

2012 US-Taiwan Sustainability Symposium

臺灣港群推動綠色港口 Taiwan Greening the Ports



臺灣港務股份有限公司

蔡丁義副總經理

Taiwan International Ports Corp.

Vice President Tsai Ting Yi

2012.12.11

Agenda

- ◆ Introduction of TIPC
- ◆ The global trend of port development
- ◆ Taiwan Greening the Ports
 - Tourism
 - Shipping
 - Port environment
 - City development



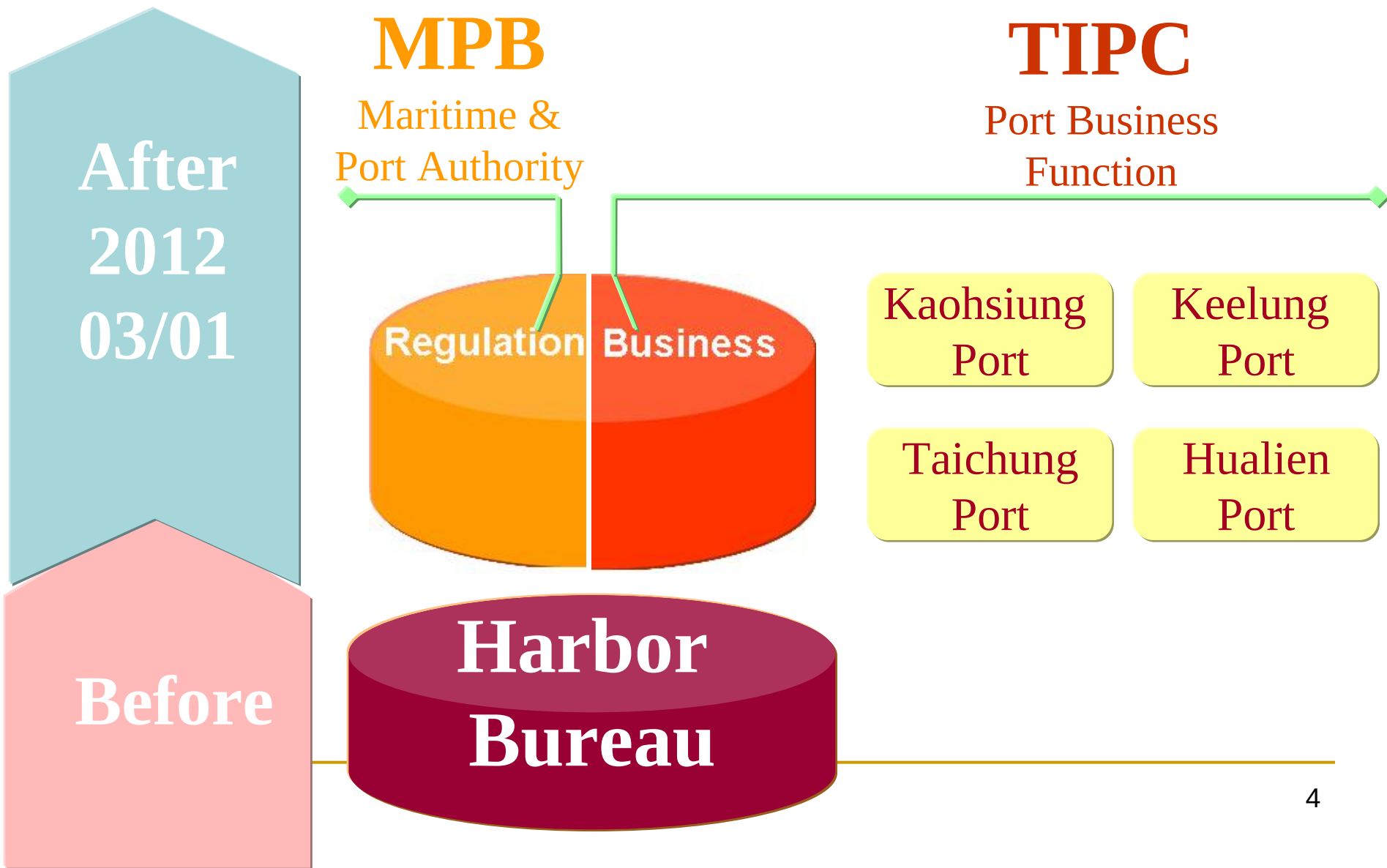
臺灣港務股份有限公司
Taiwan International Ports Corporation, Ltd.



