

# Green Ports Funding & Financing Initiative

*Regional knowledge-sharing workshop on Port greening and decarbonization*

George Lin  
Project Director  
Royal Haskoning DHV

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# Agenda

- Section 1: Project Background
- Section 2: Why ports? – The importance of ports
- Section 3: Why a fund? – The need for a green port focused initiative
- Section 4: Who and what to Support? – Support Mechanisms
- Section 5: How to support? – Structure of the fund

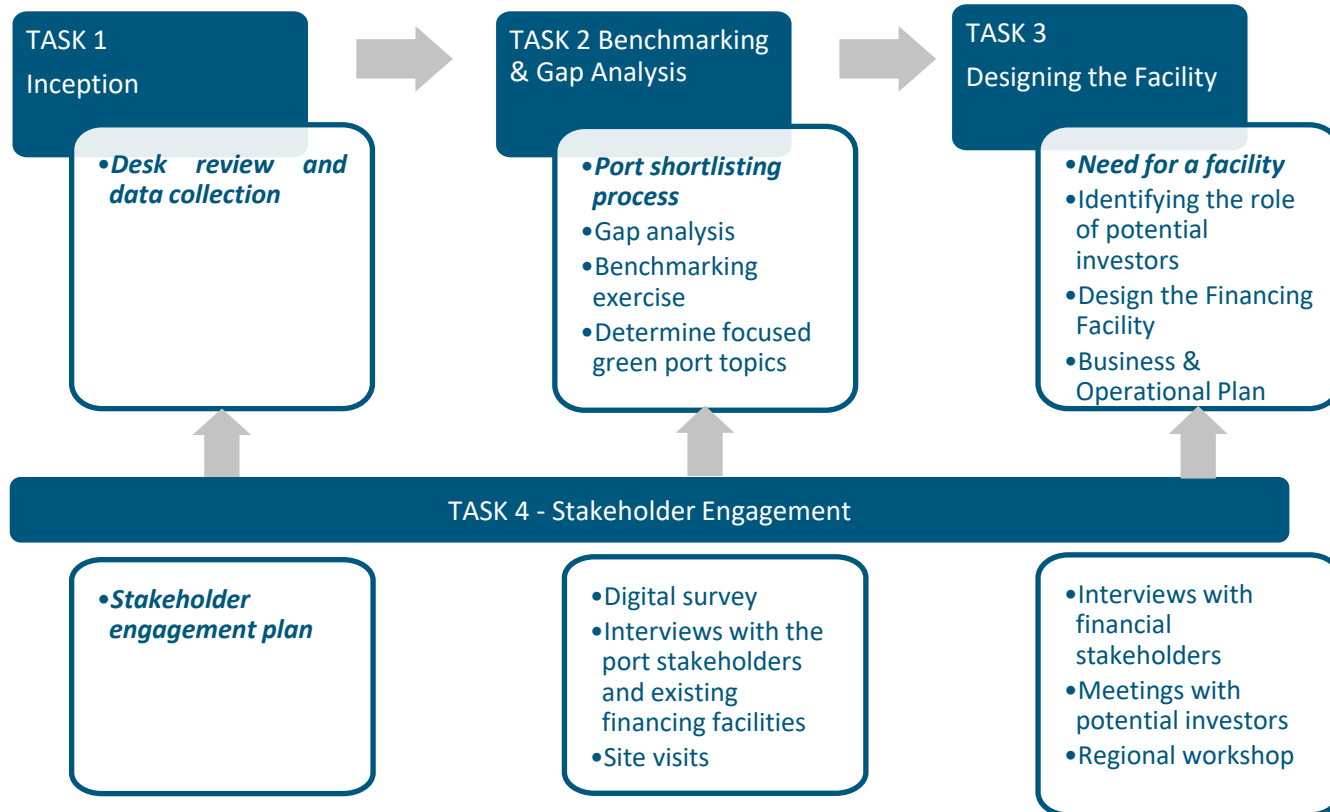


## Section 1: Project Background

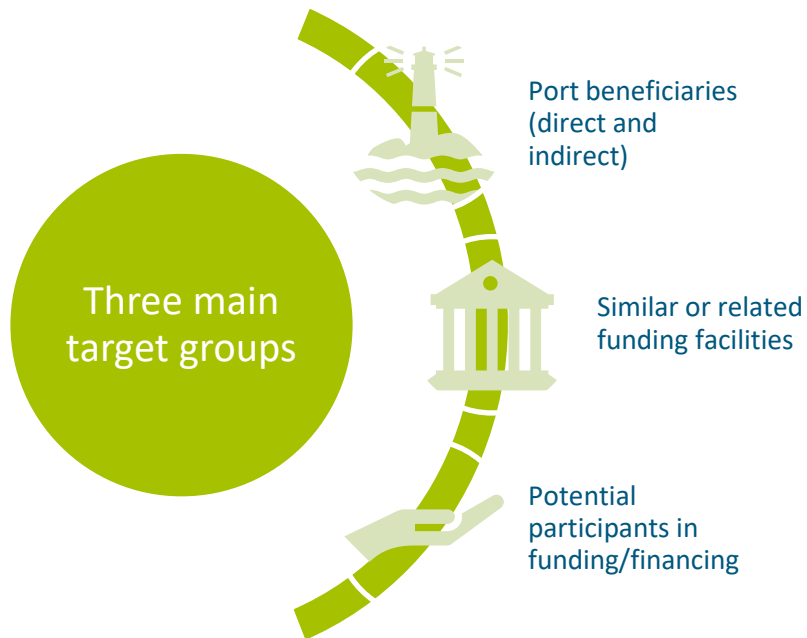
# Royal HaskoningDHV is engaged by ADB to propose a business plan for a financing facility to promote green port and maritime decarbonisation in Asia and the Pacific.

- As part of ADB's TA6628, in March 2023 Royal HaskoningDHV was engaged to make a Business plan for a financing facility supporting the greening of ports and decarbonisation of maritime transport across Asia and the Pacific.
  
- The purpose of the financing facility is to:
  - reduce carbon emissions and air and water pollution;
  - improve solid waste management; and
  - enhance the resilience of the ports and emergency response preparedness.
  
