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INDONESIA



State of Play: Indonesian Policy in Reducing GHG Emissions in the Maritime Transportation Sector

Indonesia adopted the IMO policy in reducing GHG emissions in the maritime transportation sector through Minister of Transportation Decree 8 of 2023 concerning Determination of Climate Change Mitigation Actions in the Transportation Sector to Achieve National Contribution Targets

NDC (Nationally Determined Contribution) → Enhanced NDC

“to handling global climate change in order to achieve the goals of the Paris Agreement to the United Nations Framework Convention on Climate Change”

- Indonesia's commitment in the Enhanced NDC is to reduce the level of GHG emissions **in 2030 unconditional by 31.89% and up to 43.2% with the condition of additional international support below the baseline emission level.**
- The energy sector target from before the CM1 reduction (according to the 2016 NDC document) was 314 million tonnes of CO₂, enhanced to a CM-1 reduction of 358 million tonnes of CO₂ in accordance with the ENDC 2022 document.



Main Policies and Regulation that promote the Green Port and Shipping within Indonesia

KP. 201 of 2013 Determination of RAN-GRK for the Transportation Sector

Ministerial Decree 8 of 2023 Establishing Climate Change Mitigation Actions in the Transportation Sector

Other Policies and Regulation :

- Presidential RI Instruction No. 5 of 2020 on the National Logistic Ecosystem Management (NLE)
- Presidential RI Regulation No. 18 of 2020 on The National Medium-Term Development Plan for 2020 – 2024
- Director General of Sea Transportation (DGST) Decree No. 936 /DJPL/2020 on DGST Strategic Plan for 2020 – 2024
- Presidential RI Decree No. 98 of 2021 on Implementing Carbon Economic Value (NEK)
- Director General of Sea Transportation (DGST) Regulation No. KP-DJPL 689/2022 on Ecoport Guidelines

State of Play: The Green Port Program that Indonesia Accomplished



Management

Performance efficiency and governance of port business processes.



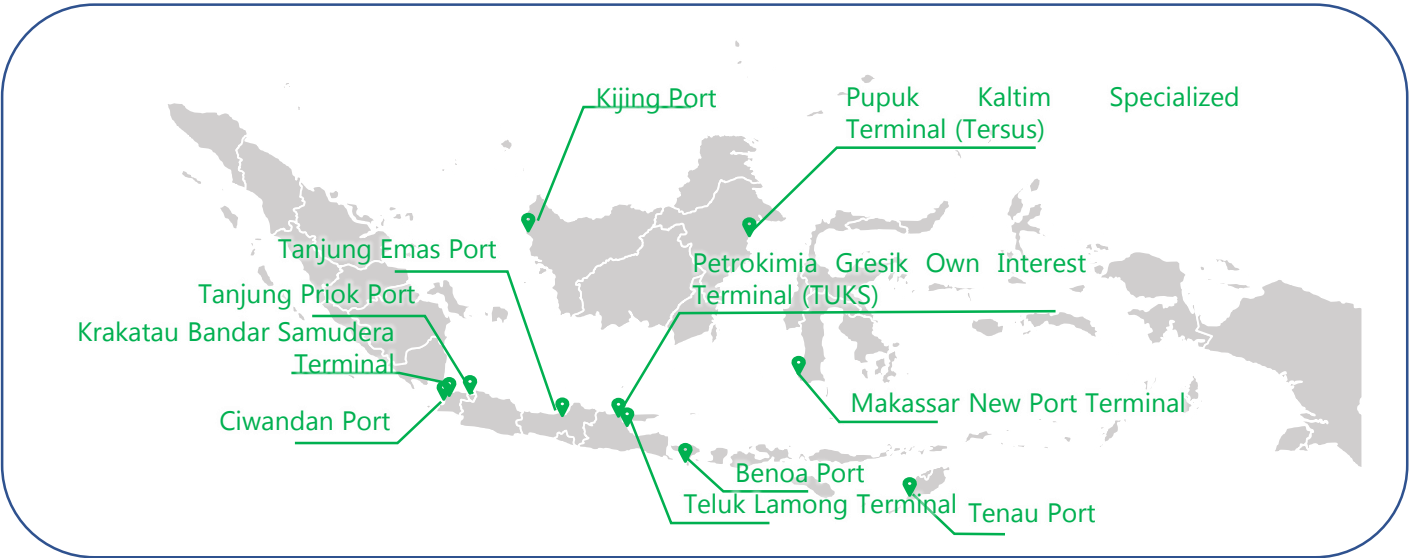
Technical aspect

Port area management, environment, health safety and security, energy, climate change and biodiversity.