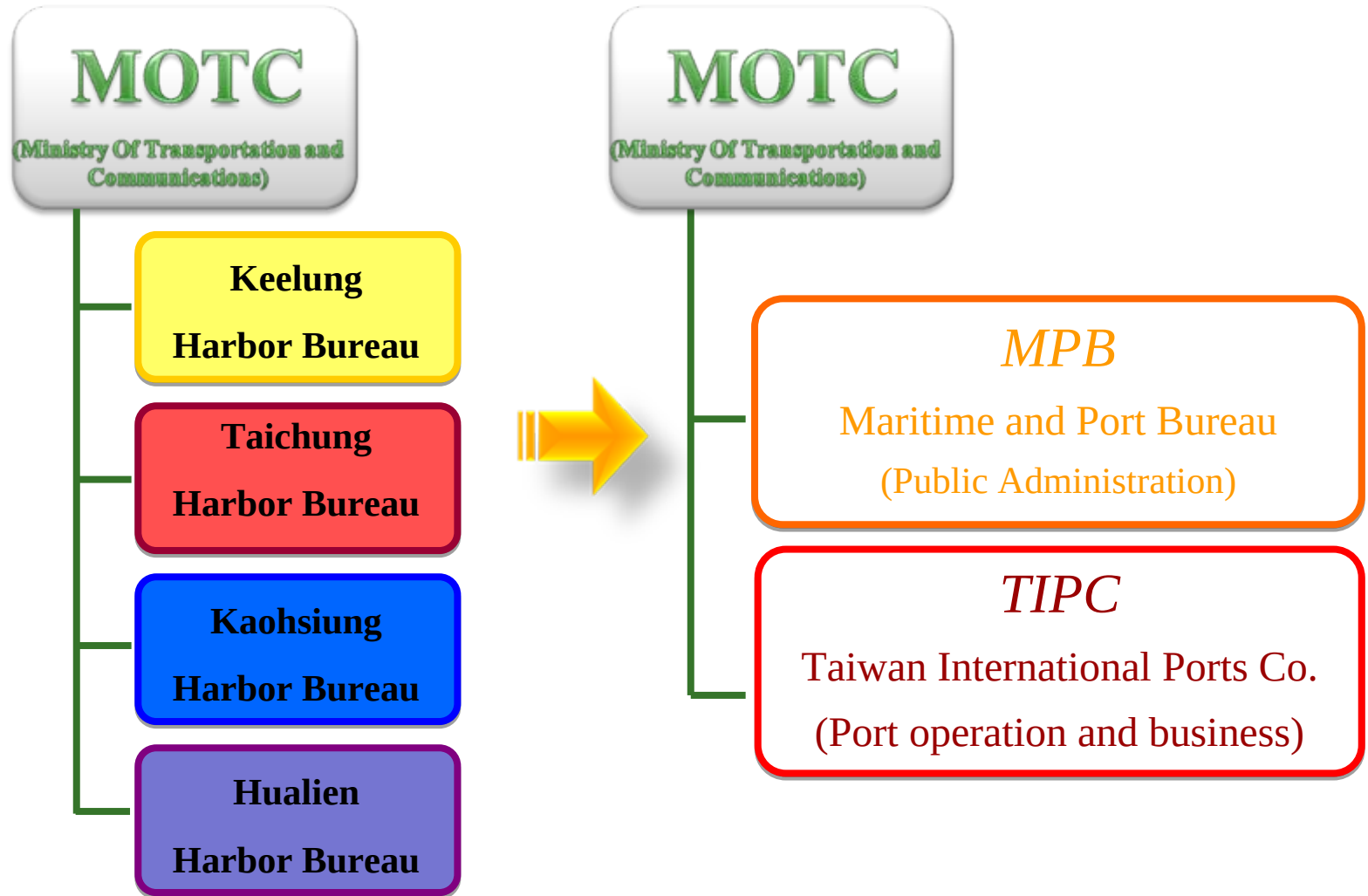
TIPC is for all ports in Taiwan



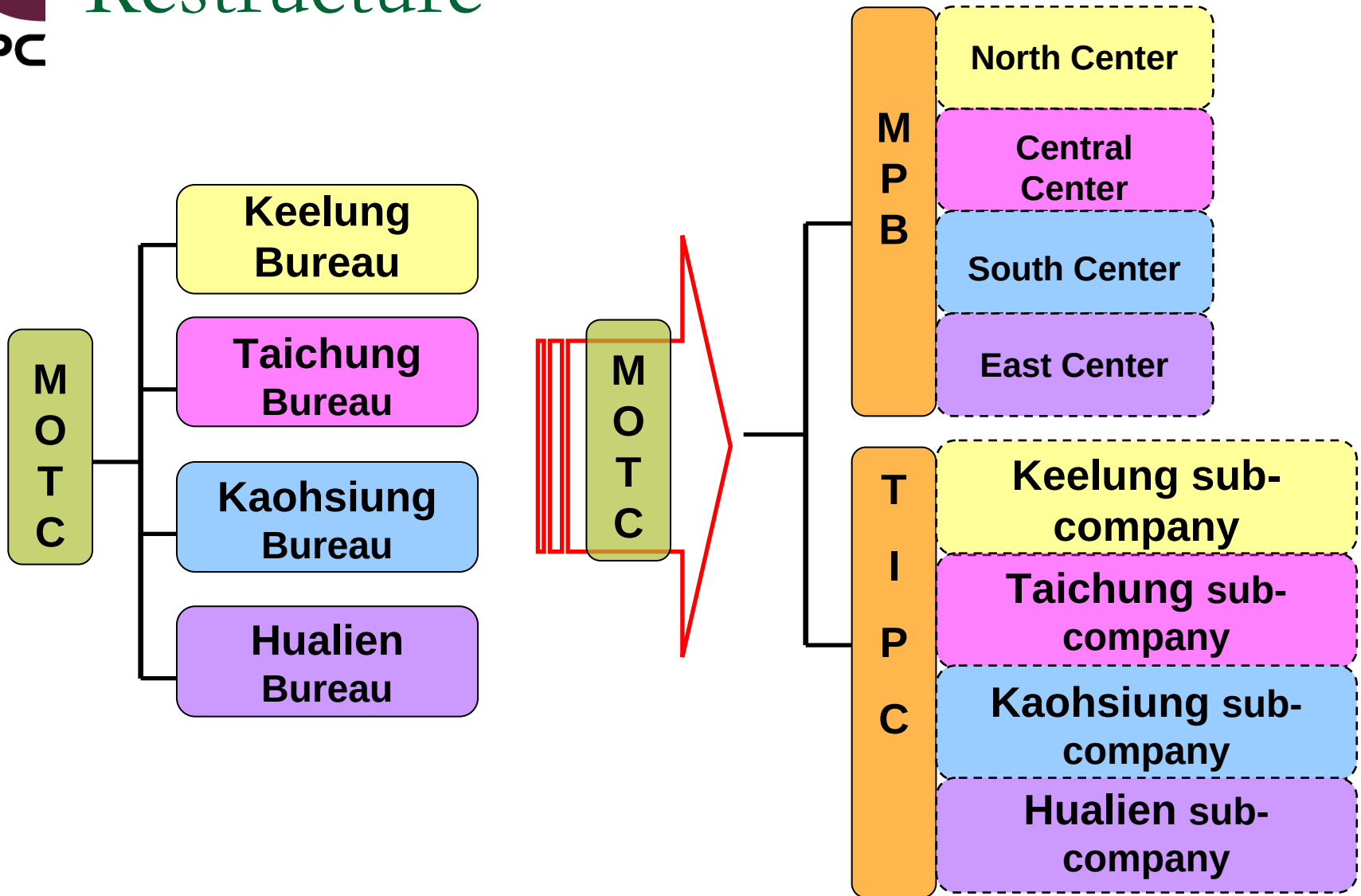
The New Port Management System in Taiwan