- When conducting the study, we have considered the following:
  - Focus on the developing member countries of ADB;
  - The diversity of ports in Asia and the Pacific;
  - The regional balance of all DMCs should be maintained.

## RHDHV Approach



## Stakeholder Engagement Plan



- Engagement activities:
  - Digital survey
  - Virtual Interviews
  - Site Visits
  - Regional Workshop

## Stakeholder Engagement Progress



24 ports: digital survey

8 ports: virtual interviews

4 ports: site visits

14 financing facilities/funds/  
programs interviewed

## Section 1: Project Background

# Project Timeline & Progress Update



## Section 2: Why ports? – The importance of ports

# Ports are key to a global supply chain and countries' ability to trade in products, materials and energy/fuel.

- Global trade has doubled since 2000 and grows an average of 3.7% a year.
- According to OECD's The Competitiveness of Global Port-Cities report, one tonne of port throughput is on average associated with USD 100 of economic value added, and an increase of one million tonnes of port throughput is associated with an increase in employment in the port region of 300 jobs in the short term.
- According to UNCTAD, over 80% of the volume of international trade in goods is carried by sea, and the percentage is even higher for most developing countries.
- Asia accounted for 54% of world maritime trade in 2020.
- Ports provide a lifeline for island nations.





## Ports are a vital link in the maritime value chain and play a key role in both enabling and stimulating greening and decarbonisation of the maritime sector

- Ports serve as gateways to domestic and international trade;
- They have a linkage with the shipping industry, which is also subject to greening and decarbonisation ambitions, policies & regulations;
- Shipping decarbonisation requires infrastructure investment at ports; Investment in port infrastructure can directly contribute to greening the shipping industry;
- Shipping is not a focus of the ADB GPFFI
  - Excluding international shipping;
  - Including greening local special-purpose vessels, such as tugboats, service vessels, third-party inter-island ferry vessels, and small fishing vessels.



## Section 2: Why ports? – The importance of ports

# Ports have an impact on the environment and climate change and are also vulnerable to environmental conditions and climate change.



Port operations and activities consume resources, generate emissions, and contribute to environmental degradation.



Coastal zone management and land-use planning policies focus on minimizing habitat destruction, protecting sensitive ecosystems, and preserving natural coastal process.



Compliance with regulations to reduce emissions is necessary to mitigate these impacts.



Environmental regulations and standards are also crucial in mitigating adverse impacts of ports such as air emissions controls, wastewater treatment, solid waste management, noise reduction measures and are legally binding.



Inland shipping is an effective means of reducing carbon emissions.



National-level green port policies provide a foundation for port-owners and operators to develop their own strategies.



Ports have the potential to generate substantial environmental benefits by collaborating across organisations and prioritizing sustainability.



The absence of such a policy can limit a port's ability to effectively mitigate its environmental impact and adapt to climate change challenges, putting its operations at risk.

## The role of policy and regulation

Effective policy and regulation are crucial in addressing the environmental and climate change impacts of ports, as well as ensuring the resilience of ports against adverse environmental conditions.

### National and international policy and regulation:

- The IMO and other organisations develop guidelines and standards that influence port planning, infrastructure development, and operational practices.
- MARPOL sets standards for vessel pollution prevention, indirectly impacting port planning and development.
- **National-level green port policies** provide a foundation for port-owners and operators to develop their own strategies. The absence of such a policy can limit a port's ability to effectively mitigate its environmental impact and adapt to climate change challenges, putting its operations at risk.

### Other types of policy regulation includes:

- **Coastal zone management and land-use planning policies** which focus on minimising habitat destruction, protecting sensitive ecosystems, and preserving natural coastal process.
- **Environmental regulations and standards** which are crucial in mitigating adverse impacts of ports such as air emissions controls, wastewater treatment, solid waste management, noise reduction measures and are legally binding.

## Green port topics and priorities

### Green port topics:

- Energy efficiency
- Clean Energy and Fuel
- Climate Resilience
- Nature-Based Solutions
- Waste & Resource Management
- Integrated Water Management
- Sustainable Transport
- Nuisance and pollution

### Key priorities based on stakeholder engagement:

- Energy efficiency
- Clean energy and fuels
- Climate resilience

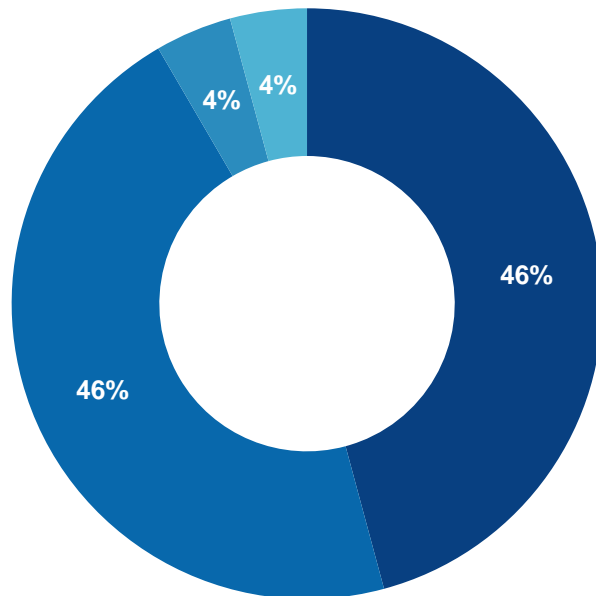
### Section 3: Why a fund? – The need for a green port focused initiative

## Green port topics and priorities

Please rank the following green port initiatives in order of priority for your port in the next 5 years

| Item                          | Overall Rank | Rank Distribution | Score | Number of Rankings |
|-------------------------------|--------------|-------------------|-------|--------------------|
| Energy efficiency             | 1            |                   | 123   | 20                 |
| Clean energy and fuel         | 2            |                   | 101   | 19                 |
| Climate resilience            | 3            |                   | 96    | 19                 |
| Water and resource management | 4            |                   | 86    | 18                 |
| Nuisance and pollution        | 5            |                   | 70    | 18                 |
| Integrated water management   | 6            |                   | 64    | 16                 |
| Sustainable transport         | 7            |                   | 58    | 18                 |
| Nature-based solutions        | 8            |                   | 55    | 15                 |

