



# Port transformation: Green and energy efficiency initiatives

**Nazry bin Yahya**  
JP Skills Centre, JPB

## Presentation Outline

1. Brief Introduction about JP Skills Centre, JPB
2. Malaysia policies
3. Case Study 1: Greening Johor Port
4. Case Study 2: Energizing Johor Port (via collective efforts by MMC Group)
5. Case Study 3: Other Malaysia ports
6. Other initiatives



## Brief Introduction about JP Skills Centre, JPB

# ALBUKHARY GROUP



Some companies are more than 100 years old

More than 100,000 employees

Albukhary International University (AIU) is a private nonprofit education institution, a fully residential campus with state-of-the-art facilities.

8<sup>th</sup> biggest world port operator



# MMC Ports

MMC's ports are the strategic gateways for national trade and commerce, vital to spurring economic growth. Within Malaysia's export-driven open economy, our ports generate tremendous value across a large number of industries, sectors and supply chains. Our ports bring the world to Malaysian shores and allow Malaysia to access international markets and emerging business opportunities in a dynamic, globalised world.



Tanjung Bruas Port Sdn Bhd



Andaman Port Sdn Bhd



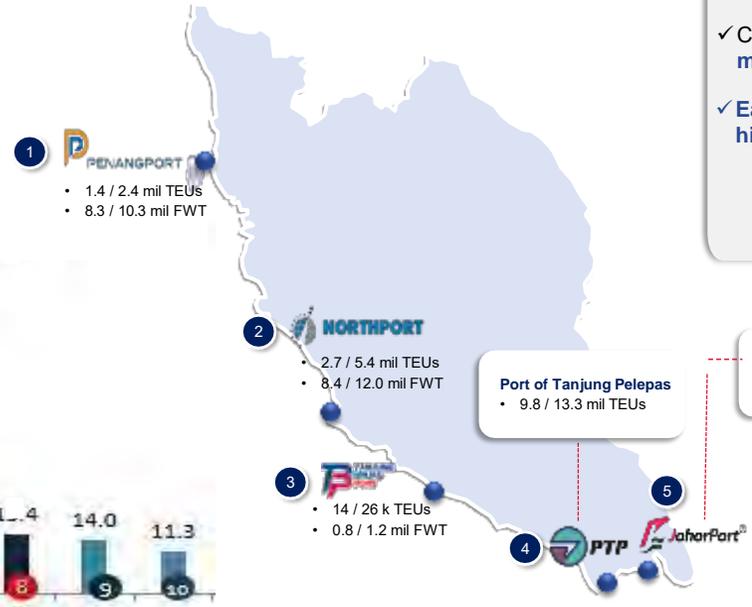
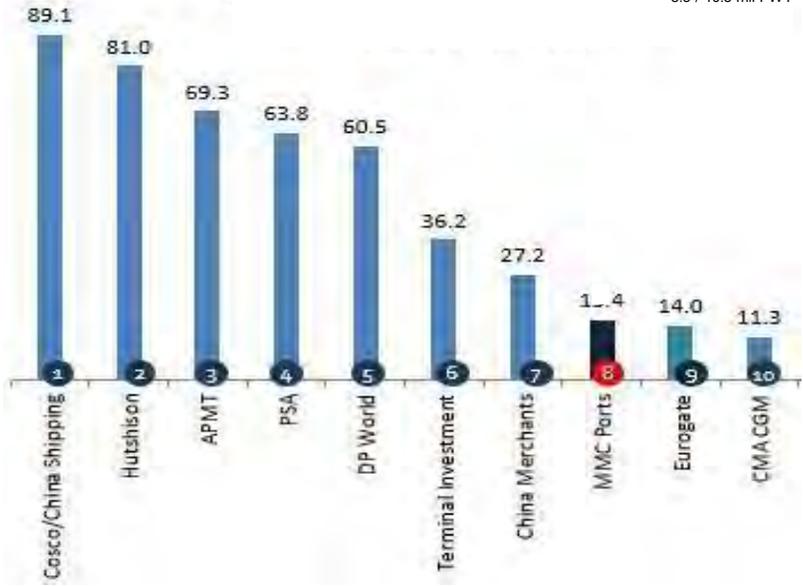
Red Sea Gateway Terminal



Kontena Nasional Berhad

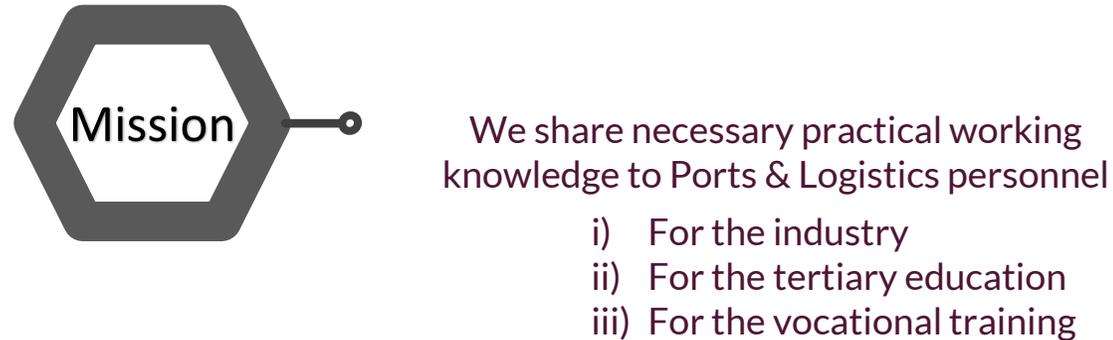
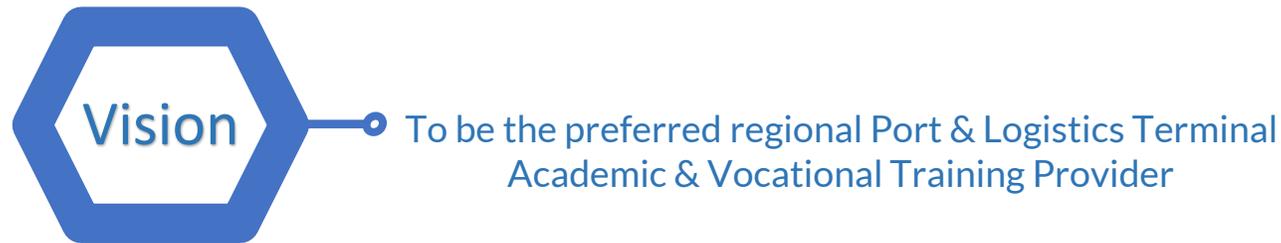
# PORTS & LOGISTICS - MALAYSIA'S LARGEST PORT OPERATOR

8<sup>th</sup>  
**LARGEST PORT OPERATING GROUP IN THE WORLD**



- ✓ Strategically located within Straits of Malacca, one of the busiest shipping lane in the world
- ✓ 40 shipping lines and up to 45 box operators calling MMC ports
- ✓ Connected to over 300 ports of calls with more than 181 weekly services
- ✓ Each port focuses on its own hinterlands





- ✓ JP Skills Centre is a unique blend of Industry, Tertiary education and Vocational training.
- ✓ We are the source of reference for universities in Malaysia and at the same time too, we are Malaysia's only (and regional) Port Vocational Training Centre.
- ✓ We also produce quality graduates in both Academic and Vocational, and at the same time trains the best port workers in the region.
- ✓ Today, UNCTAD is consistently relying on JPSC to train the world ports in Port Management subjects.

# On Top Of The World

2018  
World First Port  
Kaizen Sensei

- 2018 Global Productivity System
- 2019 Port Continuous Improvement Program
- 2020 Lean Academy
- 2021 Port Kaizen Coach/Mentor/Sensei Program

2019  
World Excellence in  
Port & Terminal  
Training

- Recognition given by Global Port Forum

2020  
World First Port to  
offer Master in Port  
Management

- Collaboration with University Teknologi Malaysia
- 100% taught by JPSC
- Approved by the industry for the industry





## 2014 Inhouse training

## 2015 Greater Malaysia

- 2015 Certification of PTP Quay Crane Operators
- 2015 Sabah Ports contract
- 2015 MMC Group – Senai Airport, Penang Port & Northport
- 2017 Approval for Pusat Bertauliah