Digitalization aspect

digitalization in business processes and transactions to improve services.



Green Port in Indonesia 2022:

- Pupuk Kaltim Specialized Terminal (Tersus)
- Kijing Port
- Petrokimia Gresik Own Interest Terminal (TUKS)
- Tanjung Emas Port
- Tanjung Priok Port
- Krakatau Bandar Samudera Terminal
- Ciwandan Port
- Makassar New Port Terminal
- Benoa Port
- Teluk Lamong Terminal
- Tenau Port
- etc

Source: ID Survey, 2022

State of Play:

Notable achievements include the development of several pilot ecoports that incorporate green initiatives like renewable energy and energy efficiency. Teluk Lamong Terminal in East Java serves as a best practice example.



THE IMPLEMENTATION OF ECOPORT IN INDONESIA

Teluk Lamong Terminal, East Java



Decarbonization

- ✓ Using Compressed Natural Gas for Truck fuel
- ✓ Equipment Automatization
- ✓ Develop the Gas Engine Power Plant



Energy Saving

- ✓ Light Emitting Diode (LED)
- ✓ Solar Cell
- ✓ Exhaust Gas AC system
- ✓ Reducing fossil energy



First Semi-Automated Terminal in Indonesia

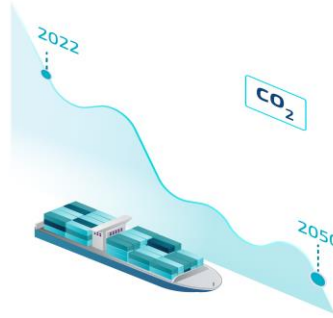
- ✓ Increasing Safety



Other Facilities

- ✓ Waste Management
- ✓ Incinerator
- ✓ Oily Water Separator
- ✓ Oil Spillage

State of Play: Shipping Decarbonization in Indonesia



Implementing Energy Efficiency Measurement for Ship

Indonesia has adopted mandatory measures to reduce emissions of greenhouse gases under IMO's pollution prevention treaty (MARPOL) Annex VI Regulation, namely:

- Energy Efficiency Design Index (EEDI)
- Energy Efficiency Existing ship Index (EEXI)
- Ship Energy Efficiency Management Plan (SEEMP) Part I, II & III
- Ship Energy Efficiency Management Plan (SEEMP) IMO Data Collection System (DCS) and Carbon Intensity Indicator (CII)



Utilizing Biodiesel/Fatty Acid Methyl Ester (FAME) as Fuel for Ship

Mandatory use of Biodiesel20 (20% FAME and 80% HSD) is not only for public service obligation (PSO) use but is extended to non-PSO which includes heavy equipment, industry and shipping.

Public and stakeholder engagement

Policy	Stakeholder	Role/Action
Energy Efficiency	Shipping Companies	<ol style="list-style-type: none"> 1. Ship modernization 2. Implementing the Ship Energy Efficiency Management Plan (SEEMP) 3. Use of On Shore Supply at the port 4. Use of Anti Fouling System on the ship's hull
	Port Operator	<ol style="list-style-type: none"> 1. Implementation of On Shore Supply facility at the port 2. Equipment electrification 3. Digitalization using 1 app for all business processes.
	Energy Company	Solar electricity in transportation infrastructure
	Shipyard and Shipping Manufacture	<ol style="list-style-type: none"> 1. Implementation of Anti Fouling System on the ship's hull 2. Machinery and equipment modernization
Utilization of New Renewable Energy	Shipping Companies	Use of biodiesel fuel (B20)
	Port Operator	Solar Power generation in transportation infrastructure
	Energy Company	<ol style="list-style-type: none"> 1. Development of biodiesel fuel with a content above 20% 2. Development of solar power plants for transportation infrastructure

Public and stakeholder engagement



Green Port Awarding 2022

- Initiated by the Coordinating Ministry for Maritime Affairs and Investment.
- The assessment was carried out by ID Survey Inc. to assess the fulfillment of the green port criteria that must be met by the ports.
- This awarding is able to encourage port operators to implement green ports to improve the port's image from an international perspective.

Challenges

Greenport Challenge

Port Electrification

- Electricity supply in areas outside Java island is still limited (Java have 59% of national power plan capacity).
- Low availability of components supporting electrification.