## Ports can play a critical role in both climate change adaptation and mitigation

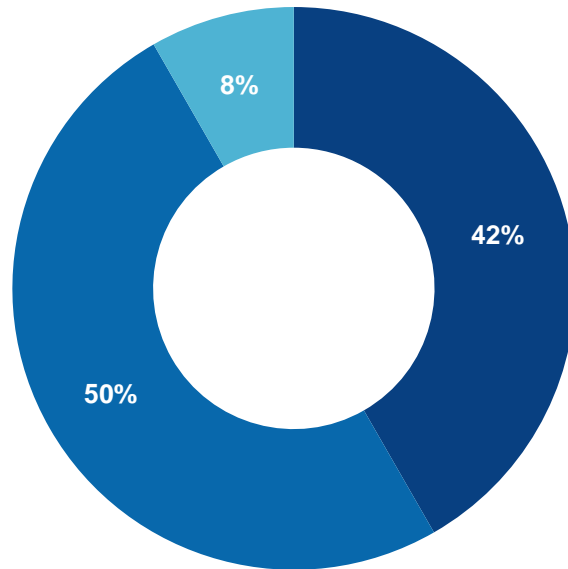


### What is your understanding of the role of ports in climate resilience?

- Ports can play a highly significant role
- Ports can play a moderately significant role
- Ports have no significant role
- I am not sure

## Ports can play a critical role in both climate change adaptation and mitigation

What is your understanding of the role of ports in carbon reduction?



- Ports can play a highly significant role
- Ports can play a moderately significant role

## The current funding gap

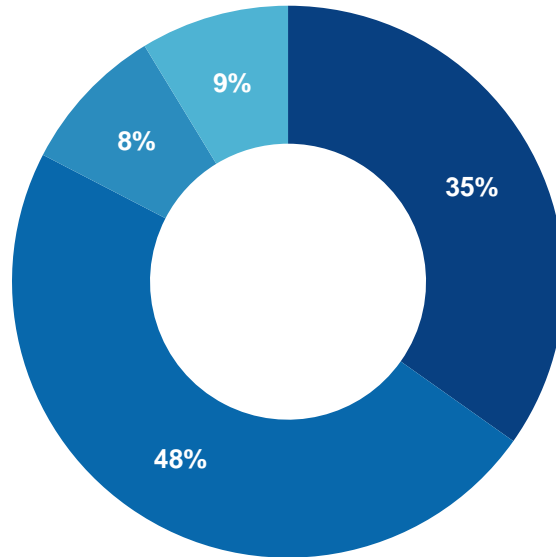
- Indicative estimates for the funding gap for greening and decarbonisation of the port sector in Asia and the Pacific range in the billions of US dollars.
- Limited public budgets and competing priorities exacerbate the gap.
- Addressing the gap through innovative financing models, increased collaboration between public and private sectors, and leveraging international funding mechanisms.
- By bridging the gap, the Asia Pacific region can accelerate the implementation of green/decarbonisation projects in ports.
- The amount of private capital needed to fund decarbonisation in sea shipping is stated to range between US\$1.5 trillion to US\$4 trillion.





**Although some progress has been made in greening of ports, there is a consensus that further efforts are required.**

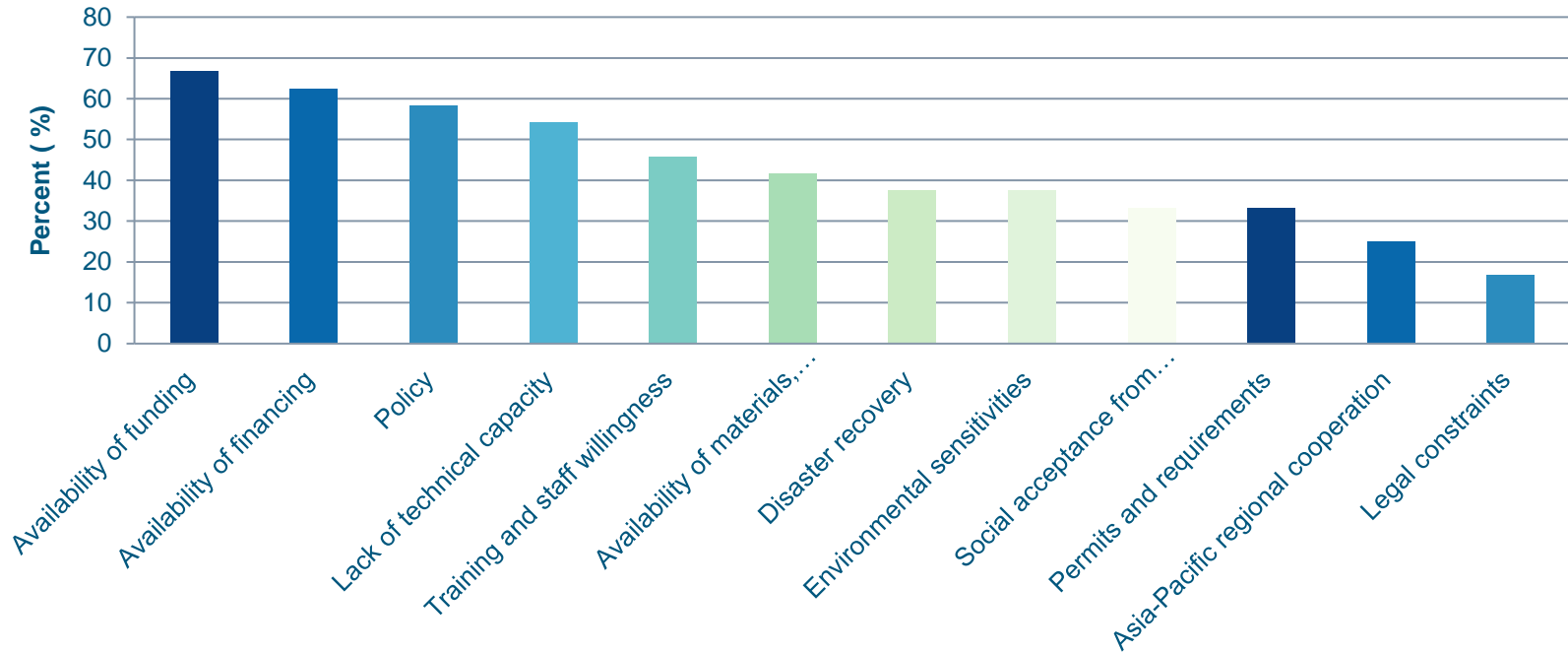
**To what extent do you believe that greening ports is occurring in your region?**