## 2018 Global Reach

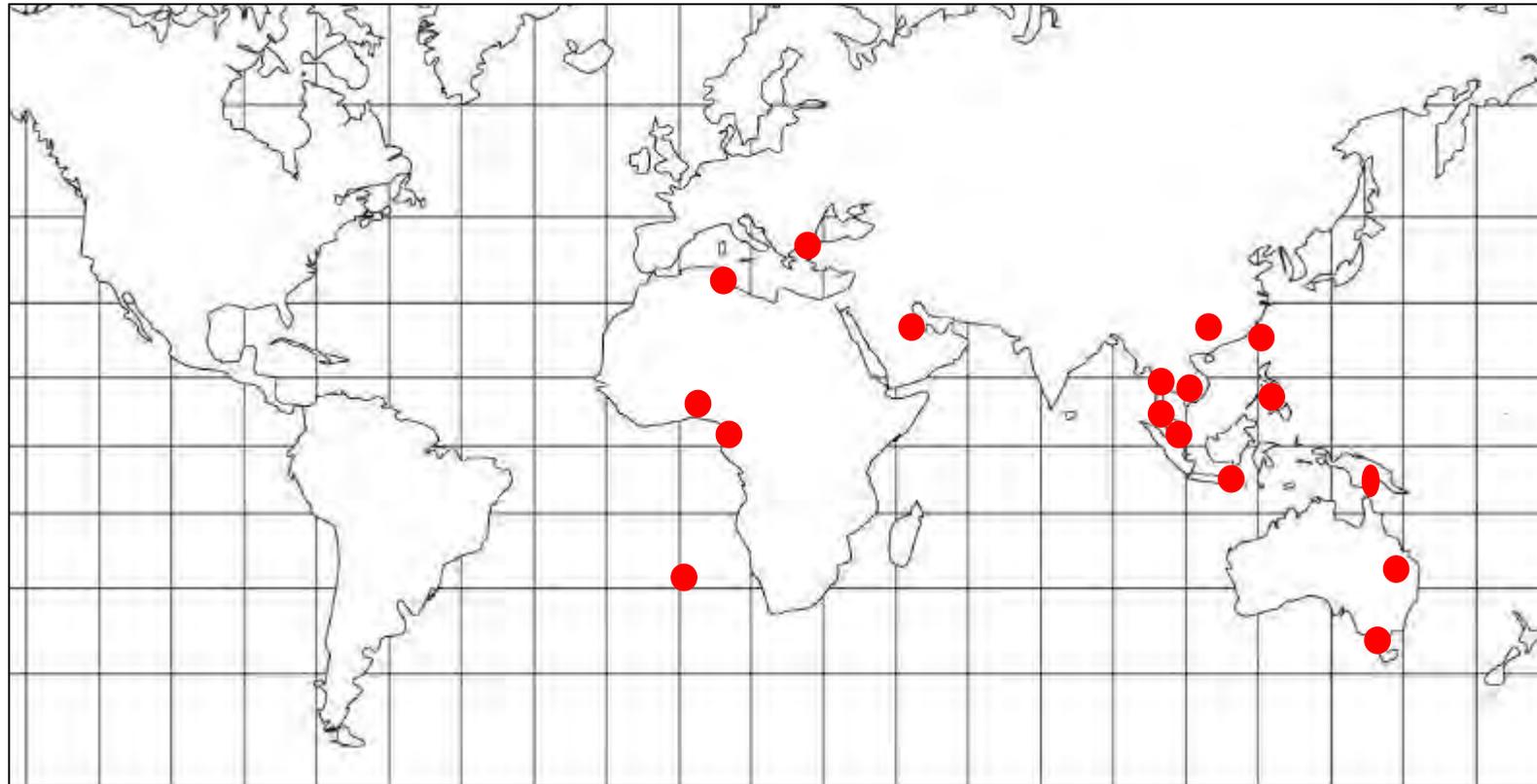
Global Collaboration

- UNCTAD English Speaking Networks
- Ports in Indonesia (Pelindo 1, Pelindo 3 & Pelindo 4)
- STC Tan Cang, Vietnam
- Fujian Port Authority, China

Regional Deliveriest:

- Singapore
- Indonesia
- Vietnam
- Cambodia
- Philippines
- Ireland
- Ghana

# JPSC Global Reach



## Regional Deliveries

- Singapore
- Indonesia
- Vietnam
- Cambodia
- Philippines
- Moroccan
- Maldives
- Papua
- Ghana
- UAE
- Turkey
- Australia

# Professional Master Program



In collaboration with:

JP Skills Centre JohorPort UTM UTMSPACE

## PROFESSIONAL MASTER IN PORT MANAGEMENT



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High Quality T&L Facilities at Residensi UTM Kuala Lumpur  
RM 16,800 : Local Student USD 6600 : International Student  
Learn From Highly Experienced Industry Professionals  
Project Based Learning and Work Integrated Learning

Further Information:  
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Miss Atika Email: atika@utmSPACE.edu.my Mobile Phone: 019-7112034

- World's first Port to offer industry rich experience translated as academic subjects with the programs approved by UTM.
- 10 modules and 40 credit hours
- 100% lecturers are from JP Skills Centre
- First batch graduate 21 pax



# Our Proud Graduates



JP Skills Centre

- Malaysian Port & Logistics Workers
  - More than 8,000 participants (since 2014)
- Indonesia
  - Port Supervisors Program (2017)
    - 12 batches to date with 144 participants
  - Port Managers Program (2018)
    - 3 batches to date with 36 participants
  - Port Continuous Improvement Program (2019)
    - 4 batches (Bitong, Kendari, Sorong, Ambon)
    - 95 participants
- China (2019)
  - 40 participants
- Cambodia (2019)
  - 34 participants
- Vietnam (Since 2018)
  - Pilots – 18 participants
  - Port workers – 114 participants
- Webinars (2020 onwards)
  - Thousand of people



**PILOT PROGRAM SINGAPORE**



**JPK PROGRAM**



**PELINDO MANAGEMENT**



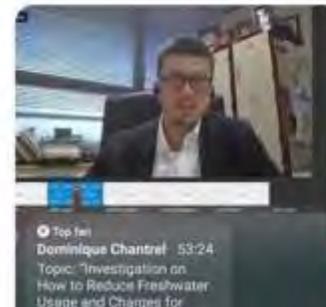
**JPSC COACHING**



**PCIP PROGRAM**



**JPSC CAMBODIA**



**JPSC WEBINAR**



# Photo Gallery



GPF AWARD



UNCTAD COACHING PROGRAM



MODULE 4



PORT KAIZEN SENSE



UNCTAD SECRETARY GENERAL



PMP IN MALAYSIA



PCIP PROGRAM SORONG



WITH CEO OF DUBLIN PORT



JPSC IN TAIWAN



## **Selected Malaysian Policies (with regards to environment & energy)**

# MALAYSIA ENERGY SECTOR IMPORTANCE

Based on the National Energy Policy, 2022-2040 (DTN), the energy sector :-

- Contributed approximately 28% of GDP and employed 25% of the total workforce in Malaysia.
- Is a key source of national income, with petroleum-related products contributing 31% of fiscal income, and energy exports constituting 13% of total export value.
- The energy sector also benefits more than 10 million customers by providing daily access to electricity supply and enabling mobility through reliable supply of fuels

**2<sup>nd</sup>**

Largest oil & gas producer in SEA

**5<sup>th</sup>**

Largest exporter of Liquefied Natural gas (LNG)

# NATIONAL ENERGY POLICY 2022-2040



■ An 18-year plan to make Malaysia a low-carbon nation by 2040.

■ Annual fiscal expenditure:  
**RM4.3 billion**

■ Total annual investments:  
**RM9.2 billion**

## TARGETS BY 2040:

1. To increase use of **urban public transport** by **50 per cent**.
2. To boost use of **electric vehicles** by **38 per cent**.
3. **To develop alternative fuel standards for heavy vehicles** through the mixing of B30 fuels.
4. **To increase use of liquefied natural gas** for marine transport by **25 per cent**.
5. **To reduce energy consumption** in industries and businesses by **11 per cent** and by **10 per cent** in homes.

## ECONOMIC CONTRIBUTIONS:

1. To generate  
**RM13 billion**  
for annual gross  
domestic product.



2. To create  
**207,000**  
jobs.



3. To boost country's energy self-sufficiency to between  
**48 per cent** and **72 per cent**.



# MALAYSIA NEW ENERGY EFFICIENCY AND CONSERVATION ACT

- Malaysia's parliament passed a law that will require the country's biggest energy consumers to implement power-saving measures,, to slash its energy consumption and carbon emissions.
- Applicable to about 1,500 industrial consumers responsible for 70% of energy consumption in the sector, as well as around 500 commercial consumer (apply to large power users that consume more than 21,600 GJ annually)
- Malaysia has pledged to reduce its greenhouse gas emissions by 45% across the economy by 2030, and reach net-zero emissions by 2050

BY 2050  
PROJECT TO  
SAVE.....

2,017  
million gigajoules

97.1 billion ringgit

Or USD20.54 billion

Reduce emission of  
197,877 kiloton of  
carbon dioxide

## WHAT HAS MALAYSIA DONE TO PROTECT THE ENVIRONMENT?

Malaysia's pledge to **retain at least 50% of its land mass under forest cover** is its flagship environmental policy to showcase its sustainability commitment. As of 2022, Malaysia has kept 54% of its forests.

4 Jan 2023

In Malaysia, accelerated climate change and environmental degradation present serious risks for children, especially from marginalised communities.

According to UNICEF's Climate Change Risk Index, Malaysia ranks 61st place on least performing countries where children are most at risk as projected impacts of climate change rise.

9 out of 10 youth in Malaysia were also found to have experienced climate and environment-related effects, based on findings from the National Youth Climate Change Survey Malaysia conducted by UNICEF and UNDP. From floods and vector-borne diseases to worsening air quality and improper disposal of hazardous wastes, children and all young people will bear the brunt of the impacts, with consequences seen in terms of health and well-being, education, and future income.

## GREENING MALAYSIA

The Greening Malaysia Programme through National 100 Million Tree Planting Campaign is a 5 years campaign starting in 2021 until 2025.