Sustainable Development

- Ensure the availability of green space
- Formulate evaluation of the Sustainable Development activities that have been implemented (Mangrove Planting Program, Using Non-CFC Refrigerant, etc.).

Provide Renewable Energy

- The cost of new renewable energy is still high compared to fossil fuels.

Shipping Decarbonization Challenge

Fuel Efficiency

- On average, ships operating in Indonesian waters are old and their engine systems still use old technology that is fuel inefficient.

Ship Modernisation

- The fiscal capacity of domestic shipping liners is low.

Engine – Fuel Compatibility

- It is many ship that not compatible for Biodiesel fuel ship.

Energy Alternative Utilization

- low fiscal capacity and facilities for alternative fuels (fuel cells and ammonia) development.

SOUTH KOREA

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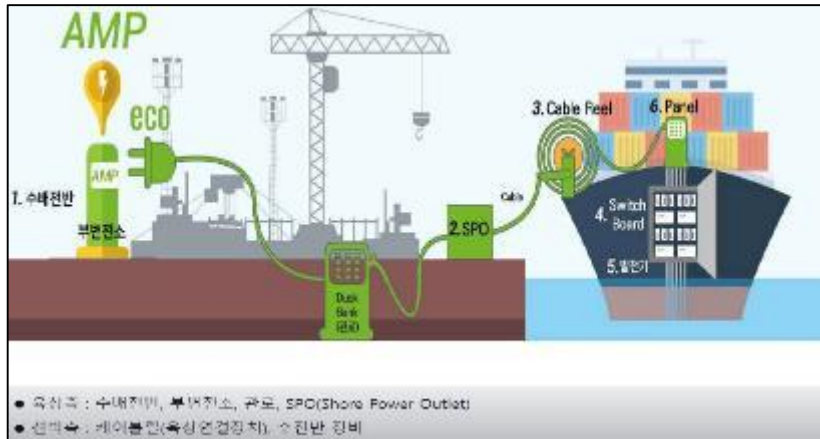


04-Reduction Projects(Vessels Sector)

1

Achieving zero emissions from berthed vessels through AMP

- ✓ Installation of alternative maritime power systems in Busan Port
 - (Low voltage AMP) 78 AMP stations for small ships has been in operation
 - (High voltage AMP) 20 AMP Stations has been in operation(8 berth)
 - (1st pilot project) AMP installation completed for Busan New Port Piers 3 & 4 (Dec. 2019)
 - (2nd pilot project) AMP installation completed for Gamman & Sinseondae Pier (Apr. 2021)
- ✓ Movable Connection Cable Manufacture completion(Jun. 2022)



< AMP concept image >



< Movable Connection Cable >

04-Reduction Projects(Vessels Sector)

2

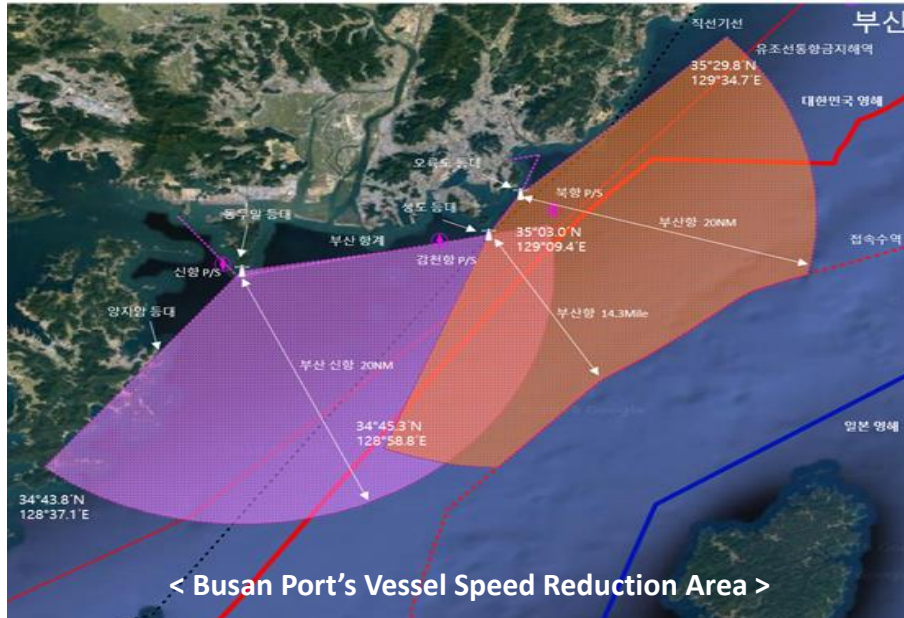
Incentive Scheme for Low-speed Vessel Operation