- The greening of ports is well underway and significant progress has been made
- Some efforts have been made to green ports in the region, but more needs to be done
- There has been very little progress in greening ports in the region
- I am not sure

## Lack of funding and financing is the primary barrier to implementing green port initiatives.

What do you think the main barriers are for the implementation of future green ports projects?



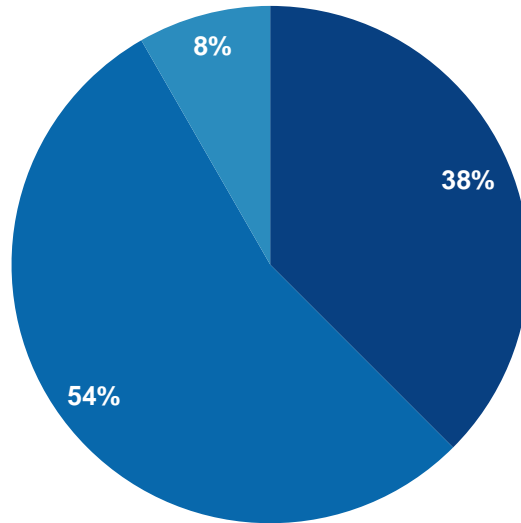
### Barriers

## Barriers to funding: key challenges



## Barriers to funding: availability

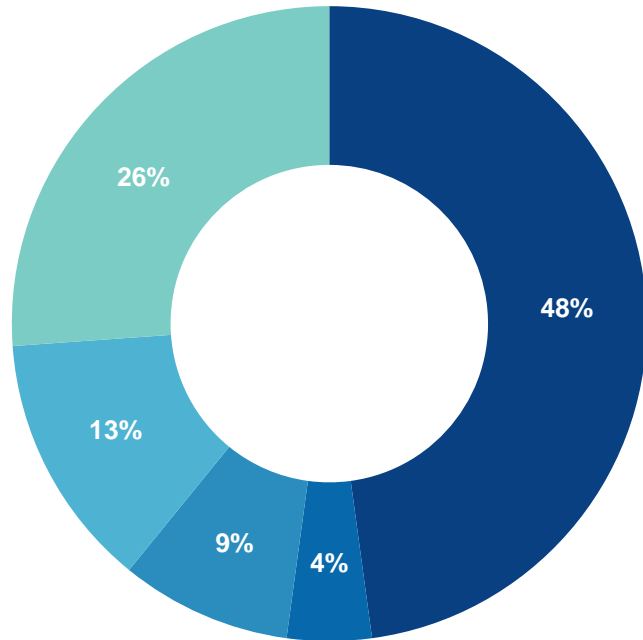
### How familiar is your port with sources for financial support in greening investments?



- I do not know any sources
- I know of sources, but find it hard to reach out to them
- I know sources and I know how to reach out to them

## Barriers to funding: complicated processes

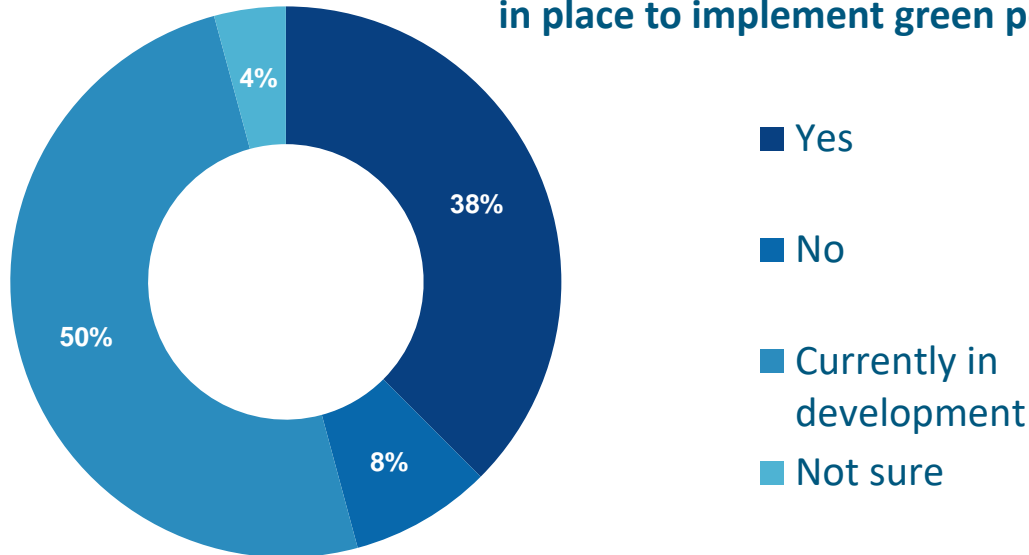
What has been the outcome for your port after approaching one of the sources of financial support?



- Applied and was successful
- Applied and was unsuccessful
- Could not apply as port organisational type was not eligible
- Could not apply as project type was not eligible
- Did not have the knowledge to complete the application

## Barriers to funding: lack of policy and regulatory environment

Does your port have a policy, plan or programme in place to implement green port initiatives?



