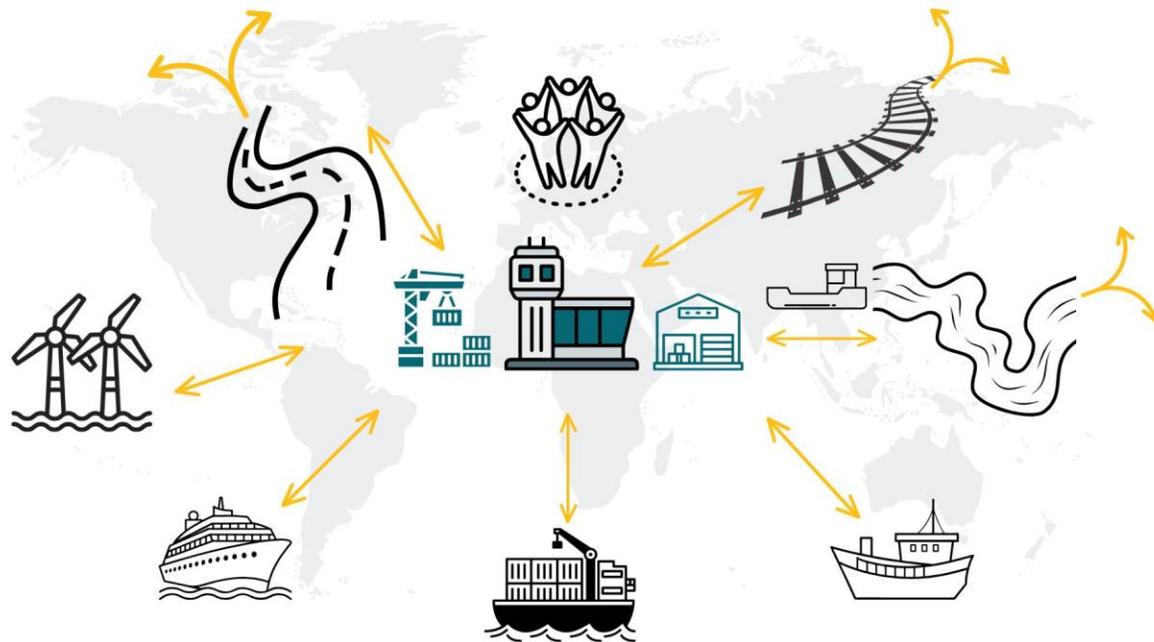


ADB Green and Resilient Ports Strategy

Exploring sustainable and durable port development strategies

Ports and facilities serving waterborne commerce sit at the nexus of global trade, local communities, and national economies acting as gateways that move goods and people, anchor livelihoods, and shape sustainable growth.



Graphic Source: SESG 2025

- ▶ ~80 % of the volume of international trade in goods is carried by sea. *Source UNCTAD 2024*
- ▶ The global market for port infrastructure was estimated at US\$163.4 billion in 2024, projected to grow to ~US\$207.9 billion by 2030. *Source: Research & Markets 2025*
- ▶ Nearly 90% of the world’s ~3,700 major ports are exposed to climate hazards (flooding, at risk of water depth changes, storm surge) *Source: TT Club 2025*
- ▶ Women accounted for ~19% of the workforce in national maritime authorities (public sector) while in the private sector this was 16%. *Source: IMO WISTA 2024*

International Frameworks and Sectoral Pathways for Ports

Ports operate within a dual landscape of global sustainability commitments and sector-specific frameworks, aligning international obligations with industry-led standards for greener, more resilient maritime trade.