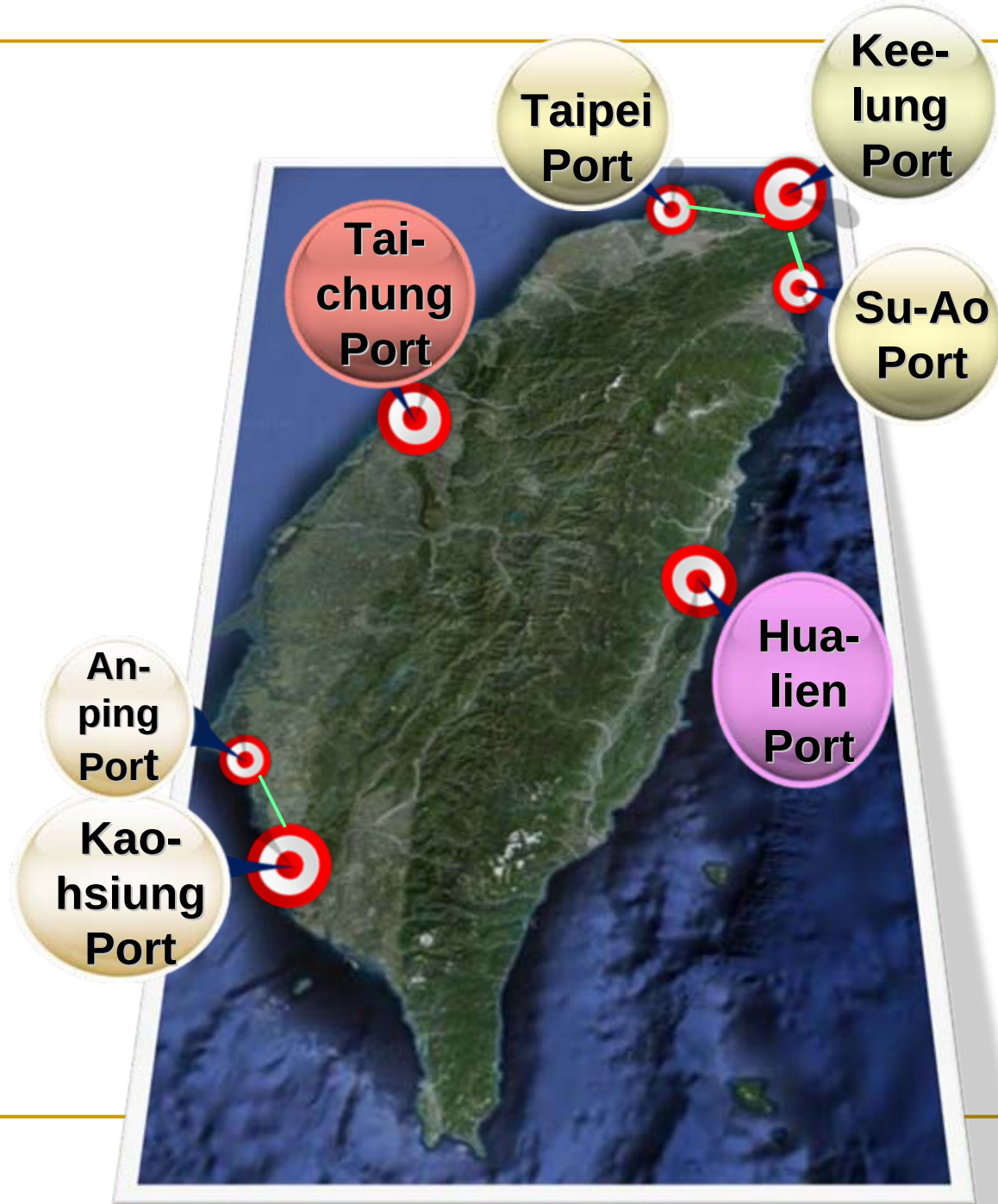


Restructure

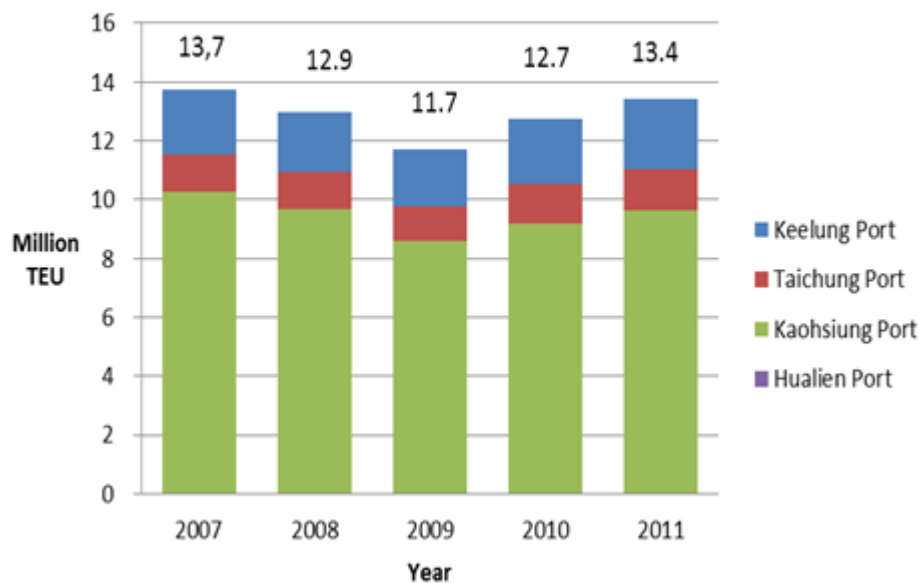


Restructure

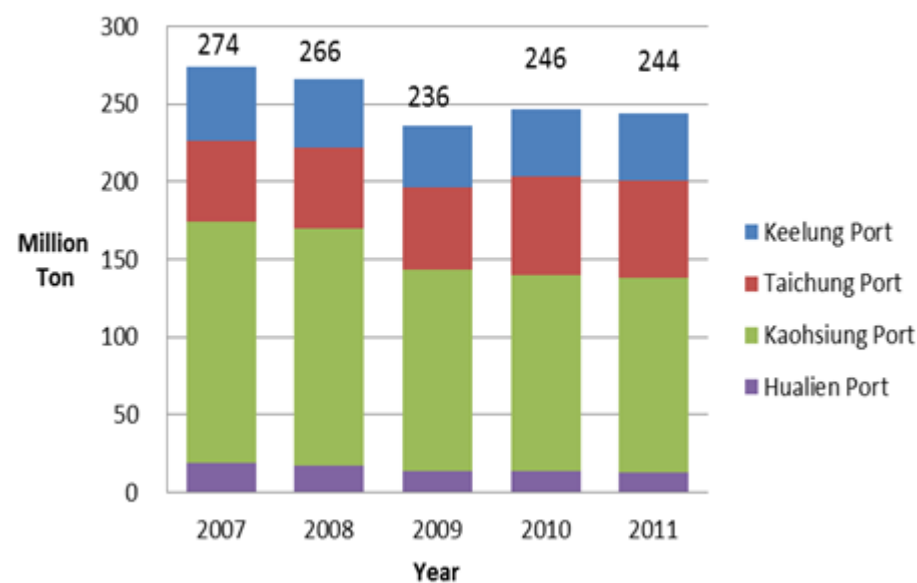




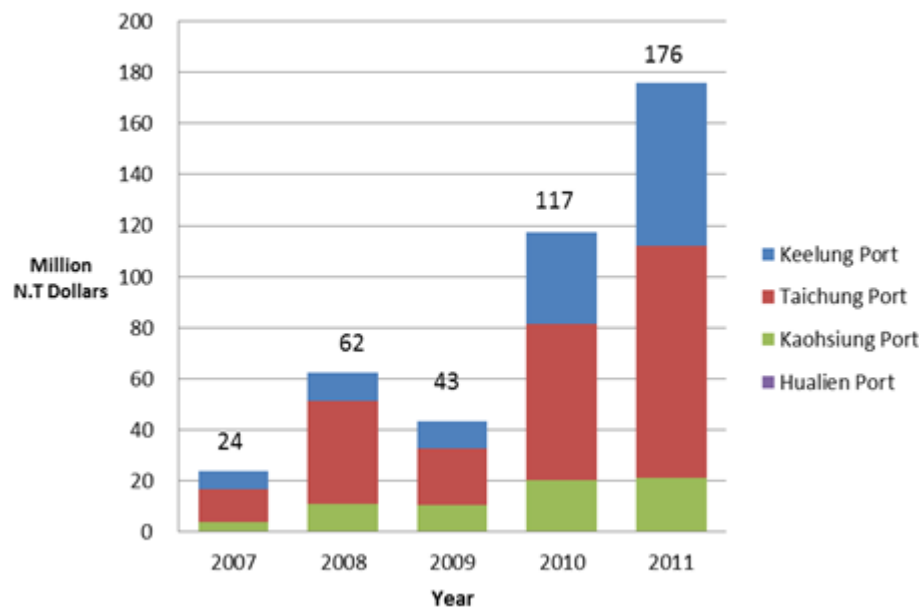
2007-2011 Container Handled



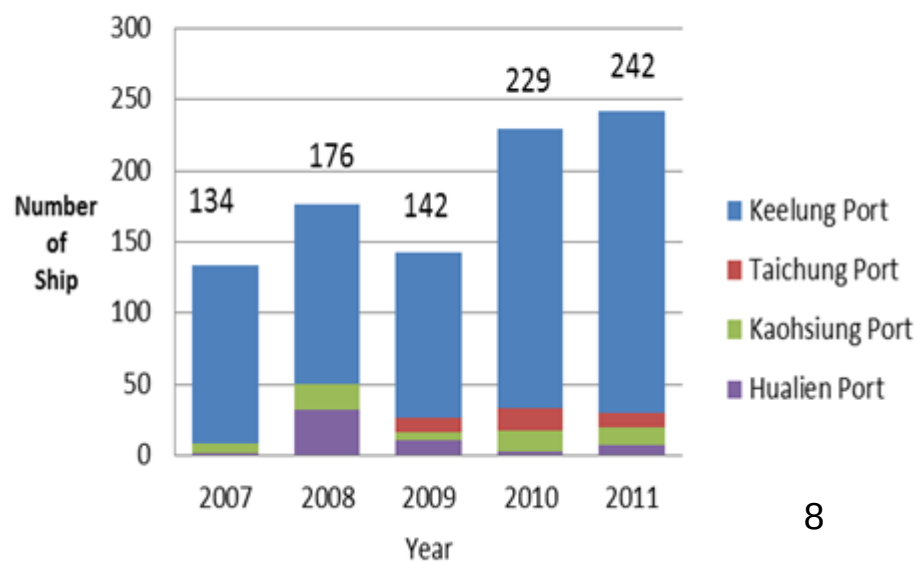
2007-2011 Throughput



2007-2011 The Cargo Value of FTZs

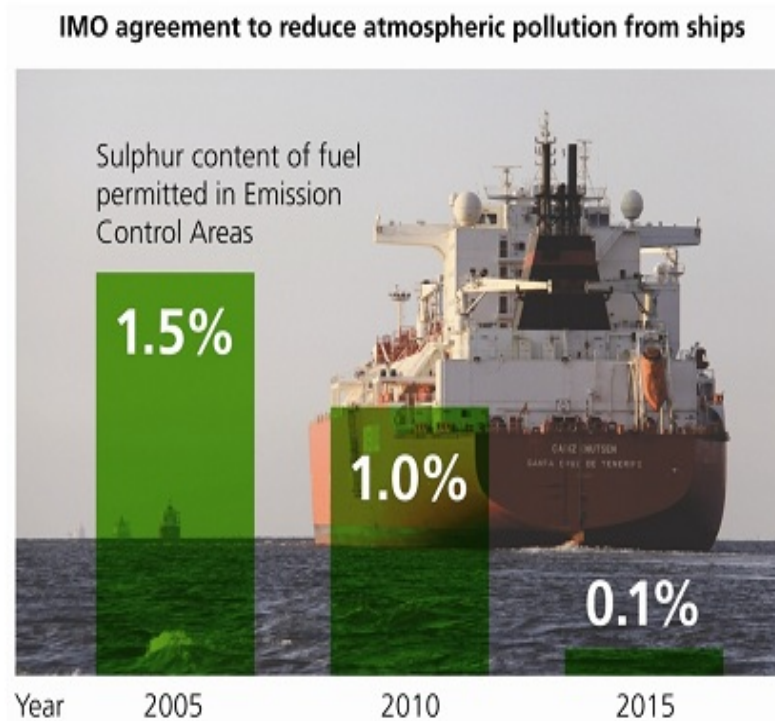
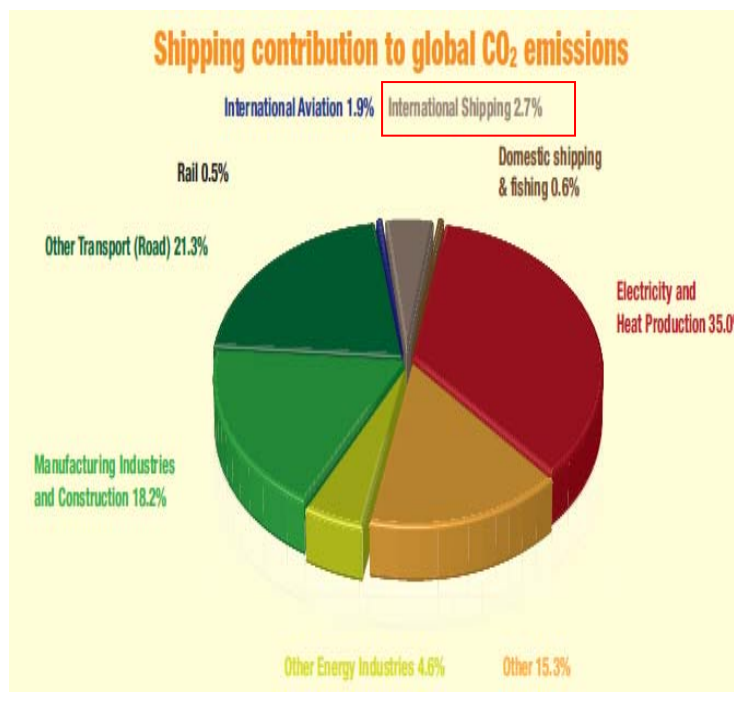


2007-2011 Number of Ship- Cruise



Maritime Transport

- 870 megatonnes (2.7% of global CO₂ emissions) are from international shipping.
- Sulfur emission control areas (SECAs): The sulfur content of fuel should be less than 0.1% m/m after 2015



The global trend of port development

- Each port follows its guideline and principles for green port or eco port development.
- Green ports aim to improve harbor operation and environment by combining economical, social, ecological aspects.
- The strategy includes contract revision, regulations, incentive and voluntary program at design, construction and operational phase.



Taiwan Greening the Ports

- As a port managing agent, greening the port can be seen as a strategy to improve the operational efficiency, enhance our competitiveness and prosper sustainable development with local.
- Taiwan Ports aim at pollution reduction, ecological environment, operational efficiency, and co-prosperity with local community/city through greening the ports initiative.