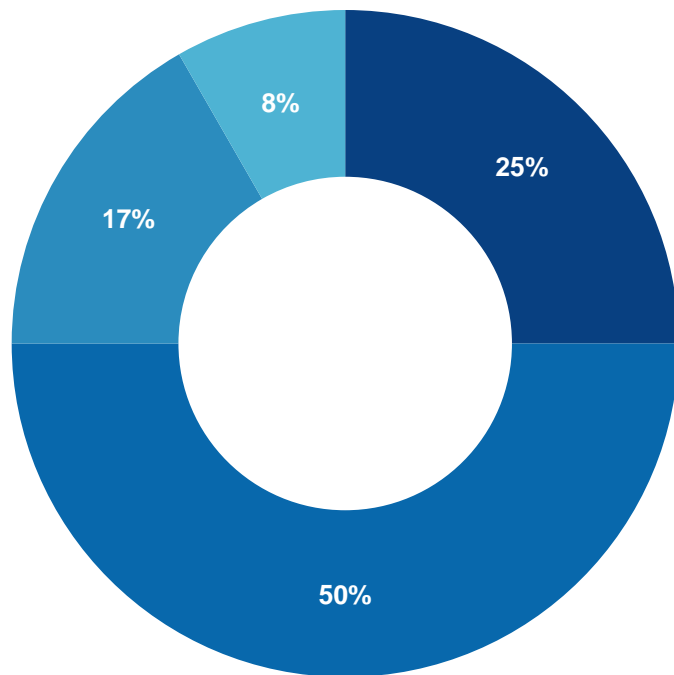
### Section 3: Why a fund? – The need for a green port focused initiative

## There are a range of existing funding and financing initiatives active in APAC region.

- No existing funding or financing initiative was identified that aims to achieve the same specific goals as expressed by ADB for its GPFFI.
- The available financial support and financing facilities for clean energy projects are abundant.
- Two overlaps:
  - ❖ Ocean Resilience and Coastal Adaptation Financing Partnership Facility (ORCA-FPF), initiated by ADB, no funds were yet secured for nor allocated to port related projects;
  - ❖ Catalytic Finance Foundation (formally known as R20) intended global fund, to be set up.

| Facility name                                 |   |
|---|---|
| • ASEAN Catalytic Green Finance Facility      | • Global Climate Action Partnership   |
| • ADB Blue Bonds                              | • Global Energy Efficiency and Renewable Energy Fund  |
| • ADB Blue Pacific Finance Hub                | • Global Environment Facility   |
| • ADB Blue SEA Finance Hub                    | • Green Investment Group Asia   |
| • ADB Green Climate Fund (ADB GCF)            | • Greenko Group   |
| • ADB Ventures                                | • International Finance Corporation   |
| • Asia Green Fund                             | • International Renewable Energy Agency   |
| • Asian Clean Energy Fund                     | • Japan International Cooperation Agency Climate Finance  |
| • Australian Climate Finance Partnership      | • Japan Renewable Energy Corporation  |
| • Australian Renewable Energy Agency          | • Korea Green Growth Trust Fund   |
| • BIS Asian Green Bond Fund                   | • Lloyd's Register Silk Alliance  |
| • China Development Bank                      | • Macquarie Asia Infrastructure Fund 3  |
| • Clean Cargo Initiative                      | • New Energy Nexus  |
| • Clean Energy Finance Corporation Australia  | • Ocean Resilience and Climate Adaptation (ORCA) Financing Partnership Facility & ORCA Trust Fund |
| • Clean Energy Financing Partnership Facility | • Pacific Blue Shipping Partnership   |
| • Climate and Clean Air Coalition             | • Pacific Ports Clean Air Collaborative   |
| • Climate Investment Funds (CIF)              | • PROBLUE   |
| • Climate Investor One                        | • Renewable Energy and Energy Efficiency Partnership  |
| • ClimateWorks Foundation                     | • Singapore Green Plan 2030   |
| • Eco-Ports Network                           | • Taiwan International Cooperation and Development Fund   |
| • EIB Global                                  | • The Adaptation Fund   |
| • Equis Development Pte. Ltd.                 | • World Ports Climate Initiative Program  |
| • Global Center on Adaptation (GCA)           | • Tropical Asia Green Fund 2  |

**There is a notable level of engagement and active participation in driving green port initiatives. Further efforts are necessary for successful implementation.**



**Has your port been successful in achieving its green port aspirations to date?**

- Yes, we have achieved our green port aspirations
- We have made some progress toward our green port aspirations, but there is more
- No, we have not yet achieved our green port aspirations
- Currently, we do not have any green port aspirations



## Section 3: Why a fund? – The need for a green port focused initiatives

# Examples of investments and initiatives in port greening

### Governance

- Environmental policies implementation in infrastructure development, collaborating with the local community
- Completion of Sustainability Report as per Global Reporting Initiative (GRI) standards
- Periodic ecosystem sustainability assessments, including environmental monitoring
- Implementation of government policies related to green ports

### Energy Efficiency

- Implementation of energy-efficient LED lighting, including LED upgrades, smart lighting, and replacement of conventional lamps with energy-efficient LEDs
- Transforming equipment into more efficient and electrical options
- Global fuel management system

### Clean Energy and Fuel

- Installation of an electric incinerator for waste management
- Installation of solar rooftops and wider solar PV installation on port land
- Generation of hydrogen from renewable sources
- Solar power generation and upcoming solar plants
- Implementation of electrically operated RTG cranes
- Provision of shore power supply

### Climate resilience & nature-based solutions

- (Mangrove) tree planting activities and cooperation with the local government
- Utilisation of dredged materials for enhancing biodiversity.
- Disaster preparedness training and hazard identification

### Waste management

- Exploration of recycling programs and community-led solutions.
- Commissioning of a solid waste management facility.
- Decarbonising incinerators

### Integrated Water Management

- Usage of recycled sewage water for plant irrigation
- Preservation and rejuvenation of local water bodies
- Rainwater collection and use
- Usage of recycled water for plant irrigation

### Sustainable transport

- Conversion of vehicles to hybrid and fully electric engines.
- Implementation of a traffic management system.
- Infrastructure improvements for reducing congestion.
- Implementation of smart gates.

