Port of Hoping
Environmental Report

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This environmental report presents Hoping Port’ s achievements in environmental protection from 2021 to 2022 as well as the environmental policy, commitments and action plans of the Hoping Industrial Port Corporation , Ltd.

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CONTENTS

和平工業區專用港實業股份有限公司
Hoping Industrial Port Corporation

Hoping Industrial Port Corporation
Environmental Policy

In order to ensure marine and environmental sustainability, Hoping Industrial Port Corporation is devoted to protecting port environment by following international green marine standards and the Headquarters' EcoPort strategic plan.
As the manager of the industrial port, we ask all port users to comply with regulations and continuously improve their practices to meet the environmental policies and objectives. The Hoping Industrial Port Corporation's Environmental Policy is as follows:

- Build a green port that follows environmental regulations tightly.
- Cultivate a nature-friendly plan that minimizes pollution.
- Track pollution sources through environmental monitoring.
- Supervise the management of contractors to ensure constant improvement.

The environmental policy has been discussed and communicated with HIPC employees and relevant stakeholders. This policy statement is available on the HIPC website for public views.

President：Edward Hwang
Date：Feb. 23rd 2023

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Phone number: (03) 868-1477 Website: http://www.hpipc.com.tw/index.html

和平工業區專用港實業股份有限公司
Hoping Industrial Port Corporation

Environmental Objectives

To achieve our commitments in environmental policy, the following environmental objectives are set according to the ten major environmental impacts from the port:

- Improve Port Air Quality
  Conduct regular air monitoring, environmental inspection to trace sources of pollutions
- Reduce Vessel Exhausts
  Install shore power to reduce the use of fuel-burning machinery during berthing
- Avoid Fugitive Dust
  Manage fugitive dust by updating cleaning equipment ,using airtight operations and regular water spraying
- Lessen Port-generated Waste
  Manage general waste disposal and fully implement waste recycling
- Maintain the Ecological Quality of the Port Water Area
  Monitor water quality and track coral ecological restoration to ensure port water wellness
- Manage Dredging and Beach Nourishing
  Continue dredging and beach nourishment works to ensure shoreline stability
- Prevent Cargo Leakage
  Conduct equipment inspection during operation and equipment maintenance during off periods.
- Strengthen Vessel Wastewater Management
  Fully prohibit vessel wastewater discharge and keep track of how wastewater were disposed
- Expand community friendliness
  Implement environmental education facility implementation and participate in local activities
- Pay Attention to Vessel Refueling Procedures
  Implement various protective measures to ensure port environmental safety

The Chairman of the Hoping Industrial Port Corporation is responsible for the implementation, maintenance, and effectiveness of the environmental objectives. The objectives are reviewed on a biennial basis, and action plans are adjusted according to the condition of the Port of Hoping to ensure that promises are upheld, improvements are made, and environmental objectives are achieved.

Port of Hoping Chairman：Edward Hwang
Feb. 23rd 2023

Hoping Industrial Port Corporation 97291 No.6, Hegong 5th Rd., Xiulin Township, Hualien County 972, Taiwan (R.O.C.)
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Message from HP

01/

Message from the Chairman of Hoping Industrial Port Corporation,Ltd

To achieve sustainable development, Hoping Industrial Port Corporation (hereinafter HIPC) has incorporated an eco-friendly concept into its operational development priorities. In 2018, we launched the EcoPorts (Green Ports) project, and in 2019, it obtained the European EcoPorts Certification. The project has since enhanced our corporate image and provided a learning experience regarding the management of international ports, thus strengthening the business competitiveness of the Hoping Port.

To ensure continuous improvement, the Hoping Port consistently strives to upgrade the port’ s facilities, improve both its hardware and software, and strengthen pollution prevention measures. During the COVID-19 pandemic, disease prevention measures for ship and port personnel have also been bolstered. In addition, by upholding the management motto of “Quality, Innovation, Excellence, and Community Service” , we seek to develop a Green Port that can bring prosperity to the local communities, in hopes of building a safe, economic, highly-efficient, and eco-friendly environment for all ocean carriers.

In preparation for the inspections of the European EcoPorts Certification process and in the interest of becoming a modern industrial port, HIPC will construct a more holistic port environmental management system that features informatization, automation, and green transportation. The objective is to create new opportunities that benefit HIPC, marine operators, relevant businesses, and the communities .

Huang, Chien-Chiang

Chairman
Hoping Industrial Port Corporation

Port Profile

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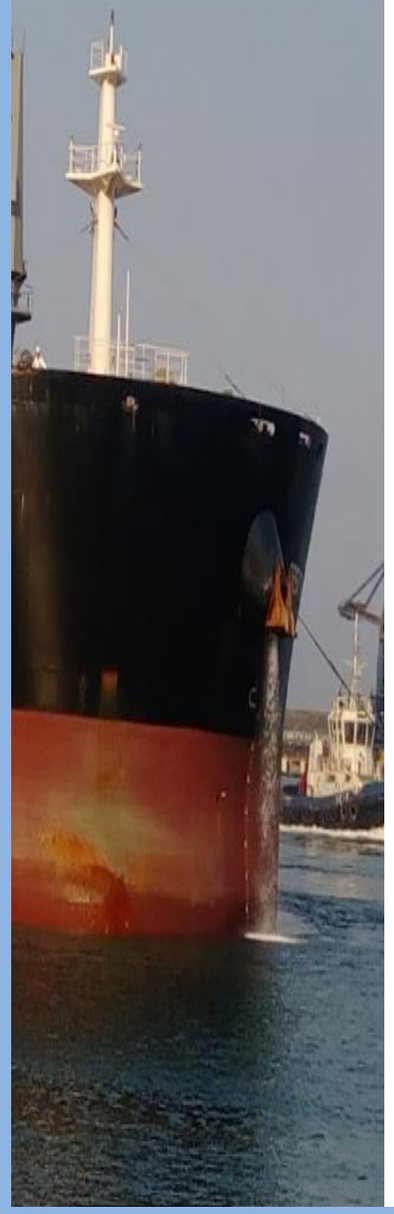
Port Profile



Port Location and Port Area

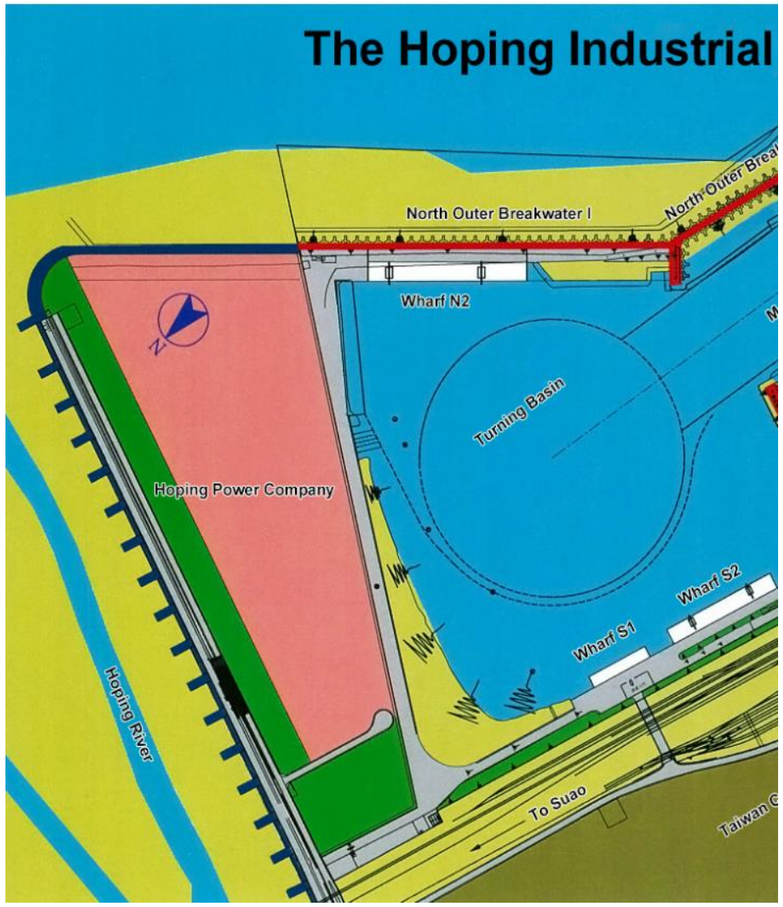
Hoping Port is located within Hoping Industrial Park. · The port is adjacent to Hoping power plant in the north, the North-Link Line constitutes the western border, and the Pacific Ocean creates the border in the east. The port is approximately 35 nautical miles from both Hualien Port and Suao Port. Port has 70.99 ha of water area and 87.82 ha of land area, with six docks having a total 1,270 m of length. One of the docks is a port craft dock and the other five are operations docks(i.e., one heavy cargo dock, one multifunctional dock, one coal unloading dock, and two cement docks).

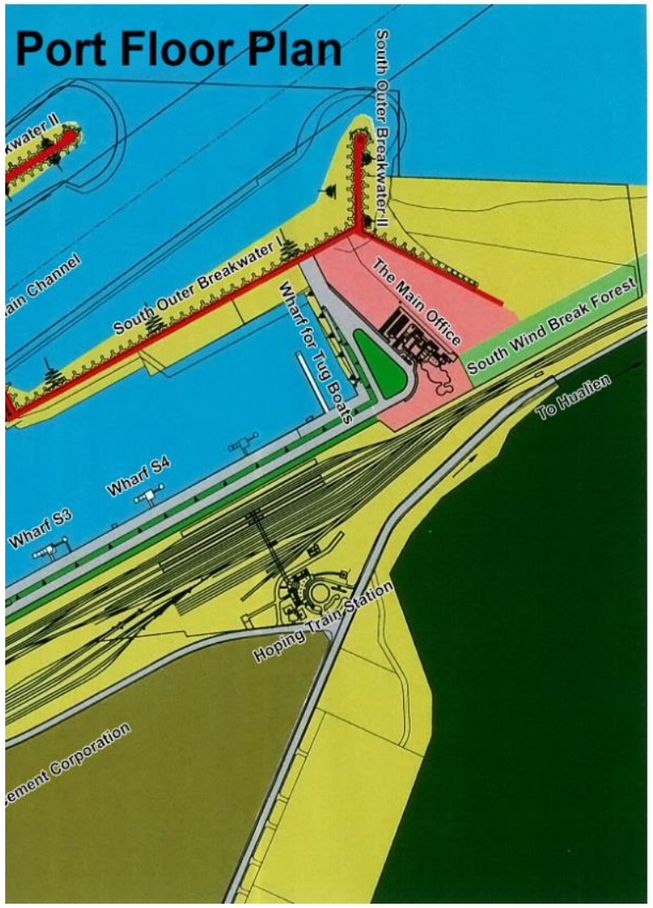
The geographic location of Hoping Port is at 24° 17′ N, 121° 44′ E. As an artificial port, Hoping Port features a seawall, an offshore breakwater, and a rocky beach in the proximate sea and coastal area.

Legal Status and Port Operators

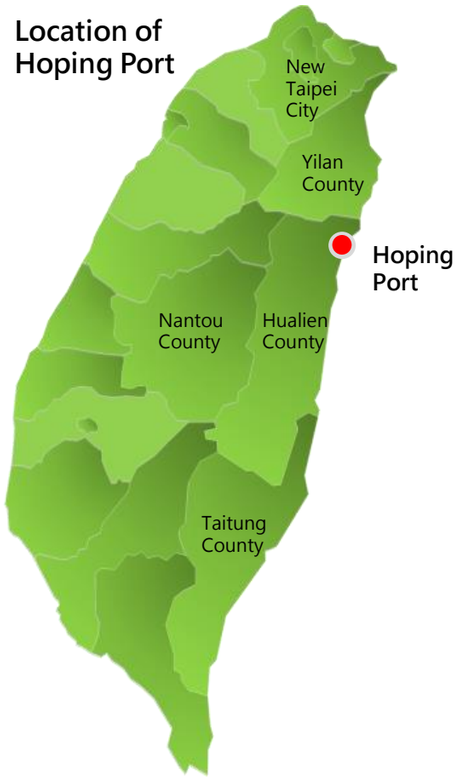
The Hoping Industrial Port (hereinafter Hoping Port) was developed to comply with the eastward shift of the industry by the Ministry of Economic Affairs as well as to meet the requirements of Hoping Industrial Park for the import–export of various materials. The Port began operation on December 2, 2003. Hoping Industrial Port Corporation is responsible for the management of Hoping Port and business concerning the harbor and wharf and transit shed. Central governing authorities also established the Hoping Industrial Harbor Administration to supervise the implementation of each operation conducted by the corporation and to coordinate the work between the related government units. Maritime affairs, customs, harbor inspections, certifications, arrivals/departures, fire prevention, security, and coast guard are managed by each competent authority in accordance with regulations

The Hoping Industrial Port Floor Plan

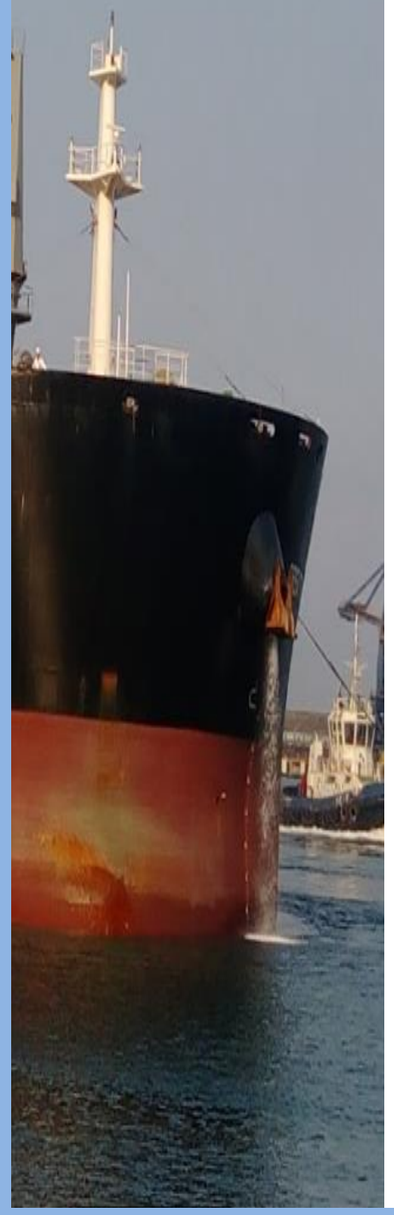




Location of Hoping Port



02/ Port Profile



Commercial Activities

Port contains five operations docks, which are mainly for the import and export of cargo such as coal, cement, and clinker, with coal and cement representing the majority. All cargo is general cargo. Shipping routes are of the following varieties: domestic shipping routes, cross-strait direct routes, and international routes.