International Commitments:

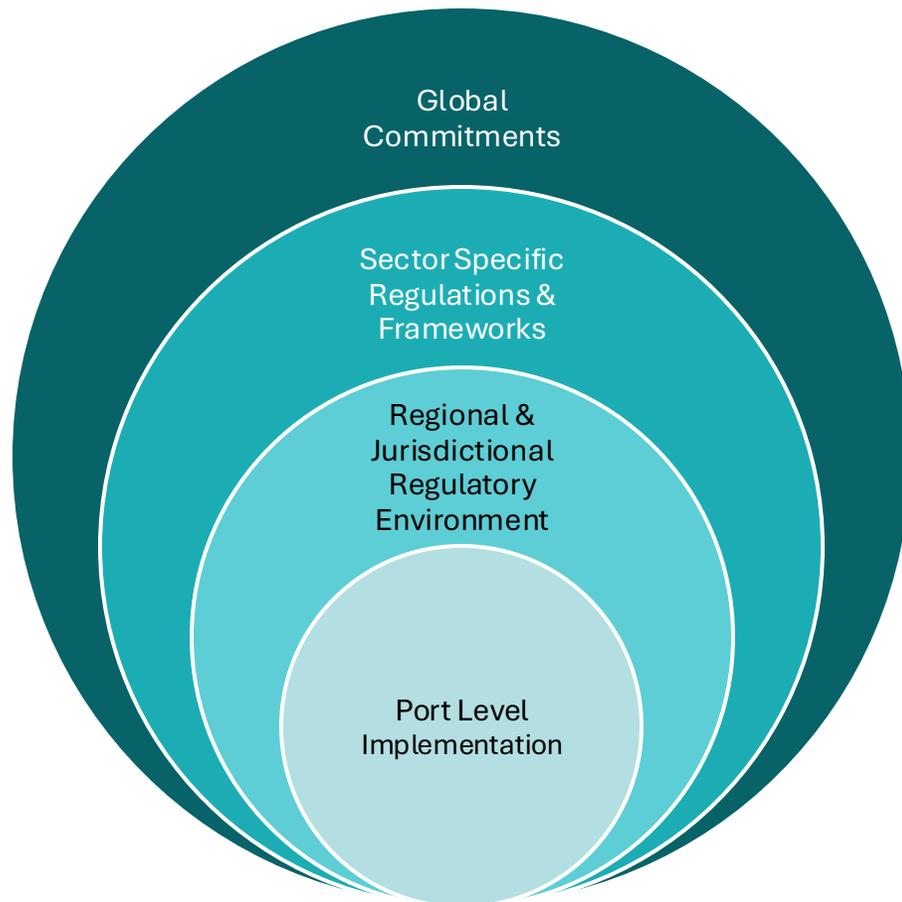


Sector Specific:



Aligning Global Commitments with Regional Obligations

While global frameworks set the direction on climate, resilience, and sustainability, ports must also navigate regional and jurisdictional overlays, aligning international commitments and compliance with relevant legislation, financing frameworks, and policy directives.



- ▶ Multiple overlapping frameworks with different mandates and timelines.
- ▶ Diverse regulatory maturity and risk of regulatory fragmentation across regions.
- ▶ Global standards create a baseline for vessels and ports to collaborate.