## GPFFI can provide financial support to potential beneficiaries at different intervention levels.

| Upstream  | Midstream  | Downstream  |
|---|--|---|
| <ul style="list-style-type: none"><li>• public policy and institutions</li><li>• <b>initiation</b> of interventions</li><li>• create environment that <b>inspires and incentivises</b></li><li>• public support</li></ul> | <ul style="list-style-type: none"><li>• market functioning</li><li>• <b>preparation</b> of interventions</li><li>• create environment that <b>facilitates</b></li><li>• public and private support</li></ul> | <ul style="list-style-type: none"><li>• project execution</li><li>• <b>realisation</b> of interventions</li><li>• create environment that <b>enables</b></li><li>• private and public support</li></ul> |

Stakeholder engagement identified the need for all three, with a focus on upstream and midstream for the short term and downstream for the mid and long term.

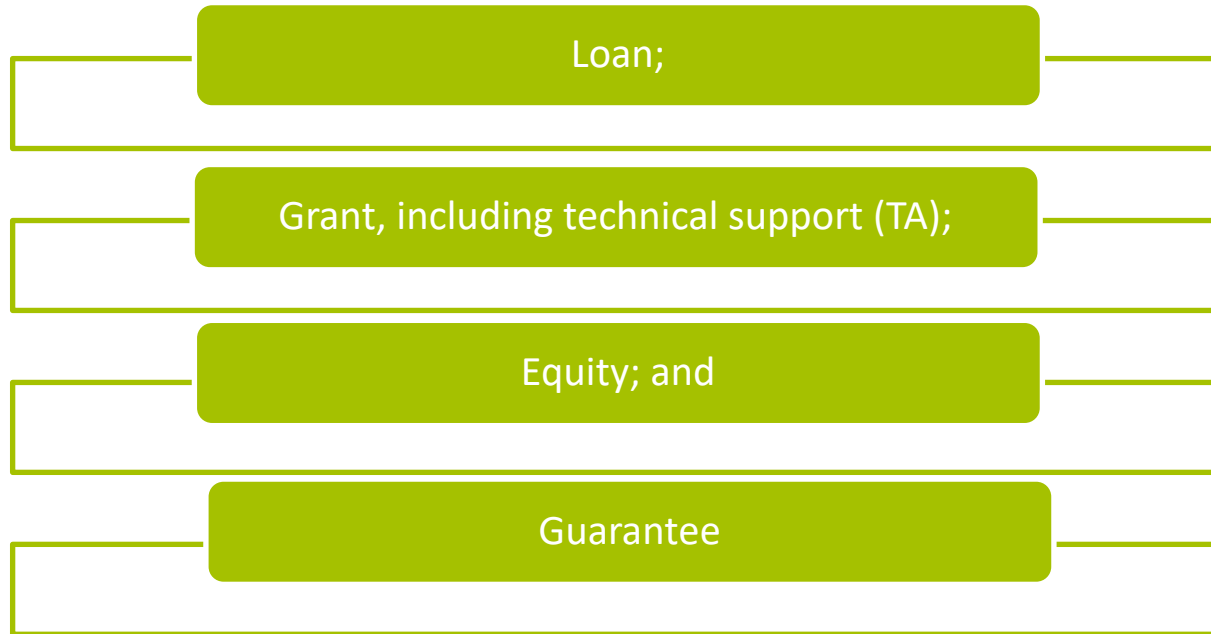
## GPFFI can take on different roles in providing financial support to potential beneficiaries.

| Funds Provider  | Funds Arranger   | Funds Facilitator   |
|---|--|---|
| <ul style="list-style-type: none"><li>• directly provide actual funds</li><li>• finance <b>facility</b></li><li>• fund manager / transaction advisor</li><li>• <b>manage</b> own dedicated <b>trust fund</b> and facility</li></ul> | <ul style="list-style-type: none"><li>• arrange funds through other sources</li><li>• finance <b>partnership</b></li><li>• transaction advisor / broker</li><li>• <b>access to</b> other partner <b>trust funds</b> and facilities</li></ul> | <ul style="list-style-type: none"><li>• guide towards funds of other sources</li><li>• finance <b>hub</b></li><li>• broker / networker</li><li>• <b>intermediate to</b> other <b>trust funds</b> and facilities</li></ul> |

The GPFFI would be most beneficial in a role of funds provider, with the establishment of its own dedicated trust fund (TF) for the greening and decarbonisation of ports sector.

## GPFFI can potentially offer any of the support modalities that any of the other ADB funds offer.

The general categorisation of financial support modalities would be:



## Beneficiaries

- GPFFI should in principle provide both sovereign and non-sovereign financial support, but with a focus on non-sovereign, to address the unfulfilled need in the ports sector.
- The financial support that GPFFI provides should not be hindered by the port's organisational structure.
- In principle GPFFI is envisioned to provide technical assistance and financial support to any organisation from a DMC in Asia and The Pacific taking on a project that contributes to the greening and decarbonisation of the ports sector.
- the World Bank defines PPP as interventions that could be supported by the financing initiative, categorising within the three levels of support: upstream, midstream, and downstream. This focuses on the green port priority topics.

## Potential types of projects

Interventions that could be supported by the financing initiative, categorising within the three levels of support: upstream, midstream, and downstream. This focuses on the green port priority topics.

| Financial support level | Green port topic   | Intervention   |
|-------------------------|--|--|
| Upstream                | Governance   | Support for development of a national level green port policy  |
|                         |  | Support for development of a port / terminal level green port policy and strategy                                      |
| Midstream               | Energy Efficiency, Clean energy and fuels and climate resilience | Feasibility studies and design for an energy efficiency, climate resilience and clean energy and fuels related project |

## Potential types of projects

| Financial support level | Green port topic       | Intervention                               |
|-------------------------|------------------------|--|
| Downstream              | Energy Efficiency      | Smart energy management                    |
|                         |                        | Retrofit and energy-efficient equipment    |
|                         |                        | LED lighting conversion                    |
|                         | Clean energy and fuels | Shore power                                |
|                         |                        | Solar and wind                             |
|                         |                        | Battery-Energy Storage Systems             |
|                         |                        | Zero-emission equipment and vehicles       |
|                         |                        | Alternative fuel supply/use                |
|                         | Climate Resilience     | Adaptation (Structural and non-structural) |

## Public private partnerships have the potential to play a pivotal role in achieving the goal of greening and decarbonising ports.