Main Cargoes

The main cargo handled at the Port are coal and cement. In 2021, the main import cargo was coal (90.5%), and the main export cargo was cement (76.5%). In 2022, the main import cargo was coal (89.8%), and the main export cargo was cement (78.8%).

>>Main Commercial Activities and Cargo Handling of Port of Hoping

Commercial Activities	
Bulk cargo import	Bulk cargo export
Cargo Handling	
Coal in bulk	Iron slag in bulk
Silica sand in bulk	Limestone in bulk
Cement in bulk	Cement clinker in bulk

>>Main Cargoes at Port of Hoping

Coal	**Iron slag**
Limestone	Silica sand
Cement	Cement clinker

Port Business

>>Hoping Port Business Statistics from 2021 to 2022

Business item		2021	2022	Comparison between 2021 and 2022	
				Actual number	%
Incoming and Outgoing Ships	Total number of ships (vessel)	785	706	-79	-10.06%
	Total Tonnage (tonne)	12,830,105	11,434,043	-1,396,062	-10.88%
Volume of Cargo Handled	Dry bulk and groceries (Revenue ton)	8,944,106	8,074,363	-869,744	-9.72%
Volume of Imports & Exports	Imports (ton)	4,125,188.11	3,981,332	-143,856	-3.49%
	Exports (ton)	998,750	482,560	-516,190	-51.68%
	Domestic(ton)	3,820,168.32	3,610,470.81	-209,698	-5.49%
	Total(ton)	8,944,106.43	8,074,362.81	-869,744	-9.72%

Environmental Management

03/

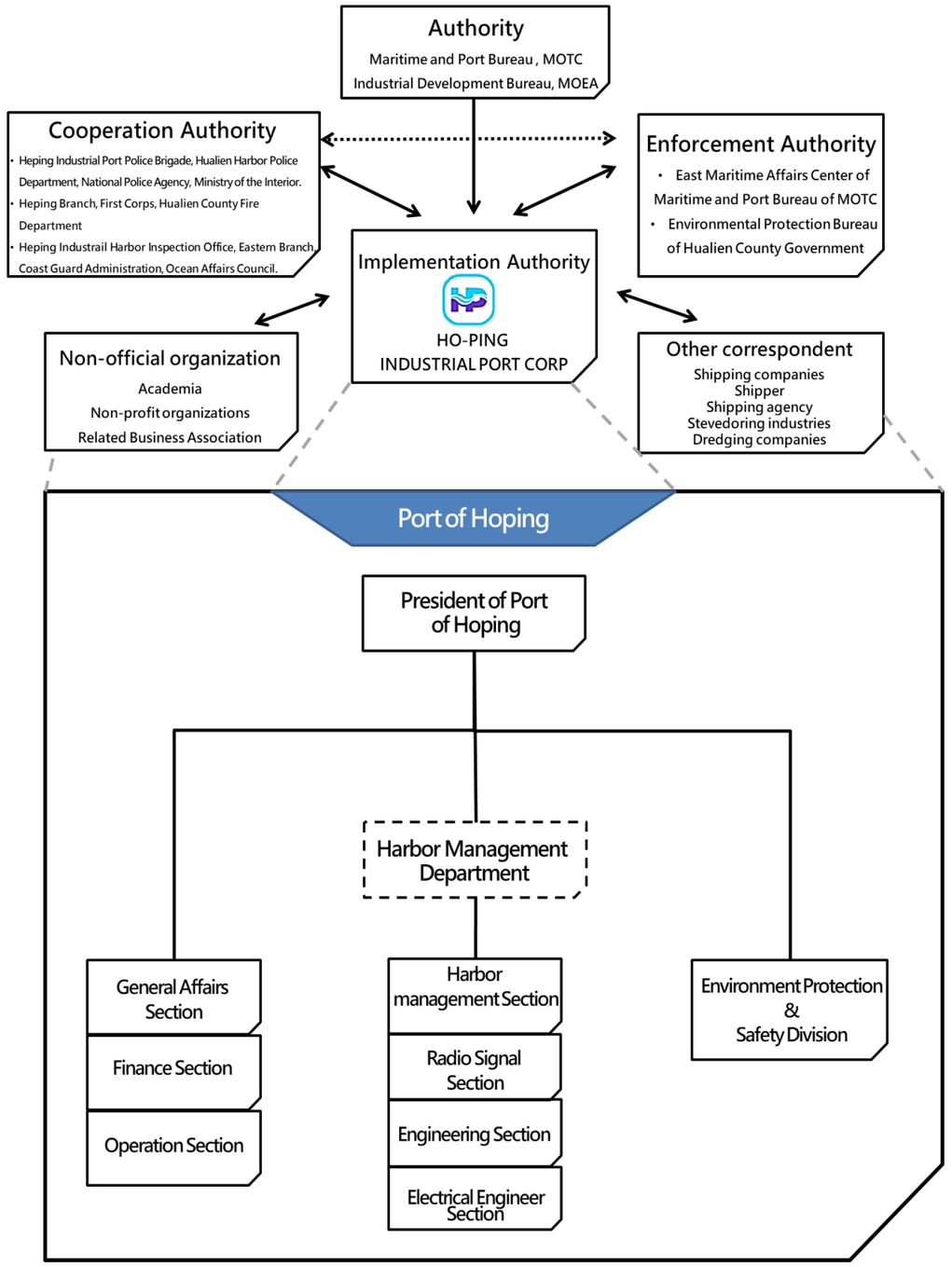
03/ Environmental Management

Organization Structure

Hoping Port is responsible for the management of the Port environment. According to the attribution of responsibility, environmental issues involve many agencies in addition to the aforementioned corporation, such as the the East Maritime Affairs Center of Maritime and Port Bureau of MOTC,EPB of Hualien County Government , EPA of Executive Yuan etc. The Hoping Port is consist of Harbor management Section, Radio Signal Section, Engineering Section, Electrical Engineer Section ,Operation Section , etc. Duties of the sections/division of Hoping Port are listed in the following table.

Section/Division	Description
Operation Section	To handle harbor and cargo handling service , revision of the port business and operation system , business plan , cooperation with government agencies to handle related matters , establishment of the port tariff , public relationship
Harbor management Section	Stevedoring operations , unmooring, water filling, and bunkering businesses , navigation aids such as beacon lights , water area of the port (emergency rescue/salvage and oil pollution prevention) , claim application for port facility damage , tugboat service management , maintenance of a neat and clean operating environment
Engineering Section	Planning, design, supervision, and subcontracting of port construction machinery equipment , Specification review of ship machinery equipment, Maintenance of machinery equipment of port service vessel, Maintenance of loading/unloading machinery equipment , Dock and revetment civil maintenance, Public construction civil maintenance , Dredging projects
Electrical Engineer Section	Planning, design, supervision, and subcontracting of port construction electrical equipment, Specification review of ship machinery equipment, Maintenance of electrical equipment of port service vessel, Maintenance of loading/unloading electrical equipment, Public construction electrical equipment maintenance.
Radio Signal Section	Ship entry–exit and ship-to-shore, Observation of status of ships coming into and leaving the port and accident reporting, Scheduling of maritime pilots, Berth allocation , etc.
General Affairs Section	General affairs management, Land property management , Document and human resources management , Information system maintenance and planning , etc.
Finance Section	Financial Management , Cashier operations, Cost accounting , Budget review, audit, and calculation , Preparation of financial statements
Environment Protection & Safety Division	Determine occupational disaster prevention plans and supervise the implementation of relevant departments, Command and supervise the labor safety and health management personnel to conduct inspections, regular checks, key inspections, and assessments of working environments, Assist in matters specified in the International Ship and Port Facility Security Code (ISPS), Other matters related to labor safety and health and environmental protection business in the port area ,etc.

Figure of Organization chart of Hoping Port



03/ Environmental Management

Relevant International Regulations

The Hoping Port follows relevant international specifications, such as International Convention for the Prevention of Pollution From Ships (MARPOL 73 /78), London Dumping Convention, International Convention on the Control of Harmful Anti-fouling Systems on Ships etc.

In addition to the international environmental specifications and conventions, the Taipei Port Branch Office collaborates with local authorities to manage the environment in the Port in compliance with relevant environmental laws and regulations in Taiwan. The follow table lists the relevant environmental laws and regulations related to ports in Taiwan.

Competent Authorities	Laws Title		Central Competent Authority	Local Law Enforcement Agencies
Relevant laws for the construction of harbors	Industrial Innovation Ac	2023/01/19	Industrial Development Bureau	-
Sectors in the Ministry of transportation and communications	The Commercial Port Law	2021/04/28	Ministry of Transportation and Communications	Maritime Affairs East Maritime Affairs Center, Maritime and Port Bureau, MOTC
	The Law Of Ships	2018/11/28		
Sectors in the Ministry of the Interior	Fire Services Act	2022/05/11	Ministry of the Interior	Hualien County Fire Department
	Police Act	2002/6/12		Heping Branch, First Corps, Hualien County Fire Department Heping Industrial Port Police Brigade, Hualien Harbor Police Department
Sectors related to agricultural	Wildlife Conservation Act	2013/01/23	Council of Agriculture	Agriculture Bureau, Hualien County Government
Sectors related to environmental protection	Marine Pollution Control Act	2014/06/04	Ocean Affairs Council	Environmental Protection Bureau, Hualien County Government
	Basic Environment Act	2002/12/11	Environmental Protection Administration	
	Air Pollution Control Act	2018/08/01		
	Water Pollution Control Act	2018/06/13		
	Waste Disposal Act	2017/06/14		
	Environmental Impact Assessment Act	2003/01/08		
	Environmental Education Act	2017/11/29		
	Noise Control Act	2021/01/20		
	Indoor Air Quality Act	2011/11/23		
	Toxic and Concerned Chemical Substances Control Act	2019/01/16		
	Soil and Groundwater Pollution Remediation Act	2010/02/03		
	Public Nuisance Dispute Mediation Act	2009/06/17		Public Nuisance Disputes Mediation Committee, Hualien County Government
Intersectoral	Disaster Prevention and Protection Act	2022/06/15	Ministry of the Interior	Hualien County Government

State of the Environment

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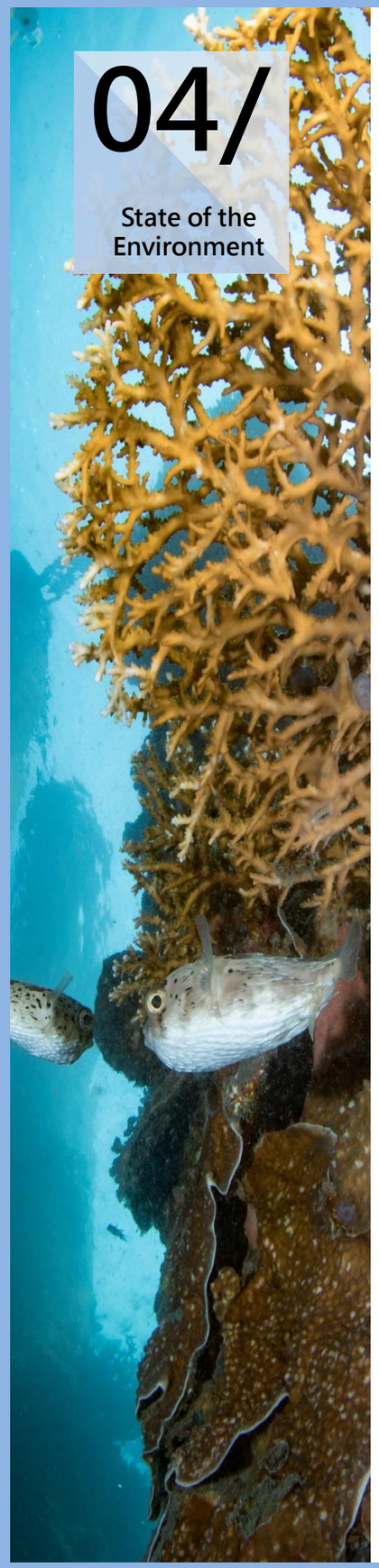


04/ State of the Environment

Analysis of major environmental issues

To fully understand the opinion of each stakeholder and adapt to the new EcoPort Certification, the Port of Hoping distributed internal questionnaires as an opinion poll among relevant stakeholders, including employees, the government, clients, and the community. The information obtained was used to evaluate the level of concern each stakeholder held. The data are plotted on the figure to the right.