It is an initiative by the Ministry of Natural Resources, Environment and Climate Change (formerly known as Ministry of Energy and Natural Resources) that aims to increase the awareness on the importance of forest area and to ensure the commitment to maintain forest area in Malaysia



**100,000,000**

**100 Million Tree-Planting Campaign  
(2021-2025)**

# Changing priorities of ports greening

Rank	1996	2009	2013	2018	2019	2020	2021	2022
1	Port development (water)	Noise	Air quality	Climate change				
2	Water quality	Air quality	Garbage/Port waste	Energy consumption	Energy consumption	Climate change	Climate change	Air quality
3	Dredging disposal	Garbage/Port waste	Energy consumption	Noise	Climate change	Energy efficiency	Energy efficiency	Energy efficiency
4	Dredging operations	Dredging operations	Noise	Relationship with local community	Noise	Noise	Noise	Noise
5	Dust	Dredging disposal	Ship waste	Ship waste	Relationship with local community	Relationship with local community	Relationship with local community	Water quality
6	Port development (land)	Relationship with local community	Relationship with local community	Port development (land)	Ship waste	Ship waste	Water quality	Relationship with local community
7	Contaminated land	Energy consumption	Dredging operations	Climate change	Garbage/Port waste	Water quality	Ship waste	Ship waste
8	Habitat loss	Dust	Dust	Water quality	Port development (land)	Garbage/Port waste	Dredging operations	Garbage/Port waste
9	Traffic volume	Port development (water)	Port development (land)	Dredging operations	Dredging operations	Dredging operations	Port development (land)	Port development (land)
10	Industrial effluent	Port development (land)	Water quality	Garbage/Port waste	Water quality	Port development (land)	Garbage/Port waste	Dredging operations

Source: European Sea Ports Organisation (ESPO) Environmental Report 2022

# Changing priorities of ports greening

Rank	1996	2009	2013	2018	2019	2020	2021	2022
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3	Dredging disposal	Garbage/Port waste	Energy consumption	Noise	Climate change	Energy efficiency	Energy efficiency	Energy efficiency
4	Dredging operations	Dredging operations	Noise	Relationship with local community	Noise	Noise	Noise	Noise
5	Dust	Dredging disposal	Ship waste	Ship waste	Relationship with local community	Relationship with local community	Relationship with local community	Water quality
6	Port development (land)	Relationship with local community	Relationship with local community	Port development (land)	Ship waste	Ship waste	Water quality	Relationship with local community
7	Contaminated land	Energy consumption	Dredging operations	Climate change	Garbage/Port waste	Water quality	Ship waste	Ship waste
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10	Industrial effluent	Port development (land)	Water quality	Garbage/Port waste	Water quality	Port development (land)	Garbage/Port waste	Dredging operations

Source: European Sea Ports Organisation (ESPO) Environmental Report 2022

## Asia-Pacific Climate Week 2023

Hosted by the government of Malaysia in the city of Johor Bahru, Asia-Pacific Climate Week 2023 will take place from 13-17 November 2023

And its Free Admittance



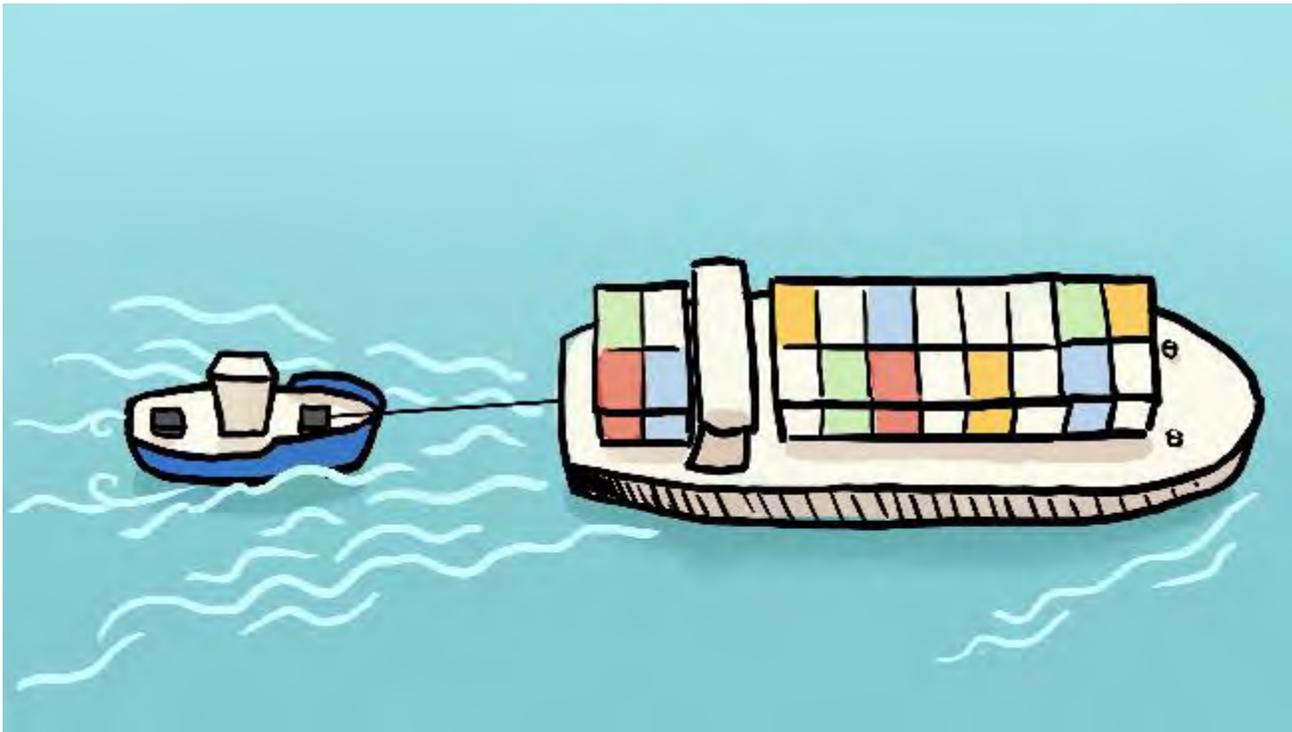
APCW is a regional climate event by United Nations Framework Convention on Climate Change (UNFCCC) that act as a platform for policymakers and businesses to exchange views and ideas on climate solutions.



## Case Study 1: Greening Johor Port Berhad

# TUG BOAT OPERATIONS

In the context of Johor Port Berhad, the single highest source of emission comes from tugboats' operation, contributing to more than 40% of Scope 1 & 2 emissions.



## What are Scope 1, 2 and 3 carbon emissions?

The three scopes are a way of categorising the different types of greenhouse gas emissions created by a company, its suppliers and its customers.



Comparing with other major seaports in Malaysia, Johor Port have one of the lowest carbon emission intensity at 52.80 tCO<sub>2</sub>e per RM' million revenue.

<b>Intensity ratios</b>	<b>2020*</b>	<b>2021</b>	<b>2022</b>
Total carbon emissions (tonnes Co <sub>2</sub> )			
Johor Port Berhad	24,522	37,954	36,623
Malaysia Port No 1	143,286	165,803	153,027
Malaysia Port No 2	75,045	86,983	85,805
Malaysia Port No 3	26,527	27,841	29,141
Malaysia Port No 4	111	457	429
Carbon emission intensity ration (tonnes Co <sub>2</sub> )/RM million revenue			
Johor Port Berhad	40.50	56.93	52.80
Malaysia Port No 1	98.27	96.47	92.66
Malaysia Port No 2	112.28	102.33	86.50
Malaysia Port No 3	69.69	55.42	54.71

# WHAT DO WE MEAN BY GREENING OF THE PORT?

Definition The Ministry of Ports, Shipping, and Waterways in India

- Green Ports Policy to promote these efforts, which includes reducing emissions at major ports, promoting the use of renewable energy, optimizing water usage, improving solid waste management, and lowering carbon emissions

## Johor Port Authority (JPA) Green Port Policy (2014 – 2020)

- General guide for all port operators in moving towards a green port environment.
- The Green Port Policy has been identified as one of the Key Performance Indicators (KPI) for creating a safe and health port working environment under JPA's Strategic Plan 2013 - 2020.
- The Green Port Policy acts as a standard document for the integration of environmental sustainability principles and initiatives to guide business decisions, development and operations towards achieving a sustainable port development and operation.
- The Green Port Policy outlines some simple principles, strategies and practices in areas where port development and operation can be both environmentally friendly and commercial viable.
- The Green Port Policy suggests some proactive approaches and simple solutions where impacts on the local community and the environment can be better managed.
- The POLICY guiding principles are based on 3 main elements, which is Environment, Community Engagement & Promote Sustainability.

# JOHOR PORT BERHAD CARBON NEGATIVE PROGRAM

ONE OF THE WORLD PORTS THAT HAS  
MORE TREES AND FLOWERS









WHERE THERE IS POSSIBLE TO PLANT TREES, JOHOR PORT WILL  
PLANT TREES...



# CAN YOU SEE THE GREENS







Where there are opportunities to plant trees, we will plan and water them.







Where there are opportunities to plant trees, we will plan and water them.



SEA OTTER SUN BATHING IN  
JOHOR PORT





# HOW TO FINANCE WATERRING THE PLANTS?



About Topics Projects Publications Meetings Statistics **Global crisis** COVID-19 UNCTAD15

Home News Project by UNCTAD port programme graduate saves fresh water in Malaysia

## Project by UNCTAD port programme graduate saves fresh water in Malaysia

01 December 2022

A rainwater harvesting system proposed by Rabiah Nadir is helping Johor Port save fresh water, minimize chances of flooding and contribute to global goals.



**TrainForTrade@UNCTAD** @TrainForTrade · Dec 8, 2022

🌿 A rainwater harvesting system proposed by Ms. Nadir through @UNCTAD @TRAINFORTRADE #PortManagement Programme is helping #JohorPort 🇲🇾 save fresh water & minimize chances of flooding 🙌

Read more ➔ [bit.ly/3HjtXY0](https://bit.ly/3HjtXY0)

#capacitydevelopment #SheTRAINFORTRADE #womeninports



🗨️ 4 🍷 5 📊 📤

After Ms. Nadir's presentation, the port installed the rainwater harvesting system between 2019 and 2020. It now provides up to 10 million litres of rainwater each year – enough to fill four Olympic-size swimming pools.

Since the system provides more than enough rainwater for irrigation and cleaning activities, the remainder can be used for other work and infrastructure that don't require fresh water, such as plumbing and fire hydrants.