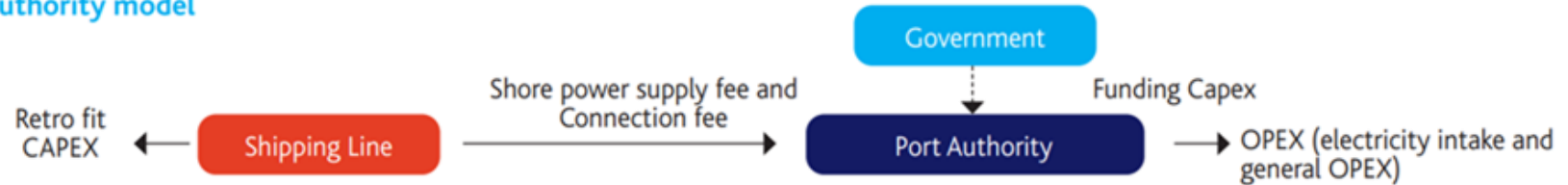
- The World Bank defines PPP as a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance.
- The role of GPFFI in supporting the implementation of PPP in the greening and decarbonization of the port sector can be linked to two perspectives.
  - 1) providing technical assistance in structuring PPP's (midstream support)
  - 2) providing financing or equity contributions for PPP projects (downstream support)
- Other than port concessions, clean energy generation already make use of PPP models for project delivery. These (clean energy generating) assets are very suitable for PPP as they often involve large capital investments, are easily 'ring-fenced' and have the ability to generate project specific income.



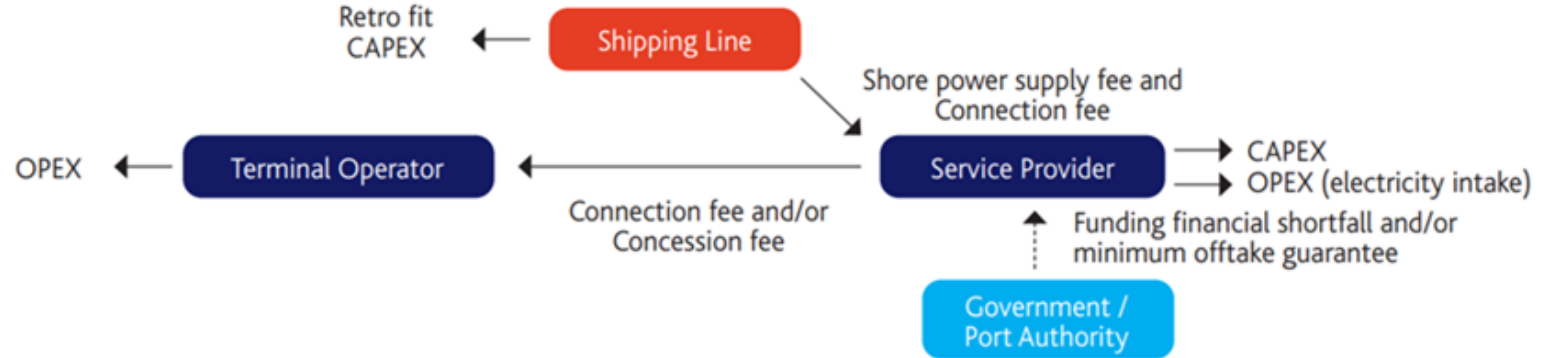
#### Section 4: Who and what to Support? – Support Mechanisms

Structuring onshore power supply in dedicated project companies is already implemented at the Port of Rotterdam. GPFFI can play an important role in taking on early (pilot) projects and first-mover initiatives in Asia.