Interview

Environmental issues

Internal questionnaires.

- Using the relevant environment issues in the Self Diagnosis Method to assemble a questionnaire

- Identifying stakeholders
- Inspecting the impact level of environmental concerns within the port

Interviews with external parties

- Identifying the opinion of stakeholders

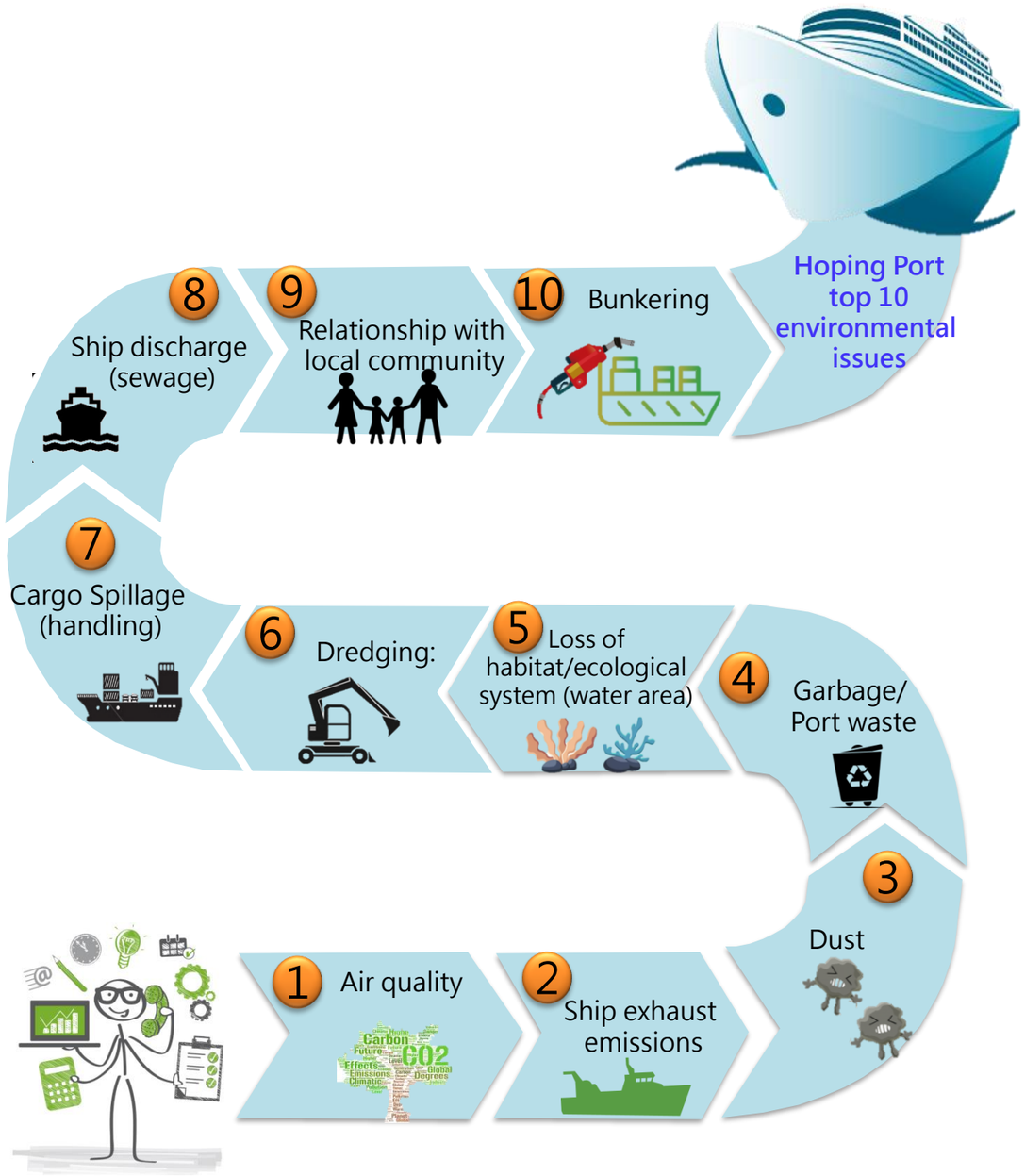
Meta-analysis.

- Filtering major issues by level of stakeholder concern and influence on operations of the Port of Hoping.

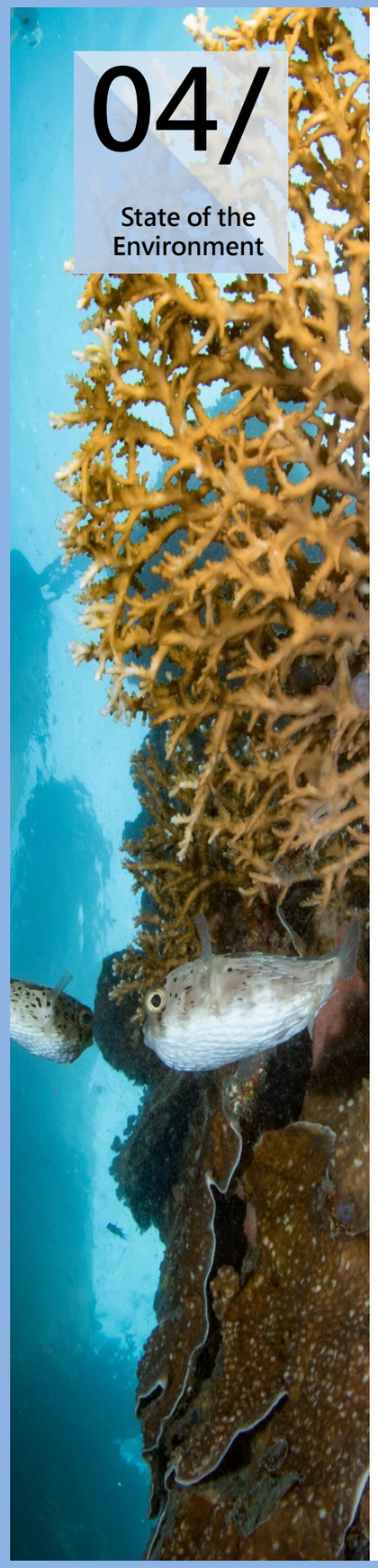
Identifying for top 10 environmental issues.

- Establishing environmental goals and improvement plans for top 10 environmental issues.

Top 10 environmental issues in Hoping Port



Collection of opinions



04/ State of the Environment

Air Quality

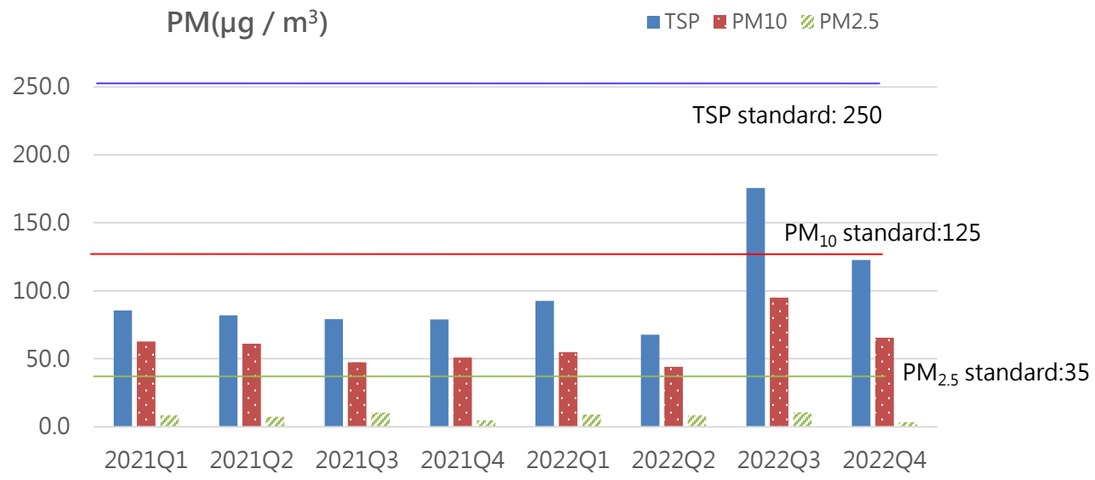
The main sources of pollution in Hoping Port are emissions from ships, automobiles, and motorcycles as well as the accumulation of fugitive dust in the beach nourishment area and in the river. “Avoiding the suspension of fugitive dust in the port area” and “reducing vehicle pollution in the port area” were listed as two individual environmental issues. Regarding “reducing vehicle pollution in the port area,” Hoping Port has been gradually replacing gasoline motorcycles with electric motorcycles each year. Having replaced five gasoline motorcycles, the port saves 618 L of gasoline and 1,418 kg of CO_2 emissions per year. The land of Hoping Port is 70.985 ha ,the original green area is 8.8 ha,which has been increased to 11.4 ha after the greening and the propotion of green area has increased from 12.39% to 16.06%.

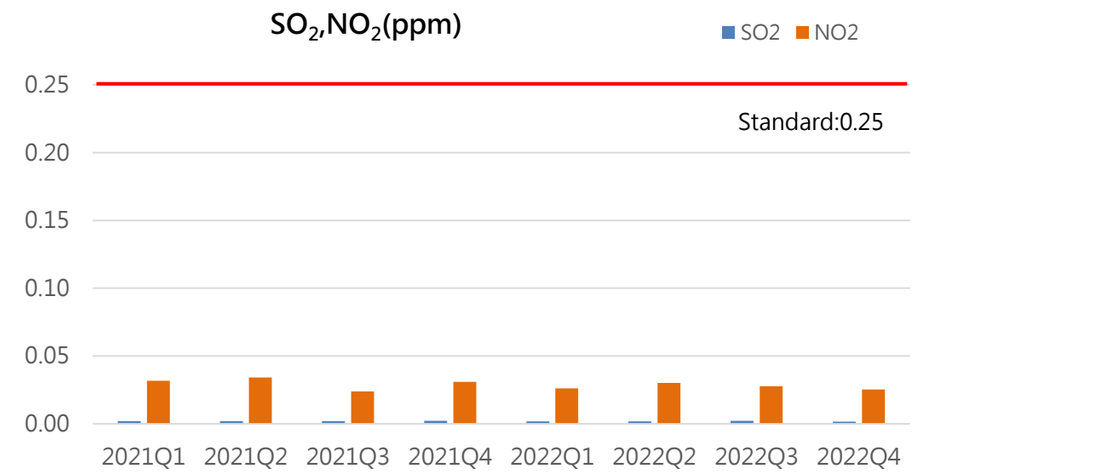
Air quality monitoring situation

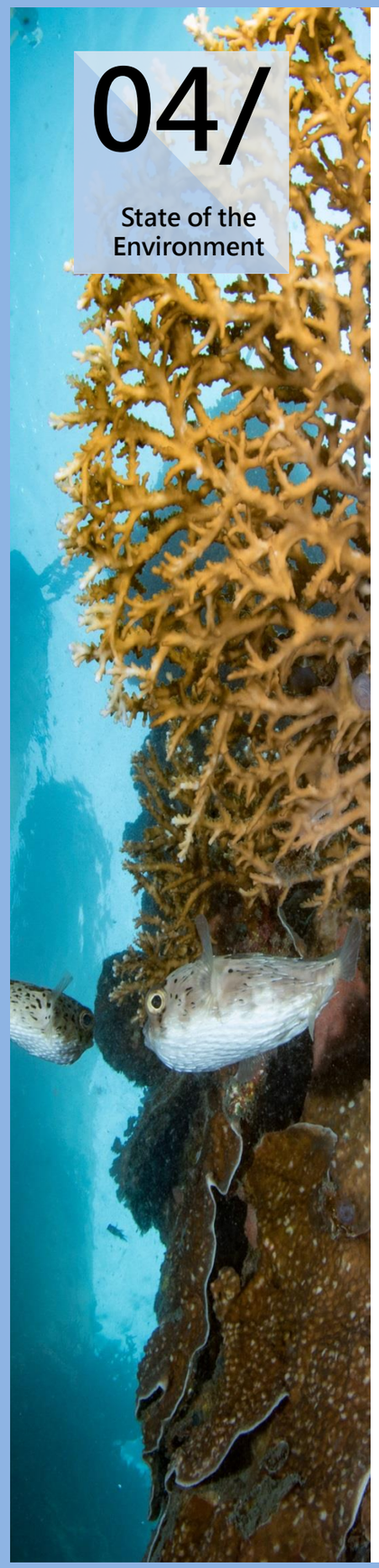
The air quality monitoring of Hoping Port area in accordance with environmental impact assessment requirements includes: wind speed, total suspended particle, $PM_{2.5}$,SO_2,NO_2 and dust. The port submits the content of environmental impact commitment statements seasonal and air quality monitoring results to company’ s website.

The monitoring results on the right side show that the average air quality monitoring values of hoping port in 2021 and 202 meet the standards.