重型車輛



貨物裝卸設備



遠洋船舶

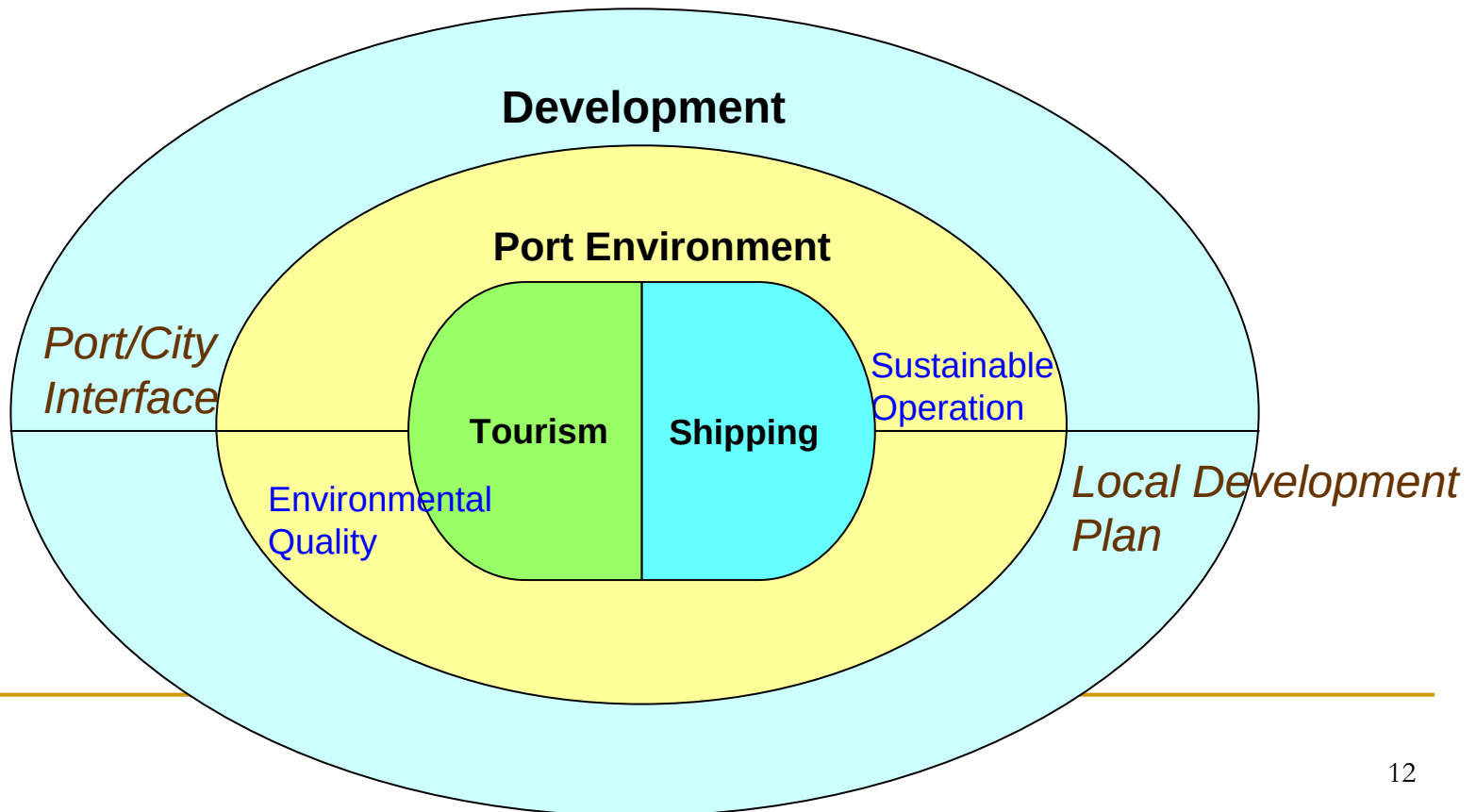


港勤船舶



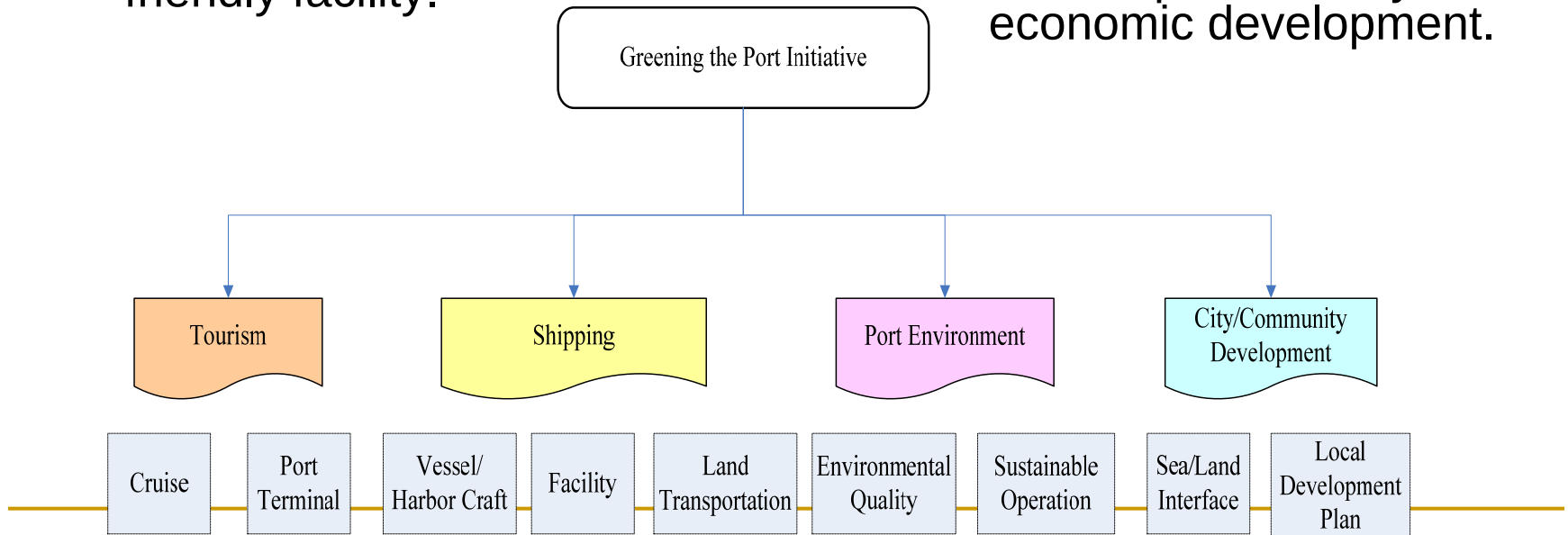
Framework

- Core Business (also Pollution Sources):
Shipping (Goods)/ Tourism (Passengers)
- Spatial Development:
Port Environment/ Integrated Development



Four Pillars

- **Tourism** : Lower the environmental impacts from cruises and build green passenger terminal.
- **Shipping** : Reduce pollution from ships and stevedoring; upgrade to environmental-friendly facility.
- **Port Environment** : Improve the environmental quality of port area; enhance corporate sustainability.
- **City/Community Development** : Create a friendly interface of city and harbor; promote city economic development.