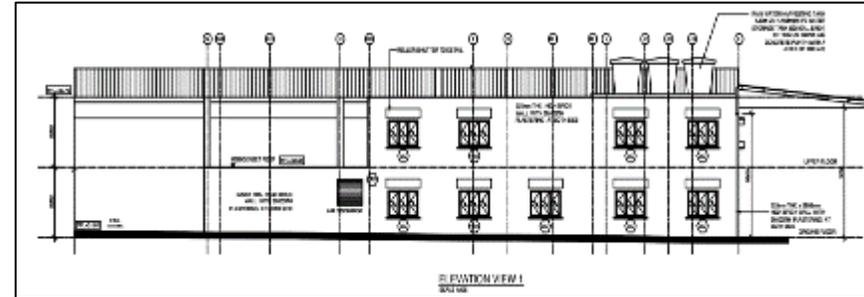
# ACTION NO 1

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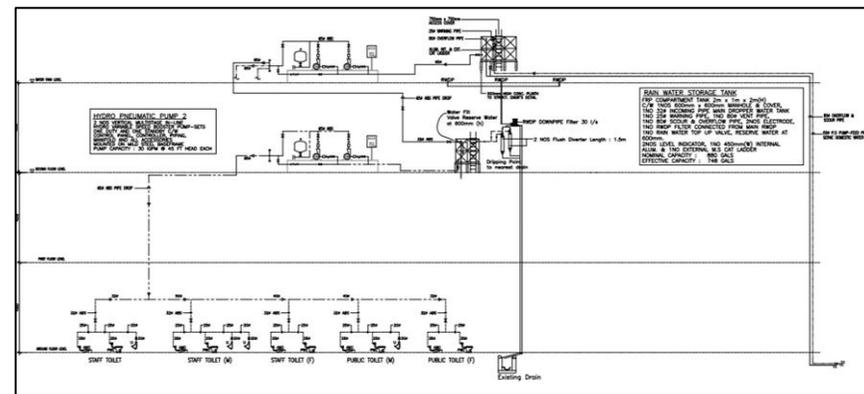
Make use/enhance existing entrapment rainwater tanks at the rooftops

- Existing entrapment rainwater tanks are designed for non-potable use such as toilet flushing only.
- Redesign the entire rain harvesting system at the roof i.e. piping works, additional water tanks etc.

- **1<sup>st</sup> Location** – Warehouse 3E
- Constructed in 2019

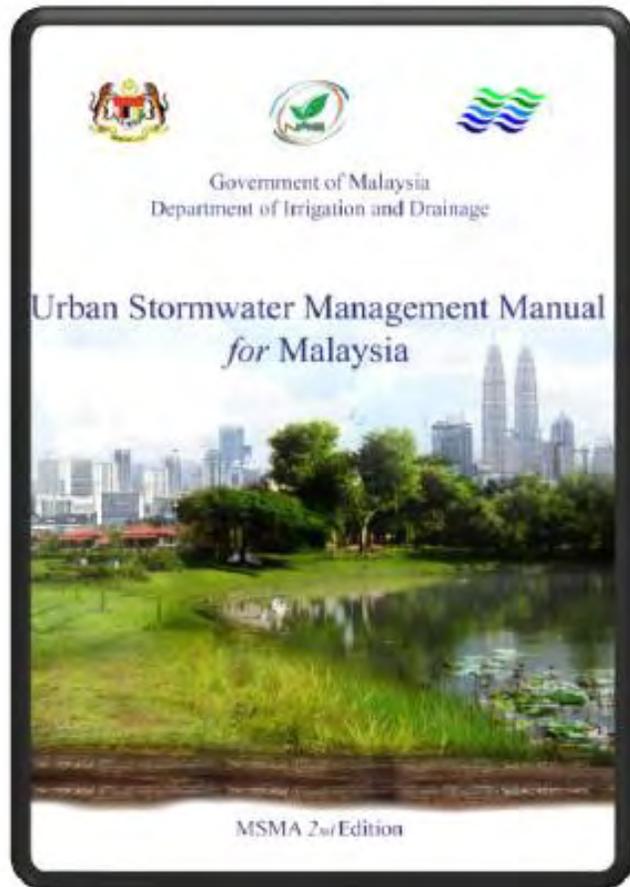


- **2<sup>nd</sup> Location** – Government Building
- Constructed in 2020



# IMPLEMENTATION OF ACTION NO 1

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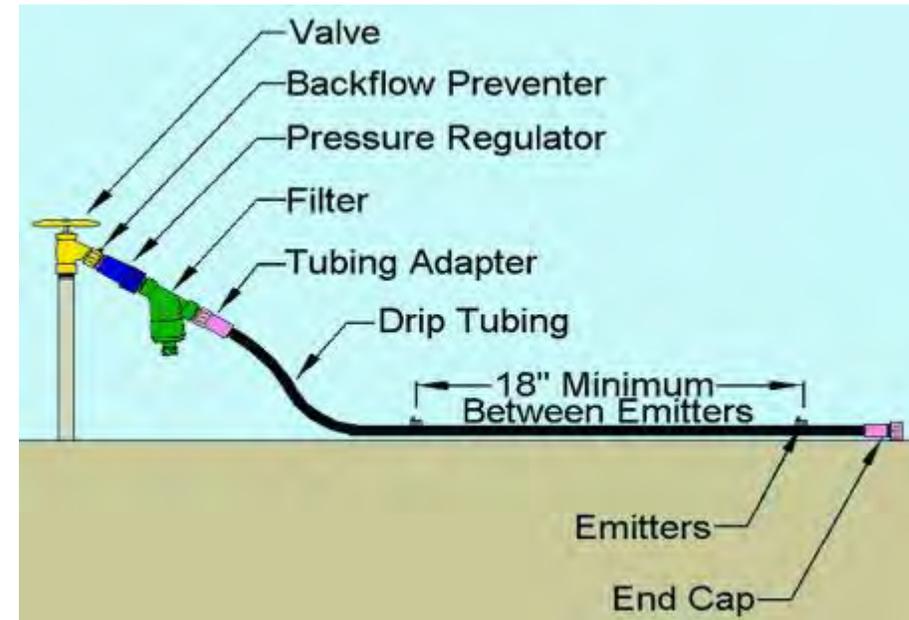


## ACTION NO 2

---

Entrapment of rainwater and drip irrigation

- Water tanks to be placed at strategic location alongside the road. Rain water will be trapped and kept inside the water tank.
- Water will be delivered across the field in pipes called driplines/Tubing featuring small units known as “drippers”
- Water from the tanks will be supplied directly to the plant’s root, in the right amounts, and at the right time.



# IMPLEMENTATION OF ACTION NO 2

---

- Installation of driplines/Tubing and 11 unit water tanks (capacity between 200 liter to 2.2K liter) were **completed in April 2023** at Jalan Cecair, Jalan Wisma Kontena, Jalan Kontena, Jalan Kontena 1, Jalan Kontena 2.
- Cost of installation only RM4,800
- With the current cost of RM157,609.18 per annum for maintaining the landscape within JPB area, FZP expect cost savings of about RM100,000 per annum for 2023
- A pilot project to measure the outcome of cost savings before implement to other locations (i.e. at Jalan Pelabuhan, Jalan Jeti, main entrance etc.)



Location	Water Tank Capacity
Jalan Wisma Kontena	2.2K Liter
Jalan Kontena 1	2.2K Liter
Jalan Kontena 2	200 liter
Jalan Cecair	2.2K Liter

**THE INSTALLATION WAS PERFORMED INTERNALLY**



**Case Study 2:  
Energizing Johor Port Berhad  
(via collective efforts by MMC Group)**



# Malakoff inks deal with MMC to generate 500MW of solar power



By Surin Murugiah / theedgemalaysia.com

04 Oct 2023, 03:00 pm



Aa

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*Original*

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BRAND AWARDS  
— THE PEOPLE'S CHOICE —  
2023

# THE BIG CORPORATE GROUP



## ALBUKHARY GROUP



### MMC Ports

MMC's ports are the strategic gateways for national trade and commerce, vital to spurring economic growth. As the Malaysia's export-driven open economy, our ports generate tremendous value across a large number of industries, sectors and supply chains. Our ports bring the world to Malaysia shores and allow Malaysia to access international markets and emerging business opportunities in a dynamic, globalised world.



Tanjung Berang Port (2004-2014) | Tanjung Port (2010-2014) | Red Sea Gateway Terminal | Port of Kuala Lumpur

## WHAT WAS THE DEAL?

Malakoff Corp Bhd has inked a memorandum of understanding (MOU) with ports under the MMC Group of Companies, namely Northport (Malaysia) Bhd, Johor Port Bhd, Pelabuhan Tanjung Pelepas Sdn Bhd and Penang Port Sdn Bhd, for various green power initiatives, including any solar power programme under the government's initiatives named as Corporate Green Power Programme (CGPP)