Pollutant (Unit)	TSP (μg / m³)	PM_{10} (μg / m³)	$PM_{2.5}$ (μg / m³)	SO_2 (ppm)	NO_2 (ppm)
Averaging Time	24 hours	24 hours	24 hours	1hour	1hour
Standards	250	125	35	0.25	0.25





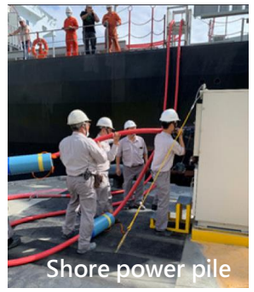


04/ State of the Environment

Air Quality Improvement Strategies

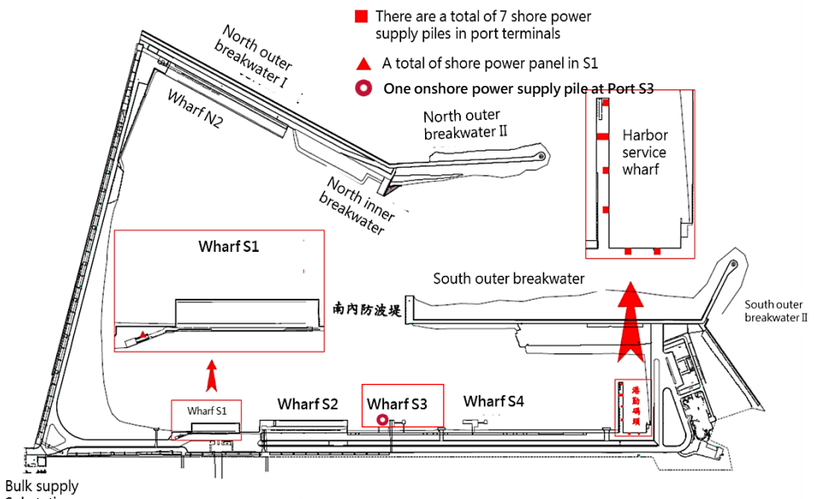
Environmental Friendly Vessels

The main source of exhaust gas in Hoping Port is the smoke generated by the ship's oil combustion. Therefore, the environmental friendliness of the ship and the construction of shore power systems are the main focuses of improvement efforts. To facilitate environmental friendly vessel policies, all service ships in Hoping Port run on super diesel. In addition, Hoping Port promotes the full electrification of port equipment. For example, the docks of Hoping Port have been set with shore power system (7 ship charging piles installed). When port vessels is berthing at a port of call, they all utilized low voltage shore power. The south dock NO.1 was installed a set of low voltage shore power system and The south dock NO.3 was installed a set of high voltage system. 9 shore power systems were installed in total to reduce the exhaust emissions of vessel engine. In addition, the Hoping Port encourages vessel speed reduction (VSR), which is to reduce speed of vessels within 20 nautical miles to the port to under 12 knots per hour to abate air pollution.



Shore power pile

Vessel Speed Reduction System



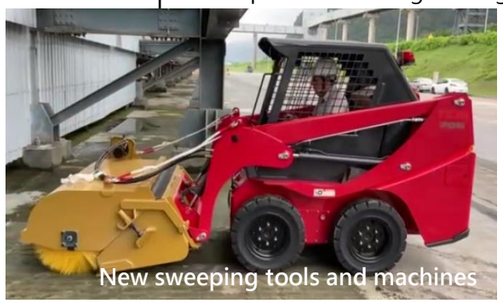
Shore power pipeline site plan

Fugitive Dust Emission Control

Fugitive dust is a major environmental concern caused by stevedoring operations of coal and cement at Hoping Port. Hoping Port listed "avoiding the suspension of fugitive dust in the port area" as a major focus among the environmental issues at the port and aims to prevent fugitive dust and reduce air pollution as well as maintain a positive working environment and quality of life at the port and its surrounding area. The practical strategies employed for the prevention of fugitive dust suspension include the installation of a closed transfer corridor for the transfer of coal, cement, and indirect materials. This was accomplished mainly by installing stevedoring and pollution control facilities and regulating the stevedoring operations.

>>Hoping Port Fugitive Dust Control Measures

Aspects	Dust Control Measures
Cargo Handling	• Set a closed negative pressure pipeline for source control • Automatic loading and unloading machines are installed at the wharf
Vehicle Control	• Inspect incoming and outgoing diesel vehicles • Install water sprinklers at port area (New sweeping tools and machines were purchased in 2020, while new model sprinkler trucks were purchased in 2021.) • Sweep inner and neighboring roads irregularly



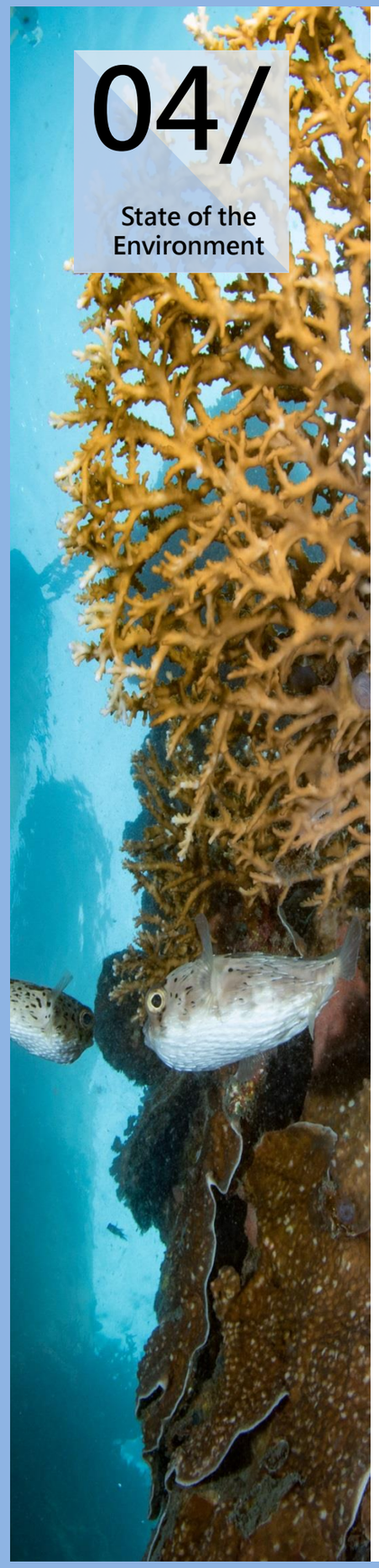
New sweeping tools and machines

Water spraying for dust control

>>Dustproof efficiency of coal and cement transportation in port area (2021-2022) Unit : tonne

Type	Amount of coal and cement	Amount of suspended particles emissions*	Amount of suspended particles controlled **
2021	8,540,782	5,978.5	5,978.5
2022	7,655,953	5,359.2	5,359.2

*Emission factor (0.7kg/tonne):EPA Regulations of emission factors, control efficiency, and other measurements concerning the air pollution control fee for public and private premises with stationary pollution sources of particulate matter, lead, cadmium, mercury, and arsenic. (Appendix 1)
**Dust-proof efficiency100% :The same as above (Appendix 5)



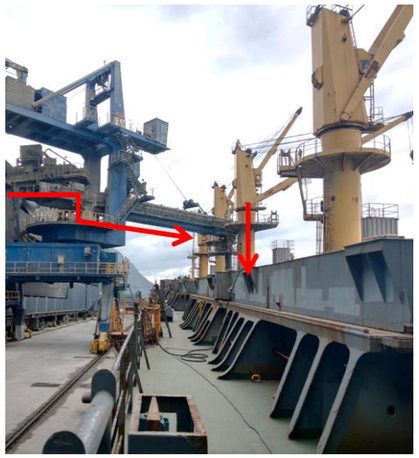
04/

State of the Environment

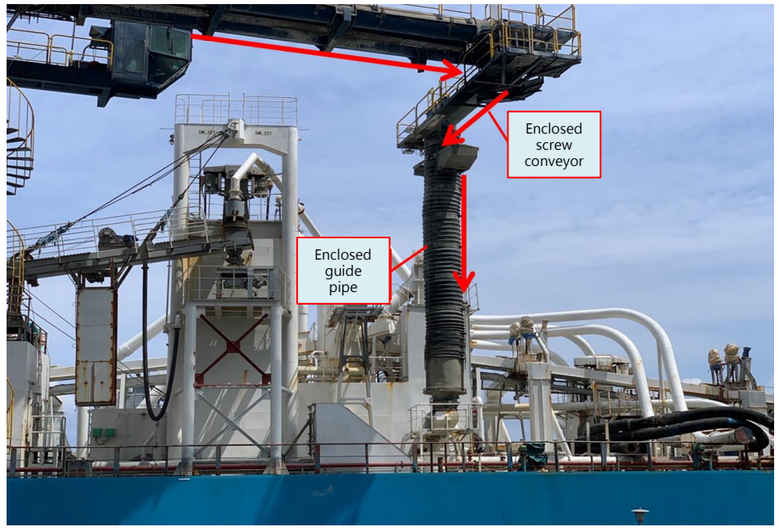
Port cargo-handling system

Description of loading cement/clinker onto bulk carriers:
An enclosed belt conveyor is adopted for the transfer and a negative pressure hatch cover is used for loading.

A mobile dust extractor is installed onto the hatch cover to secure the negative pressure within the vessel, thus completely preventing fugitive dust emissions.



>> Cement carriers of the Port of Hoping



The cement is transferred through an enclosed screw conveyor to an enclosed guide pipe before being loaded onto the carrier. The transfer process is performed by linking the enclosed guide pipe and the cargo handling system, as well as using negative pressure in the carrier during loading to prevent fugitive dust emissions.

Reduce Port-generated Waste

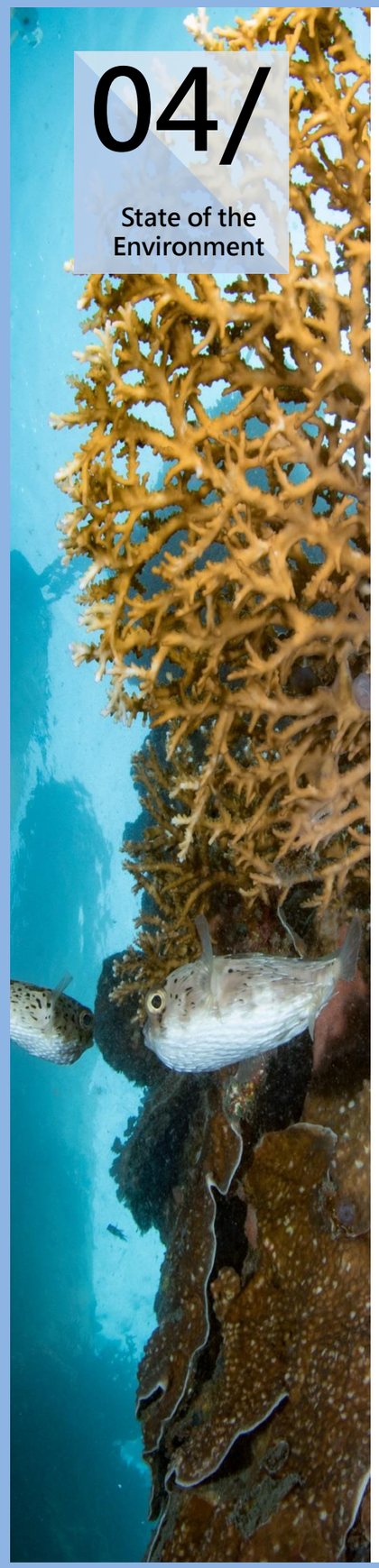
To reduce port waste, the Hoping Port has promoted waste reduction, implemented recycling and reuse, promoted the 4-in-1 recycling program initiated by the EPA in 1997 (to recycle and reduce waste), and in 2005 promoted the concept of mandatory garbage recycling to recycle items mainly consisting of paper, glass containers, and plastic products.

To avoid unnecessary waste of resource, Hoping Port has been working on waste reduction and increasing recycling rate. Hoping Port collected 76.4 tonnes of general waste and recycled 27.44 tonnes (recycling rate of 36%) in 2021, and collected 71.12 tonnes of general waste and recycled 22.36 tonnes in terrestrial port areas (recycling rate reaching 31%) in 2022.

>> Amount of waste recycle & disposal at the Port of Hoping

Item	2021	2022
Total waste generated (tonne)	76.4	71.12
Disposal (tonne)	48.96	48.76
Recycle (tonne)	27.44	22.36
Recycle Rate (%)	36	31

Port area cleaning



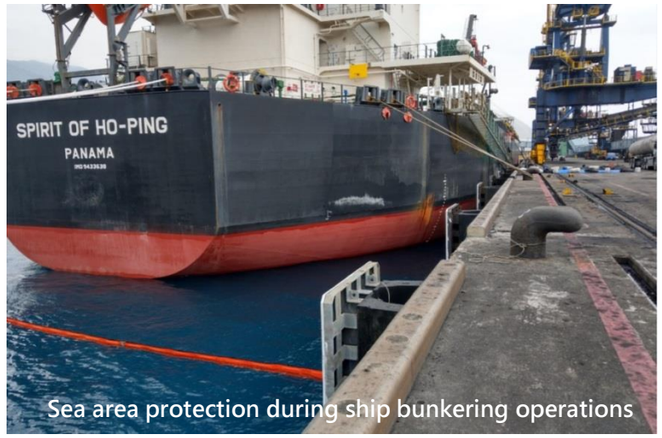
04/ State of the Environment

Ship refueling management

The bunkering operation in the port must comply with The Commercial Port Law, Marine Pollution Control Act, Waste Disposal Act, The Seafarer Act, and Occupational Safety and Health Act, the content of dangerous cargo for self-use or port operations specified in Paragraph 4 of Article 4 in the Procedures for Stevedoring or Transport of Dangerous Cargo in Hoping Port, and other related regulations.

Hoping Port demands that relevant protective measures be taken during ship bunkering. After confirming that the bunkering pipes are connected and the joints are tightened, bunkering may begin. In addition, no oil leaks occurred during 2021–2022, achieving the goal of zero pollution.