Tourism

Tourism

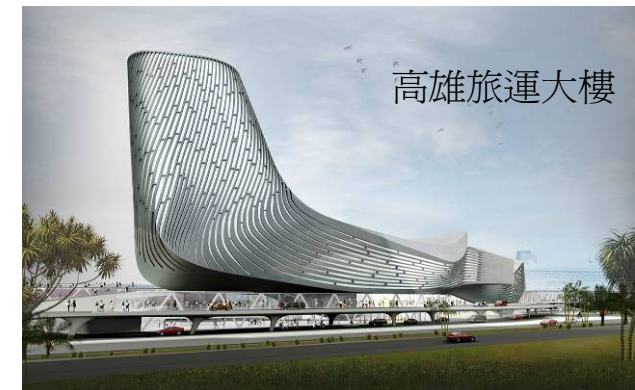
Cruise

1. Low Impact
Facility

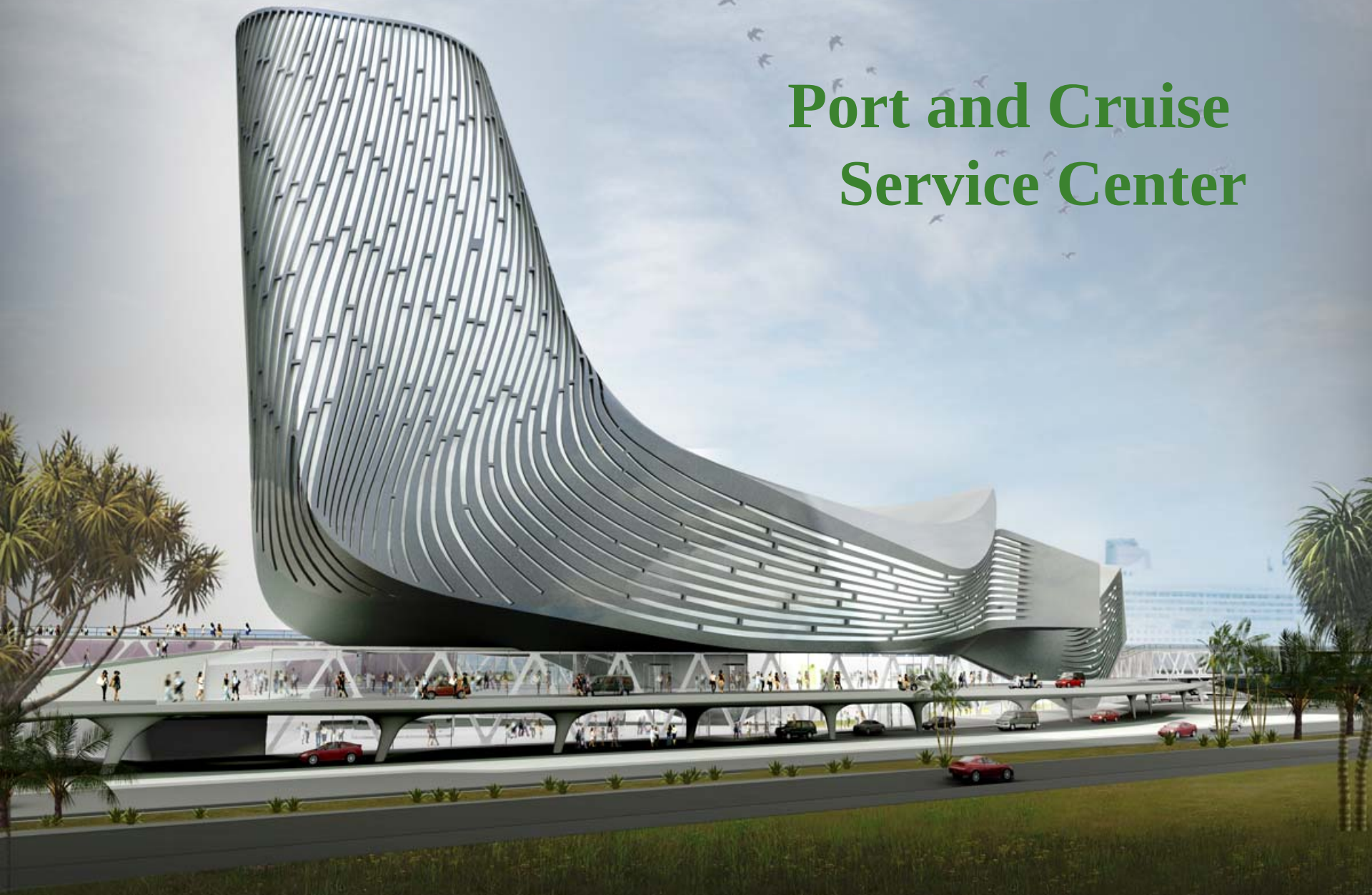
2. Green Cruise

Port Terminal

1. Green Building
2. Green Operation
and Maintenance



Port and Cruise Service Center



Green Building: New Keelung Harbor Service Building

Work-Flow

New Keelung Harbor

Aerial View from the Northeast

September 14, 2012

NMD / Fei & Cheng

7



Shipping

Shipping

Vessel/ Harbor Craft

1. Air
 - Speed Limit
 - Low Sulfur Fuel
 - AMP

2. Solid Waste

3. Wastewater

Facility

1. Electrification
 - AMP
 - Operation Machinery

2. Phase out high pollution equipment

3. Automation of container yard

4. Closed stevedoring system

Land Transportation

1. OCR/RFID to accelerate truck pass

2. Truck emission standard

3. Outbound Highway

Vessel

- Vessel Speed Reduction (VSR) :
All Taiwan Ports promote VSR- 12 knots within 20nm.
- Low sulfur fuel:
harbor craft and facility only use less than 10ppm-Sulfur fuel
- Shore power (Alternative Maritime Power, AMP):
 - Keelung : west 22、23
 - Kaohsiung : No. 108-109 (Kaoming) 、no. 115-117 (Evergreen)
 - Taichung : no. 19A
 - Hualien : no. 11



Facility:

Closed stevedoring terminal warehouse



Facility: Evergreen at no.115-117

- Electrical Rubber Tire Gantries (ERTG)
- Rail Transtainer R/T:
 - no.42-43(4)
 - no.63-64(8)
 - no.65-66(14)
 - no.70(12)
 - no.79-81(30)



Facility: Container crane



Land Transportation: OCR/RFID

- OCR/RFID enables the truck gate-passing time to decrease from 4 min to 10sec.

KaoMing Terminal

Past



Present



KIOSK



自動化作業流程



KAO MING CONTAINER TERMINAL CORP.
高明貨櫃碼頭股份有限公司



Kaohsiung Outbound Linking Highway



高雄港聯外高架道路計畫第CM01標中山高速公路延伸路廊及商港區銜接路廊
高架道路工程新生路北段暨預鑄場區施工現況



Port Environment

Port Environment

Environmental Quality

Sustainable Operation

1. Air
 - Sprinkle water system
 - Closed Stevedoring Operation
 - Cover mounds with dust filters

3. Noise
4. Ecology
 - Green Cover Rate
 - Ecological Compensation

2. Water
 - Wastewater Collection and Storage
 - Sewage System

5. EIA
 - Planning Strategy
 - Environmental Monitoring

1. Electronic Official Documentation

2. Video Conference

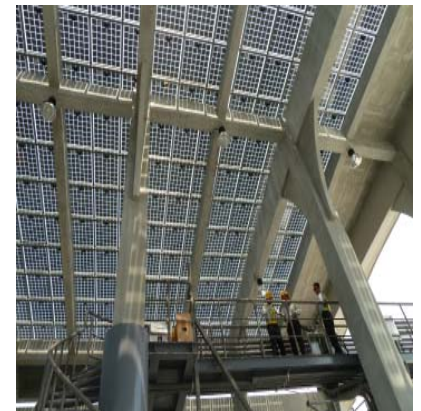
3. E-Services

4. Greening Office
 - Water/ Power /Gas/Paper Saving Program

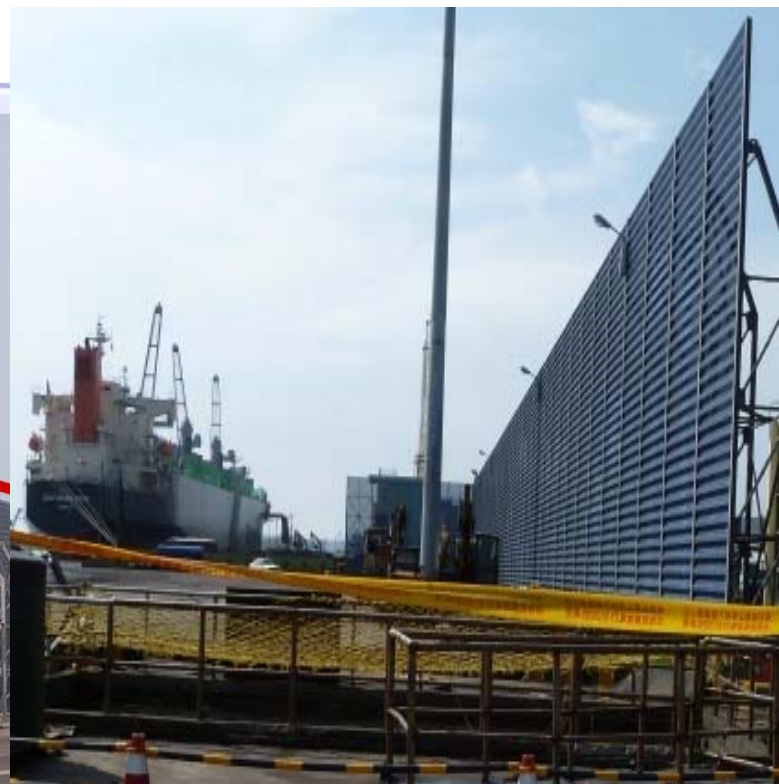
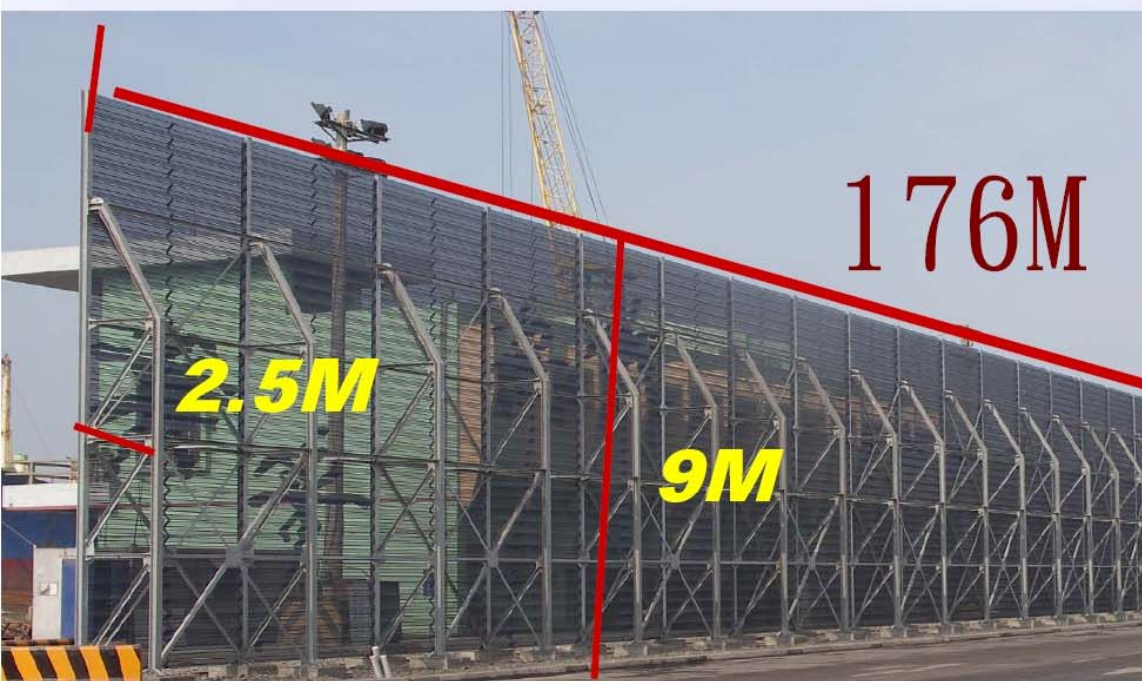
5. Green Procurement
 - LED lightning /Sensor lighting/ Solar PV