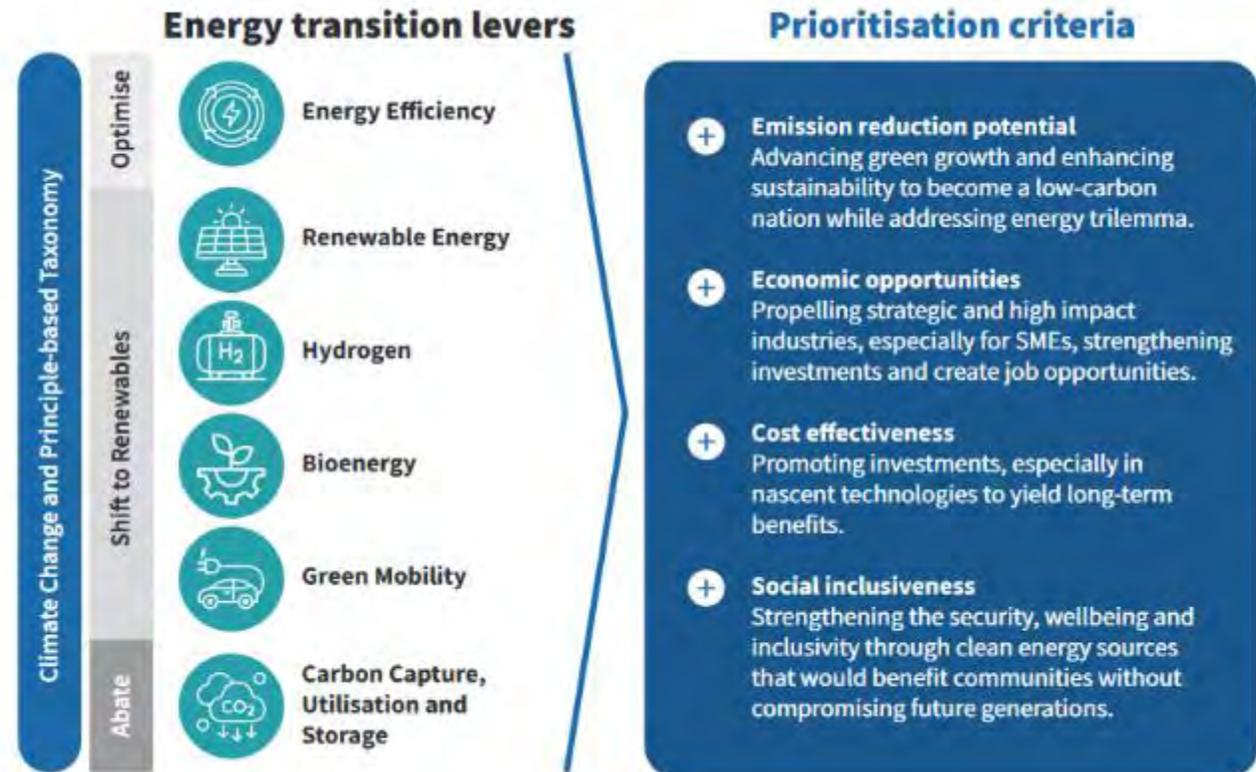
# 500MW

Target for solar projects on top of warehouses  
in the ports

# MALAKOFF ACHIEVEMENTS TO DATE

To date, Malakoff achievements encompass:-

- 67MW of total solar installed capacity through Large Scale Solar (LSS) and rooftop solar,
- 84MW of hydropower capacity that is steadily progressing towards completion.



Energy transition levers and project prioritisation criteria

## CURRENT STATUS OF IMPLEMENTATION AT JOHOR PORT BERHAD

**22 MW**

Planned

**2.2 MW**

Actual implemented

**19.8 MW**

In development stage

**5 MW**

Actual usage (current 2022)

**17 MW**

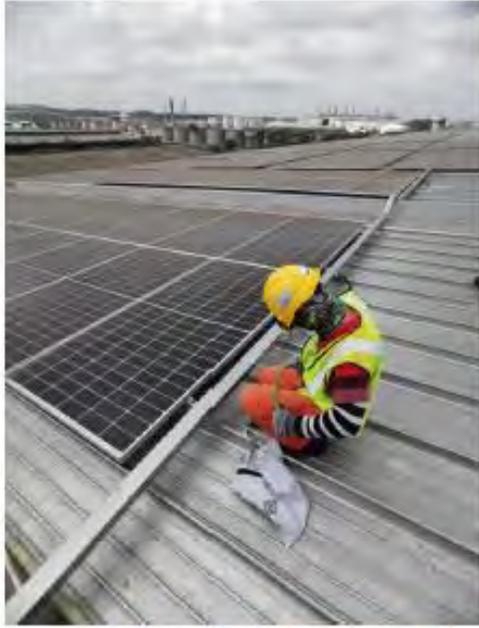
Extra power generated  
To be sold back to TNB

Living proofs...

## PROJECT INFORMATION (CURRENT)

Warehouse	Total Capacity (KWP)	Completion Date
3E	1,285	30 September 2022
FZ5	52	19 October 2022
JPL I	861	2 August 2023
Total	2,197	





Earthing works at Warehouse 3E

MC4 & PG9 Connector  
installation works at  
Warehouse 3E



Installation of PV Solar System at Warehouse FZ5



Installation of PV Modules at Warehouse JPL1



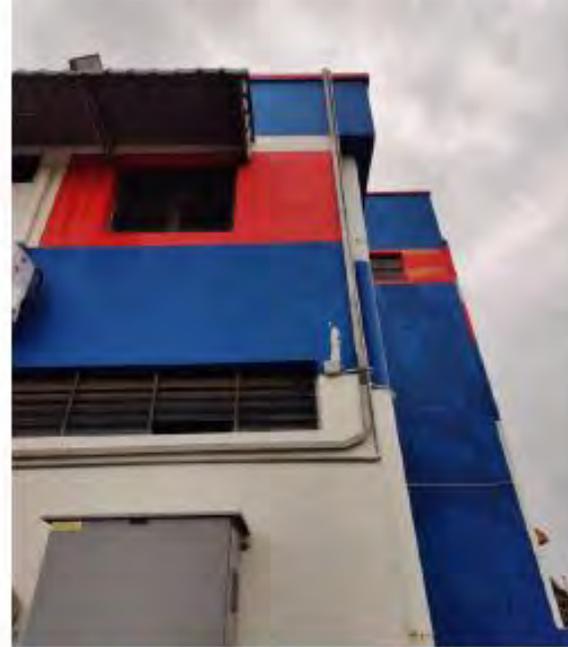
DC Cables installation



Weather Station



Inverter Platform



Installation of DC Cable  
Trunking and DC Cable laying  
works at Warehouse FZ5





Installation of Weather Station, Megger Test, Insulation Test and Continuity Test at Warehouse FZ5



Installation of Itron Meter at Warehouse FZ5



Installation of  
NEM Meter at  
Warehouse FZ5  
by TNB









**POTENTIAL  
SOLAR PANEL  
PROJECT 1**



**POTENTIAL  
SOLAR PANEL  
PROJECT 2**



**POTENTIAL  
SOLAR PANEL  
PROJECT 3**

# Potential Rooftops Area for Solar PV Installation



## Potential Rooftops Area for Solar PV Installation

- **Warehouse: 5A, 5B.**
    - ✓ All breaker size : 160 A.
    - ✓ New roof.
  - **Warehouse: 6B.**
    - ✓ Breaker size : 150 A.
    - ✓ Store arsenic powder (very dusty)..
  - **Warehouse: 6A.**
    - ✓ All breaker size : 200 A.
    - ✓ Store arsenic powder (very dusty).
  - **Warehouse: 7B.**
    - ✓ Breaker size : 150 A.
  - **Warehouse: 6C.**
    - ✓ Breaker size : 160 A.
    - ✓ Supply from PMU 3 (under PMU 1).
  - **Potential capacity for Solar PV panel installation:**
    - ✓ 5A : 1,924.02 kWp (3,563 pcs)
    - ✓ 5B: 1,360.8 kWp (2,520 pcs)
    - ✓ 5C: 646.38 kWp (1,197 pcs)
    - ✓ 6A: 1,111.32 kWp (2,058 pcs)
    - ✓ 6B: 1,879.2 kWp (3,480 pcs)
    - ✓ 6C: 3,486.24 kWp (6,456 pcs)
    - ✓ 7B: 2,290.68 kWp (4,242 pcs)
    - ✓ 8C: 1,132.38 kWp (2,097 pcs)
- Total : 13,831.02 kWp**



## Potential Rooftops Area for Solar PV Installation

- **Warehouse: 8A, 9A, 9B, 10A, 10B.**
    - ✓ Breaker size at all of this warehouse: 160 A.
    - ✓ Surrounding area is very dusty which might effect the performance of PV panel.
  - Potential capacity for Solar PV panel installation are as follows:
    - ✓ 8B: 1,632.96 kWp (3,024 pcs)
    - ✓ 9A: 1,814.4 kWp (3,360 pcs)
    - ✓ 9B: 1,261.98 kWp (2,337 pcs)
    - ✓ 10A: 1,354.32 kWp (2,508 pcs)
    - ✓ 10B: 1,432.08 kWp (2,652 pcs)
- Total : 7,495.74 kWp (5,996.592 kWac)**



# OTHER INITIATIVES AT JOHOR PORT BERHAD

## LED LIGHTS

- Planned for all roads and warehouses in the port
- Progress to date
  - Warehouse 34% (from 2.6 million square feet of warehouse)
  - Road 80% (from 1,000 acres of land)



ELECTRIC VEHICLE  
FOR PORT USAGE?



ES11

ELECTRIC SCOOTER



# PORT RECEPTION FACILITIES (PRF)

More than 2,000 MT vessel waste treated

PRF 2  
JOHOR PORT

More than 10,000 MT land & vessel waste treated

PRF 1  
NORTH PORT

Unlike land-based waste, which can be disposed of through landfills, the disposal of ocean-going vessels' waste is not so simple. "The oil mixtures, noxious liquid substances, garbage, sewage and air pollution control residual wastes cannot be discharged directly to the ocean.

- SW305 – used oil
- SW410 – oil filter
- SW409 – contaminated container
- SW312 – used grease