Land area protection during ship bunkering operations

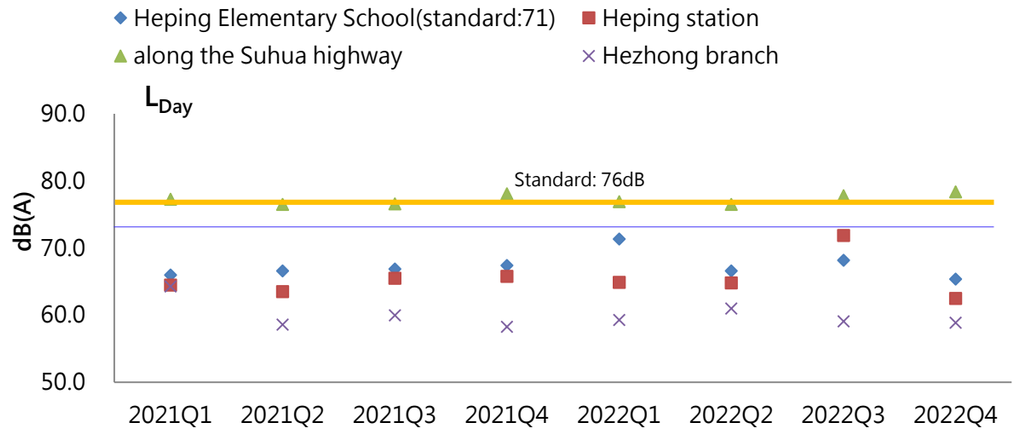


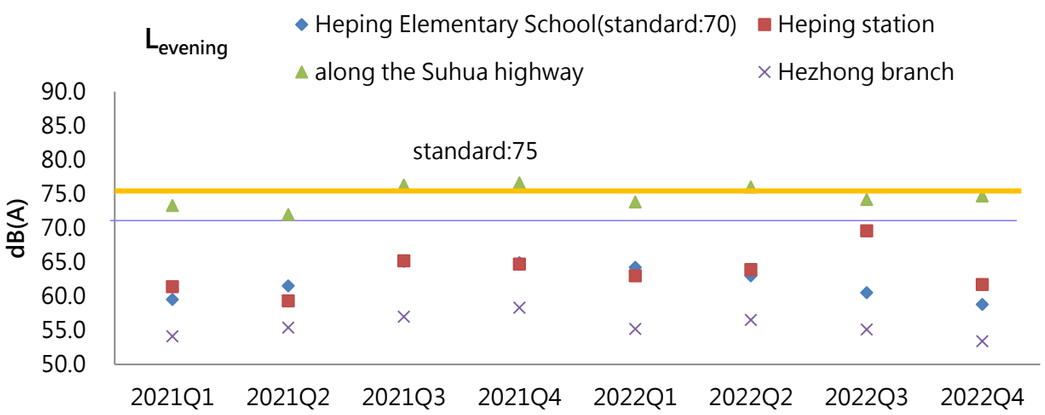
Sea area protection during ship bunkering operations

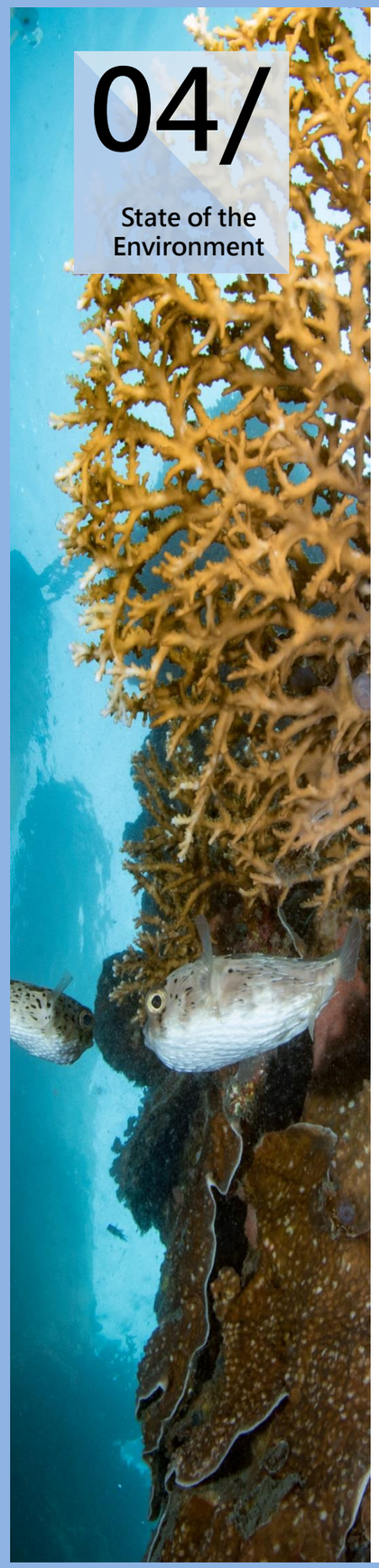
Noise

The noise monitoring station at Heping Elementary School at the border of Hoping Port: this station is located in the Hoping Industrial Park and close to Suhua Highway, on which vehicles are the main source of noise pollution. This station is located in the Category 3 or 4 noise control zone adjacent to a road with a width of 8 m or more and is therefore subject to the relevant rules.

>>Noise Monitoring Sites







04/

State of the Environment

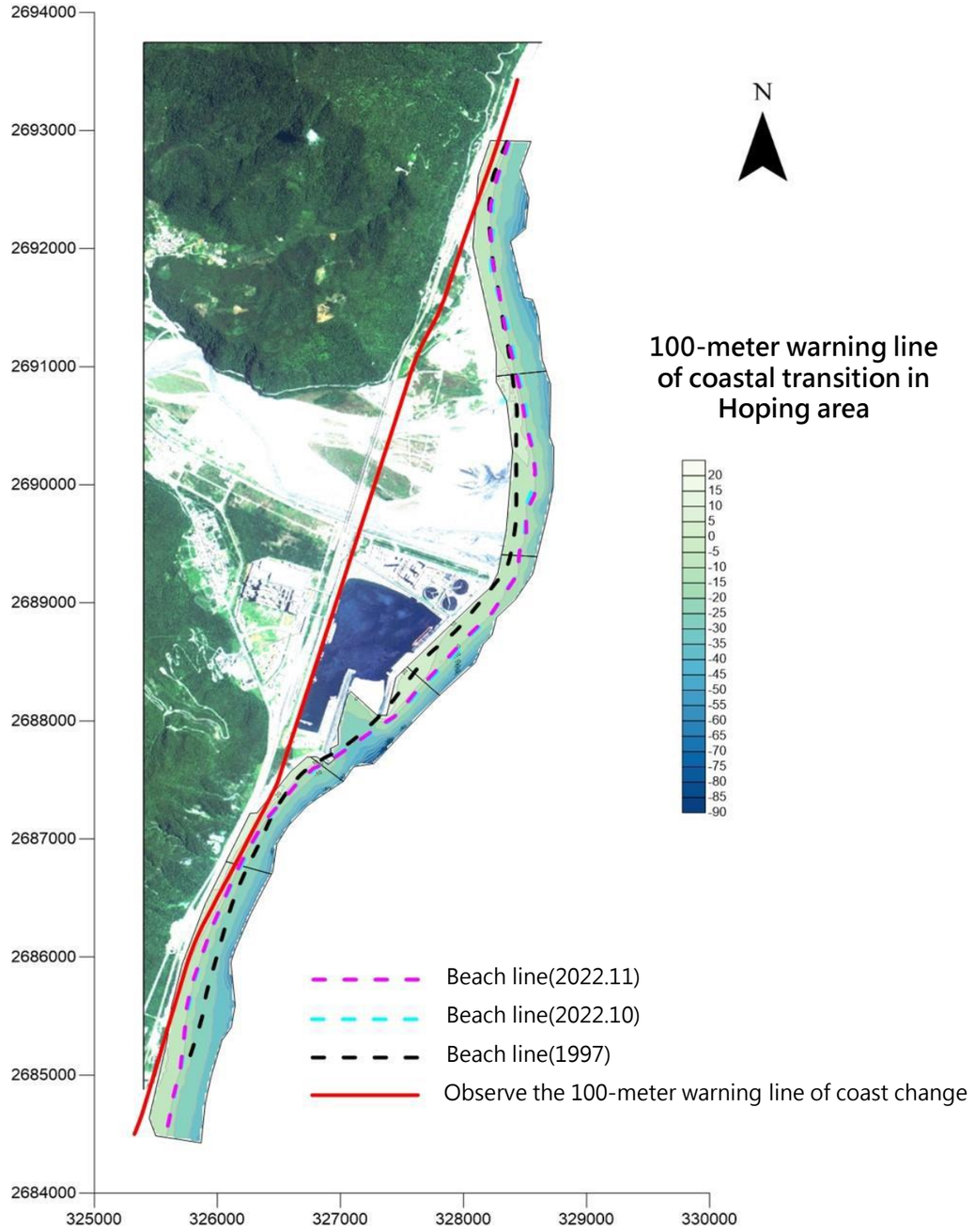
Dredging Management

To effectively manage marine sediments, Hoping Port conducted monthly monitoring of sediments in the beach nourishment area as well as heavy metal detection in sediments at the port and surrounding areas, thereby enacting the substance monitoring specified in countermeasures with respect to particle size and heavy metals. Moreover, the monitoring of 19 organic compounds was carried out in the sediment of the Port, and all the measured heavy metal results were well below the regulatory standards.

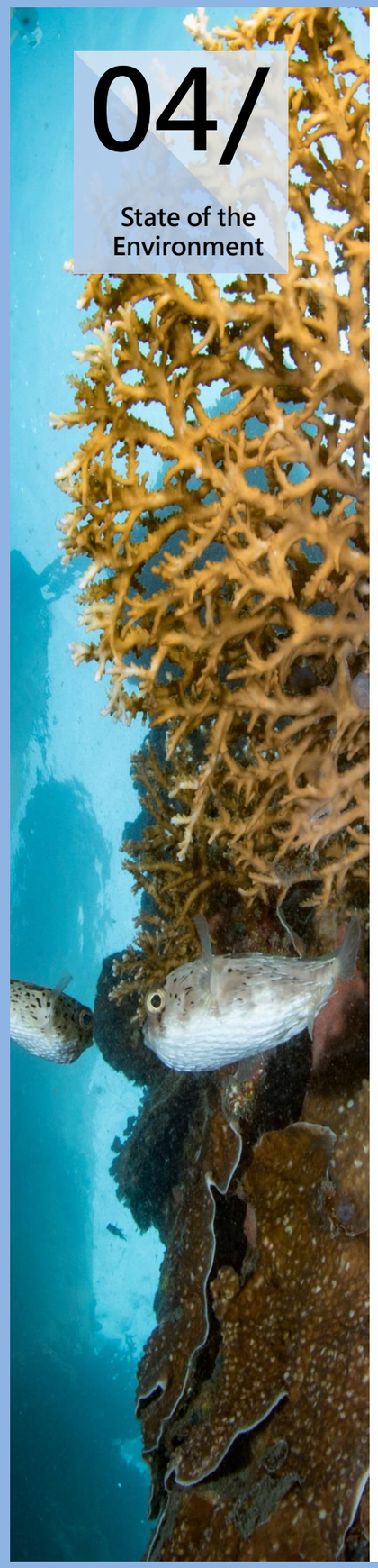
Hoping Port also conducted long-term effect monitoring on the environment in accordance with the Countermeasures for the Development Plan of Hoping Port. Approximately 7.9 ha of windbreaks on the south side of the port were retained, and a quarterly report is published on the website of Hoping Port。

Dredging operation in the port’ s main channel

Sediment sampling



100-meter warning line of coastal transition in Hoping area

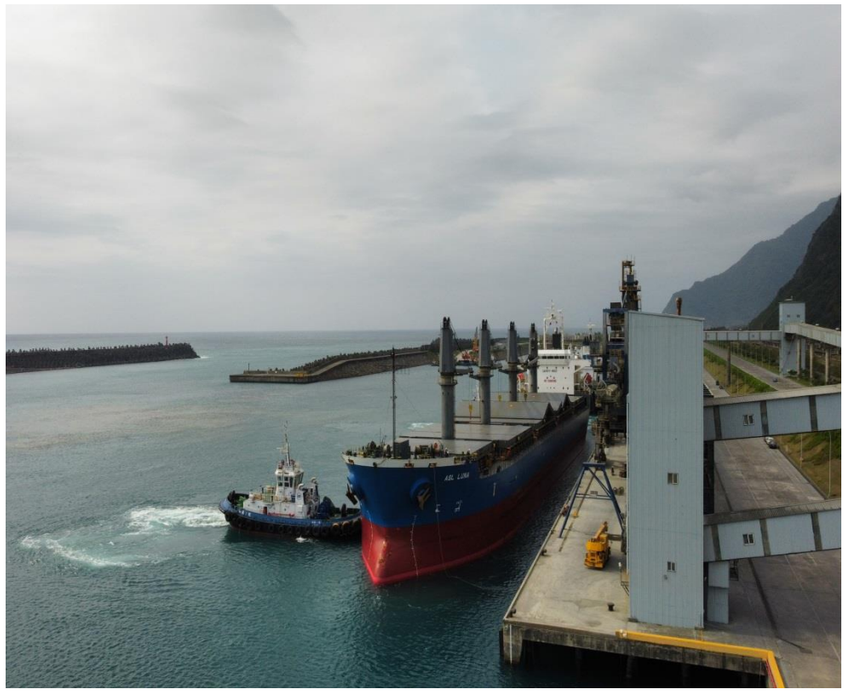


04/ State of the Environment

Strengthen Vessel Wastewater Management

The discharge of ship sewage in Hoping Port is completely banned. Harbor Management Section conducts port inspections on a regular basis. Upon the discovery of inappropriate activities, a ship crew will be notified that they must terminate the disallowed activities immediately and the authorities concerned will be notified to deal with it promptly. We have cooperated continuously with the competent authorities during inspections of pollution prevention; there were a total of 24 inspections in 2021 and 24 inspections in 2022.