* USD1=KRW1,200

✔ Offering 15~30% of Port Charge Exemption for the vessel operators Reducing Speed

- (Progress) 1.65 billion won exempted for **9,796 vessels**

* **78% of Shipping Line** called at Busan Port **participated in 2022 (+8% compared to 2021)**



(Vessel Type) Container Vessel, Car Carrier over 3000t

(Speed Limit) 12kn(22km/h) or slower

(Area) within 20 nautical miles from harbor limit)

(Detail) Shipping line should comply with the speed limit over 60% of each vessel's annual entries and departure

04-Reduction Projects(Vessels Sector)

3

Building Electric Port Guide Vessel – Achieving Zero Emission

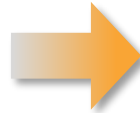


Electric Port Guide Vessel Building Project

- **(Project detail)** By replacing our 20 years old port guide vessel(Saenuri) with the new Electric one, we could reduce harmful emissions to Zero.
- **(Period)** Oct. 2020 ~
- **(Vessel spec)** 300 GT, full length of 40m, 2MWh battery, approximately 80 passengers



< (Before) Busan Port guide vessel (Saenurid) >



< (After) Electric Vesse(E-Green)I >

04-Reduction Projects(Cargo Handling Equipment Sector)

1

Exhaust gas reduction by switching fuel from diesel to LNG/Electric for yard tractors (Y/T)

* USD1=KRW1,200

✓ 80% of Fine Dust reduction by changing the Diesel fuel engine to LNG

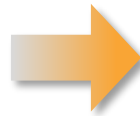
- (Progress) 537 Yard Tractors are on operation as the end of 2023

* 2023 project : 1,840 Million won (BPA 25%, Ministry of Oceans and Fisheries 25%, Private 50%)

✓ Will Switched to Electricity Y/T for Carbon Neutrality



LNG YT (537 units, 2023)



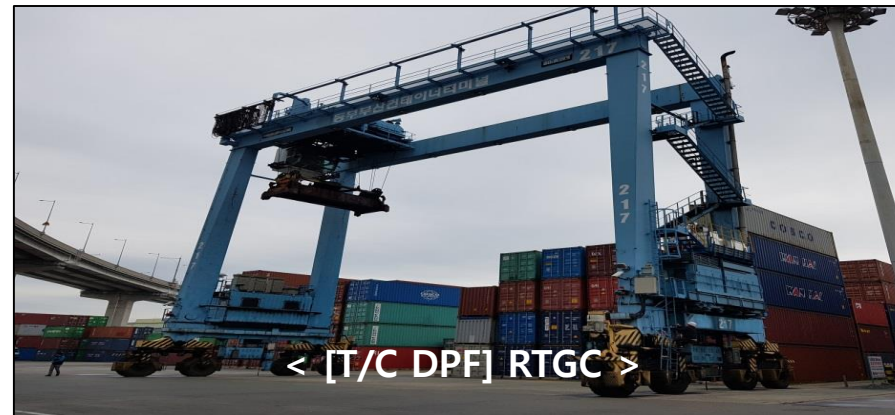
Electricity YT (4 units, 2023)

04-Reduction Projects(Cargo Handling Equipment Sector)

2

Converting Diesel Transfer Cranes (T/C) to eco-friendly Equipment

- ✓ 92% T/C(366)s in Busan Port are in operation under e-RTGC systems
 - 100% of 279 T/Cs in Busan New Port, 72% of T/Cs in Busan North Port are electrically operated.
- ✓ By the end of 2023, 6% T/C(25)s in Busan Port are in operation with DPF
- ✓ Total 98% of T/Cs are in operation as eco-friendly way, we are planning to convert all equipment to 100% eco-friendly ones by 2024
 - 103 million won to install DPF for 1 T/C (BPA and Gov.t support 45% each, Private pays 10%)



THAILAND

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BUSINESS OVERVIEW



Port Authority of Thailand (PAT) Laem Chabang Port



21st
by throughput in 2022
8.73 Mil (teu)