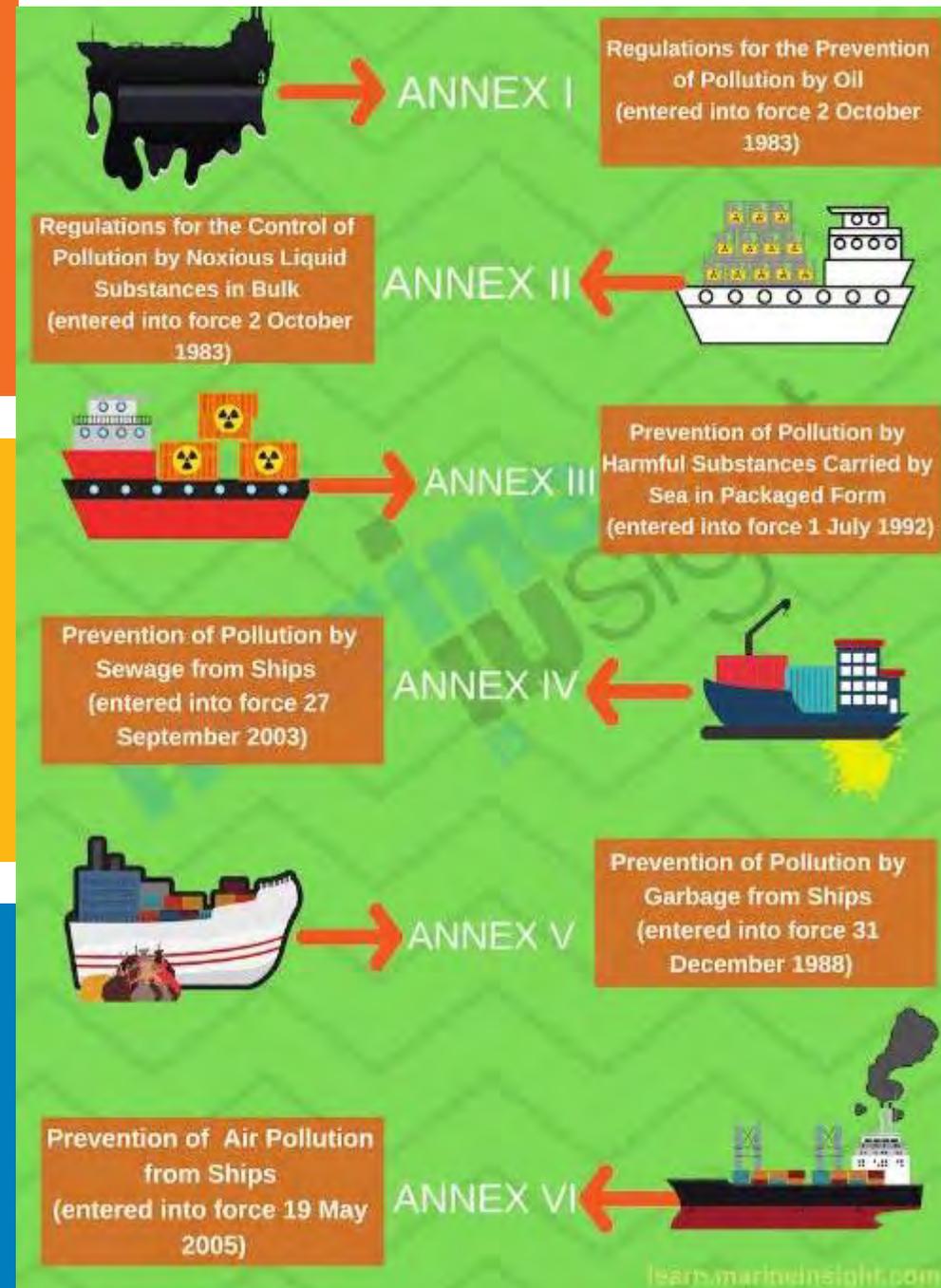
## 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



## 7 AFFORDABLE AND CLEAN ENERGY



## 14 LIFE BELOW WATER



# ELECTRIC TERMINAL TRACTOR

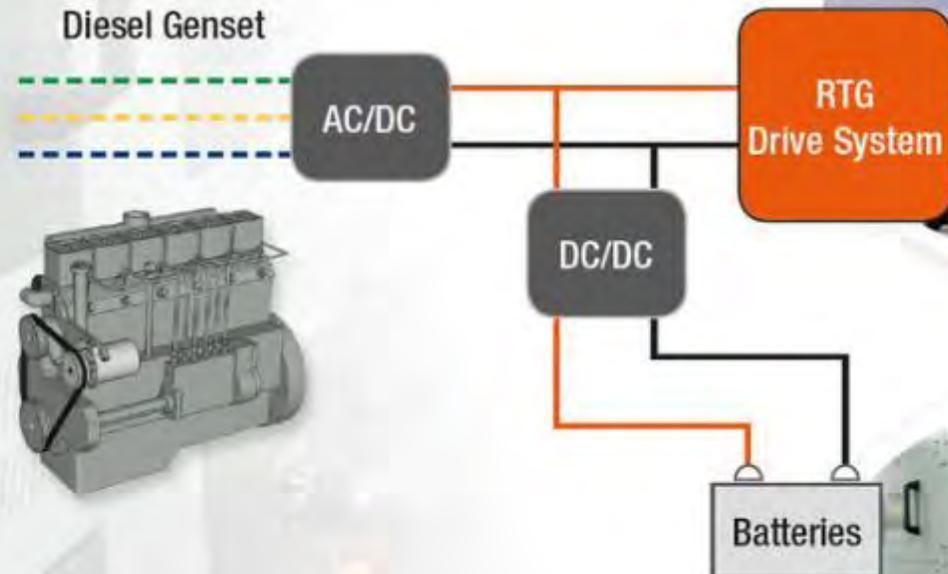
- 35 unit
- Charged by solar panel to generate electric



# RTG HYBRID

- Replace with diesel generator + battery pack
- 60-65% savings from diesel fuel

## Hybrid-RTG with small diesel genset and big battery pack



# BIODIESEL

- B7 Diesel
- All port equipment (except tug boats)
- Since 2019
- Now moving towards B20



**DIESEL**  
UP TO 7% BIODIESEL

- square means diesel
- B stands for biodiesel
- 7 means up to 7% renewable biodiesel



# BIODIESEL NEW DIRECTION

## PROGRAM **BIODIESEL B20**



**1 FEB 2019:**

Pelaksanaan mandatori Program Biodiesel B10 untuk sektor pengangkutan

**1 JULAI 2019:**

Pelaksanaan mandatori Program Biodiesel B7 untuk sektor industri

**JAN 2020:**

Program Biodiesel B20 untuk sektor pengangkutan dilaksanakan di Langkawi & Labuan

**SETERUSNYA:**

Sabah, Sarawak & fasa terakhir di Semenanjung Malaysia

### B10

(adunan 10% biodiesel sawit dengan 90% diesel petroleum)

### B7

(adunan 7% biodiesel sawit dengan 93% diesel petroleum)

### B20

(adunan 20% biodiesel sawit dengan 80% diesel petroleum)

\*Penggunaan B20 tidak mendatangkan masalah pada enjin kenderaan & mengurangkan pelepasan debu & asap hitam

**MENDAPAT KERJASAMA:**



Petronas



Shell



Petron



Chevron



BHP

**MANFAAT PROGRAM BIODIESEL B20 KEPADA NEGARA**



Selari dengan Teras Strategik Kedua Wawasan Kemakmuran Bersama 2030 iaitu penerokaan Aktiviti Pertumbuhan Ekonomi Utama



Menguatkan harga minyak sawit berikutan peningkatan permintaan



Peningkatan kapasiti pengeluaran biodiesel sawit untuk pasaran tempatan



Selari dengan Matlamat Pembangunan Lestari (SDG) oleh Pertubuhan Bangsa-bangsa Bersatu (PBB) iaitu SDG ke-7 (bahan api mesra alam), SDG ke-8 (ekonomi mampan & menyeluruh, mengurangkan kebergantungan negara kepada import diesel) & SDG ke-13 (tindakan menangani perubahan iklim)



Mengurangkan pelepasan gas rumah kaca



Mengurangkan pencemaran udara



Peningkatan ekonomi ekonomi 650,000 pekebun kecil sawit



Membantu negara mencapai objektif *low carbon mobility*

Shift from  
B7 to B20

# NITROGEN PURGING SERVICES

## NEW JOHOR PORT MARINE SERVICE

- Designed only for LNG carriers
- Environmentally friendly
- Nitrogen gas is less harmful to the ozone



# NITROGEN PURGING SERVICES FOR LNG CARRIER

Nitrogen Purging Services can be carried out at JPB berth or anchorage ✓

Competitive price with other Nitrogen Purging Service providers ✓

Environmentally friendly. Nitrogen gas is less harmful to ozone ✓

With the pure composition of nitrogen (99.9%), Gassing Up Operation will not be required prior to loading ✓

Save time for the loading operation ✓

**CONTACT US | Johor Port Marine Services**

+607-2535888 ext 607 / 604 / 417

for more info please visit: [www.johorport.com.my](http://www.johorport.com.my)

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# SOLAR PANEL PARKING AT WISMA KONTENA

- 2,700 square meter of solar panels
- Cut the trees but will replant at proper area
- Supply to grid





**Figure 5: Aerial View**



# ECO CAMPAIGN



## ECOCRAFT: INNOVATE AND CREATE

UNLOCK YOUR  
CREATIVITY:  
CRAFT PORT-INSPIRED  
ART FROM RECYCLE  
ITEMS!!

### REGISTRATION

- 23.10.23 - 3.11.23
- Max 6 persons per groups

### COMPETITION DAY

- 8.11.23
- 10:00am - 5:00pm
- HSE Training Room

## OBJECTIVES

Recycling involves collecting and reusing recyclable materials, aiming to benefit the environment, the economy, and local communities. It plays a vital role in reducing pollution, preserving energy, and cutting greenhouse gas emissions by reducing the need for new raw materials.

Winner	Prizes
1st	RM 1000 + Hamper + Certificate
2nd	RM 700 + Hamper + Certificate
3rd	RM 500 + Hamper + Certificate

Time	Program
9.00 am - 10.00 am	Briefing
10.00 am	Competition begins
3.00 pm - 4.30 pm	Presentation & Evaluation
4.30 pm - 5.00 pm	Photo Session & End

## TERMS & CONDITION

- Participation is limited to **groups only**.
- Groups must **consist of 3 to 6 members** (cross-departmental teams are allowed).
- **Use recycled materials** in your designs that match the "Port Business & Infrastructure" theme.
- Assembly activities will take place on the competition day.
- The winner will be announced during HSE Day.
- **PSSD will be responsible for judging all designs, and their decisions are considered final.**



Plastic Bags

PROHIBITED  
ITEMS



Polystyrenes

REGISTER  
NOW



# GREEN BUILDING INDEX

The Green Building Index (GBI) is Malaysia's recognized green rating system to promote sustainability in the built environment and raise awareness about environmental issues and responsibility to the future generations



## THE GBI RATING SYSTEM

BUILDINGS WILL BE AWARDED THE GBI RATING BASED ON 6 KEY CRITERIA:

1	Energy Efficiency (EE)
2	Indoor Environmental Quality (EQ)
3	Sustainable Site Planning & Management (SM)
4	Material and Resources (MR)
5	Water Efficiency (WE)
6	Innovation (IN)