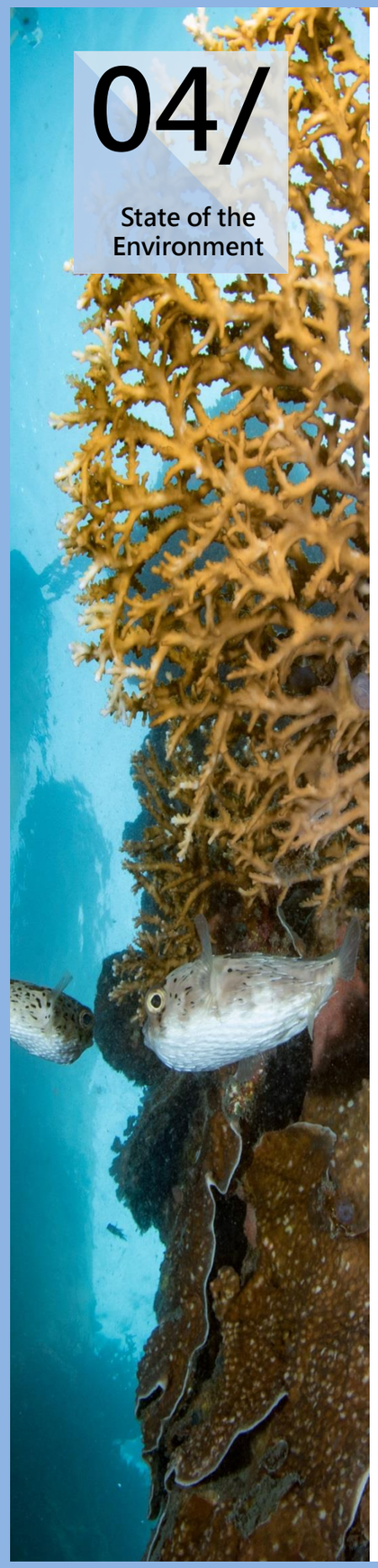
To improve the emergency response ability of Hoping Port, all relevant units are familiarized with the reporting system for emergency marine pollution events, the emergency response time is shortened, and Hualien County Government holds comprehensive drills for emergency response to marine pollution events, thereby enhancing the ability to handle major marine pollution events



Prevent Cargo Leakage

To ensure port safety and implement environmental management, Hoping Port not only installs CCTV surveillance system, but also performs periodic port environmental inspection. The cargo transport process is performed using a vacuum dust collector, through which the collected clinker and indirect materials are classified and reused. In order to reduce pollution generated by cargo spillage · monitoring is conducted throughout the stevedoring operation of the ship

to ensure the practice of each control measures, and irregular inspections are carried out during breaks in operations. Regular contact between Hoping Port and each unit enhances the ability of each unit to respond to cargo leakages. Moreover, the drill for emergency responses of ports must be conducted at least once a year in the future, whereas the joint supervision of the port area must be conducted at least twice a year. There were mostly table top exercises and workshops in 2021-2022 due to the pandemic.



04/

State of the Environment

Maintain the Ecological Quality of Port Waters

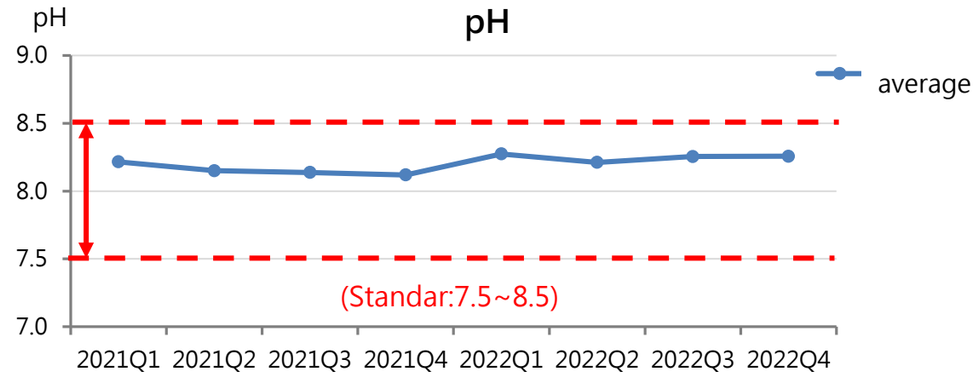
Hoping Port conducts a waste product inspection daily and arranges depollution boats to clean up the port area when necessary. The collected waste products are then sorted by the cleansing operator and placed in the garbage disposal area for eligible waste removal companies to proceed with further treatment. Water monitoring in the port area is carried out quarterly, with the measurable criteria being pH, BOD, and DO levels; the measured results all adhere to the regulatory quality standards.

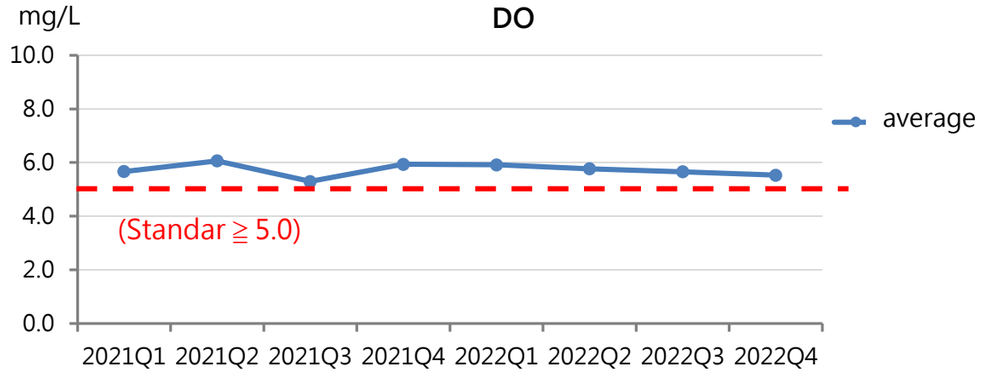
In addition, underwater photography is used to record and assess the port area ecology and has revealed diverse underwater scenery in different seasons.
The original coral restoration area was 3.34m^2, which was increased to 9.15m^2 in 2022 by 173.95%.
Domestic sewage is collected by the preprocessing system and then transported to the waste water treatment plant in Hoping Industrial Park. In terms of source control, the auxiliary fuel dock exhibits a slanting design used to avoid the direct flow of wastewater (i.e., rainfall runoff) into the sea.

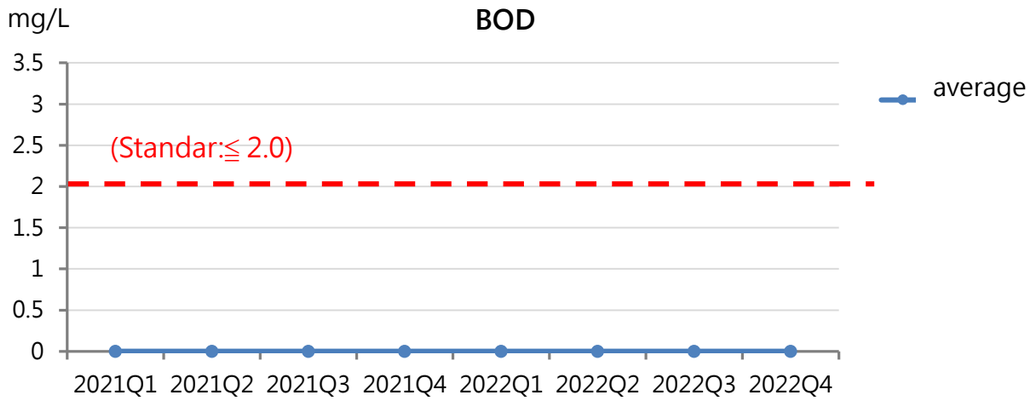
Seawater sampling

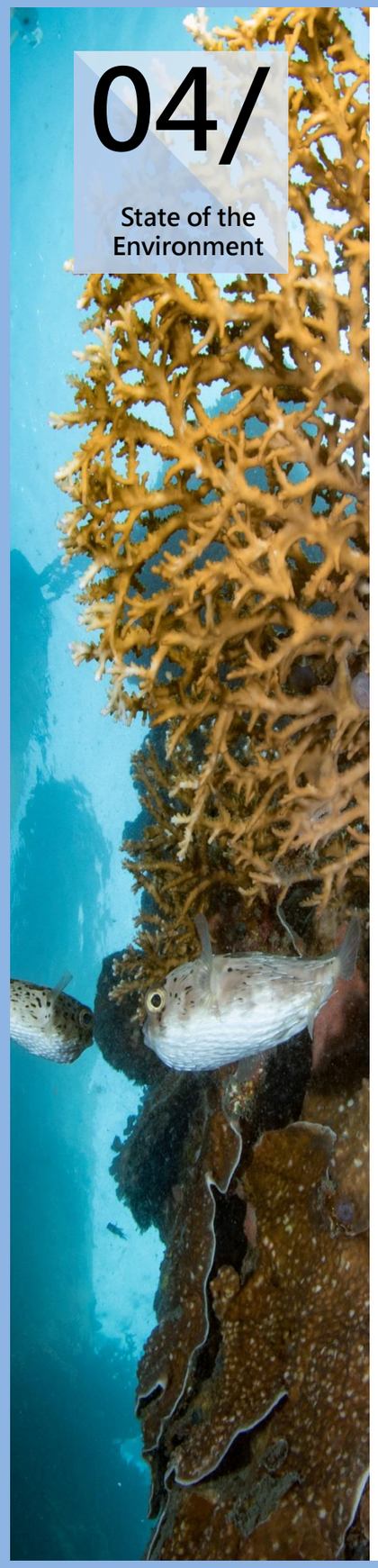
Platygtyra daedalea

Acropora digitifera









04/

State of the Environment

Expand community friendliness

Hoping Port has long been concerned about social welfare activities. The development of the local community is attributable to the efforts embodied by continual positive interactions between neighbors. Apart from sending supplies during winter and holding beach cleaning and local folk activities regularly, we also organized an educational visit about the marine environment for Heping Elementary School, which is a great opportunity for kids to know the world under the sea and demonstrates the local residents' positive engagement with the port.

All of these not only can help the public know more about the port areas, but also can promote the marine environmental education.

Hoping Port was granted the certificate of environmental education facility in 2022, so that the total number of visitors of the port area has been increased from the 453 in 2021 to the 987.

2021.12.09 Photographs of visits from National Taiwan Ocean University

DAKA Renewable Resource Center Beam Raising Ceremony (Local Common Good Conference)