6. Water Resource Reuse and Recycle

7. Cleaning Surroundings



Kaohsiung Port: Dust-proof net



Length : 176M
Height : 9M
Wide : 2.5 M for the base, 1.1 M for steel structure

Material loading/Sprinkle water system



Car wash station

Keelung

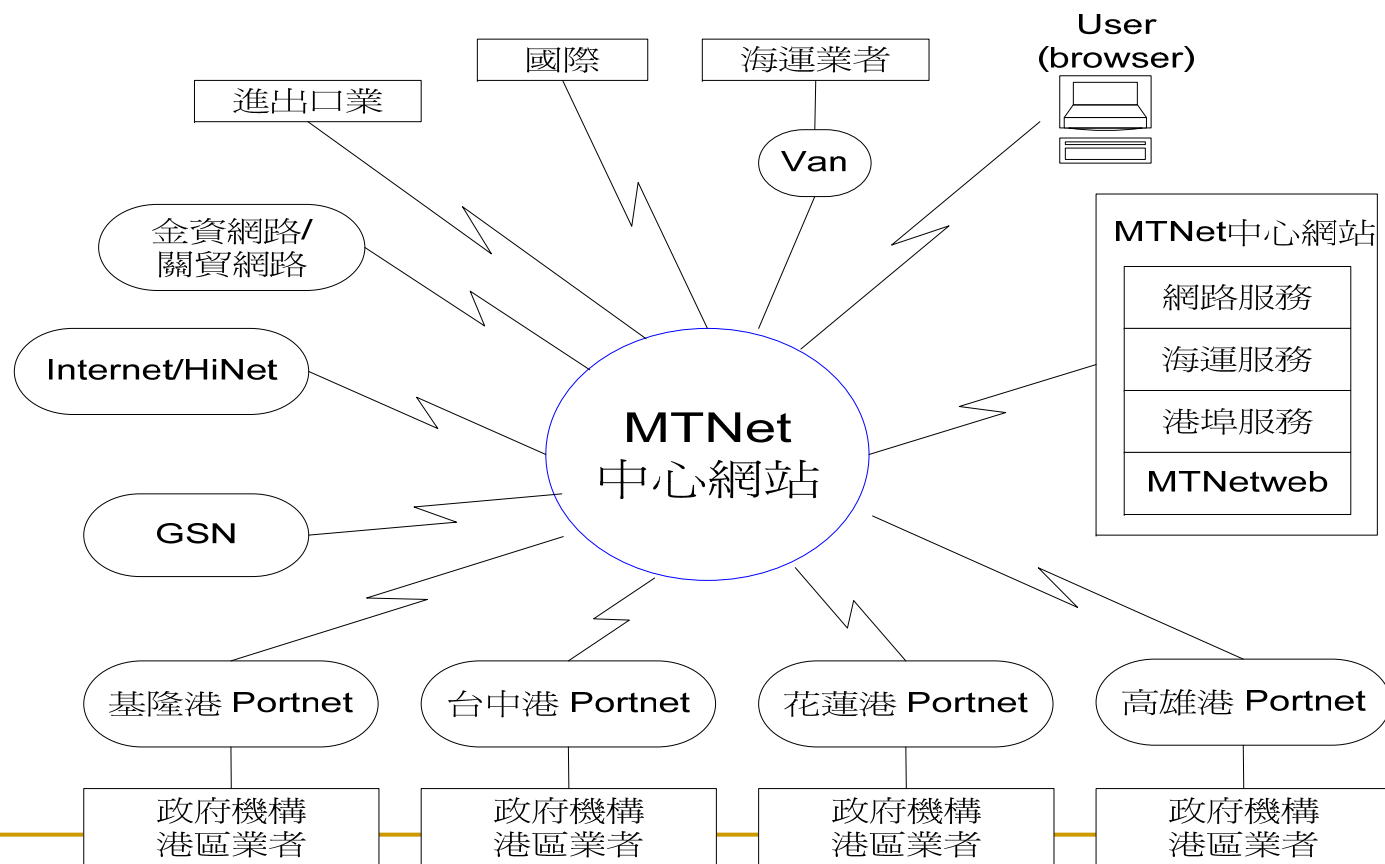


Kaohsiung



Sustainable Operation: E-service

Maritime Transport Network Portal (MTNet)



City/Community Development

City/Community Development

Sea/Land Interface

1. WaterFront
 - Keelung Ocean Plaza
 - Hualien Bicycle Route
2. GreenBelt
 - An-ping Mangrove Conservation 60m Greenbelt