## GBI CLASSIFICATION

POINTS	GBI RATING
86+ points	Platinum
76 to 85 points	Gold
66 to 75 points	Silver
50 to 65 points	Certified

# MANGROVES PLANTING & ECOSYSTEM BALANCE

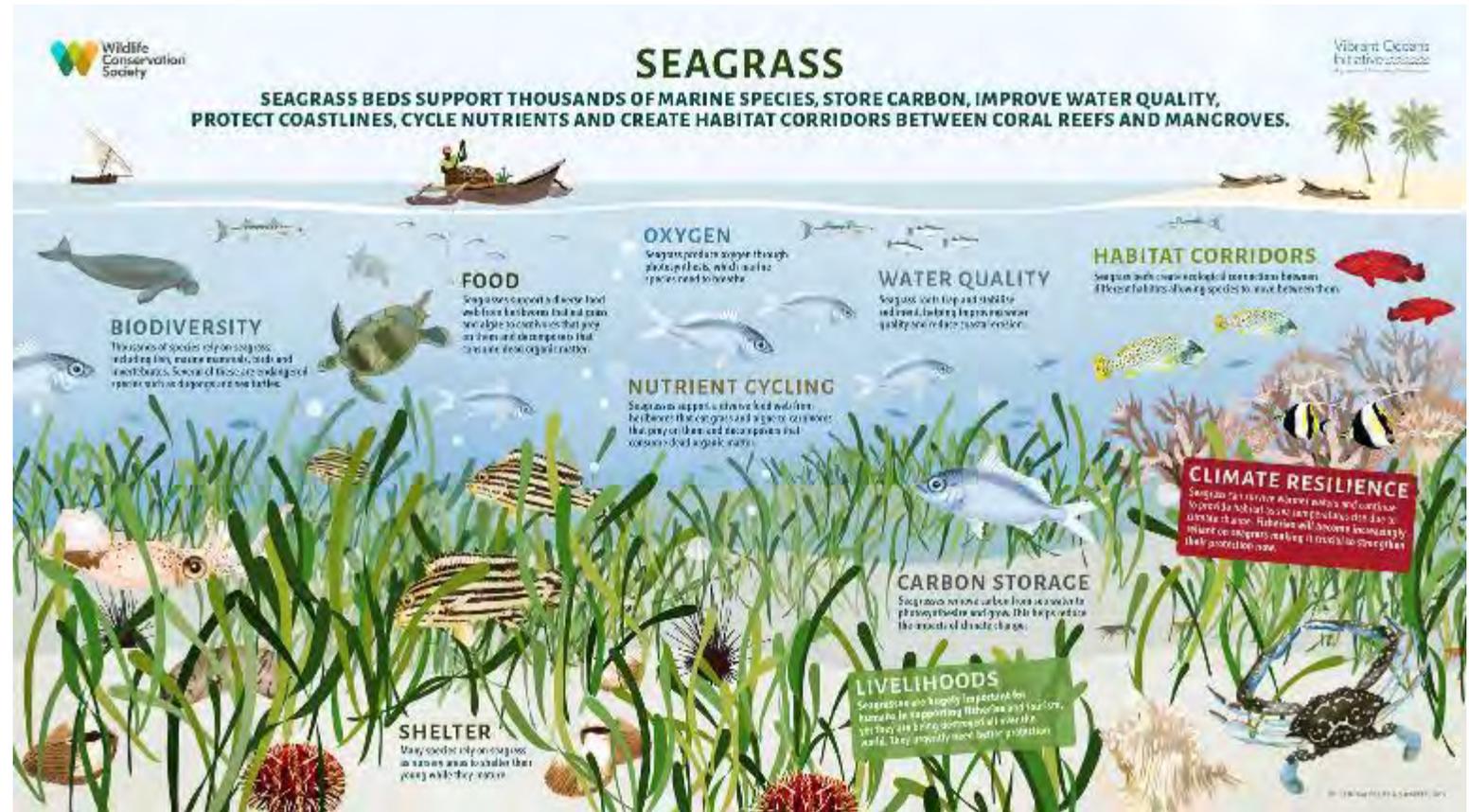




## Case Study 3: Other Malaysian Ports & Red Sea Gateway

# SABAH PORT SEAGRASS RELOCATION

- Since 2012, SPSB and the Borneo Marine Research Institute (BMRI) of University Malaysia Sabah have collaborated on various projects.
- This includes safeguarding of coral reef ecology, coral conservation in the Sapangar Bay, Sabah, Malaysia and funding a study on the status of heavy metal pollution in coastal sediments of Sapangar Bay and Kota Kinabalu city



## Relevant UN SDGs

4 QUALITY EDUCATION



8 DECENT WORK AND ECONOMIC GROWTH



14 LIFE BELOW WATER



17 PARTNERSHIPS FOR THE GOALS



- The aim of the project is to safeguard Sapangar Bay's seagrass inheritance from further degradation and impact by future development that is expected to take place within the Sapangar vicinity.
- Through the project, the following were achieved:
  - Relocation of seagrass to an identified site
  - Identification of the biological and physical factors that affect seagrass restoration
  - Awareness program on seagrass and their habitat

## WHY IS SEAGRASS IMPORTANT?

Seagrass meadows are a vitally important habitat yet over 35% of our meadows have been lost since 1980. They need our attention and protection.



### Alleviating Poverty

Seagrass meadows provide vital nutrition for close to 3 billion people, and 50% of animal protein to 400 million people in the third world.



### Climate Change

Seagrasses sequester carbon 35x more efficiently than forests and despite occupying only 0.1% of the ocean floor, they are responsible for 11% of the organic carbon buried in the ocean.



### Coastal Protection

The roots and rhizomes of seagrass spread through the sediment, helping to stabilise the coastline and protect it from erosion.



### Biodiversity

Seagrass meadows provide food and habitat for 1000's of species such as shellfish, seahorses, dugongs and sea turtles.

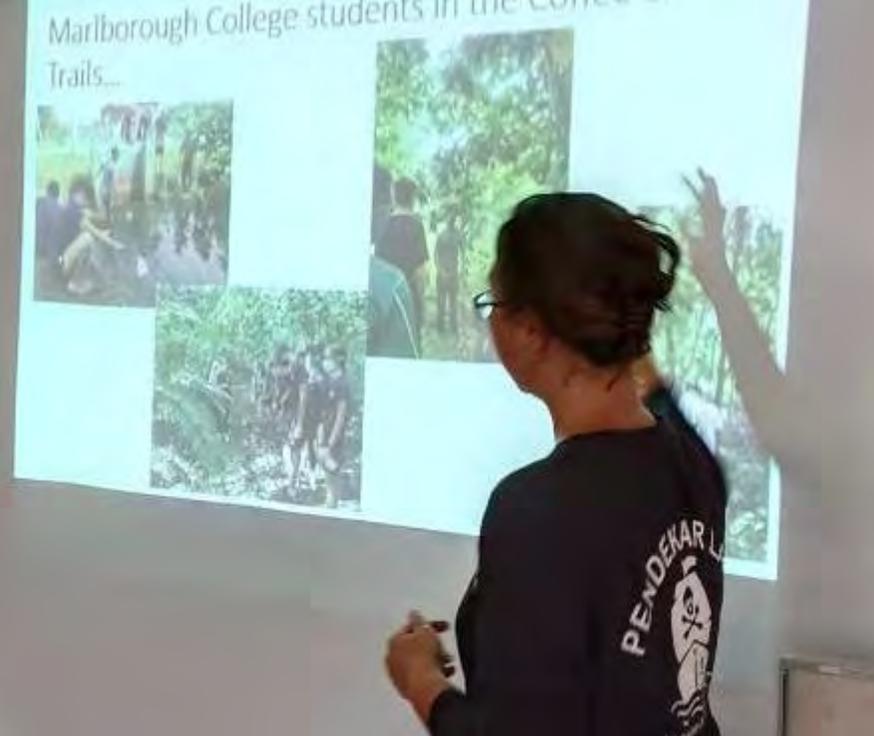
# PTP: SAVING THE DUGONGS, SEAHORSES, SNAILS, JELLY FISHES, MONKEYS, MANGROVE CRABS AND MANGROVE FOREST