27th
the rankings of container port
performance in the CPPI 2022



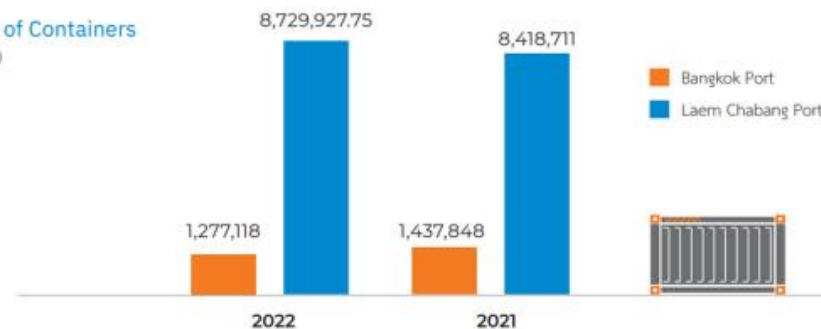
2505.93 acres
LCP covers an area

Vessels and Cargoes Statistics

at Bangkok Port and Laem Chabang Port

Number of Containers

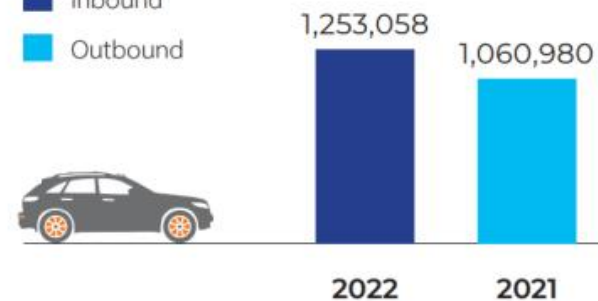
(Unit: TEUs)



Number of Vehicles

(Unit: Units)