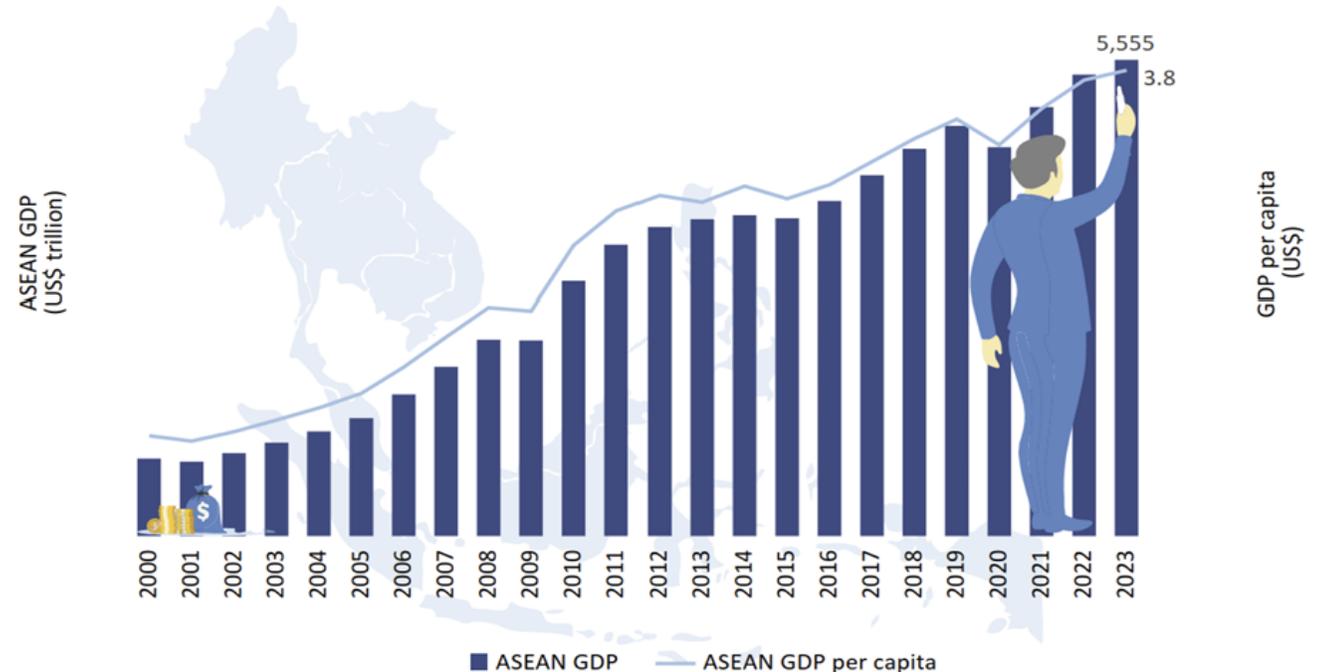
Graphic Source: SESG 2025

ASEAN Initial focus of Green Ports Toolkit - Context

With ASEAN’s ~677 million people and a combined economy of ~USD 3.8 trillion, the region’s ports, from global mega-hubs to small coastal gateways, are vital engines of trade, growth, and community resilience

- ▶ ASEAN’s total population is ~ 677.6 million (2023) with ~ 127.1 million visitors to the region (2024). *Source: ASEAN Stats 2025*
- ▶ ASEAN's nominal GDP reached US\$3.8 trillion in 2023, making it the fifth-largest economy globally, contributing 3.6% to global GDP. *Source: ASEAN 2024*
- ▶ ASEAN collectively is among the fourth largest source of emissions globally, with projected energy demand tripling by 2050. *Source: Met Office 2024*
- ▶ More than half of ASEAN countries are ranked among the world’s most climate-vulnerable. *Source: Met Office 2024*

ASEAN GDP (US\$ trillion) and GDP per capita (US\$), 2000-2023



Graphic Source: ASEAN Secretariat, ASEANstats database 2024

Strategic Importance of Ports in Asia-Pacific

Economic Gateways

Ports in Asia-Pacific are crucial gateways that drive the region's trade, transport, and tourism sectors.

Global Shipping Hubs

These ports serve as central hubs in global shipping routes supporting efficient supply chains and market connectivity.