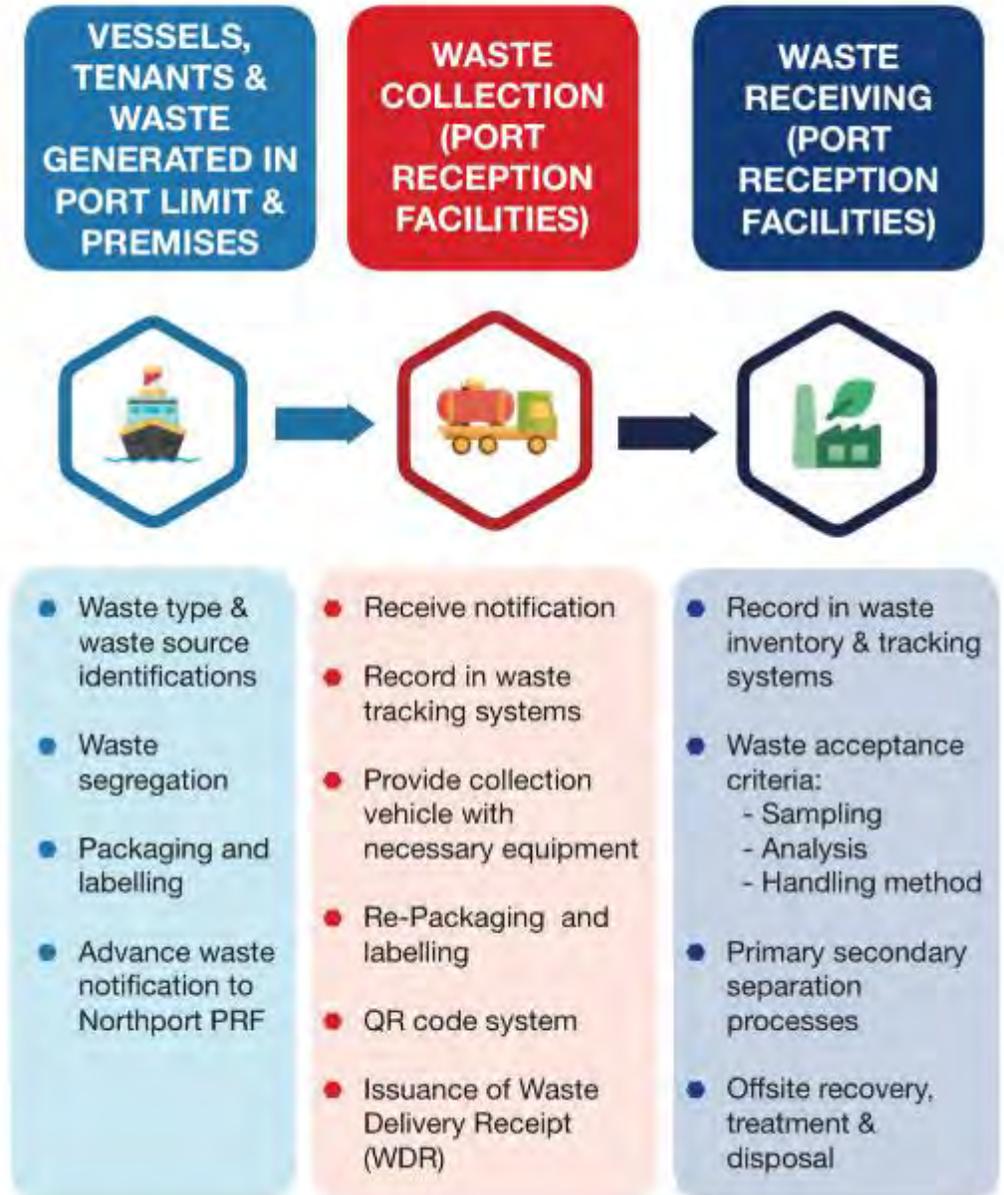
# NORTHPORT ESG INITIATIVES

Northport is also the first port in Malaysia to establish an on-site Port Reception Facility (PRF), providing a value-added service for total waste management solutions to the berthing ships.

**Port Reception Facilities** is a kind of provision that any international shipping port must provide to collect residues, oily mixtures, and garbage generated from a sea going vessel.

The arrangements must be such that the receiving operation can be performed as fast as possible to avoid undue delay of the ship.

## WASTE COLLECTION & TRANSPORTATION FLOW



# NORTHPORT: 13 E-RTG (EXISTING) + 11 E-RTG(NEW BY DECEMBER 23)

Among Northport's ESG practices include using **eco-friendly Electrified Rubber Tired Gantry (E-RTG)** cranes in its container handling operations.



Northport operates a fleet of 84 units of RTG cranes, consisting of 71 diesel-powered RTGs and 13 e-RTGs. In line with the company's ESG initiatives

Northport is purchasing 11 units of new eRTG cranes for its new container yard designated as the J Block.

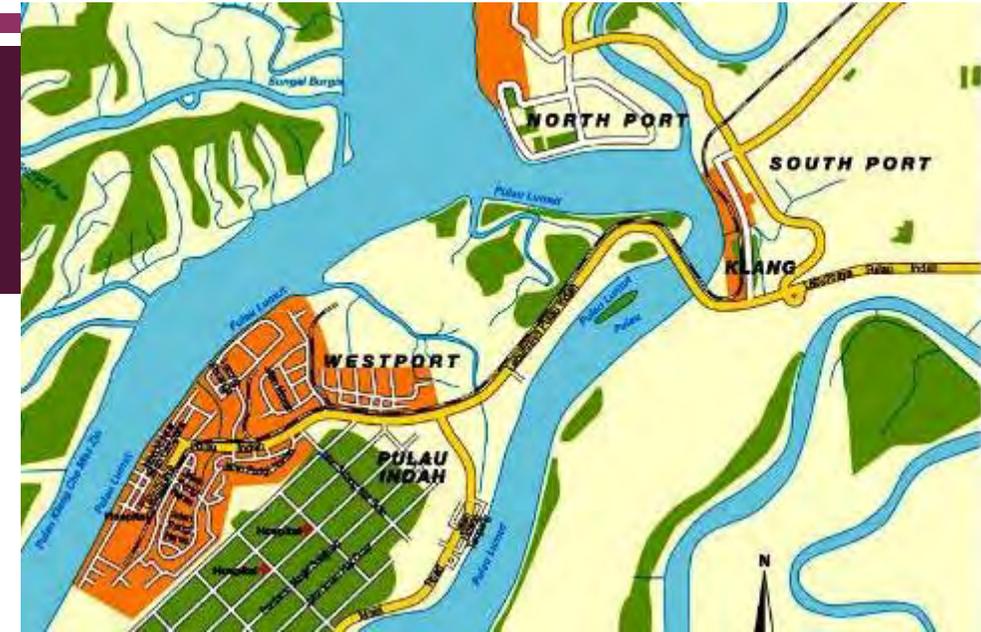
The new eRTGs will be fully delivered by December 2023.

Northport was Malaysia's first port to use eRTGs in 2013

# OPERATIONAL STRATEGY

- Safe speed shall be observed throughout the passage plan where the speed limits will be consistent to the safe navigation with regards to harbour regulations,
- All the vessels need to be navigated at a safe speed which not exceeding **12 knots**.
- Furthermore, vessels navigating within 300 meters of the wharves or other mooring structure shall **not exceed the speed limit of 8 knots**

With the implementation of the vessel speed reduction initiative, Northport, Klang have succeeded in reducing approximately 55% of the amount of CO2 emissions coming from the vessels and improve the air quality at the port



# PENANG PORT GREEN PRACTICES



To reduce carbon emission

1. Purchased 7 units hybrid Rubber Tyred Gantry (RTG) - Lowering Carbon Emission in North Butterworth Container Terminal, usage of fuel and achieve cost saving
2. Liquefied Natural Gas (LNG) - to replace diesel consumption for Port's prime movers

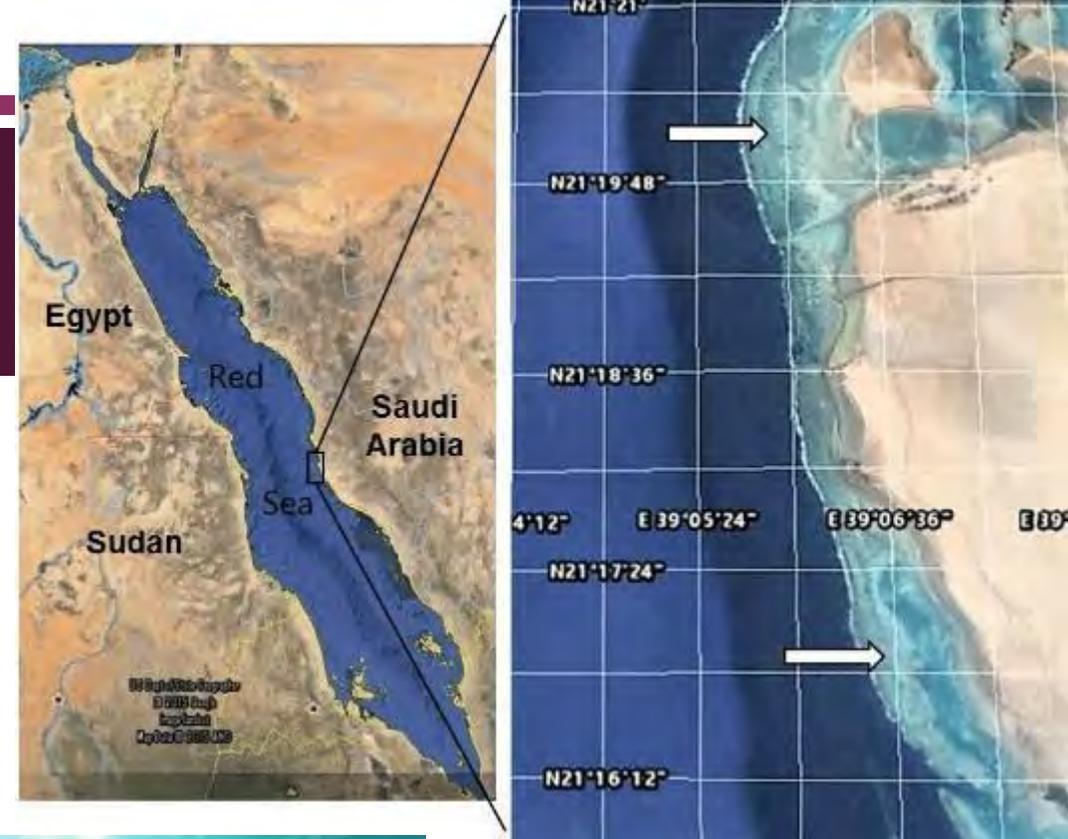
# PENANG PORT RENEWABLE ENERGY

- Rooftop Solar PV system - The project will generate solar electricity for the consumption of the Butterworth Wharf Container Terminal (BWCT)
- Floating Solar System – Penang Port proposed to further increase use of solar (RE) electricity in Penang Port terminal in order to generate solar energy for consumption at North Butterworth Container Terminal (NBCT). The floating system is due to the lack of land or rooftop space at NBCT container yard.
- Water Consumption:  
Rainwater Harvesting (RWH) - collect and store rainwater from godowns roof for cleaning and non-edible water usage.



# RED SEA GATEWAY TERMINAL

- Red Sea Gateway Terminal, and in a collaboration with The Ministry of Environment, Water and Agriculture to support projects that achieve Vision 2030, it's been agreed to cultivating 1500 units of artificial reef in the north of Jeddah Islamic Port.
- The adoption of this project demonstrates RSGT's commitment to conserving fish resources and protect the marine environment in the Red Sea.





*JP Skills Centre*

**THANK YOU**



A Member of  MMC Group