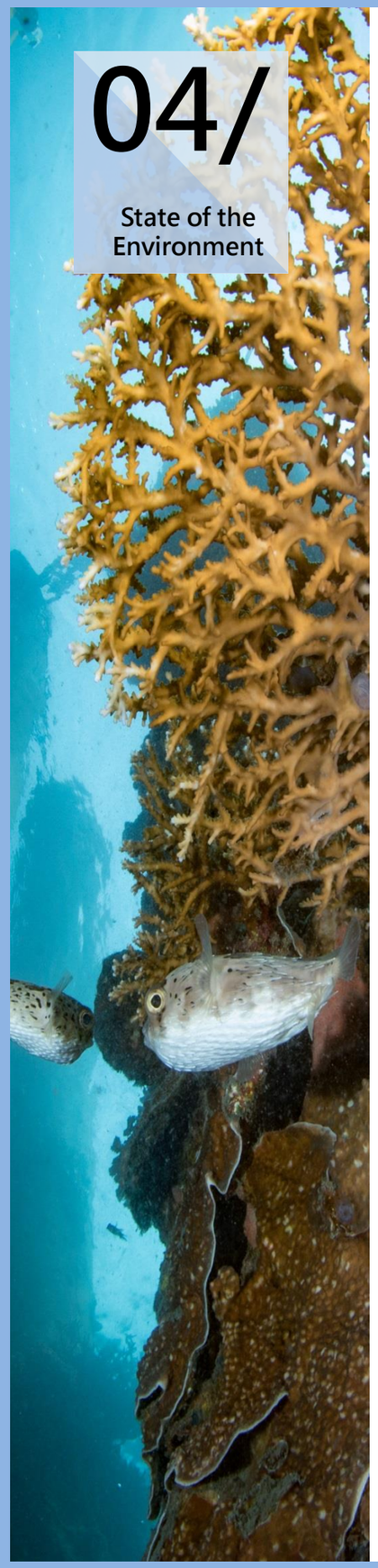
2022.10.27 Science Train

2021.04.09Photographs of visits from Aohua Elementary School

04/ State of the Environment

Environmental Performance Indicators

Significant Environmental Issues	Index Item	Calculation Method		Index Target	Description of Calculation 2021	Description of Calculation 2022
Air quality	Air quality pass rate ($PM_{2.5}$,PM_{10}, SO_2, NO_2)	• Evaluations were conducted according to the Pollutant Standards Index developed by the Environmental Protection Administration of the Executive Yuan (SOx、NOx、PM_{10}、PM2.5、CO、CO_2) • Formula: [NOx emissions from last year (ton/year) − NOx emissions this year (ton/year)] ÷ NOx emissions from last year (ton/year) × 100% • This formula is applicable for determining other items		• $PM_{2.5}$ of the daily mean measurements satisfy the standard (<35μg / m^3):60% • PM_{10} of the daily mean measurements satisfy the standard (<125μg / m^3): 100% • SO_2 of the daily mean measurements satisfy the standard (<0.1 ppm):100% • NO_2 of the hourly mean measurements satisfy the standard(<0.25ppm):100%	• $PM_{2.5}$ of the daily mean measurements satisfy the standard:100% • PM_{10} of the daily mean measurements satisfy the standard:100% • SO_2 of the daily mean measurements satisfy the standard: 100% • NO_2 of the hourly mean measurements satisfy the standard:100%	• $PM_{2.5}$ of the daily mean measurements satisfy the standard:100% • PM_{10} of the daily mean measurements satisfy the standard: 100% • SO_2 of the daily mean measurements satisfy the standard: 100% • NO_2 of the hourly mean measurements satisfy the standard: 100%
	Maintain or increase port green area	• Calculate annual port green area		• Maintain or increase port green area	• Total port green area in 2021: 10.6 acre	• Total port green area in 2022: 11.4 acre
Ship exhaust gas emissions	Ratio of service vessels using low-emission fuels or biodiesels	• Number of service vessels using low-emission fuels (marine diesel oil or super diesel) ÷ total number of service vessels × 100%		100% of service vessels using low-emission fuels or biodiesels	• 3÷3×100%=100% • Among the 3 harbor crafts, 3 use low-sufer fuel. • Low-sufer fuel for work vessels: Consumption of marine gas oil: 253,671L	• 3÷3×100%=100% • Among the 3 harbor crafts, 3 use low-sufer fuel. • Low-sufer fuel for work vessels: Consumption of marine gas oil: 254,040L
	Ratio of service vessels using shore power	• Number of service vessels using shore power ÷ total number of service vessels × 100%		All service vessels using shore power	• 4÷4×100%=100% • 4 vessels berthing at the port utilize shore power including 3 port vessels and 1 eco-friendly vessels.	• 5÷5×100%=100% • 5 vessels berthing at the port utilize shore power including 3 port vessels and 2 eco-friendly vessels.
	Ships deceleration target completion rate	• The automatic identification system for ship deceleration is applied to determine the deceleration of ships within 20 sea miles from the port		Hoping Port fully promoted and built the ship deceleration system in 2019, with an annual target achievement rate of 50%.	656 out of 807 vessels entering and departing the port in 2021 achieved the request for deceleration, around 81.3% deceleration rate.	623 out of 753 vessels entering and departing the port in 2022 achieved the request for deceleration, around 82.7% deceleration rate.
Dust	Ratio of enclosed transportation usage in the handling of break-bulk general cargo (cement +coal)	Annual volume of closed handling for bulk and general cargoes ÷ the total handling volume×100%		• Increase or maintain the amount of bulk cargo handling volume	• The amount of break bulk general cargo handled using the enclosed storage method ÷ (cement +coal) * 100%=(4,705,384+3,835,398)÷8,944,106 =95%	• The amount of break bulk general cargo handled using the enclosed storage method ÷ (cement +coal) * 100%=(3,953,810+3,702,143)÷7,655,953 =95%
	Vehicle cleaner	• Cleaning frequency • Cleaning mileage		• Cleaning frequency at least once a month • Annual total cleaning mileage :500km	• Cleaning frequency at least once a month • sprinkler:1,319 km • street sweeper:628 km	• Cleaning frequency: 114times/yr • Sprinkler cleaning 114 times, 2501 kilometers • Street sweepers swept 53 times, 859 kilometers
Garbage/port waste	Port recycling rate	• weight of recycled materials ÷ total wastes weight × 100%		• Port recycling rate reaches40%.	• Waste generation: 76.4 tons • Amount of recycled waste: 27.44 tons • Recycling rate: 35.91%	• Waste generation: 71.12 tons • Amount of recycled waste: 22.36 tons • Recycling rate: 31.43%



04/ State of the Environment

Environmental Performance Indicators

Significant Environmental Issues	Index Item	Calculation Method		Index Target	Description of Calculation	
					2021	2022
Loss of habitat/ecological system (water area)	• Coral growth area • Coral survival rate	• Post-transplant area - pre-transplant area at the initial stage(initial stage:3.34 m^2) • (Number of surviving plants/288)*100%		• The coral area is increased by 30% • Coral survival rate: 85%	• Growth area: 6.69m^2 • Coral survival rate: 95%	• Growth area: 9.15m^2 • Coral survival rate: 89%
Dredging; dredge disposal	• Amount of sediment dredged • Amount of beach nourishment	• Amount of sediment dredged : tons • Amount of beach nourishment: tons • Reuse rate: the amount of beach nourished/ dredging amount		• Reuse rate: 100%	• Amount of sediment dredged: 645,992 tons • Amount of beach nourishment: 645,992 tons • Reuse rate: 100%	• Amount of sediment dredged: 778,531 tons • Amount of beach nourishment: 778,531 tons • Reuse rate: 100%
Cargo spillage	Number of harbor inspections , cargo spillage emergency response drills, and jointly supervised harbor safety drills	• Number of harbor inspections,cargo spillage emergency response drills,and jointly supervised harbor safety drills		• 250 harbor inspections • At least one cargo spillage emergency response drill per year • At least twice jointly supervised harbor safety drills per year	• 1,633harbor inspections • At least one cargo spillage emergency response drill per year • At least twice jointly supervised harbor safety drills per year	• 1,715 harbor inspections • At least one cargo spillage emergency response drill per year • At least twice jointly supervised harbor safety drills per year
Vessel sewage discharge	• Proper treatment rate of a ship’ s waste water or oil (lubricant replacement for tugboats)	• Actual amount of waste water or oil treated by eligible operators ÷ the total amount of waste water or oil received × 100%		• 100% oily bilge water cleanup	• 16,100(L)÷16,100(L)×100%=100% • Cleanups conducted by relevant vessels (oily bilge water):3	• Tugboat lubricant has not been changed.
Relationship with Local Communities	Number of activities and participants	Calculate the actual number of occurrence		• Number of activities and events • Number of participants	• 27 activities held • Total of 453 people participated	• 48 activities held • Total of 987 people participated
Ship bunkering	1.Deployment oil booms of ship bunkering 2.Number of oil leaks that occurred	• 1.Number of times that an oil boom was used during the ship’ s bunkering operation ÷ the number of times the ship was refueled × 100% • 2.Statistics regarding the number of oil leaks		1. Deployment oil booms of ship Bunkering is 100% 2. Number of oil leaks that occurred: 0	• Deployment oil booms of ship Bunkering is 100% • Number of oil leaks that occurred: 0	• Deployment oil booms of ship Bunkering is 100% • Number of oil leaks that occurred: 0

Emergency Response

05/

05/

Emergency Response

Port Emergency Notification and Drill

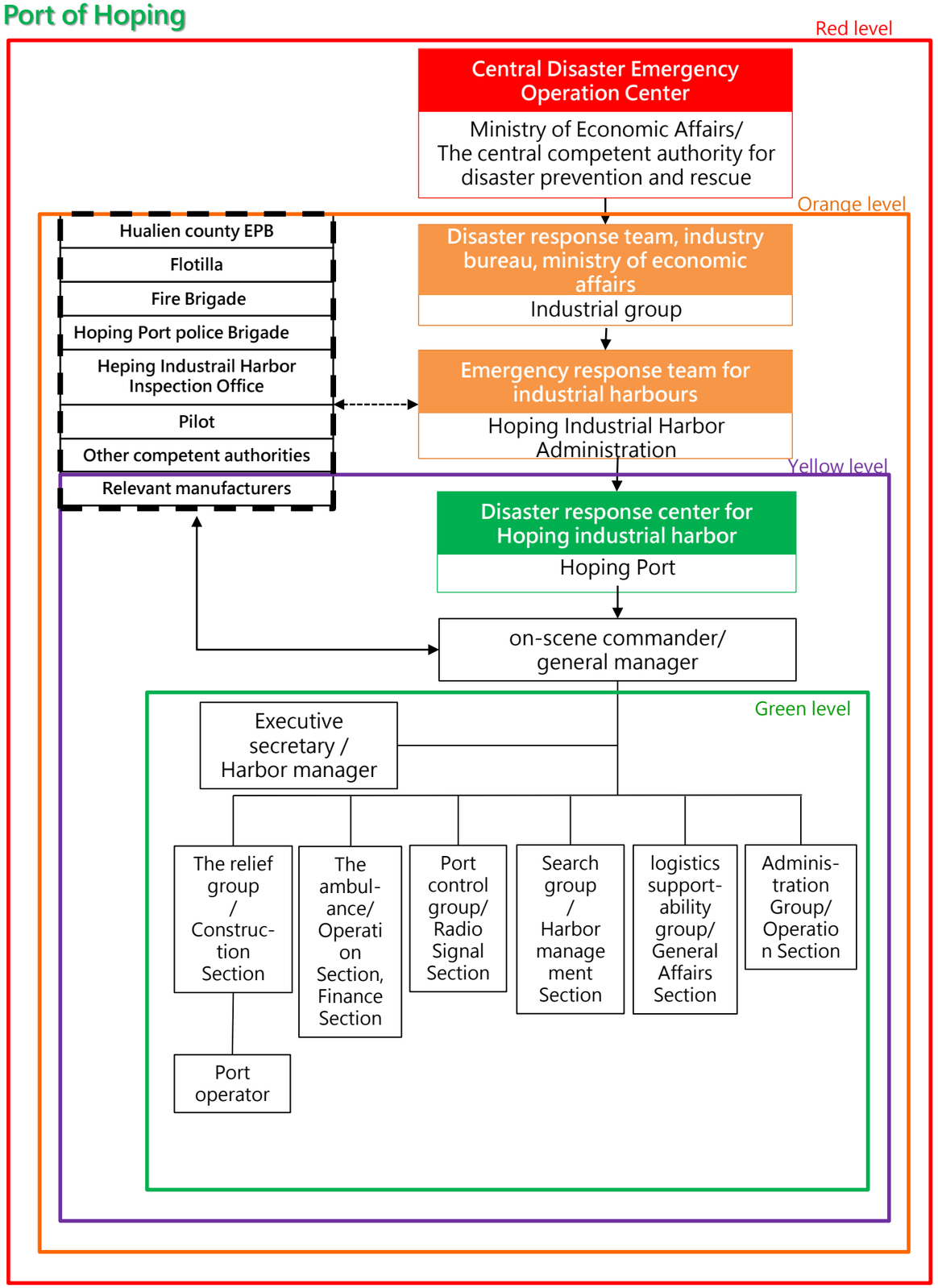
In order to maintain port safety, the Hoping Port conducts daily land and marine environment inspection. When any suspicious behavior was identified, the inspection personnel will immediately notify for correction or inform competent legal authorities for legal enforcement. For port pollution and disaster, Hoping Port ,Hualien county EPB and Hoping Industrial Harbor Administration each accepts Public Nuisance Petitions.

Regarding catastrophic events such as vessel or fire explosions, the Port triggers emergency response procedure to cope with disastrous incidence.

Item\Year	2021	2022
Number of patrols (water area and land area))	1633	1715
Oil fence (vessels)	0	0
Joint inspection	0	0
Admonishment for improvement	7	23
Admonishing ticket	24	24
Penalty (Maritime and Port Bureau)	0	0

Year	Name of the Drill	Content	Dates
2021	2021 On-line Seminar of "International Ship and Port Facility Security Code (ISPS) and Critical Infrastructure Protection" of Hoping Industrial Port	1.Common sense of self-safety protection for practitioners in the port area - anti-violence major human safety incidents or terrorist attacks. 2. Information security case studies and key points of ransomware protection. 3. Workshop on Oil Pollution Emergency Response in Hoping Port.	Sep 8
2022	2022 Table Top Exercise of "International Ship and Port Facility Security Code (ISPS) and Critical Infrastructure Disaster Risk Reduction" of Hoping Industrial Port	Carry out table top exercises with respect to the reporting, handling, investigation, and restoration of hijacking or oil pollution incidents.	Sep 28

Flow Chart for Disaster and Accident Notification in Port of Hoping



Innovation and Cooperation

06/

Port of Hoping has established best practices for issues concerning the port environment, which include (1) Coral restoration ; (2) Promotion of marine education at environmental education venue. In addition, the proposed example of best practices can be incorporated into the database of the ECO Sustainable Logistic Chain as a reference for other EcoPorts.

06/
Involvement and Collaboration

Innovation

Coral Restoration Plan

Concern/Motivation

During the coral species identification and survey in 2020, a lot of small branched staghorn corals and axopore corals were found in the shallow water revetment. They were grown on small stones, which were not stable substrates, so they could be broken or dead due to the wave factors. Therefore, it is recommended to drop the ecological cubes based on the consideration of transplant of corals in this area for restoration.

Solution

The ecological cubes shall be placed at the area less affected by winds and waves, and the broken coral limbs in the port basin resulted from the weather factors shall be fixed on the stable ecological cubes to restore their growth opportunities.

For the tracking observation of transplanted corals, the restoration unit shall arrange divers to carry out underwater coral observation and recording every quarter to understand the coral growth status after restoration.