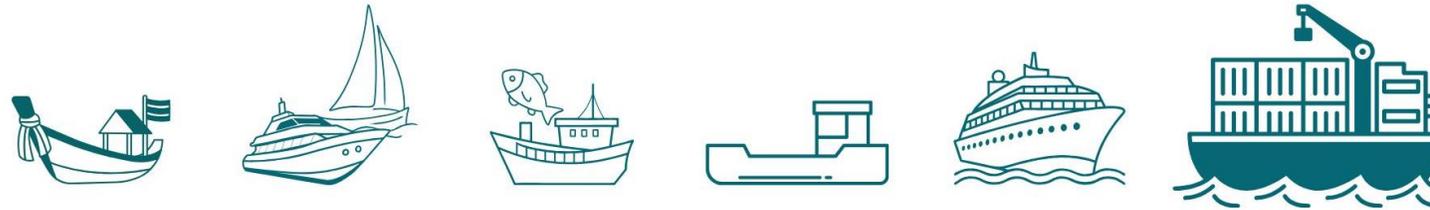
Sustainable Port Development

Green ports reduce carbon emissions and enhance climate resilience by integrating advanced sustainable technologies.



ASEAN Ports & Trade

From global-scale logistics hubs to small fishing harbors, ASEAN’s ports reflect the region’s economic and geographic diversity.



in 2023 ASEAN’s total international merchandise trade was ~US\$3,526 billion, with US\$1,811 billion of exports and US\$1,715 billion of imports. *Source: ASEAN Stats 2025*



In 2021, ASEAN’s fisheries output was about 45.8 million metric tons, valued at USD 75,873 million. The percentage of registered boats defined as powered vessels was ~83% (875,223 vessels). *Source: SEAFDEC 2024*



In 2023, intra-ASEAN trade continued to be the largest contributor of ASEAN total trade with 21.5% shares to ASEAN total trade. *Source: ASEAN 2024*



For tourism, SE Asia visitor arrivals jumped up by 30.6% in 2024 to 123 million, showing a strong recovery towards pre-pandemic levels. *Source: ADB SEADs May 2025*

Climate Change

▶ Southeast Asia is projected to experience more intense rainfall events as soon as by the middle of the 21st century, with flood risk becoming more frequent and severe. *Source: IPCC*

▶ Across Southeast Asia, temperature has been increasing at a rate of 0.14°C to 0.20°C per decade since the 1960s. Number of hot days and warm nights have increased while cooler weather has declined. *Source: IPCC*

▶ Estimates suggest that a high emissions scenario would uniquely reduce labor productivity in the region, with up to a 30% reduction by 2070. Extended heat waves may also lead to higher workplace accident rates, increased conflict, and lower learning rates in schools. *Source: ADB 2024*

▶ Warming of seawater and acidification by increasing CO2 concentrations put reefs and fisheries at substantial risk. Models show that both forestry and fisheries yields will substantially decline under a high emissions scenario.. *Source: ADB 2024*

The ASEAN Catalytic Green Finance Facility (ACGF)

- ▶ A permanent facility under the ASEAN Infrastructure Fund (AIF)
- ▶ Established to accelerate green infrastructure investments across Southeast Asia
- ▶ Supports ASEAN governments in preparing and financing projects that advance environmental sustainability and contribute to regional and global climate goals
- ▶ Jointly owned by ASEAN member governments and the Asian Development Bank (ADB)
- ▶ Managed by ADB's Green Finance Hub (GFH) within the Southeast Asia Regional Department (SERD).



Green and Resilient Ports Clinic

The ACGF Innovative Finance Green and Resilient Ports Clinic held in Singapore on 16–17 October 2025, was co-organised with Infrastructure Asia, and designed to build capacity alongside identifying early-stage project concepts.

- ▶ The Clinic brought together public and private sector stakeholders to explore the key components of green port development
- ▶ A total of 91 participants attended the clinic, representing over ten countries
- ▶ Serves as an important precursor to the broader regional initiative to develop a Green Port Strategy and Toolkit