Local Development Plan

1. Su-ao Green Energy Industry
2. Redevelopment of port area
3. Cooperation with Port-related Business

Port of Keelung



Keelung Ocean Plaza



Keelung Redevelopment: Harbor Building/Cruise&Tourist Center



Port of Taipei

Reclamation with
dredging material
and waste soil

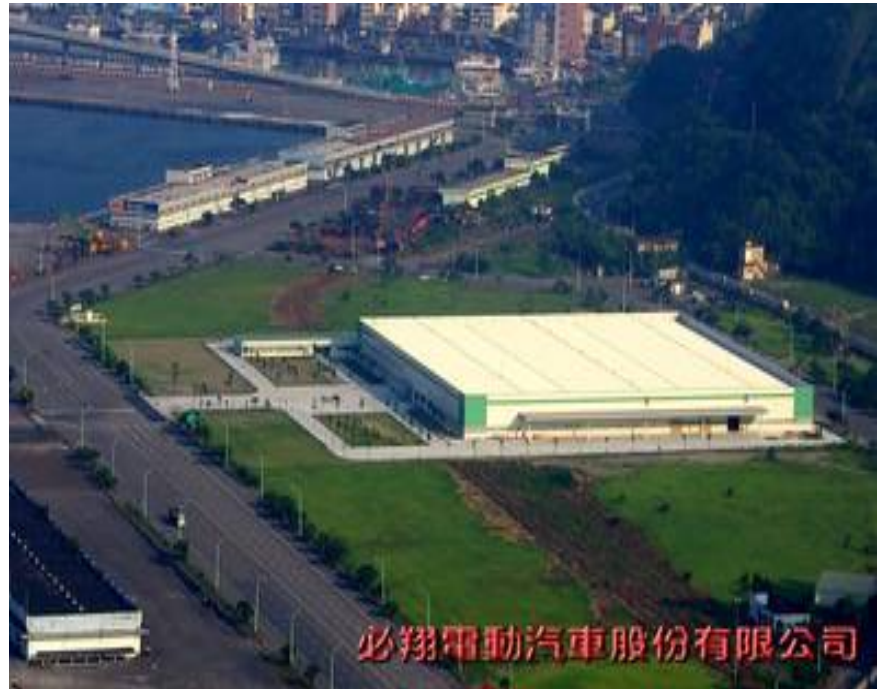


Port of Su-ao



Electronic car industry in Su-ao Port

99年3月14日「必翔電動汽車股份有限公司」蘇澳廠新建工程動土典禮

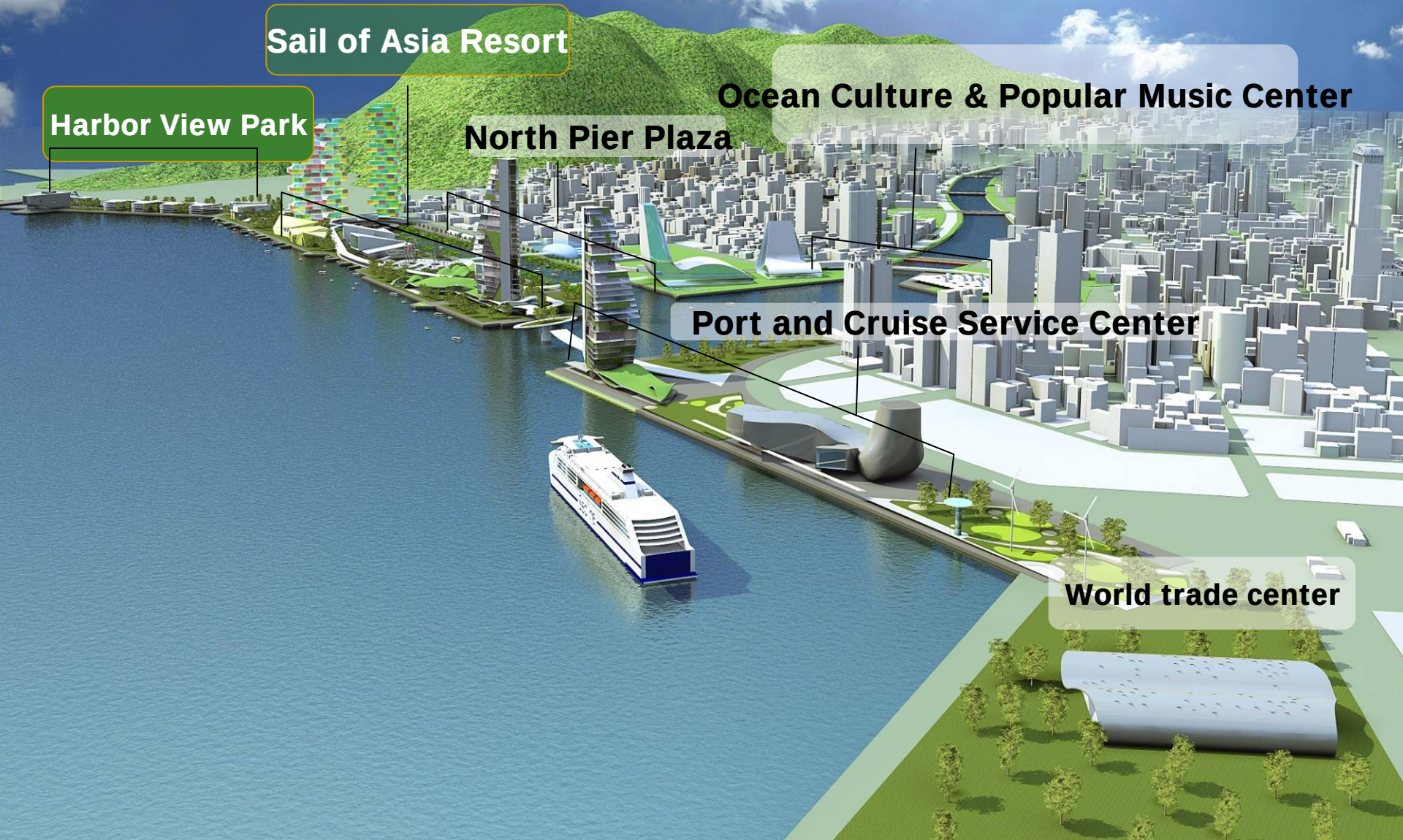


Port of Kaohsiung

Pier No. 1-21
redevelopment



Project of Kaohsiung Dream Harbor



Sail of Asia Resort

Harbor View Park

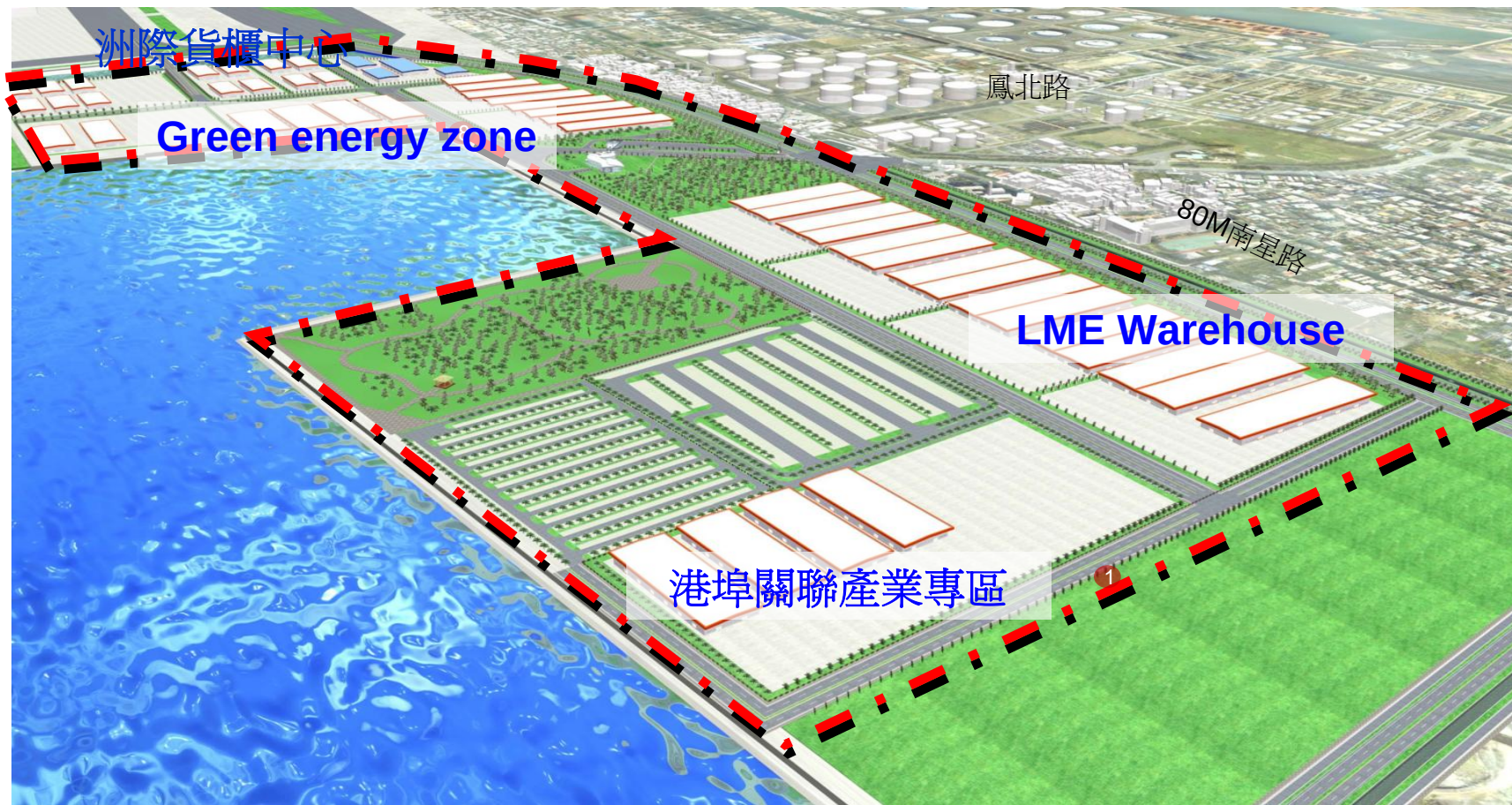
North Pier Plaza

Ocean Culture & Popular Music Center

Port and Cruise Service Center

World trade center

Kaoshiung South-Star Project Green Energy Industry Zone



Port of An-ping

60m greenbelt

Ecosystem restoration



An-ping mangrove restoration



Port of Taichung



Eco-conservation &
Recreational area

Taichung Port Green Energy: Windmill



Port of Hualien



Hualien Harbor Bike Route

清淨家園 洄瀾夢土

全民環保 永續家園



Hualien Harbor Bike Route



Sight-seeing & Cruise service

Cross-Straight Ferry



Sight-seeing Ferry





THANK YOU FOR YOUR ATTENTION