Effects/Benefits

- A total of 288 corals of 6 families and 51 species were transplanted at the initial stage
- Established an essential database of coral reefs at the Port of Hoping
- Maintain the diversity of underwater ecology in the port area

Environmental Issues

Dredging, water quality, noise and port development (water area)

Participants

Industrial Development Bureau, MOEA, Hoping Industrial Port Corporation, Hualien County Government, Taiwan Sea Angels Environmental Conservation Association

Implementation/Timeline

2020	planning phase
2021	Construction phase
2021-2022	Post restoration tracking and survey

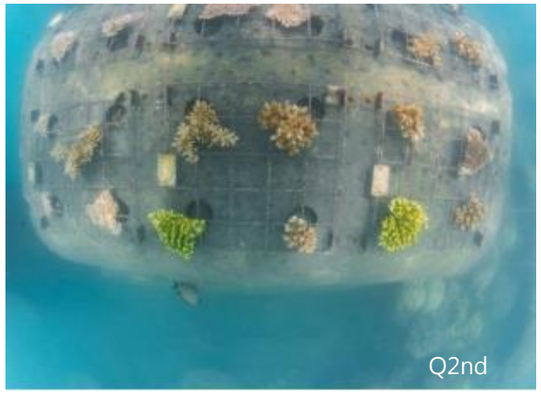
Stakeholders

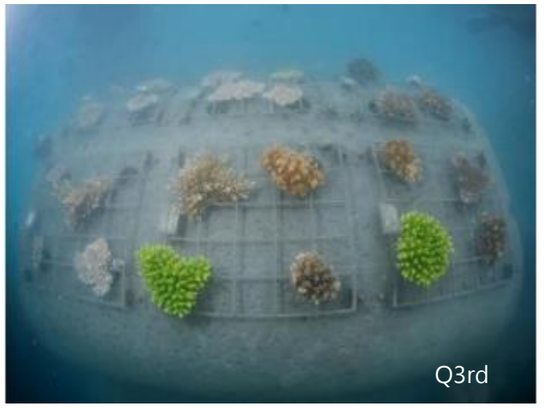
Hualien county Environmental Protection Bureau, Environmental Protection Administration, local residence.

Investment

2020-2021	€ 92167.17 (Fees of engineering)
2020-2022	€49155.82 (Fees of restoration monitoring)

Record





Port of Hoping
Contact Person : Mr. Wen-Chung Chang
Hoping Port Labor Safety and Hygiene Specialist
Phone : 03-8681477#341
E-mail : willie@hpipc.com.tw

06/
Involvement and Collaboration

Innovation

Promotion of marine education at environmental education venue

Concern/Motivation

After Hoping Port acquired the environmental education site certificate in 2021, due to its lack of industrial popularity, it has invested in the improvement of environmental education classroom to increase the public exposure and create better class space, and it has publicized the environmental education facility via the visits by public and private departments. The is a rich underwater ecology in the Hoping Port, so there are three sets of environmental education courses developed in conjunction with various environmental protection measures in the port area. In order to bring parents and children closer to the ocean, two sets of student courses and one set of adult course have been designed in combination so that visitors can better understand Hoping Port by attending the environmental education courses.

Solution

Hoping Port is a control area which can not be accessed without application. Therefore, after acquiring the environmental education venue certificate, the environmental education information has been announced on the company website, and it has been actively communicating with other environmental education venues. Via TCC's DAKA website and tour guide propaganda to enhance exposure.

Effects/Benefits

- There were more than 360 participants in the adult and student environmental education courses
- Enhancing the local residents' engagement with the port areas.

Environmental Issues

Air quality, dust and port development (water area), Relationship with Local Communities

Participants

Industrial Development Bureau, MOEA, Hoping Industrial Port Corporation, Hualien County Environmental Protection Bureau.

Implementation/Timeline

2021	Applying for the certification
2022	Renovation of environmental education classroom

Stakeholders

Hualien County Government, Environmental Protection Administration, local residence

Investment

- Environmental education classroom renovation fee: € 278,739.6

Environmental Protection Ambassador Training of Environmental Protection Bureau, Hualien County

TCC (Yunlang Cycling Media Group)

Visit from Port Keelung to the port area

Environmental education courses

Port of Hoping
Contact Person : Mr. Ming-shan Yu
Hoping Port Labor Safety and Hygiene Specialist
Phone : 03-8681477#343
E-mail : sam@hpipc.com.tw

06/ Involvement and Collaboration

Involvement and Collaboration

The Hoping Port actively collaborates with both domestic and international organizations, including governmental agencies, academics, and industries. Besides sustainable development related exchanges, there are also joint collaboration on technological research, investment, inspection, and academic seminar etc.

Participation organizations

Academic Institution

National Dong Hwa Univ.
Plan for constructing monitoring stations to integrate tide stations with continuous GPS stations.
Collaboration project between Dong Hwa Univ. and the Industrial Technology Research Institute to install a GPS system and tide correction and measurement system at tide stations of Hoping Port docks for observation of tidal variations.

National Taiwan Ocean Univ.
Investigation plan for expansion and integration of Hoping Industrial Park through integration
Taiwan Ocean Univ. was commissioned by HIPC and Hoping Power Company to conduct various assessments, including underwater photography, substrate sampling, and measurement of temperature variation of surrounding waters, of surrounding land and marine areas.
Two-year (2020-2022) survey plan on the effects of introducing ecological blocks on local water operations as compared to a control area

Taipei University of Marine Technology
Survey project to identify coral species and their distribution in port areas, pre- and post-water operations survey on the ecological block demonstration areas

National Cheng Kung Univ.
Installation of real-time oceanographic observation system and information service for Hoping Industrial Port

National Central Univ.
Examination of waterway flow fields and inspection of current meter data

Government

East Maritime Affairs Center, Maritime and Port Bureau, MOTC

Verification of the visas of ships entering/leaving the port, issuance of various certificates, and other maritime affairs

Customs Administration, Ministry of Finance Keelung Customs ,Hualien Branch

Responsible for the customs clearance of inbound/outbound ships, anti-smuggling operations, monitoring of import/export warehouses, and cargo inspections

Environmental Protection Bureau , Hualien County

Assists with issuance of certificate for gravel deposit in the port, supervises various port operations, and controls fugitive dust from vehicles.

INDUSTRIAL DEVELOPMENT BUREAU, MINISTRY OF ECONOMIC AFFAIRS

Mandates that Hoping Industrial Harbor Administration to directs port administrative affairs, issue entry/exit permits for ships, and supervise the implementation of related measures and regulations

Coast Guard Administration, OAC

Performs tasks such as inspecting cargo for illicit goods, protecting marine resources, and executing maritime emergency rescues. It is also responsible for examining cabins, personnel, and cargo of inbound/outbound ships to prevent smuggling, illegal immigration, and other illicit deeds.

Department of Health and Welfare, Department of Disease Control, Eastern Division
Responsible for inspection of inbound/outbound ships, personnel, and goods as well as quarantine affairs in the port.

06/ Involvement and Collaboration

Involvement and Collaboration

Association & Industries

Chinese Maritime Research Institute

cooperates with researchers, experts, and the industry to jointly study maritime technology and business management, thereby facilitating the development of maritime industry. In addition, the Institute has positive interactions with HIPC.

China Maritime Institute

endeavors to develop the shipping industry, research marine technology, universalize marine knowledge, and promote marine facilities. HIPC has participated in multiple unscheduled lectures held by the Institute.

TIPC Marine Corporation , Ltd.

Contracted with Hoping Port for tugboat support to benefit the port, ship operators, and cargo owners.

TAIWAN TRANSPORT & STORAGE CORP.

has long been responsible for stevedoring operations at Hoping Port as well as matters concerning import and export declarations.

Hoping Power Company

is one of the main clients of Hoping Port, with the main import cargo being coal. Closed pipeline transportation is employed for stevedoring to reduce the impact on the environment.

Ta-Ho Maritime Corporation

The marine operator that has long cooperated with Hoping Port also serves as the local shipping agency at the port.

Taiwan Cement Corp.

The main export cargos are cement and clinker, both of which are transported using a closed pipeline system to reduce the impact on the environment.

Hong Yang Maritime Engineering Co., Ltd.

The dredging operation of the main channel and turning basin at Hoping Port requires the channel to be maintained at a certain width and depth to ensure the safety of ships and the port.

Friendly Seed Corporation

Guidance and consultation for certification in the environmental education field of Hoping Industrial Port 2020-2021

Taiwan Sea Angels Environmental Conservation Association

Rendering services for the recovery of coral reefs in ecological areas of Hoping Industrial Port

Training

07/

07/ Training

Employee Education

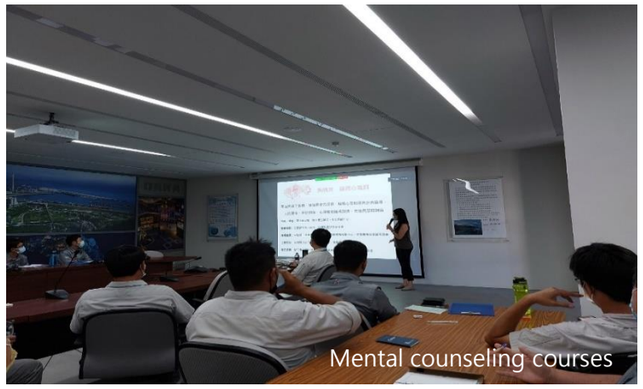
In compliance with its environmental policies, the Hoping Port provides suitable environmental education and training programs to raise environmental awareness, and improve the competitiveness of the Port of Hoping.

In 2021 and 2022, the Hoping Industrial Port held four educational courses for internal and external personnel, including fire drills and mental counseling courses

>> Port of Hoping 2021-2022 Occupational Safety and Health Training

Year	Content	Dates
2021	fire relief team training	Nov 25
2022	fire relief team training	June 24 Dec 13
	Mental counseling courses	July 22

Mental counseling courses



Mental counseling courses

>> Port of Hoping 2021-2022 Environmental Education Training

Year	Content	Dates
2021	Hualien County Seminar on Relevant Regulations Governing Stationary Pollution Source	Apr 23 Sep 17 Dec 2
	Advocacy Conference on Hualien County Construction Industry Regulations and Seminar on Promotion of Low Pollution Construction Equipment	Nov 5
2022	Hualien County Seminar on Relevant Regulations Governing Stationary Pollution Source	Mar 16
	2022 “Hualien County Seminar on Regulations and Permits of Stationary Pollution Source”	May 13
	Advocacy Conference on Hualien County Construction Industry Regulations and Seminar on Promotion of Low Pollution Construction Equipment	Oct 17

Seminar on air pollution prevention

Hualien County Seminar on Regulations and Permits of Stationary Pollution Source

Communication and Publication

08/

08/ Communication & Publication

Communication & Publication

Promotion activities, workshops and web-sites exhibitions have been organized to align Hoping Port with contractors and potential partners.

Therefore, publishing the port' s relevant information is helpful to the public, port companies, academic institutions, and subsidiary units.

Websites

To present the positive outcomes of creating green ports in Taiwan to international society , Hoping Port established a website, which features Chinese and English versions of content, to demonstrate its green policies and create an exchange and communication platform with foreign countries.

Community Services

World Earth Day Beach Cleaning Activity of Hoping Port

Port area visiting &Events

Visit by National Suao Marine & Fisheries Vocational High School

Visit of Hoping Port by National Taiwan Ocean University

Visit by CEO Class of TAITRA

Science Train

Hualien County Environment Oriented Phased Sustainable Development Achievement Presentation and Climate Change Publicity Achievement Report

Green Accounting

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Green Accounting

Environmental costs

In order to improve the environmental awareness among staff, environmental maintenance, environmental quality, emergency response abilities, and public under-standing of the port, Hoping Port invested in the following categories.

The Summation of Costs invested by the Investments of the Hoping Port in the Environmental Aspects is about € 5,261.76 thousand in 2021 and €5,485.63 thousand in 2022.

Environmental investments at the Hoping Port

- Employees: Personnel costs of environmental control, and environmental educationand training
- Environmental maintenance and management: Port green landscaping, waste disposal and dredging
- Environmental Monitoring: Monitoring the air, noise, water, sediment, dredging as well as environmental patrol
- Emergency Response: The costs of accident management, laboratory test fees for materials and dangerous goods that pollute the Port, and so on
- Communication and Publications: Website maintenance, promotional activities and environmental publications

>>Costs related to Environmental Issues at Hoping Port (Unit: Thousand in EUR)

Items of Expenses\Year	2021	2022
Staff	83.92	95.23
Environmental Maintenance & Management	4,690.15	4,916.83
Environmental Monitoring	300.19	293.15
Emergency Response	0.18	0.42
Communication & Publication	184.32	180.00
Total	5,261.76	5,485.63

Environmental Assets

To enhance the asset utilization efficiency and promote local economic prosperity and develop into an environmentally friendly green port, Hoping Port advanced a series of port development plans, some of which focused on environmental protection, such as updating dust collector on the south side of the port area, purchasing street sweeper and sprinkler to reduce dust „ and setting up a real-time meteorological observation system to improve navigation safety of the port area. The Hoping Port invested in fixed assets for approximately € 865,369.69 and approximately €849,876.03 in 2021 and 2022, respectively.

>>Assets invested in Environmental Issues in 2021-2022 (Unit: Thousand in EUR)

Items of Expenses\Year	2021	2022
Land improvement	-	95.11
Machinery and Equipment	374.30	144.50
Transportation Equipment	489.35	607.46
other equipment	-	1.10
Total	863.65	848.17