Insights to Inspire the ADB Green Port Strategy

- ▶ **Ports at the Frontline of Trade & Climate Risk:** Ports move ~80% of global goods and anchor ASEAN's USD 3.8 trillion economy, yet nearly 90% are exposed to climate and disaster risks. Resilience is now a core business necessity.
- ▶ **Global Frameworks Driving Regional Action:** International standards (IMO, Paris, IFRS S2, SDGs) are translating into ASEAN policies (Green Port Framework, ACGF, ASEAN Taxonomy) — setting a clear path for disclosure, decarbonisation, and adaptation.
- ▶ **One Region, Many Port Profiles:** From mega container hubs to fishing harbors, ports differ in maturity and exposure. Materiality-based approaches and stakeholder alignment are key to prioritising what matters most.
- ▶ **Integrating Climate, Energy & Nature:** Emissions reduction, biodiversity protection, and renewable energy uptake are converging, positioning ports as enablers of low-carbon, climate-resilient growth.
- ▶ **Expanding Investment Opportunities:** Signal strong potential for green and blended finance.



Green and Resilient Ports Strategy

Through support from ADB and ACGF financing partners we are working to strengthen upstream planning and increase the regions capacity to accelerate a pipeline of green projects.

Comprehensive Framework

The strategy will offer a detailed framework to promote environmentally friendly and resilient port development across regions.

Environmental Impact Minimization

The Strategy will focus on reducing environmental footprints through sustainable practices and efficient resource management at ports.

Climate Resilience Integration

It will include recommendations to embed climate resilience into port planning and operational processes for long-term sustainability.

Circular Economy Support

It will aim to encourages transition to circular economy models by promoting resource reuse and waste reduction in port activities.



Green and Resilient Ports Toolkit

We are developing a practical toolkit outlining technical, operational, and financing options for green port development

- ▶ **Phased Toolkit Development**
Development begins with a generic toolkit for all ports, expanding later to specialized facilities.
- ▶ **User-Friendly Interface**
Tool designed with an easy-to-use interface inspired by existing green infrastructure toolkits.
- ▶ **Sustainability Benchmarks**
Toolkit provides best practices and benchmarks to standardize sustainability measurements in ports.



Green Ports Toolkit: Key Outputs & Activities

Vision - Define for future green ports using foresight tools and scenario analysis – through ADB Green and Resilient Ports Strategy, Toolkit, and Guidance Notes

Toolkit Development

Review global green port systems, technologies, and certification schemes and Create user-friendly toolkit with practical options for green port development

Investment Opportunities

Working with DMC Govts. identify and prioritize green port investment opportunities in Southeast Asia & Pacific. Prepare concept notes for priority projects

Knowledge & Capacity Building

Prepare data knowledge series: case studies, best practices, technical advisory notes and organize webinars, training, and workshops for ADB staff and DMC stakeholders

Benchmarking & Monitoring

Provide tools for benchmarking, monitoring, and standardizing green port achievements and prepare differentiated approaches based on country and regional context



Green and Resilient Ports Toolkit - Events

We are developing a practical toolkit outlining technical, operational, and financing options for green port development



Schedule of Webinars and Blogs – planned subjects;

1. What is a 'Green Port' – completed Oct '25
2. Decarbonization outcomes – technology (shipping – channels – ports) – completed Nov '25
3. Cruise ports / terminals - Dec '25
4. Fisheries / Fishing ports – Jan '26
5. Technology – automation container terminals, VTMS, digitalization – Feb '26
6. Nature based solutions, bio-diversity and conservation measures – Mar '26
7. Coastal engineering – port engineering - lines of defense – Apr '26
8. Dry bulk cargo ports / terminals – mitigation, controls, monitoring - May '26
9. Social license to operate – imex, traders, – user expectations / pressure for change – June '26
10. Community engagement / impacts to local communities surrounding port / terminal – July '26
11. Policy based financing and the regulatory environment – Aug '26
12. Certification and benchmarking – Sept '26
13. Launch of toolkit – May '26

Green and Resilient Ports Toolkit – Webinar QR codes



Webinar 1: Green and Resilient Ports Global Lessons for Southeast Asia



Webinar 2: Smart, Clean, Connected The Next Wave of Port Decarbonization



Follow ADB's ASEAN Catalytic Green Finance Facility for updates on upcoming Green Ports webinars

Thank you