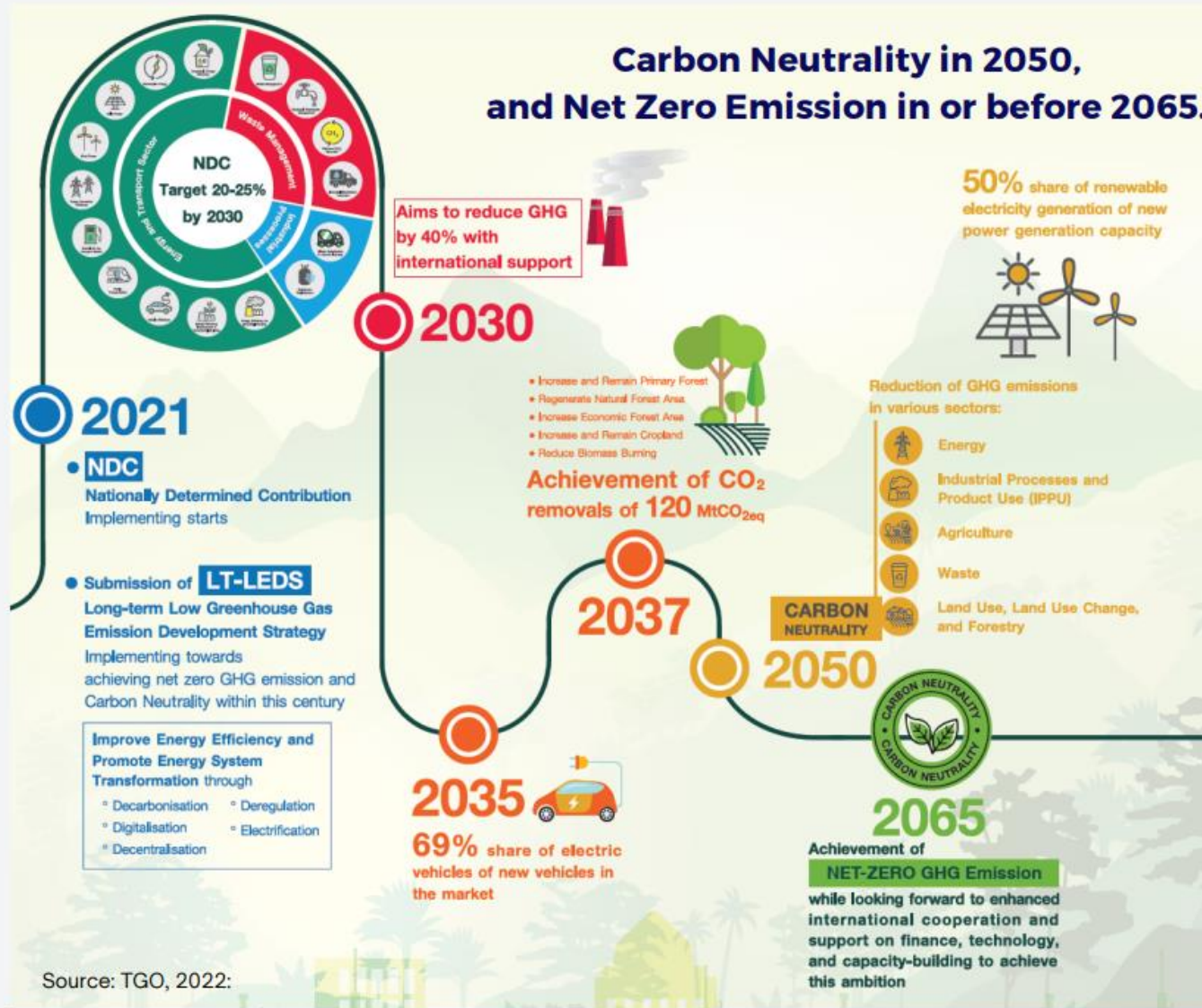
■ Inbound
■ Outbound



11.1 million TEUs
a handling capacity

State of Play

Thailand's Long-term GHG Emission Development Strategy



Source: TGO, 2022:



Thailand's 20-Year National Strategy (2018-2037)



13th Thailand National Economic and Social Development Plan (2023-2027)



Thailand Transport Development Strategic Plan 2018-2037



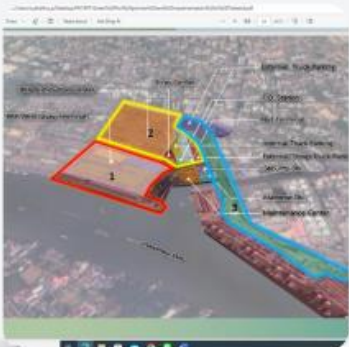
PAT Environmental Policy

State of Play



GREEN PORT INITIATIVES

Decline Carbon Emissions by 10% by 2030



State of Play



ACHIEVEMENT



PAT successfully reduced carbon emissions by more than 5 % in 2023 and invested more than \$7 million

DRIVERS FOR CHANGE

- Top-down policies
- IMO 2023 GHG emission strategy
 - Zero GHG emission from international shipping by or around 2050



PUBLIC AND STAKEHOLDER ENGAGEMENT



PAT Strategic Plan on Stakeholder Engagement and Relationship Management

CHALLENGES

Operational barriers

- The supply of low- or non-carbon energy
- The knowledge of alternative low-carbon fuels



PHILIPPINES

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01-State of Play

Guiding Questions:

2. What notable achievements or progress has your country made with regards to Question No. 1.

- ✓ **Participation to the Green Port Award System (GPAS) Program** where **five (5) PPA ports have been recipients of this award**, namely, the Manila International Container Terminal (MICT) operated by International Container Terminal Services Inc. (ICTSI); Manila South Harbor operated by Asian Terminals Incorporated (ATI); the Port of Batangas; Port of Cagayan de Oro; and the Port of Surigao.
- ✓ **Establishment of Carbon Sink Areas (Tree Parks)** in the Ports of Cagayan de Oro and Surigao, among others
- ✓ **Use of clean and renewable energy sources in ports** such as installation of Solar-powered lighting and LED lighting systems in office and terminal buildings.
- ✓ Upgrading/Provision of **Fuel-efficient Cargo Handling Equipment and Rubber-Tired Gantries (RTGs)** of terminal operators

01-State of Play

Guiding Questions:

2. What notable achievements or progress has your country made with regards to Question No. 1. (Continued)

- ✓ **Provision of Shore-Based Power Supply (SBPS) or Cold Ironing** which is currently implemented at the Port of Cagayan de Oro
- ✓ Implementation of the following digital technologies and automation of port processes:
 - Implementation of the **Internet-based Port Operations and Receipting for Terminals System (IPORTS)**
 - Electronic Terminal Management System (ETMS)
 - e-Permit Management System
 - Terminal Appointment Booking System (TABS)
 - Transport Accreditation, Permits and Pass for Ports System (TAPPPS)
 - QR Code System

04-Challenges

Guiding Questions:

1. **From your perspective, what are the primary challenges and obstacles that have hindered the transition to zero-emission ports and shipping in your nation? Are there any legal, financial, technological or operational barriers that have been particularly problematic?**
 - Limited funding and resources for port infrastructure and technological investments
 - Comprehensive policy adjustments to drive the transition including incentivizing sustainable practices in the maritime industry
 - Stringent implementation of environmental policies and guidelines