##### Port Authority model



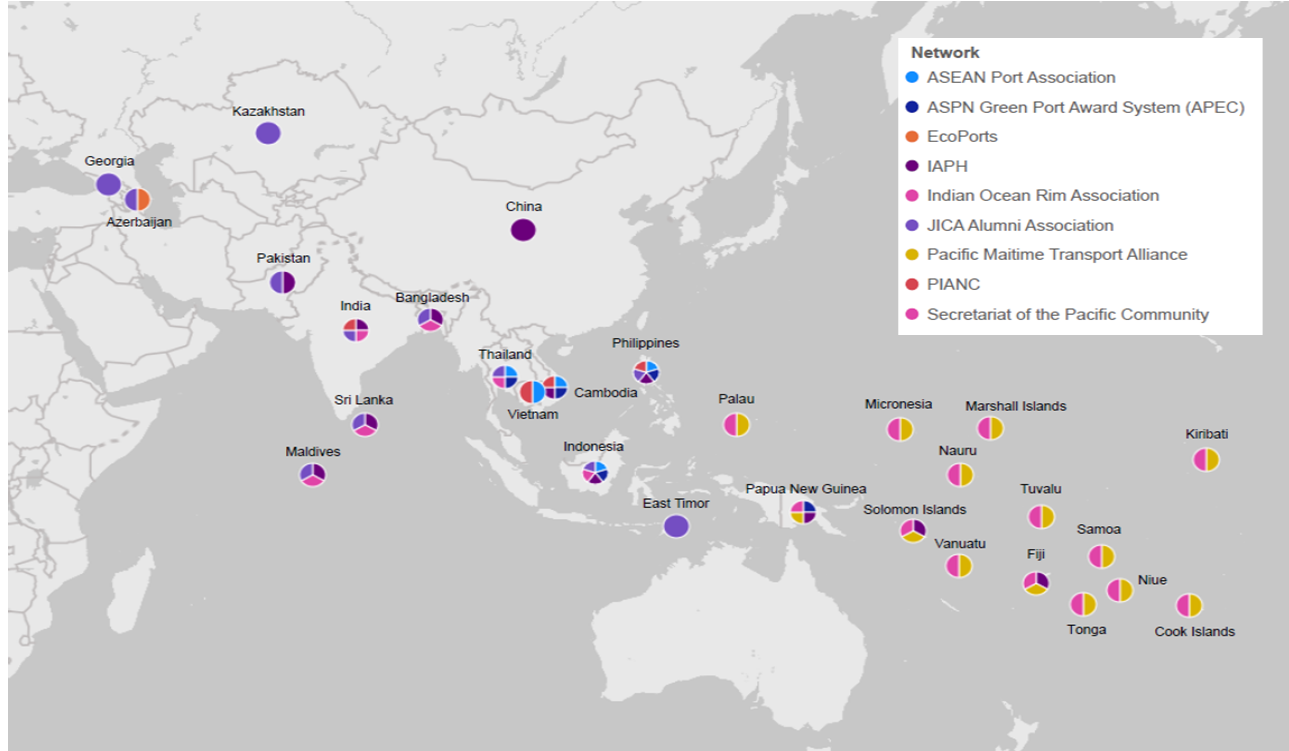
##### Service Provider model



## Section 4: Who and what to Support? – Support Mechanisms

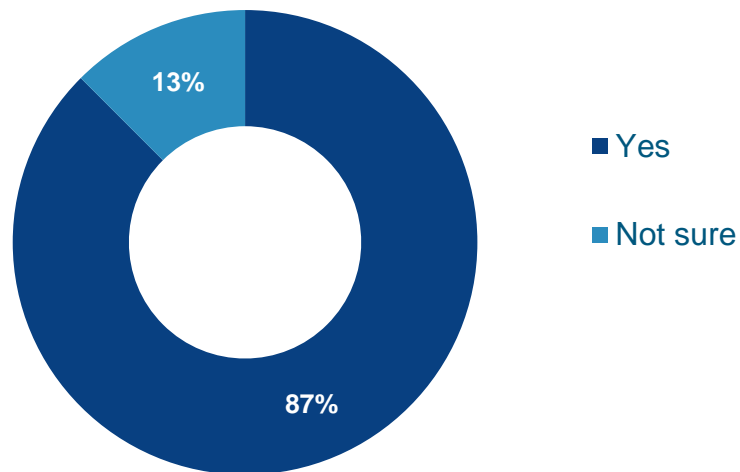
# Regional cooperation is important for capacity building, knowledge sharing of green port development in Asia and the Pacific.

Existing (green) port networks across ADB's DMCs

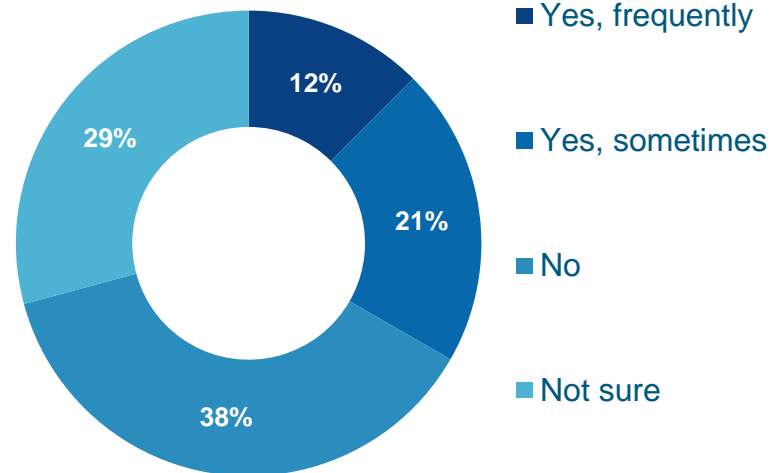


## GPFFI can play a role in strengthening the regional collaboration on green port development in Asia and the Pacific.

Was your port actively engaged in any programme or network, where green port initiatives are being discussed and implemented?



Does your port collaborate with other parties within the APAC region on green port topics?



## Goal of the Fund

The GPFFI aims to help the Asian Development Bank's DMCs in the greening and decarbonisation of its maritime port sector, by providing easily accessible technical assistance and financial support in policy and capacity development, knowledge sharing, regional collaboration and the acceleration of project origination, preparation and realisation in all areas that contribute to the greening and decarbonisation of the maritime port sector.

## Considerations on structure

- **Policy perspective:** The existing policies and the future policies expected to be put in place in Asia-Pacific region drive a need for dedicated financial support for greening and decarbonisation of maritime port sector.
- **Operational efficiency perspective:** From an organisational efficiency perspective, it may add more value to make use of an existing facility and fund, leveraging an existing organisation, including its expertise and facilities already in place.
- **Applicants' perspective:** it needs to be visible and accessible.
- **Donors' perspective:** The structure of the initiative will need to fit the requirements of the donors. The potential contribution from donors will also decide the size of the fund.
- **Overlapping funds' perspective:** it relates to how to cooperate with other funds.

## A dedicated Trust Fund

- GPFFI is most effective in achieving its goals by the establishment of an easily accessible dedicated trust fund, specifically aimed at greening and decarbonisation of the maritime port sector in the Asia-Pacific region.
- By definition of its goal, GPFFI is a regional initiative aimed at providing support to DMCs in Asia and The Pacific.
- The dedicated trust fund for GPFFI is preferably set up as a multi-donor trust fund (MDTF) to maximise the fulfilment of the need.
- Setting up GPFFI under a financing partnership facility (FPF) will better position the initiative to meet its objectives.

## A Trust Fund under ORCA

- It is most logical to structure GPFFI under Ocean Resilience and Coastal Adaptation Financing Partnership Facility (ORCA-FPF), but only if a number of specific requirements can be met.
  - ❖ allowing for direct access to the TF by beneficiaries (going through a country representative is not mandatory);
  - ❖ having the option to differentiate and optimise application processes to increase the accessibility of the TF;
  - ❖ obtaining the flexibility to set up the new TF under a different department than the existing TF;
  - ❖ allowing for setting up a tailor-made investment decision process for the TF
  - ❖ having the option to make amendments in the formation of the governance structure;
  - ❖ having the option to participate in projects through equity investments.
- Much of the standing ORCA-FPF organisation can be utilised and expanded upon, but a trust fund manager for GPFFI-TF will need to be specifically appointed.

*Questions and  
suggestions*

*Thank you for  
your time*